

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of
International Transmission Company d/b/a
ITC Transmission, for an expedited Case No. U-16200
siting certificate for a transmission
line, pursuant to 2008 PA 295, Part 4, Volume 3
for Region No. 4 (Thumb Region) as
designated by the Michigan Wind Energy
Resource Board and the Commission's
Order in Case No. U-15899.

CROSS-EXAMINATION

Proceedings held in the above-entitled matter
before Daniel E. Nickerson, Jr., J.D., Administrative
Law Judge with SOAHR, at the Michigan Public Service
Commission, 6545 Mercantile Way, Room D, Lansing,
Michigan, on Wednesday, December 1, 2010, at 9:00 a.m.

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(Continued)

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22 Lori Anne Penn, CSR-1315
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24
25

I N D E X

	<u>WITNESS:</u>	<u>PAGE</u>
1		
2		
3	Gary R. Kirsh	
4	Testimony Bound In	178
5	Steven J. Koster, P. E.	
6	Testimony Bound In	185
7	Stephen G. Thornhill	
8	Testimony Bound In	203
9	Douglas K. Hodge	
10	Testimony Bound In	264
11	James W. Smith	
12	Testimony Bound In	276
13	J. Michael Silva, P.E.	
14	Testimony Bound In	285
15	Mark A. Israel, M.D.	
16	Testimony Bound In	302
17	Nancy C. Lee, M.D.	
18	Testimony Bound In	315
19	James Sutton	
20	Testimony Bound In	333
21	James R. Dauphinais	
22	Testimony Bound In	351
23	Mark Zimmer	
24	Testimony Bound In	381
25		

I N D E XWITNESS:PAGE

Andrew Oliver, Ph.D.

Testimony Bound In

407

Catherine Cole

Testimony Bound In

419

Paul Proudfoot

Testimony Bound In

458

David Walters

Testimony Bound In

480

Thomas W. Vitez

Direct Examination by Mr. Gordon

489

Cross-Examination by Mr. Strong

538

Cross-Examination by Mr. Kershner

573

Cross-Examination by Mr. Christinidis

593

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
A-1	Final Report of the Michigan Wind Energy Resource Zone Board, October 15, 2009	152	497	538
A-2	Order in Case No. U-15899	152	497	538
A-3	ITCTransmission/METC and Wolverine Power Supply Cooperative, Inc., Michigan Wind Zones Transmission Analysis	152	497	538
A-4	February 3, 2010, letter RE: 2008 PA 295; Section 149(4) Notice	152	497	538
A-5	Michigan Wind Energy Zone Transmission Projects	152	497	538
A-6	July 28, 2010, Memo RE: Briefing on Michigan Thumb Project Out of Cycle Review Request	152	497	538
A-7	ITC Michigan Thumb Loop Project Out of Cycle Approval Recommendation August 2010	152	497	538
A-8	August 23, 2010, Letter RE: Midwest Independent Transmission System Operator, Inc., ("Midwest ISO") Board of Director Approval of the Michigan Thumb Multi-Value Project	152	497	538
A-9	ITC Michigan Region 4 Thumb Loop Project Development 4-30-10	152	497	538
A-10	Standard TPL-002-0b - System Performance Following Loss of a Single BES Element	152	497	538
A-11	Standard TLP-002-0b - System Performance Following Loss of a Single BES Element - Table I. Transmission System Standards - Normal and Emergency Conditions	152	497	538

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E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
A-12	Illustrative Example of Shutdown plus Contingency for Single Circuit 345 kV	152	497	538
A-13	ITC Cordially Invites Local Elected Officials and Community Agency Leaders to attend a Leadership Summit on: July 12, 2010, Bad Axe, MI; July 7, 2010, Sandusky, MI; July 14, 2010, Emmett, MI; July 8, 2010, Caro, MI	152	177	177
A-14	Tuscola County, Huron County, Sanilac County, St. Clair County, ITC Transmission Open House Invitation re. Thumb Loop Transmission Line Project	152	177	177
A-15	Capital Project Profile Thumb Loop	152	177	177
A-16	Summary of the More Significant Transmission Line Routing Studies	152	202	263
A-17	MI Thumb Loop Project 345-kV Transmission Line Potential Routes	152	202	263
A-18	MI Thumb Loop Project 345-kV Transmission Line Proposed and Alternate Routes	152	202	263
A-19	MI Thumb Loop Project 345-kV Transmission Line Proposed Route	152	202	263
A-20	MI Thumb Loop Project 345-kV Transmission Line Alternate Route	152	202	263
A-21	Selection of Regions	152	202	263
A-22	Michigan - 50 m Wind Power Map; Maps of Wind Speed of Michigan at 30 Meters, 50 Meters, 70 Meters; Michigan - Annual Average Wind Speed at 80 m; Map of Wind Speed of Michigan at 100 Meters	152	202	263

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
A-23	Photos: Lattice Towers in Cropfields; H-Frame Structures Diagonally across Cropfields; H-Frame Structures and Tree in Cropfields; Monopole Structures in Cropfield; Monopole Structures in Cropfields	152	202	263
A-24	Photos: Wind Turbines in Cropfields; Wind Turbines in Cropfields; Building and Woodlots in Cropfields; Individual Scattered Trees in Cropfields; Drainage Ditches, Wetlands, and Woodlots in Cropfields	152	202	263
A-25	Soil Compaction: Causes, Effects, and Control - University of Minnesota Extension	152	263	275
A-26	Soil Compaction/Kansas Natural Resources Conservation Service	152	263	275
A-27	Agronomy Guide 2009-2010, Part 1, Section 1: Soil Management	152	263	275
A-28	Extension Responds: flood-august 2007 Managing Soil Compaction Following the Heavy Rains of 2007	152	263	275
A-29	Voltage/Clearance Type	152	275	284
A-30	Standard FAC-003-1 - Transmission Vegetation Management Program	152	275	284
A-31	Diagram, Electric Field and Magnetic Field Information	152	284	301

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
A-32	Discovery Responses: ITC-AL1-7; ITC-AL1-11; ITC-AL1-12; ITC-AL2-2; ITC-AL2-3; ITC-AL2-4; ITC-AL2-5; ITC-AL2-6; ITC-AL2-7; ITC-RES1-6; ITC-RES2-1; ITC-RES2-8; ITC-RES2-11; ITC-RES2-13; ITC-RES2-14; ITC-RES2-15; ITC-ABATE-2-2; ITC-ABATE-2-4; ITC-ABATE-2-5; ITC-ABATE-2-8; ITC-ABATE-2-13; ITC-ABATE-2-17; ITC-ABATE-2-18; ITC-ABATE-2-19; ITC-ABATE-2-20; ITC-ABATE-2-21; ITC-ABATE-2-22; ITC-ABATE-2-23; ITC-ABATE-2-24; ITC-ABATE-2-25; ITC-ABATE-2-27; ITC-ABATE-2-28; ITC-ABATE-2-29; ITC-ABATE-2-33; ITC-ABATE-2-34; ITC-ABATE-2-36; Unnamed Question Nos. 1, 2, 3, 4, 5, 13, 14, 15, 16, 17; ST-ITC-10; ST-ITC-32; ST-ITC-36; ST-ITC-64; Unnamed Question No. 8, Response by Jason Sutton; Unnamed Question No. 1, Response by Tom Vitez; Unnamed Question No. 2, Response by Tom Vitez; Unnamed Question No. 3, Response by Tom Vitez; RES-ITC-5; AL-ITC-19	152	314	314
AB-1	Transmission Expansion Plan 2010 Out of Cycle Project 3168 Project Justification: Michigan Region 4 Thumb Loop Transmission Owners: ITCTransmission Company	152	350	350
AB-2	ERCOT Competitive Renewable Energy Zones (CREZ) Transmission Optimization Study, April 2, 2008	152	350	350
AB-3	September 2, 2010, Letter to Oncor Electric Delivery from Warren Lasher, with Attachments	152	350	350

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
AB-4	Discovery Responses: 16200-AB-CE-3; 16200-AB-CE-4; 16200-AB-CE-5; 16200-AB-CE-6; 16200-AB-CE-7; ABDE-1.2/2; ABDE-1.3/3; ABDE-1/4/4; ABDE-1/5/5; ABDE-1.5/5; ABDE-1.6/6; ABATE-ITC-3; ABATE-ITC-4; ABATE-ITC-8; ST-ITC-42;	152	350	350
AB-5	Discovery Response: Question 4	152	350	350
AB-6	Discovery Response: 16200-AB-CE-3	152	350	350
AB-7	Discovery Response: 16200-AB-C3-4	152	350	350
AB-8	Discovery Response: 16200-AB-CE-5	152	350	350
AB-9	Discovery Response: 16200-AB-CE-7	152	350	350
AB-10	Discovery Response: 16200-AB-CE-9	152	350	350
AB-11	Discovery Response: ABDE-1.2/2	152	350	350
AB-12	Discovery Response: ABDE-1.3/3	152	350	350
AB-13	Discovery Response: ABDE-1.4/4	152	350	350
AB-14	Discovery Response: ABDE-1.6/6	152	350	350
AB-15	Discovery Response: ABDE-1.8/8	152	350	350
AB-16	Discovery Response: ABDE-1.9/9	152	350	350
AB-17	Discovery Response: ABATE-ITC-22	152	350	350
AB-18	Discovery Response: ABATE-ITC-23	152	350	350
AB-19	Discovery Response: Question d, Response by Thomas Vitez	152	350	350
AB-20	Discovery Response: ABATE-ITC-29	152	350	350
AB-21	Discovery Response: ABATE-ITC-30	152	350	350
AB-22	Discovery Response: ABATE-ITC-31	152	350	350

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
AL-1	Discovery Responses: ST-ITC-12; ST-ITC-23; ST-ITC-24; ST-ITC-25; ST-ITC-26; ST-ITC-30; ST-ITC-31; ST-ITC-32; ST-ITC-35; ST-ITC-59; ST-ITC-64; ST-ITC-73; Unnamed Question 4, Response by Thornhill, Sutton and Legal Counsel; Unnamed Question 5, Response by Thornhill, Unnamed Question 6, Response by Thornhill and Sutton; Unnamed Question 7, Response by Sutton and Silva; 16200-ST-CE-1; STDE-1.1/10; Interrogatory No. 1; AL-ITC-4; AL-ITC-7; AL-ITC-8; AL-ITC-9; AL-ITC-16; AL-ITC-17; AL-ITC-22; AL-ITC-23; AL-ITC-30; AL-ITC-33; AL-ITC-34; AL-ITC-35; AL-ITC-37; AL-ITC-38; AL-ITC-39; AL-ITC-40; AL-ITC-41; AL-ITC-42; AL-ITC-44; AL-ITC-45; AL-ITC-46; AL-ITC-47; AL-ITC-49; AL-ITC-50; AL-ITC-52; AL-ITC-53; ALDE-1.1a/11; ALDE-1.1b/12; ALDE-1.2a/13; ALDE-1.2b/14; Reserve Rights- Consumers Responses to 1st AL Discovery	152	404	405
AL-2	Michigan State University, a Survey of Michigan Residents, August 13, 2010, How Important are the Agricultural Industry and Farmland to Michigan's Economic Recovery?	152	404	405
RES-1	Discovery Responses: RES-ITC-4; RES-ITC-5; RES-ITC-6; RES-ITC-7; AL-ITC-2; AL-ITC-3; AL-ITC-10; AL-ITC-11; AL-ITC-12; AL-ITC-13; ST-ITC-11; ST-ITC-29; ST-ITC-46; ST-ITC-47; ST-ITC-49; ST-ITC-63;	152	405	418
MPP-1	State Historical Tables for 2008, Retail Sales of Electricity by State by Sector by Provider, 1990-2008, with attachments	152	479	489

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E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
MPP-2	Cost of Transmission Project/ Annual Fixed Charge Rate/Annual Asset Recovery Charge	152	479	489
S-1	Photograph	152	418	457
S-2	Photograph	152	418	457
S-3	Photograph	152	418	457
S-4	Photograph	152	418	457
S-5	Photograph	152	418	457
S-6	Photograph	152	418	457
S-7	Photograph	152	418	457
S-8	Photograph	152	418	457
S-9	Photograph	152	418	457
S-10	Photograph	152	418	457
S-11	Photograph	152	418	457
S-12	Photograph	152	418	457
S-13	Photograph	152	418	457
S-14	Photograph	152	418	457
S-15	Photograph	152	418	457
S-16	Photograph	152	418	457
S-17	Photograph	152	418	457
S-18	Photograph	152	418	457
S-19	Photograph	152	418	457
S-20	Photograph	152	418	457
S-21	Photograph	152	418	457

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E X H I B I T S

	<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
1					
2					
3	S-22	Photograph	152	418	457
4	S-23	Photograph	152	418	457
5	S-24	Photograph	152	418	457
6	S-25	Photograph	152	418	457
7	S-26	Photograph	152	418	457
8	S-27	Photograph	152	418	457
9	S-28	Photograph	152	418	457
10	S-29	Photograph	152	418	457
11	S-30	Photograph	152	418	457
12	S-31	Photograph	152	418	457
13	S-32	Wind Power Count: Ratio of MWh to # of Turbines; 150 m Setback, All Land 100 m Wind Speed in 50 WPC Class 3 or Better	152	418	457
14					
15	S-33	Discovery Response: ST-ITC-73	152	418	457
16	S-34	Discovery Response: ST-ITC-25	152	418	457
17	S-35	Discovery Response: ST-ITC-26	152	418	457
18	S-36	Discovery Response: ST-ITC-44	152	418	457
19	S-37	Discovery Response: ST-ITC-53	152	418	457
20	S-38	Discovery Response: ST-ITC-12	152	418	457
21	S-39	Discovery Response: ST-ITC-43	152	418	457
22	S-40	Discovery Response: ST-ITC-59	152	418	457
23	S-41	Discovery Response: Unnamed	152	418	457
24		Question 1			
25					

E X H I B I T S

<u>NUMBER</u>	<u>DESCRIPTION</u>	<u>MRKD</u>	<u>OFRD</u>	<u>RECD</u>
S-42	Discovery Response: Unnamed Question 4	152	418	457
S-43	Discovery Response: Unnamed Question 6	152	418	457
S-44	Discovery Response: Unnamed Question 7	152	418	457
S-45	Discovery Response: Unnamed Question 9	152	418	457
S-46	Discovery Response: Unnamed Question 15	152	418	457
S-47	Discovery Response: Unnamed Question 1	152	418	457
S-48	Discovery Response: Unnamed Question 2	152	418	457

At 9:18 A.M.

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(Documents marked for identification by the Court Reporter as Exhibits Nos. A-1 through A-32; AB-1 through AB-22; MPP-1 and MPP-2; AL-1 and AL-2; RES-1; and S-1 through S-48.)

— — —

JUDGE NICKERSON: All right. On the record. Good morning, everyone. Continuing in Docket No. U-16200. My name is Daniel Nickerson, I'm an administrative law judge with SOAHR assigned on this case.

Let's take appearances of counsel for the record, please, beginning with the applicant.

MR. GORDON: Gary Gordon, Shaun Johnson
and Albert Ernst appearing on behalf of applicant,
International Transmission Company.

MR. STRONG: Good morning, your Honor,
Robert A. W. Strong appearing on behalf of the
Association of Businesses Advocating Tariff Equity.

MR. KERSHNER: Rodger Kershner from
Howard and Howard Attorneys, your Honor, representing RES
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1 Americas Leasing, and various individual intervenors
2 known as the Affected Landowners.

3 MR. BEACH: Good morning, your Honor.
4 Robert Beach, assistant attorney general, counsel to
5 Staff; also appearing with me, assistant attorney general
6 Kristin Smith, assistant attorney general Brian Farkas.

7 MR. CHRISTINIDIS: Jon Christinidis on
8 behalf of Detroit Edison Company.

9 MR. PATTWELL: Michael Pattwell and Peter
10 Ellsworth from Dickinson Wright appearing on behalf of
11 the Michigan Public Power Agency and Michigan Municipal
12 Electric Association.

13 JUDGE NICKERSON: All right. Thank you,
14 all, for your appearances this morning. I am aware that
15 there have been several stipulations entered into by the
16 parties.

17 Before we get to those stipulations,
18 there's been motions to strike that have been filed by
19 ITC, there's also been responses that have been filed. I
20 did have an opportunity to review all the documents that
21 were filed, so at this time, why don't we take up the
22 motions to strike and the argument on that matter.

23 MR. GORDON: Thank you, your Honor. We
24 are going to limit our argument to our motion to strike
25 the testimony, certain testimony of Mr. Dauphinais.

1 MR. STRONG: Dauphinais.

2 MR. GORDON: Dauphinais. And we are
3 going to waive our other motion to strike testimony of
4 Mr. Walters. Withdraw it. I'm sorry, your Honor, I
5 should have said withdraw that motion.

6 To start out, we have kind of a generic
7 argument with regard to the argument to strike, much of
8 the argument will be applicable to the various sections
9 we're moving against.

10 First of all, your Honor, some
11 tautologies. The Commission is a creation of statute.
12 The Commission has no inherent authority. The Commission
13 is bound by the statutory authority granted to it by the
14 legislature; the Commission is bound in this proceeding
15 by the statute under which the filing was made, which has
16 been referred to throughout the proceeding as Act 295.

17 The legislature, the legislative history
18 is appropriate, your Honor. The legislature's deemed to
19 know rules of statutory construction when it adopts a
20 law. The legislature is deemed to know the impact of
21 including or omitting legislation. When you have two
22 statutes that are similar and one has omitted language
23 that is not included in the other, the legislature's
24 deemed to know what it is doing and intentionally
25 precluded that language from the other.

1 Of course, I'm speaking primarily to
2 issues of cost, and issues of cost are included in what
3 we come to refer to it as Act 30. This is not an Act 30
4 proceeding, this is a proceeding brought under Act 295.
5 Act 295 is very specific and limited in the requirements
6 that have to be met for an expedited siting certificate,
7 which is what we're applying for. The contents of the
8 application are set in 151 of the statute, it makes no
9 reference to cost. Act 30, however, does make reference
10 to cost.

11 The requirements for the issuance of a
12 certificate are set forth in Section 153(3), and if your
13 Honor will indulge me, I'll read those briefly. If
14 there's a finding that the line will facilitate
15 transmission, that the line has received federal
16 approval, that the line is of appropriate capability, and
17 if the siting -- if the proposed or alternate routes are
18 feasible or reasonable, the Commission must issue a
19 siting certificate.

20 At no point in this statute does the
21 issue of cost arise. This was recognized by your Honor
22 in your initial ruling on the motion to intervene of
23 ABATE, which was subsequently reversed, but there was no
24 reference in the reversal of the issuance of cost. So we
25 believe that your ruling with regard to cost is still

1 applicable in this proceeding.

2 When the legislature deletes language,
3 they know what they're doing. They deleted issues of
4 cost in this matter. So we will argue various provisions
5 of the language of Mr. Dauphinais should be -- and pardon
6 me if I butchered that name -- should be deleted because
7 it addresses issues of cost. Issues of cost are
8 specifically excluded from the statute.

9 The second primary issue deals with
10 arguments relating to capacity. In response to our
11 motion to strike, the argument was raised that there may
12 be questions as to the appropriate capacity of the
13 transmission line. But, your Honor, that has been
14 specifically addressed by this Commission in its order
15 adopting the Wind Zone Report in Case No. 15899. At page
16 11 of that order, the Commission cites to the WERZ Report
17 and indicates that the Commission set, consider all of
18 the factors in MCL 460.1147(3), the Commission will
19 emphasize the underlying rationale for the WERZ Board
20 conclusions as it considers each of the statutory
21 criteria seriatim. The Commission went on to find or
22 cite specifically the WERZ Board's findings on page 11
23 that the board found minimum capacity for Region 4, which
24 is what we're here about, of 2,367 megawatts, and a
25 maximum capacity of 4,236 megawatts. The most important

1 part, however, is what the board -- the Commission
2 ordered. And if I may, I will quote the conclusion,
3 which is found on pages 21 and 22 of the order. Quoting:
4 Therefore, it is ordered that:

5 A. The Wind Energy Resource Zone Report is formally
6 accepted; and.

7 B. The area of this state most likely to be
8 productive for wind energy as a primary wind energy
9 resource zone is Region 4 as specified by the Wind
10 Energy Resource Zone Report.

11 Now, we have argued before with regard to
12 what we view as a collateral attack on the Wind Zone
13 Report and this Commission's order that the appropriate
14 attack on that should have been an appeal. The response
15 was, from some of the intervenors, that this matter can't
16 be appealed. It's not an order that's appealable for
17 various reasons. But if you continue reading the order
18 of the Public Service Commission, they note, and I quote:
19 Any party desiring to appeal this order must do so in the
20 appropriate court within 30 days after issuance and
21 notice of this order under MCL 462.26. That's found on
22 page 22 of the Commission's order.

23 The conclusion, which is inevitable, is
24 that the capacity for this wind zone was recommended by
25 the Wind Zone Board, was accepted by the Commission in a

1 final order, and not a single party to this proceeding or
2 any other proceeding appealed that order. Now, many of
3 the intervenors were part of those proceedings, ABATE
4 participated in those proceedings, RES participated in
5 those proceedings; they didn't appeal. The Commission
6 itself recognized that if you want to challenge this
7 order, you've got to appeal it to the court, and the
8 appeal has to be within 30 days. Of course, we're long,
9 long, long past the 30-day period, no appeal was ever
10 filed. That's a final order of the Commission, that's
11 binding on the administrative law judge, and it's binding
12 on all the parties. It establishes the capacity for
13 Region 4 of the wind zone. So any evidence submitted
14 challenging that authority is inappropriate and
15 irrelevant and should be excluded on the same basis as
16 the cost evidence.

17 Now, if I can turn to the intervenor's
18 response, which was received yesterday. And I know your
19 Honor's reputation for preparation, I'm sure you've
20 reviewed that, but I'd like to make a couple of minor
21 points.

22 Let's look at their argument. Argument
23 A, and I'm quoting: The evidence is not voluminous, and
24 therefore should not be stricken. Well, I looked in the
25 Court Rules, your Honor, and I looked in the rules of the
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1 Commission, I even asked Mr. Johnson to think about
2 whether there's any cause law. We can't find anything
3 that says a basis for defense against a motion to strike
4 is that you're not asking to strike a lot of material.
5 So that's not a basis for rejecting our motion.

6 Argument B is this is a case of first
7 impression. Well, you look at the Court Rules again, the
8 Rules of Evidence, look at the Commission's rules, look
9 at the case law, there's nothing in there that says that
10 a defense against a motion to strike information that
11 should be excluded from a hearing should be denied on the
12 basis that it's a case of first impression. It's just
13 not there. That's not a valid basis for challenging our
14 motion.

15 The third and final argument is that when
16 opposed by intervenor, is that there is a fundamental
17 disagreement over what is the appropriate capacity of the
18 new transmission line. Well, first of all, that doesn't
19 address cost. Those arguments are unchallenged that
20 we've made. And secondly, the Commission has established
21 the capacity. The Commission has adopted the WERZ Board
22 numbers, which have established the minimum and maximum
23 capacity for Region 4, and that's what we're proposing
24 this transmission line be built to. That order was not
25 appealed. I know I'm beating that horse to death, but

1 that's key to this argument. The parties had an
2 opportunity, as specifically recognized by the Commission
3 in its order, to appeal it. If they disagreed with the
4 capacity findings by the WERZ Board and by the
5 Commission, according to the Commission's own order,
6 there was an opportunity to appeal it. They didn't do
7 that. They have to live with the order of the
8 Commission, and that establishes a capacity, and that
9 issue is now off the table.

10 Now, your Honor, those are the general
11 arguments. If I may now turn to the specific sections of
12 the motion to strike, which are supported by reference to
13 the actual testimony of Mr. Dauphinais.

14 Turning to what is listed as Exhibit A to
15 our motion -- and I'll do this very briefly, your Honor,
16 because we did provide written argument -- the witness
17 makes a statement -- I'm sorry, I've got the wrong page.
18 And our argument is found on page 3 of our motion, your
19 Honor. We're asking that page 4, lines 1 through 8 of
20 the witness's testimony, because it's completely
21 unresponsive to the question. The statements are
22 directly in reference to Act 30, as we've noted; and as
23 the Commission has recognized in its order granting ABATE
24 intervention, Act 30 is not an issue in this case. This
25 case is an Act 295 case, therefore, those sections of his

1 testimony found on page 4 should be stricken as
2 unresponsive to the question, irrelevant and immaterial
3 to the proceedings of this forum.

4 On Exhibit B, your Honor, page 5 of the
5 testimony, the sentence beginning on line 18, that
6 states, "Finally, I estimate it would reduce the cost of
7 the Proposed Project by at least \$45 million" should be
8 stricken based upon its reference to cost and the
9 arguments we've already presented. Our argument with
10 regard to that, your Honor, is found on pages 4 and 5.
11 We do highlight your statement that because cost really,
12 and I quote you to yourself --

13 JUDGE NICKERSON: That's always scary.

14 MR. GORDON: Well, this, I fully agree
15 with your Honor. You stated in this particular case:
16 Because the cost really is not a factor in the
17 legislation, because cost is actually going to be taken
18 up by FERC, I don't see where ABATE, and then you go on
19 to note that there's no injury.

20 The granting of the motion to intervene
21 did not disturb that finding and observation by the
22 administrative law judge. I think it's still binding and
23 is a basis for striking that testimony.

24 On Exhibit C, which is we request that
25 testimony on page 5 of the witness's testimony should be

1 stricken beginning with line 24 -- I'm sorry -- 23, which
2 deals with cost matters, estimate of cost and so on, and
3 continuing through the end of line 33.

4 Exhibit D is a different argument, your
5 Honor. Exhibit D, this witness offers his legal opinion.
6 The question relates to, and this is a beginning on line
7 8 and continuing through line 12, he's asked whether the
8 term appropriate capability is defined in the Act, and
9 then he goes on to offer his legal opinion as to what is
10 and is not defined in the Act. That's inappropriate
11 testimony under any circumstance by any witness, but it's
12 certainly inappropriate testimony coming from one who has
13 no -- who is not an attorney, but is an engineer. And
14 don't get me wrong, your Honor, I love our engineers.

15 And the next section is E, Exhibit E,
16 your Honor. Our argument is found on page 8 of our
17 motion. Again, on lines, beginning with line 21 of page
18 6, running through line 23, the witness again offers a
19 legal opinion with regard to the appropriate capability
20 of a transmission line. So on two bases that statement
21 should be stricken.

22 Exhibit F, your Honor, deals with
23 testimony on page 7, lines 1 through 10. We're also
24 asking that that legal opinion of the witness be
25 stricken. The question is, has -- and let me read this,

1 because it is compelling. "Has the Commission in any
2 order in any proceeding to date determined the
3 appropriate capability for transmission line to enable
4 the wind potential of the Thumb Region to be realized?"
5 And then the witness goes on to offer his legal opinion
6 with regard to the applicability of the order in Case
7 U-15899, which we've discussed. Clearly inappropriate
8 testimony coming from an engineering witness.

9 Exhibit G, your Honor, again, beginning
10 with line 18 and going of page 8, and going through line
11 3 of page 9, the witness again offers his opinion on the
12 legal requirements of Act 295. I won't repeat my
13 arguments with regard to his inability to render a legal
14 opinion.

15 Exhibit H, your Honor, is, and beginning
16 on page 17, line 11, going through line 14, which is on
17 page 17, is testimony arguing what weight should be given
18 to evidence. That's clearly a decision for the ultimate
19 finder of fact and is not appropriate for an expert
20 witness.

21 Exhibit I references page 17, lines 15
22 through page 18, line 16. All of that information
23 addresses the issues of cost. Cost is not part of this
24 proceeding. Cost was specifically excluded from this
25 proceeding by the legislature.

1 I think Exhibit J, which is found on page
2 20 of the witness's testimony, we're asking that lines
3 beginning on line 11 of page 20 through line 2 of page 21
4 be stricken for the same reason. All of that testimony
5 is limited to addressing the questions of cost which are
6 not appropriate in this proceeding.

7 Exhibit K, page 23 of the testimony,
8 beginning with line 8 and ending with line 9, again
9 addresses the issue of cost and should be stricken.

10 And finally, your Honor, Exhibit L, which
11 is page 23 of the witness's testimony, beginning with
12 line 11 and going through line 23, also addresses cost.
13 It's irrelevant and inappropriate in this proceeding.

14 So for those reasons, your Honor, I ask
15 that the designated testimony be stricken from the
16 record. I note that no viable argument to the contrary
17 has been presented. The Commission has acted regarding
18 capacity, the Commission's decision is clear. The
19 legislature has acted with regard to the issue of cost.
20 The rules of statutory construction are clear as applied
21 here, and those cited testimony provisions should be
22 stricken. Thank you, your Honor.

23 JUDGE NICKERSON: Thank you very much.
24 Any of the parties join in the motion to strike?

25 All right. Mr. Strong.

1 MR. STRONG: Thank you, your Honor. If
2 ITC thought that cost was not an issue in this case, it
3 should not have presented that issue in its testimony.
4 And I direct your attention to the testimony of
5 Mr. Vitez. This is in answer to question 23, and I
6 quote, he states in part: "In this proceeding,
7 ITCTransmission has proposed the four new 345 kV circuits
8 option because it was found to be the least expensive
9 option --" I underline that "-- that would support both
10 minimum and maximum wind generation capabilities as
11 defined by the Board."

12 In addition, on page 20 of his direct
13 testimony, in response to question 30, the question was:
14 "What is the current projected cost for the proposed
15 line?" Answer: "\$510,000,000."

16 So it is clear that ITC took a look at
17 the various different options and determined that the
18 option that they had proposed of the options that they
19 considered was the least expensive, so that brought the
20 cost issue into this case. In addition, they stated that
21 the projected cost was \$510 million. Due process gives
22 us the right to meet the evidence with our countervailing
23 evidence in this proceeding, which is what we have done
24 through the testimony of Mr. Dauphinais.

25 We would suggest that you have the
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1 maximum and the minimum, and we agree that the Wind Board
2 identified those two potentials, and in connection with
3 that potential, what type of line do you build. Do you
4 build to meet the minimum, do you build to meet the
5 minimum and the maximum? I believe that that is a
6 generic issue, a fundamental issue in this case, and that
7 is something that we have raised in our testimony here as
8 to what would be a less costly option than what is being
9 proposed by ITC. So we contest the testimony that this
10 is the least cost or least expensive option. We believe
11 that there is a better option, a less costly option, and
12 we are just meeting the testimony of Mr. Vitez.

13 Now, there's an issue that's been raised
14 regarding the import or finality of the Wind Board's
15 report in terms of whether it identified the minimum and
16 maximum. We agree that it identified the minimum and
17 maximum. We don't agree with the interpretation of the
18 Commission's order in 15899 that they adopted or the
19 Commission adopted a particular size. They just said,
20 yes, the board did its job, it identified the maximum
21 potential and the minimum potential, and therefore,
22 anything in between is something that is ripe for
23 decision as a result of this particular filing.

24 The argument regarding whether or not
25 ABATE should have appealed the order in 15899, I don't

1 believe we actually participated in that case, I don't
2 think there was anything to participate in; there was
3 just a filing of a report and a Commission order. So I
4 mean there wasn't any testimony, evidence, or anything
5 else in that proceeding. The other thing is, that order
6 did not fix any fair rate tariff or any utility
7 practices; so consequently, it couldn't be appealed under
8 Section 26 of the Railroad Act, so there was nothing to
9 waive in terms of the appellate rights of any of the
10 parties, including ABATE.

11 Now, they also argue that there is a
12 problem with the testimony because it provides legal
13 opinions. I don't believe that that is the case. This
14 whole proceeding is governed by Sections 145 through 153
15 of Act 295. Any expert witness testifying in this
16 proceeding has to consult that Act, has to be aware of
17 the provisions in that Act in order to make sure that the
18 experts' opinions are germane and are sufficient under
19 the provisions of the Act. And so consequently, any
20 expert -- and there is no question that Mr. Dauphinais is
21 an expert and is qualified as such for the purposes of
22 this case -- has to set forth a bases for his ultimate
23 opinion, and his ultimate opinion is that the proposal of
24 ITC should not be approved because it is too expensive
25 and there is a less expensive alternative that makes more

1 sense for the State of Michigan and for the ratepayers
2 that are ultimately going to be charged with having to
3 pay for this particular line. So consequently, he is not
4 rendering a legal opinion in connection with references
5 to Act 295, he's basically saying these are his
6 understandings related to the Act, and therefore, that is
7 the basis for his ultimate opinion regarding the
8 application and whether or not it should be approved. So
9 consequently, you know, I don't believe that there's
10 anything that is out of the ordinary in the context of
11 Mr. Dauphinais's testimony as an expert witness.

12 Now, Mr. Gordon stated that, you know,
13 there's no legal ramifications regarding whether or not
14 this is a case of first impression. I beg to differ. I
15 believe that the Commission is going to be asked in the
16 context of this case to interpret Sections 145 to 153 of
17 Act 295, and that ultimately is something that they are
18 going to have to opine as to. And consequently, this is
19 a case of first impression, and therefore, in terms of
20 the testimony and the positions of the party, it should
21 be brought, it shouldn't be narrowly defined at the
22 beginning of the proceeding, particularly because the
23 Commission is going to read the record in this particular
24 instance. So consequently, this case argues for more,
25 not less, in terms of testimony.

1 And as I noted in my answer, you know,
2 the testimony that is sought to be stricken in this case
3 is not voluminous. The Commission can make a
4 determination as to what is relevant, what isn't
5 relevant, and I don't believe that, you know, a
6 gatekeeper should at this point in time limit the amount
7 of information that is provided to the Commission in the
8 context of this novel and new interpretive case.

9 So, your Honor, I would ask that ITC's
10 motion be denied. I believe it is without merit, and I
11 believe that the testimony as submitted by Mr. Dauphinais
12 should be bound into the record and be provided to the
13 Commission for an ultimate decision in this case. Thank
14 you.

15 JUDGE NICKERSON: Thank you. Mr. Strong.
16 Any comments in support of the position?
17 In opposition?

18 MR. CHRISTINIDIS: Your Honor, for the
19 record, the Detroit Edison Company would agree that cost
20 is a relevant consideration in this proceeding. And I
21 would point out to your Honor that I have not seen any
22 citation to anything in Act 295 or in a Commission order
23 that specifically says the consideration of costs are
24 excluded from this proceeding. There have been some
25 inferences made from different things the Commission has

1 said, but nothing that's that explicit.

2 And finally, I concur with Mr. Strong to
3 the extent that there are a number of witnesses in this
4 proceeding whose testimony purports to address the
5 various meanings, the various provisions of Act 295, and
6 so with that, it would seem equitable not to pick and
7 choose amongst the various witnesses and their various
8 opinions and exclude one versus the other. Thank you,
9 your Honor.

10 JUDGE NICKERSON: Thank you,
11 Mr. Christinidis.

12 Mr. Gordon.

13 MR. GORDON: Thank you, your Honor. The
14 citation to Mr. Vitez's testimony indicating how much the
15 line would cost doesn't create an issue for this
16 Commission to consider. Act 30 is specific. Now, while
17 the two counsel have argued that there's nothing specific
18 that excludes cost from Act 295, that ignores absolutely
19 basic fundamental black-letter law with regard to
20 statutory construction. I used this Latin phrase before,
21 expressio unius est exclusio alterius, that's applicable
22 here. That's case law your Honor. When the legislature
23 excludes an issue, they know what they're doing, they
24 mean to do it. When you compare the two Acts, cost
25 appears in Act 30, it addresses transmission line; cost

1 doesn't appear in Act 295, it addresses transmission
2 lines. This is as specific as the legislature can get.
3 The legislature is not required to say, and by excluding
4 cost from this statute, we mean we're excluding cost from
5 this statute and it shouldn't be considered. Lawyers get
6 paid to look at the statutes, the legislature gets paid
7 to pass the statutes, they know what the rules of
8 statutory construction are. It's clear that has been
9 excluded from this Act.

10 By referencing cost in testimony does not
11 create an issue for this Commission to deal with. The
12 parameters that bind this Commission, the issues that can
13 only be considered by this Commission and nothing more
14 are set out in Act 295. A witness's testimony doesn't
15 trump a statute. That's, you know, that's fundamental.
16 I'm not going to spend any more time on that.

17 Your Honor, with regard to the legal
18 opinions, I just pulled one at random. Exhibit G, the
19 witness states that it would be nonsensical for Act 295
20 to require the WERZ Board, the Commission and
21 transmission owners to examine, so on and so forth. He's
22 interpreting the Act. He's offering his legal opinion
23 with regard to the Commission's order. He does that
24 multiple times throughout there. Clearly legal opinion.
25 Clearly inappropriate for an expert witness.

1 Now, Mr. Strong is right, an expert
2 witness will look at a statute and determine what they
3 have to testify to. I don't have any problem with his
4 witness presenting testimony on the parameters required
5 or that are within the four corners of Act 295, but when
6 the witness goes the next step and says, and here's what
7 the statute means and here's my legal interpretation of
8 it, that goes beyond presenting factual evidence or
9 engineering opinion witness, and that's what he's done
10 here.

11 So your Honor, the cost issues are
12 abundantly clear, the legal issues are abundantly clear.
13 And the one discussion, when he tells you, and I don't
14 recall the specific reference, what weight you should
15 give to evidence, that's your job, that's totally beyond
16 the purview of a witness, and that should be stricken
17 also. Thank you, your Honor.

18 JUDGE NICKERSON: All right. Well, thank
19 you very much for your arguments. I appreciate the filed
20 motion and the filed responses, that helps immensely.

21 Mr. Strong is absolutely correct, the
22 Commission is a creature of statute, and so we are guided
23 by the statute. When I look at Act 295, specifically at
24 Section 153(e), and I'm going to address the cost issue
25 first; (e) speaks to the proposed or alternate route to
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1 be authorized by the expedited siting certificate and
2 whether or not it's feasible and reasonable, and that's
3 set forth right in the statute.

4 I examined the testimony of
5 Mr. Dauphinais -- I hope I'm pronouncing that right.

6 MR. STRONG: Dauphinais. It's French.

7 JUDGE NICKERSON: Dauphinais. I always
8 had problems with French.

9 -- carefully as it relates to the cost,
10 and all of the testimony that I reviewed dealt with the
11 cost in the context of the alternate or the proposed
12 route, which I think is significantly different than the
13 cost of the proposed project standing alone. So in that
14 light, I think that the testimony as it relates to the
15 cost of the proposed, or the alternate route as compared
16 to the proposed route is relevant, and so I'm going to
17 deny the motion on the cost issues.

18 Now, the other motions as it relates to
19 the legal opinions, again reviewing those, I think
20 Mr. Strong is correct that the expert may look at the
21 statute and may rely on the statute as a basis for their
22 opinion, and I think that the testimony was of that
23 nature where the expert used the statute as the basis for
24 their opinion going forward.

25 So for those reasons, I'm going to deny
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1 the motion to strike in its entirety.

2 MR. PATTWELL: Your Honor, Mike Pattwell
3 on behalf of MPPA and MEA. I just would like to clarify
4 for the record that ITC's motion to strike the testimony
5 of David Walters has been withdrawn, is not going to be
6 considered now.

7 JUDGE NICKERSON: Right. Mr. Gordon
8 stated that for the record, and so we won't take that up.
9 It's unnecessary. Thank you for clarifying that.

10 All right. I did receive an e-mail
11 regarding some of the stipulations, and I appreciate the
12 notice on that e-mail. Do we want to proceed now with
13 the testimony?

14 MR. GORDON: Your Honor, I think it would
15 be best for the record if we could enter the stipulation
16 and make sure all the parties are in agreement there,
17 else the process we follow from this point may change.
18 And if I may attempt to put the stipulation on the
19 record, and subject to comment or objection from the
20 parties.

21 There were a series of telephone
22 conferences between the parties which all parties
23 participated, I believe except for Mr. Ackerman and
24 Mr. Meyer, we have not heard from them objection or
25 concern expressed one way or the other. The result of

1 the conversations was an e-mail that was sent to you and
2 to all the parties, and I'll quote from that.

3 Judge Nickerson:

4 The parties to tomorrow's hearing have agreed as
5 follows:

6 1. With respect to all parties subject to the
7 motions to strike and except as noted in No. 2
8 below, all testimony and exhibits will be bound into
9 the record and exhibits admitted.

10 2. All parties will have the opportunity to
11 cross-examine ITC Witness Vitez.

12 3. After the cross-examination of ITC Witness
13 Vitez, if Detroit Edison wants to examine ITC
14 Witness Sutton, then he will be subject to
15 cross-examination by all parties.

16 4. The parties have prepared and exchanged
17 discovery responses and request for admissions, and
18 each party has prepared a package that will be
19 admitted as additional exhibits.

20 So at this time, your Honor, I would move
21 to bind in the testimony and admit the exhibits of ITC
22 Witnesses Tom Vitez, Gary Kirsh, Steve Koster, Stephen
23 Thornhill, Douglas Hodge, James Sutton, James Smith,
24 Michael Silva. And I would note that Mr. Vitez is
25 sponsoring exhibits numbered 1 through 12; Mr. Kirsh is

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1 sponsoring Exhibits A-13 through 15; Mr. Thornhill,
2 Exhibits A-16 through A-24; Mr. Hodge, Exhibits A-25
3 through A-28; Mr. Smith, A-29, A-30; and Mr. Silva, A-31.
4 I neglected to include in the request to bind in also the
5 testimony of Nancy Lee and Mark Israel.

6 We have --

7 MR. JOHNSON: We need to clarify for some
8 of the parties. I believe if you're looking for the
9 exhibits, we've renumbered them A-1 through A-32, and
10 those were included in the copies that we handed out to
11 you today.

12 MR. GORDON: We've provided the parties I
13 think with a list of the exhibits as renumbered, or we
14 will be shortly.

15 We are also moving the admission of
16 Exhibit A-32, which are the discovery responses that ITC,
17 the applicant, proposes to be included.

18 We have in addition some minor changes
19 and corrections to make to the testimony that we're
20 binding in. On page 49 --

21 JUDGE NICKERSON: Why don't we do this,
22 Mr. Gordon: We have a list of witnesses, why don't we
23 take them at this point individually for binding in, that
24 way we can specifically identify the changes to whatever
25 needs to be done at this point.

1 MR. GORDON: All right. We should pass,
2 your Honor, on Mr. Vitez since he will be appearing live.

3 JUDGE NICKERSON: All right. Very well.

4 MR. GORDON: With regard to Gary Kirsh,
5 there are no changes in his testimony or exhibits.

6 JUDGE NICKERSON: All right. So you move
7 the admission or the binding of Mr. Kirsh's testimony?

8 MR. GORDON: Right. Yes, your Honor.
9 And Exhibits A-13 through A-15 that are sponsored by
10 Mr. Kirsh.

11 JUDGE NICKERSON: All right. Any
12 objection to binding in Mr. Kirsh's direct testimony?
13 Any objection to the admission of proposed Exhibits A-13
14 through A-15? All right. Mr. Kirsh's testimony may be
15 bound into the record, proposed Exhibits A-13 to A-15 are
16 admitted.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF GARY R. KIRSH
ON BEHALF OF ITCTRANSMISSION

August 30, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International Transmission Company d/b/a *ITC Transmission*, for an expedited siting certificate for a transmission line, pursuant to 2008 PA 295, Part 4, for Region No. 4 (Thumb Region), as designated by the Michigan Wind Energy Resource Zone Board and the Commission's Order in Case No. U-15899. Case No. U-16200

DIRECT PREFILED TESTIMONY OF GARY R. KIRSH
ON BEHALF OF *ITCTRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Gary R. Kirsh. My business address is 27175 Energy Way, Novi, Michigan 48377.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by ITC Holdings as Manager, Community Relations in the Local Government and Community Affairs department. I am responsible for government and community relations, review and selection of community outreach and sponsorship opportunities, and the organization and implementation of public forums (both large and small). I also administer supervisory responsibilities over a staff of employees.

Q3. PLEASE SUMMARIZE YOUR QUALIFICATIONS.

A3. I graduated in 1994 from Oakland University with a Bachelors Degree in Political Science and Liberal Arts, which included studies in Vienna, Austria in 1992. I graduated in 2007 from Michigan State University's Master Citizen Planner program.

I have also twice participated in the Leadership Macomb program offered in Macomb County, once in 2008 and again in 2010. Leadership Macomb is a non-profit organization whose nine-month program brings together leaders from numerous institutions, disciplines and geographic areas to strengthen their leadership skills, develop long-term business relationships, and obtain in depth information about Macomb County.

I was elected to and served for 12 years as Washington Township Supervisor (in Macomb County, Michigan), serving from November 1996 to November 2008.

Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY.

A4. My testimony addresses the July 2010 informational meetings that International Transmission Company d/b/a *ITCTransmission* held with local community leaders and interested community members in each county located within the area designated "Region No. 4" by the Michigan Wind Energy Resource Zone Board and the Michigan Public Service Commission. The meetings allowed us to provide information about our proposed project, as well as gather information to assist us in evaluating and selecting the proposed and alternate routes set forth in our application.

Q5. PLEASE DESCRIBE THE MEETINGS *ITCTRANSMISSION* HELD WITH LOCAL COMMUNITY LEADERS.

A5. We first held "Leadership Summits" with the representatives of local governments from each county in the proposed project area:

- On July 7, 2010, we held a Leadership Summit with elected representatives from Sanilac County. The Summit was attended by 13

representatives from Sanilac County including the Sanilac County Drain Commissioner, Township Supervisors, Township Clerk, Township Trustees, Planning Commission members, and local business representatives.

- On July 8, 2010, we held a Leadership Summit with elected representatives from Tuscola County. The Summit was attended by 22 representatives from Tuscola County including the Tuscola County Sheriff, Drain Commissioner, various Township Supervisors, Planning Commissioners, Trustees, County Economic Development Corporation Director, County Administrator, Zoning board members, the County Clerk, and various Township clerks.
- On July 12, 2010, we held a Leadership Summit with elected representatives from Huron County. Over 40 people attended the Summit, including the County Sheriff, several township supervisors, clerks, and treasurers, the County Planner, the County Economic Development Corporation Director, and County Commissioners.
- On July 14, 2010, we held a Leadership Summit with elected representatives from St. Clair County. The Summit was attended by 7 community representatives including a Township Supervisor, Township Clerk, Planning Commission members, and Township Trustees.

The notices for these meetings are attached as Exhibit GK-1. These documents were prepared under my direction and supervision.

1 **Q6. PLEASE DESCRIBE THE MEETINGS *ITCT* TRANSMISSION HELD WITH**
2 **INTERESTED COMMUNITY MEMBERS.**

3 **A6.** We held "Open House events" with interested community members from each
4 county in the proposed project area:

- 5 • On July 20, 2010, we held an Open House in St. Clair County. The open
6 house event was attended by approximately 55 individuals, which included
7 appointed and elected officials, interested citizens and local business
8 owners.
- 9 • On July 21, 2010, we held an Open House in Tuscola County. The open
10 house event was attended by 54 individuals, which included appointed
11 and elected officials, interested citizens and local business owners.
- 12 • On July 22, 2010, we held an early afternoon Open House event with local
13 landowners and community officials of Huron County. The open house
14 event was attended by 94 individuals, which included appointed and
15 elected officials, interested citizens and local business owners.
- 16 • On July 22, 2010, we held an early evening Open House event with local
17 landowners and community officials of Sanilac County. The open house
18 event was attended by 78 individuals, which included appointed and
19 elected officials, interested citizens and local business owners.

20 The notices for these meetings are attached as GK-2, and the written
21 information distributed at these meetings is attached as GK-3. These documents
22 were prepared under my direction and supervision.

1 **Q7. WAS *ITCTRANSMISSION* REQUIRED TO HOLD THESE MEETINGS?**

2 **A7.** I am not aware of any requirement to hold these meetings with local citizens prior
3 to filing an application for an expedited siting certificate. Nevertheless,
4 *ITCTransmission* thought it important to hold the meetings in order to inform the
5 public about our proposed project, as well as gather information to assist us in
6 evaluating and selecting the proposed and alternate routes set forth in our
7 application.

8 **Q8. WHAT DID *ITCTRANSMISSION* DO WITH THE INFORMATION COLLECTED**
9 **AT THE LEADERSHIP SUMMITS AND COMMUNITY OPEN HOUSES?**

10 **A8.** As addressed in Mr. Thornhill's testimony, input from these meetings was
11 considered in determining the proposed and alternate routes.

12 **Q9. DOES THIS CONCLUDE YOUR TESTIMONY?**

13 **A9.** Yes, it does.

1 MR. GORDON: The next witness is Steven
2 J. Koster. There are no changes to his testimony, and he
3 is not sponsoring any exhibits.

4 JUDGE NICKERSON: Any objection to
5 binding Mr. Koster's testimony into the record? It may
6 be bound into the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF STEVEN J. KOSTER, P.E.
ON BEHALF OF ITC*TRANSMISSION*

August 30, 2010

* * * * *

Case No. U-16200

A3. I have more than 24 years experience in environmental impact assessment, permitting, and impact mitigation and remediation. I have served as Project Manager or Partner-In-Charge for state and federal Environmental Impact Statement projects; utility and transportation corridor siting studies; wetland delineations and state/federal permitting; threatened and endangered species surveys and taking permits; fisheries and aquatics surveys; wildlife assessments; soil studies and soil erosion and sedimentation control permitting; and groundwater hydrogeological investigations.

I have managed multi-disciplinary teams to complete environmental baseline studies, impact assessments, and permitting of development projects in Michigan and the Midwest, including electric transmission lines, petroleum and natural gas pipelines, surface/underground mines, and wind energy farms.

Representative examples of my relevant project experience include the following:

- Partner-In-Charge for a National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) and permitting for the White Pines Wind Farm, proposed by White Pines Wind Farm LLC, a subsidiary of BP Wind Energy North America Inc. The project consisted of a new 70 MW wind energy facility and transmission line in the U.S. Forest Service Huron-Manistee National Forest. Our project team was responsible for supporting the Forest Service throughout the NEPA process, including scoping, resource studies, impacts analysis, alternatives and mitigation evaluation, EIS preparation, and public comment management.
- Partner-In-Charge for third-party support and preparation of a NEPA EIS for the proposed Bemidji to Grand Rapids 68-mile 138 kV transmission line in the U.S. Forest Service Chippewa National Forest in Minnesota. This is a joint federal (USDA Rural Utilities Service) and state (Minnesota Department of Commerce Office of Energy Security [OES]) project that also includes the U.S. Forest Service and multiple tribes as Coordinating Agencies. This project involves support to the OES for scoping, evaluation of impacts and mitigation measures, and preparation of an EIS.

- Partner-In-Charge for third party support and preparation of an EIS for each of two separate proposed transmission line projects, including the Hiawatha line in Minneapolis, Minnesota and the Pleasant Valley-Bryon transmission line in Olmstead County, Minnesota under the direction of the Minnesota DOC Office of Energy Security.
- Partner-In-Charge and Biological and Social Sciences Lead for Third-Party NEPA EIS consulting for the Minnesota Department of Natural Resources (MnDNR) for the NorthMet mine, the first proposed sulfide mine in Minnesota. This is a joint federal and state project that includes the MnDNR and U.S. Army Corps of Engineers as lead agencies and the U.S. Forest Service and multiple tribes as Coordinating Agencies. This project requires evaluation of impacts, cumulative effects, and alternatives for development of draft and final EIS documents, with a particular focus on issues surrounding potential acid rock drainage and approximately 800 acres of wetlands impacts.
- Partner-In-Charge/Project Manager for completion of an environmental baseline assessment for exploratory drilling and planning for Aquila Resources, Inc. Back Forty Project, a proposed metallic minerals mine in the Upper Peninsula of Michigan. The project includes assessments of wetlands, threatened and endangered species, cultural resources, hydrology and surface waters, ground water resources and hydrogeology, water quality, and land use. The project also involves acquisition of permits to facilitate baseline studies and exploration drilling, including

1 wetlands permitting, archaeological survey permitting, listed species
2 clearance, and state land surface use permitting.

- 3 • Partner-In-Charge/Project Manager for Environmental Impact Assessment
4 and permitting of Wolverine Pipe Line Company's proposed Spartan
5 Pipeline, a 63-mile long pipeline constructed in Michigan. Inventoried
6 natural resources, conducted field and aerial assessments, and evaluated
7 potential impacts on environmental features and natural resources and
8 historic cultural resources. Developed mitigation measures to reduce
9 impacts on wetlands, streams, soils, groundwater supplies, air quality,
10 noise, and socioeconomic aspects. Project included permit coordination
11 and negotiation with multiple regulatory agencies, including Michigan
12 Public Services Commission (MPSC), Michigan Department of
13 Environmental Quality (MDEQ), Michigan Department of Transportation,
14 Federal Highway Administration, SHPO, and numerous local agencies.
15 Provided expert testimony in multiple contested case hearings and
16 litigation support for the MPSC, MDEQ, and Michigan Supreme Court
17 appeal. Managed team of environmental field staff for permitting
18 compliance monitoring during project construction.

- 19 • Partner-In-Charge for Environmental Impact Assessments of multiple
20 natural gas pipelines for landfill gas recovery and construction of power
21 generating plants, focusing on wetland, stream, soil erosion, and historical
22 resource impacts. Projects included a 7.5-mile long pipeline to supply the
23 Mirant combined cycle power plant in Zeeland; a 6-mile pipeline to supply

1 recovered landfill gas from Waste Management, Inc.'s Autumn Hills
2 Landfill to Zeeland Farm Services, Inc; and the 9-mile long Renaissance
3 pipeline to supply a proposed natural gas fired peaking plant for Dynegy
4 Inc. Projects included preparation and submittal of permit applications to
5 State and local agencies.

- 6 • Project Manager for multi-site environmental due diligence projects for the
7 utility industry, including a 40-mile long transmission line corridor study
8 and 24-site radio transmission tower study.

9 I have a Bachelor of Science Degree in Letters and Engineering from
10 Calvin College (1984), a Bachelor of Science Degree in Civil Engineering from
11 the University of Michigan (1984), and a Master of Science Degree in
12 Environmental Engineering from the University of Michigan (1985). I am a
13 registered Professional Engineer in Michigan, and a member of the American
14 Society of Civil Engineers and the Air and Waste Management Association.

15 **Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

16 **A4.** As described in the prefiled testimonies of Thomas Vitez and Jason Sutton,
17 *ITC Transmission* (ITC) are seeking an expedited siting certificate for construction
18 of a 345kV transmission line in Michigan's Thumb Region. My testimony
19 addresses compliance with applicable state and federal environmental
20 standards, laws, and rules with respect to the proposed line.

21 **Q5. WHAT ENVIRONMENTAL STANDARDS, LAWS, AND RULES ARE**
22 **TYPICALLY APPLICABLE TO A TRANSMISSION LINE PROJECT SUCH AS**
23 **THIS ONE?**

24 **A5.** Construction of a transmission line such as this project proposed by ITC requires
25 compliance with numerous local, state, and federal environmental laws and

1 regulations. At the local county level, the project must acquire and comply with a
2 Soil Erosion and Sedimentation Control (SESC) permit pursuant to Part 91 of the
3 Natural Resources and Environmental Protection Act (NREPA), 1994 P.A. 451,
4 as amended. These permits are typically obtained from county SESC agencies
5 such as county drain commissioners, and the permit application process requires
6 the submittal and approval of a SESC plan prior to construction. This plan must
7 include strategies and control measures to minimize soil erosion and protect
8 surface water bodies from sedimentation. Local jurisdictions also often have
9 requirements for drain right-of-way use and crossings, road right-of-way use and
10 crossings, and at times tree trimming and vegetation removal that include
11 environmental requirements and conditions.

12 At the state level, the project must comply with other applicable parts of
13 NRPEA that protect water resources, including Part 31, Water Resources
14 Protection; Part 301, Inland Lakes and Streams; and Part 303, Wetlands
15 Protection. These statutes and the associated rules require that permits be
16 obtained and/or protective measures be employed for the protection of
17 floodplains, rivers and streams, and wetlands. In addition, Part 365 requires that
18 listed threatened and endangered plant, wildlife, and fish species be protected
19 and not harmed by the project. These requirements are administered and
20 enforced by the Michigan Department of Natural Resources and Environment
21 (MDNRE). In addition to MDNRE regulations, the Michigan Department of
22 Transportation has requirements for state highway crossings and work in rights-

of-way that include environmental conditions for soil erosion prevention, vegetation removal and planting, and the like.

Finally, environmental regulations also apply at the federal level. For example, in addition to county-level SESC permitting, the project will need to comply with a federal NPDES Storm Water Discharge Permit under Permit-By-Rule (as administered by the MDNRE) and submit a Notice of Coverage that triggers numerous environmental conditions, including the requirement of on-site inspections by a Certified Storm Water Operator. Federal regulations under the Endangered Species Act also require protection of federally-listed threatened and endangered species. In addition, a Spill Prevention, Control, and Countermeasures (SPCC) Plan will be prepared in accordance with requirements pursuant to the Clean Water Act to ensure proper containment of any spills of transformer oil at proposed substations, in the unlikely event of that occurring.

Q6. HOW DID YOU IDENTIFY THESE REGULATORY REQUIREMENTS?

A6. I identified these requirements based on my review of the project description and siting study materials and applicable regulations, as well as my prior experience with similar construction projects in Michigan and elsewhere.

Q7. HOW WILL ITC COMPLY WITH THESE REQUIREMENTS?

A7. Compliance with these requirements will be accomplished by a combination of several tasks, which together will ensure that the necessary environmental protections are provided during project planning and construction. These tasks include the siting process, permitting, and compliance monitoring during construction.

1 First, as described by Stephen G. Thornhill in his prefiled testimony, the
2 siting or routing process considered and evaluated alternative routes to identify a
3 route that would minimize overall impacts to the human and natural environment.
4 Environmental resources considered in this analysis included public lands and
5 game areas, land use including cropland, grassland, woodland, wetland,
6 municipal and developed areas, threatened and endangered species, and water
7 and drainage ways, as well as social resources such as roads and highways,
8 transmission line corridors, recorded historic and archaeological sites, airports
9 and landing strips, churches, cemeteries, and schools. Using a weighted criteria
10 analysis, the proposed route was selected to minimize impacts to those
11 resources that are protected under environmental regulations and standards as
12 discussed above, including wetlands, streams, listed species, and woodlands.
13 Each of these resources was provided with an explicit criterion in the analysis,
14 and beyond that, other criteria that indirectly provided for environmental
15 protection (such as length of route) were also used.

16 Second, ITC will need to acquire a number of environmental permits and
17 approvals prior to construction, as discussed above, or meet certain
18 environmental standards to be exempted from permitting. These permits and
19 standards include soil erosion and sedimentation control, stream and drain
20 crossings, floodplain crossings, wetland crossings, and listed species.
21 Environmental field and desktop studies will be performed to confirm field
22 locations of specific resources, and based on the results of these studies, site-
23 specific measures will be planned to avoid or mitigate impacts to the extent

practicable. Such measures could include, for example, micro-siting of towers to avoid or reduce impacts to sensitive features such as wetland or listed species locations; use of temporary erosion controls, such as silt fencing and erosion control blankets; and permanent erosion controls, including vegetative cover. Many of these measures will be incorporated into plans and permit applications, and will become mandated conditions during the permitting process. Other measures such as the use of timber matting in wet areas will be employed by ITC as Best Management Practices (BMPs) regardless of permitting requirements. Other, additional protective measures may also be included by permitting agencies as additional conditions as part of the permits issued for the project. ITC will meet with regulatory agencies throughout the permitting process to develop plans and methods that will meet the requirements of those agencies.

Third, compliance will be confirmed through the use of on-site field observation and compliance monitoring, discussed further below.

This multi-tiered effort of project siting, permitting, and compliance monitoring will provide multiple means of minimizing environmental impact and ensuring compliance with applicable environmental standards and requirements.

Q8. HOW WILL COMPLIANCE BE ENSURED THROUGH THE USE OF ON-SITE MONITORING?

A8. Monitoring of construction activities and methods will be performed on site to ensure permit conditions are met. This will include the use of Certified Storm Water Operators, who will inspect erosion controls and other mitigation measures periodically and after rainfall events to monitor compliance with NDPES and SESC permit requirements, in addition to the duties of Field Supervisors, who

1 provide field supervision of the contractor's activities to ensure compliance with
2 standards and specifications and permit conditions (e.g., wetland permits). Some
3 field supervisors are Certified Storm Water Operators and function in both
4 capacities. When appropriate, the Field Supervisors will seek guidance from
5 internal and external resources regarding permit and regulatory compliance. For
6 example, outside environmental professionals are used in the rare instances
7 when actual mitigation is required (e.g., for wetlands or listed species) to perform
8 the mitigation and conduct the required monitoring and reporting. In addition,
9 regulatory agencies such as the MDNRE and county drain commissioners will
10 often provide separate environmental inspection of the project site to ensure
11 compliance.

12 **Q9. IS IT YOUR OPINION THAT THE PROPOSED PROJECT WILL COMPLY**
13 **WITH ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL**
14 **STANDARDS, LAWS, AND RULES?**

15 **A9.** As I have discussed, ITC must identify and secure all applicable local, state, and
16 federal environmental permits that will be required for the construction and
17 operation of the proposed transmission line. In view of the above, I conclude that
18 the proposed Project will comply with all applicable state and federal
19 environmental standards, laws and rules.

20 **Q10. DOES THIS CONCLUDE YOUR TESTIMONY?**

21 **A10.** Yes, it does.

22
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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

STEVEN J. KOSTER

ON BEHALF OF ITCTRANSMISSION

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
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Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

STEVEN J. KOSTER

ON BEHALF OF ITCTRANSMISSION

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Steven J. Koster. My business address is Environmental Resources Management, Inc. (ERM), 3352 128th Avenue, Holland, Michigan 49424.

Q2. ARE YOU THE SAME STEVEN J. KOSTER WHO HAS PREVIOUSLY FILED DIRECT TESTIMONY IN THIS CASE?

A2. Yes I am.

Q3. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A3. I am submitting testimony in rebuttal to Landowners' witness Zimmer, as filed in this docket on October 29, 2010. Specifically, I am responding to his testimony in the following areas: (i) starting at page 9, line 11, wherein he addresses "the risk of soil erosion", (ii) starting at page 21, line 10, wherein he addresses the value

1 placed on wetlands, and (iii) starting at page 14, line 20, wherein he addresses
2 "the risk of hitting ground water".

3 I am also submitting testimony in rebuttal to Mr. Dauphinais' discovery
4 response ITC-ABATE 2-20 and 2-27 wherein he addresses the permitting
5 requirements associated with stringing a second circuit on a previously
6 constructed single-circuit, double-circuit capable line.

7 **Q4. PLEASE ADDRESS MR. ZIMMER'S PRESENTATION WITH RESPECT TO**
8 **THE RISK OF SOIL EROSION.**

9 A4. Mr. Zimmer's presentation fails to reflect the detailed regulatory requirements
10 relative to the prevention of soil erosion that are applicable to this project. As
11 noted in my direct testimony, ITC will ensure compliance with all regulatory and
12 permitting requirements. Two such requirements include (i) Part 91, Soil Erosion
13 and Sedimentation Control of the Natural Resources and Environmental
14 Protection Act (NREPA), Public Act 451 of 1994, as amended and (ii) the Federal
15 Clean Water Act, National Pollution Discharge Elimination System (NPDES)
16 permitting. These require that a Soil Erosion and Sedimentation Control Plan /
17 Storm Water Pollution Prevention Plan be prepared for the project and submitted
18 to county enforcing agencies for their approval and submitted to the Water
19 Bureau of the Michigan Department of Natural Resources and Environment
20 (MDNRE) before the county agencies and MNDRE will issue their permit
21 approvals. The plan will require appropriate preventative measures for soil
22 erosion, which can include such measures as silt fencing, seeding and mulching
23 for temporary and permanent revegetation, erosion control blankets, diversion

1 dams and dikes, and the use of ground mats in wet areas. Certified Storm Water
2 Operators will be used to inspect erosion controls weekly and within 24 hours of
3 each precipitation event that causes a discharge from the site. These
4 inspections will be conducted to ensure and document compliance with soil
5 erosion permit requirements. As noted in my direct testimony, ITC will acquire all
6 necessary environmental permits.

7 In addition, while Mr. Zimmer's presentation suggests that his soil erosion
8 technique involves "good tilling techniques and by keeping [his] fields planted"
9 (page 9, lines 17, 18), he overlooks the fact that for a portion of the year, there is
10 little vegetative cover when fields have been tilled but crops have not grown.
11 Also, it should be recognized that the project construction should only impact a
12 minor portion of the farmlands at issue – and the bulk of the farmlands can
13 continue to be tilled and planted. Finally, Mr. Zimmer recognizes that the land in
14 the project area is "very flat" (page 15, line 3), which by its nature means that soil
15 erosion concerns from precipitation runoff are reduced as compared to hilly or
16 highly sloped areas.

17 **Q5. PLEASE ADDRESS MR. ZIMMER'S TESTIMONY WITH RESPECT TO THE**
18 **VALUE PLACED ON WETLANDS.**

19 A5. Notwithstanding Mr. Zimmer's objection to the fact that the routing study placed a
20 higher weight to forested wetlands than cropland, I believe this higher weighting
21 was appropriate given regulatory requirements regarding wetlands. Under the
22 statutory requirements of Part 303 of NREPA, ITC must seek to minimize
23 impacts to regulated wetlands by evaluating feasible and prudent alternatives,

1 including alternative locations, for the project. In fact, the MDNRE is expressly
2 prohibited by the statute from issuing a permit for wetlands impact if a feasible
3 and prudent alternative to those wetland impacts exists. In addition, the
4 regulations require more stringent mitigation requirements for forested wetlands
5 reflecting the greater value placed on forested wetlands compared to most other
6 wetland types. Therefore, a route that would cross more forested wetlands (in
7 order to cross less cropland) than the Proposed Route or the Alternate Route
8 would be difficult if not impossible to permit.

9 **Q6. PLEASE ADDRESS MR. ZIMMER'S PRESENTATION WITH RESPECT TO**
10 **THE RISK OF HITTING GROUND WATER.**

11 A6. While Mr. Zimmer's presentation is not specific to what problems could be
12 caused by "hitting ground water", these issues would be addressed by soil
13 erosion permitting requirements, i.e., the use of geo-textile filter bags, drainage
14 ditches, and vegetated areas for de-watering discharge. See above discussion
15 relative to regulatory requirements. In addition, the volumes of ground water to
16 be discharged when dewatering boreholes for tower footings can generally be
17 expected to be minimal because the duration of the foundation installation
18 process is typically less than a day.

1 **Q7. PLEASE ADDRESS MR. DAUPHINAIS' PRESENTATION REGARDING THE**
2 **PERMITTING REQUIREMENTS ASSOCIATED WITH STRINGING A SECOND**
3 **CIRCUIT ON A PREVIOUSLY CONSTRUCTED SINGLE-CIRCUIT, DOUBLE-**
4 **CIRCUIT CAPABLE 345 kV LINE.**

5 A7. In his presentation, Mr. Dauphinais states that the permitting requirements for the
6 addition of a second circuit would be dramatically less than that for a new
7 transmission line. He apparently states this in support of his suggestion to build
8 a single-circuit, double-circuit capable line initially and then add a second circuit
9 at a later time. However, his approach would require that permits and approvals
10 be obtained twice: first for the original construction, and then again for stringing
11 the second line. This would likely require additional wetland permits, additional
12 soil erosion permits, listed species clearances, etc. ITC's proposal is to build a
13 double circuit line in a single project that would require permitting only once. As
14 such, ITC's proposal would have less permitting requirements than under Mr.
15 Dauphinais' approach.

16 **Q8. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

17 A8. Yes, it does.
18

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1 MR. GORDON: The next witness, your
2 Honor, is Stephen G. Thornhill, who is sponsoring
3 Exhibits A-16 through A-24. There is one change to
4 Mr. Thornhill's testimony. On page 49, line 1, the
5 number that is currently 169, should be changed to 159.
6 I'm sorry. 161 to 159.

7 JUDGE NICKERSON: All right. Has that
8 been done with the copy provided to the court reporter?

9 MR CHRISTINIDIS: Yes.

10 JUDGE NICKERSON: All right.

11 MR. GORDON: The next witness --

12 JUDGE NICKERSON: Hold on. Hold on.

13 MR. GORDON: I'm sorry, your Honor.

14 JUDGE NICKERSON: So any objection to
15 binding in Mr. Thornhill's testimony? It may be bound
16 into the record.

17 - - -

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF STEPHEN G. THORNHILL
ON BEHALF OF ITCTRANSMISSION

August 30, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF STEPHEN G. THORNHILL
ON BEHALF OF ITCTRANSMISSION COMPANY

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Stephen G. Thornhill. My business address is P.O. Box 419173,
Kansas City, Missouri, 64141 and my office headquarters is located at 9400
Ward Parkway in Kansas City, Missouri.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by Burns & McDonnell Engineering Company, Inc. as an
Associate Project Manager in the Environmental Studies and Permitting Global
Practice Division.

Q3. PLEASE SUMMARIZE YOUR QUALIFICATIONS.

A3. I graduated from Avila College in 1987 with a Bachelor of Science Degree in
Biology. I obtained a Masters of Science Degree in Biology from Southwest
Missouri State University in 1990. I joined Burns & McDonnell in August 1990 in
the Planning and Environmental Analysis Division, now the Environmental
Studies and Permitting Global Practice. I have 20 years experience on a variety

of projects and in various environmental roles. I have extensive experience in both routing and environmental studies for new linear facilities projects, particularly rail lines and electrical transmission lines. I have participated in and served as project manager for a number of electrical transmission line routing studies throughout the country ranging from only a few miles in length to over 100 miles and for voltages ranging from 69 kV to 765 kV. A representative list of those projects is attached as Exhibit SGT-1. In addition to managing those projects, I serve as an instructor for Burns & McDonnell's Transmission Line Routing Seminar, which is presented regularly to Burns & McDonnell's utility clients. I have also presented seminars on transmission line routing for Transmission & Distribution World Magazine and the International Right-of-Way Association.

Q4. HAVE YOU PREVIOUSLY PROVIDED EXPERT TESTIMONY BEFORE REGULATORY AUTHORITIES?

A4. Yes. I have previously testified regarding transmission line routing and environmental issues in a number of regulatory proceedings, including the following:

Arkansas:

- Arkansas Public Service Commission, Razorback to Short Mountain 161 kV Transmission Line Facilities Project in Logan County, Arkansas, Docket No. 04-145-U (recommendation adopted);
- Simmons to Mountainburg 161 kV Transmission Line Project in Crawford County, Docket No. 05-043-U (recommendation adopted);
- Razorback to Igo 161 kV Transmission Line and Authority to Cross Navigable Waterway(s) Project in Logan and Johnson Counties, Docket No. 08-087-U (recommendation adopted);

- Branch to Short Mountain 161 kV Transmission Line Upgrade in Logan County, Arkansas, Docket No. 09-010-U (recommendation adopted);
- Helberg to Altus to Igo to Little Spadra 161 kV Transmission Line Upgrade Project in Franklin and Johnson Counties, Arkansas, Docket No. 10-022-U (recommendation adopted);
- Hamlet to Holland Bottoms 161 kV Transmission Line and Associated Facilities in Lonoke, Pulaski, and Faulkner Counties, Arkansas, Docket No. 10-050-U (case still pending); and
- Flint Creek to Shipe Road 345 kV and 161 kV Project and Associated Facilities Project in Benton County, Arkansas, Docket No. 10-074-U (case still pending).

Virginia:

- Virginia State Corporation Commission, Carson to Suffolk 500 kV and Suffolk to Thrasher 230 kV Transmission Line Project, Docket No. PUE-2007-00020 (recommendation adopted).

Iowa:

- Iowa Utilities Board, CBEC to Grimes 345 kV Transmission Line Project, Docket Numbers E-21621, E-21622, E-21625, E-21645, and E-21646 (recommendation adopted).

Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A5. Burns & McDonnell was retained by *ITC Transmission* (ITC) in connection with its request for an expedited siting certificate in this docket. Specifically, Burns & McDonnell was retained to conduct a route selection study to recommend a proposed and alternate transmission line route alignment to ITC (herein, the “Proposed Route” and the “Alternate Route”). I was the Project Manager for the route selection. As such, my testimony describes the Proposed Route and Alternate Route for the transmission line and the other potential routes considered and evaluated during the analytical process. My testimony explains

1 how the Proposed Route was selected over the Alternate Route and all other
2 potential routes evaluated.

3 **Q6. PLEASE SUMMARIZE YOUR INVOLVEMENT IN THE PROPOSED LINE'S**
4 **ROUTE SELECTION.**

5 **A6.** I participated in and was responsible for directing and coordinating the efforts of
6 Burns & McDonnell with ITC's project staff. I conducted multiple field visits to the
7 project area, determined appropriate route evaluation criteria and methodologies,
8 reviewed environmental data on the potential environmental impacts associated
9 with the project, participated in leadership summits and public open houses, and
10 was responsible for the overall route selection recommendation made to ITC.

11 **Q7. PLEASE DESCRIBE THE ROUTE SELECTION PROCESS.**

12 **A7.** The route selection process was a multi-step process. It began with the
13 development of a study area for the project around the proposed endpoints: the
14 proposed Baker Substation to the proposed Fitz Substation; as well as the
15 proposed Rapson Substation and the existing Greenwood Substation.
16 Information on the natural and human resources within the study area was
17 collected, including potential obstacles (constraints) to a transmission line route,
18 as well as opportunities (e.g. existing rights-of-way) for use by the proposed
19 project. Several potential routes for the proposed project were developed to
20 avoid constraints and take advantage of opportunities where possible. Those
21 routes were considered and evaluated to identify a route that minimized the
22 overall impacts to the human and natural environment while still providing a
23 constructible and cost efficient alignment. The several potential routes initially
24 considered, evaluated, and shared with the public, are shown on the map

1 attached to my testimony as Exhibit SGT-2. Those routes were then evaluated in
2 detail and narrowed down to two general routes — the Proposed Route and the
3 Alternate Route. The Proposed Route and the Alternate Route are shown on the
4 map attached to my testimony as Exhibit SGT-3. I will address in more detail
5 below the process by which the Proposed Route and Alternate Route were
6 identified.

7 **Q8. HOW DID YOU CONDUCT THE ROUTE SELECTION PROCESS?**

8 **A8.** The first step was to identify the proposed project's endpoints. In this case, there
9 were four substations identified, the proposed Baker Substation located
10 southwest of Caro in Tuscola County; the proposed Rapson Substation located
11 northeast of Bad Axe in Huron County; the existing Greenwood Substation
12 located at the Greenwood Generation Facility in St. Clair County; and the
13 proposed Fitz Substation in St. Clair County. Based on these endpoints, a
14 project area was identified. Human and natural resources within the project area
15 were identified, including airports and landing strips; public lands and game
16 areas; land use including cropland; grassland; woodland; wetland; municipal and
17 developed areas; recorded historic and archaeological sites; threatened and
18 endangered species; water and drainage ways; roads and highways;
19 transmission line corridors; churches; cemeteries; and schools.

20 After identifying the study area, a number of resource agencies were
21 contacted for information on resources and potential issues within the project
22 area. These agencies included:

- 23 • Natural Resource Conservation Service (NRCS);
- 24 • U.S. Army Corps of Engineers;

- U.S. Fish and Wildlife Service;
- U.S. Environmental Protection Agency, Region 5;
- Federal Aviation Administration, Great Lakes Region, Detroit ADO;
- NRCS District Conservationist: Huron County, Michigan;
- NRCS District Conservationist: St. Clair County, Michigan;
- NRCS District Conservationist: Tuscola County, Michigan;
- NRCS District Conservationist: Sanilac County;
- Michigan Department of Agriculture;
- Michigan Department of Transportation, Bay Region;
- Michigan Department of Transportation, Metro Region;
- Michigan Department of Natural Resources and Environment;
- Michigan Department of Community Health;
- Michigan Economic Development Corporation;
- Michigan State Historic Preservation Office, and;
- The Nature Conservancy in Michigan.

In addition, existing information, including aerial photographs, soil survey maps, U.S.G.S. topographic maps, and National Wetland Inventory maps were reviewed. A network of potential route alignments was developed to connect the endpoints (Baker – Rapson, Rapson – Greenwood, Greenwood – Fitz). Potential routes were developed to take advantage of opportunities while minimizing impacts to human and natural resources. These routes were reviewed to determine their reasonableness for the proposed project. Several potential routes were eliminated or adjusted due to what were considered unreasonable residential proximity or distance outside the wind zone areas designed to be

1 served by the proposed project, resulting in a set of final routes for presentation
2 to local officials and the public.

3 The potential route networks were presented to local officials and the
4 public at a series of leadership summits and open house workshops, all of which
5 I attended, with one exception. As explained in Mr. Kirsh's testimony, leadership
6 summits and open house workshops were held to present the project, to request
7 comments and information on the project, to identify local resources to be
8 considered in the route selection process, and to identify issues and concerns
9 associated with the project. As a result of comments received at these
10 gatherings, revisions and adjustments were made to routes under consideration.
11 These revisions and adjustments were made to minimize impacts to agricultural
12 lands and tile drainage systems, to maximize the distance from homes, to make
13 use of existing rights-of-way, to identify new resources such as new homes and a
14 grass landing strip, and to maximize compatibility with wind zone development.
15 This final set of potential routes then went through detailed screening
16 comparisons and evaluations which led to the ultimate Proposed Route and the
17 Alternate Route.

18 A set of route criteria (listed below) was developed as the basis for route
19 screening and comparison. Each criterion was quantified and a quantitative
20 screening analysis was conducted to compare the individual routes and identify
21 those routes with lesser potential impacts. The least impacting routes were
22 identified and further analyzed to identify the Proposed Route and the Alternate
23 Route for the proposed transmission line.

Q9. HOW WAS THE ROUTING ANALYSIS CONDUCTED?

A9. After extensive field review to gain first hand knowledge of the area, to determine resources along the line, and to verify and update aerial mapping, we reviewed available resource mapping for the project area (aerial photography, topographic maps, soils information, wetland maps), and contacted resource agencies, local officials, and local landowners for information. A set of route screening and evaluation criteria was then developed; and based on the gathered information, resources present within the project area, issues raised by agencies, land and property owners, regulatory agencies, and ITC, 19 criteria were developed to compare and measure differences between the several potential routes. Each of the 19 criteria were assigned a weight, based on agency official, land, and property owner feedback, ITC engineering and construction related concerns, and Burns & McDonnell's experience on other similar projects. Criteria considered to be potentially more affected by the proposed project, or requiring a higher level of consideration in the evaluation, were assigned a higher weight than other criteria. Criteria fall generally into four categories: engineering, social, environmental, and other. The evaluation criteria and their weights are listed below:

ROUTING CRITERIA	WEIGHT
Engineering	
Length (miles)	8
Angles greater than 30 degrees (number)	4
Road crossings (number)	3

Length parallel existing T-line (miles)	-3
Length Replacing existing T-Line (miles)	-7
Length of Greenfield Alignment (miles)	6
Transmission Line crossings (number)	4
Social	
New Right-of-way required (acres)	6
Residential Proximity Score (number)	10
Residential Visibility Score (number)	6
Public Facilities within 500 feet (number)	5
Historic Sites within 500 feet (number)	4
Archaeological sites within the right-of-way (number)	4
Environmental and Land Use	
Length through Cropland (miles)	5
Length across Grassland/Pasture (miles)	1
Woodland within the right-of-way (acres)	5
Wetlands within the new right-of-way (acres)	6
Streams crossed (number)	1
Other	
Wind Zone orientation score	6

Routing criteria were measured and quantified for permutations and combinations of the several potential routes (shown on Exhibit SGT-2). The screening evaluation used a statistical z-score analysis to organize, manage, and screen the extensive route data resulting from the potential routes and 19 evaluation criteria using several different units of measure to streamline the

analysis to a manageable number of routes that minimize overall impacts for further evaluation and comparison, and to identify a Proposed Route and an Alternate Route. A z-score determines the mean value within a set of data and compares each individual route value to the mean. A degree of difference (standard deviation) is calculated for each route by determining how far each route value deviates from the mean value. For example, if the total length for a route was equal to the mean, the z-score would be zero as the specific length was no different than the mean. If the total length was greater than the mean length, the z-score would be a positive value for that route. The more the individual route value exceeds the mean, the higher the positive number. Conversely, the more the route value was below the mean, the more negative the z-score. Criteria scores were multiplied by the assigned criteria weight, producing a weighted score. All criteria weighted scores were added together for each route. Total weighted route scores for all potential routes were compared and the approximately 10 percent lowest scoring routes were retained for further evaluation. These routes, which include the Proposed Route and the Alternate Route identified in this testimony, were evaluated and further analyzed. Based on the screening analysis and the detailed comparison of the lowest scoring routes and the potential impacts of the routes evaluated, it was determined that the Proposed Route would have the least overall impact and that route was identified as ITC's proposed route. The Proposed Route and the Alternate Route are shown on the map attached as Exhibit SGT-3 to my testimony.

Q10. PLEASE DESCRIBE THE PROPOSED ROUTE.

A10. The alignment for the Proposed Route was developed in consideration of numerous routing considerations discussed previously in my testimony. While this route has been determined through the evaluation and comparison process to minimize overall environmental impacts and represents a reasonable and constructible route, it is not intended to be inflexible. In fact, it is expected that as engineering, design, survey, utility locates, and landowner negotiations proceed, assuming the Michigan Public Service Commission approves ITC's Application and the Proposed Route, minor adjustments to the route would be identified and implemented. These adjustments would serve to optimize the route alignment and address localized conditions and accommodate landowner suggestions and requests to the extent practicable. A map of the Proposed Route can be found at Exhibit SGT-4. A detailed description of the Proposed Route is provided below.

The Proposed Route would originate at the Baker Substation located in Tuscola Township, Section 7, in Tuscola County, north of Weaver Road and east of Reese Road. The Proposed Route extends north paralleling an existing 345-kV transmission line for 4.8 miles into Denmark Township. The Route crosses Simpson, Waterman, Krueger, Sanilac, Saginaw, Wilder, Shultz, and Reinbold Roads. Approximately 0.2 mile north of Reinbold Road, the Route turns east for approximately 0.7 mile, extending through agricultural fields before crossing Van Buren Road, approximately 0.2 mile north of Reinbold Road.

Continuing east for approximately 0.1 mile, the Proposed Route crosses an existing 138-kV transmission line. Continuing east for approximately 0.3 mile through agricultural fields, the Route turns north approximately 0.2 mile from

1 Quanicassee Road. The Proposed Route continues north for approximately 3.3
2 miles crossing two parallel existing 138-kV transmission lines, an existing 138-kV
3 transmission line, Caro, Dixon, and Van Geisen Roads entering Gilford
4 Township. The Route comes within 500 feet of a residence when it crosses Caro
5 Road, 0.2 mile west of the intersection of Caro and Quanicassee Roads.

6 The Proposed Route turns northeast approximately 0.5 mile north of Van
7 Geisen Road, and proceeds to cross Quanicassee Road, approximately 0.3 mile
8 south of Gilford Road. Continuing northeast it crosses Gilford road,
9 approximately 0.3 mile east of Quanicassee Road, before proceeding for
10 approximately 1.2 miles crossing Bradford Road, approximately 240 feet south of
11 Deckerville Road. The Route crosses Deckerville Road, approximately 180 feet
12 east of Bradford Road, before continuing northeast for 1.3 miles then crossing
13 Fairgrove Road, approximately 0.2 mile west of Bradleyville Road. From here
14 the Route proceeds northeast crossing Bradleyville Road, approximately 0.2 mile
15 north of Fairgrove Road.

16 From Bradleyville Road the Proposed Route extends northeast for 1.2
17 miles crossing Darbee Road, approximately 0.2 mile west of Garner Road,
18 before crossing Garner Road, approximately 0.2 mile north of Darbee Road.
19 Proceeding northeast through agricultural fields for about 1.1 miles, the Route
20 crosses into Fairgrove Township at Vassar Road, about 0.3 mile south of
21 Dutcher Road. From Vassar Road, the Proposed Route then continues for 0.5
22 mile before turning north-northeast, approximately 0.2 mile south of Dutcher
23 Road. It crosses Dutcher Road about 0.5 mile east of Vassar Road before

1 continuing north-northeast for one mile before crossing Akron Road,
2 approximately 0.1 mile west of Kirk Road. At Akron Road the Route enters
3 Akron Township. The Proposed Route continues north-northeast for
4 approximately 0.4 mile before crossing Kirk Road, 0.3 mile north of Akron Road.
5 The Route crosses Elmwood Road, approximately 0.3 mile east of Kirk Road,
6 and then proceeds north-northeast for 1.1 mile through agricultural fields before
7 crossing Cass City Road, about 0.3 mile west of Thomas Road.

8 Before turning northeast approximately 100 feet east of Thomas Road,
9 the Proposed Route crosses Thomas Road. Continuing through agricultural
10 fields, the Route crosses Dickerson Road, about 0.2 mile east of Thomas Road,
11 then crosses Cook Road, about 0.4 mile north of Dickerson Road. It crosses
12 Hoppe Road approximately 175 feet west of Ringle Road, and then crosses
13 Ringle Road, approximately 225 feet north of Hoppe Road. The Route continues
14 approximately 1.2 miles through agricultural fields crossing Ackerman Road,
15 approximately 0.2 mile west of Clark Road, before crossing Clark Road, about
16 0.2 mile north of Ackerman Road. The Proposed Route continues northeast for
17 1.1 miles before crossing Bay City Forestville Road, about 0.2 mile west of
18 Sheridan Road, and then crosses into Columbia Township at Sheridan Road,
19 approximately 0.2 mile north of Bay City Forestville Road. The Route continues
20 through agricultural fields and woodland before crossing back into Akron
21 Township at Loomis Road, about 0.2 mile west of Unionville Road.

22 Upon crossing Unionville Road, about 0.2 mile north of Loomis Road, the
23 Proposed Route enters into Sebawaing Township and Huron County. The

1 crossing location along Unionville Road is within 500 feet of several residences.
2 It proceeds northeast for approximately 0.9 mile and crosses Miller Road,
3 approximately 0.1 mile south of Bach Road. The Proposed Route crosses Bach
4 Road, about 0.2 mile east of Miller Road, and continues through agricultural
5 fields for approximately one mile before crossing Caro Road, about 0.5 mile north
6 of Bach Road. The Route continues for approximately 1.1 miles and crosses
7 Lange Road, just south of McAlpin Road. It then crosses McAlpin Road,
8 approximately 150 feet east of Lange Road. Extending approximately 1.1 miles
9 northeast the Proposed Route crosses Gettle Road, 0.5 mile north of McAlpin
10 Road, and then continues northeast for about 1.1 miles. The Route crosses
11 Rescue Road, approximately 110 feet west of Volz Road, and then crosses Volz
12 Road, just north of Rescue Road.

13 Before the Proposed Route turns east, approximately 0.1 mile west of Bay
14 Port Road and 0.5 mile north of Rescue Road, the Route proceeds through
15 agricultural fields for one mile. It crosses into Brookfield Township at Bay Port
16 Road, 0.5 mile north of Rescue Road, and extends east for approximately 0.2
17 mile before turning northeast for 0.9 mile. The Proposed Route crosses Risky
18 Road approximately 420 feet south of Sebewaing Road and then Sebewaing
19 Road about 0.1 mile east of Risky Road. The Proposed Route extends northeast
20 for about 0.6 mile and crosses Shebeon Road, 0.5 mile northwest of the Pobanz-
21 Shebeon interchange. It continues for about 0.2 mile before it turns north for
22 approximately 2.0 miles, crossing Canboro and Kilmanagh Roads, approximately

0.2 mile west of Pobanz Road. Upon crossing Kilmanagh Road the Proposed Route enters Winsor Township.

Approximately 0.5 mile north of Kilmanagh Road the route turns east and extends 2.7 miles through agricultural fields, crossing Pobanz, Brown, and Caseville Roads. Approximately 0.5 mile east of Caseville Road, the route turns northeast and crosses Notter Road, about 0.3 mile south of Stein Road. It continues through agricultural fields and some woodland, crossing Stein Road about 0.5 mile east of Notter Road, entering Oliver Township at Gagetown Road, 0.2 mile north of Stein Road. The Route extends approximately 1.1 miles through agricultural fields and crosses Haist Road, approximately 0.2 mile west of Maxwell Road. It continues northeast and crosses Maxwell Road, 0.2 mile north of Haist Road.

The Proposed Route extends northeast for approximately 1.1 miles and crosses Farver Road, 0.4 mile south of Geiger Road, and continues through agricultural fields for 1.1 miles. After crossing Elkton Road slightly south of Geiger Road, the route then crosses Geiger Road, approximately 100 feet east of Elkton Road. From Geiger Road the route continues northeast for 0.7 mile, turning east for about 2.3 miles to cross Moore and Grassmere Roads, approximately 0.3 mile north of Geiger Road. The Proposed Route enters Colfax Township at Grassmere Road.

The Route turns northeast at Grassmere Road crossing an existing 120-kV transmission line approximately 0.5 mile east of Grassmere Road. The Route continues northeast for about 0.5 mile and crosses Pinnebog Road, 0.5 mile

1 north of Geiger Road. The Proposed Route continues northeast for 0.3 mile
2 through agricultural fields before turning north-northeast for approximately 0.7
3 mile to Pigeon Road. The Route crosses Pigeon Road, about 0.2 mile west of
4 Lackie Road, and then crosses Lackie Road, 0.1 mile north of Pigeon Road. It
5 continues 0.6 mile through agricultural fields before turning northeast for
6 approximately 0.5 mile and then crosses McMillan Road, 0.4 mile south of
7 Richardson Road.

8 Continuing northeast for one mile, the Proposed Route crosses Thomas
9 Road, about 0.2 mile south of Richardson Road, and then continues northeast for
10 about 0.4 mile before turning to the north approximately 500 feet south of
11 Richardson Road. It crosses Richardson Road about 0.4 mile east of Thomas
12 Road. Extending north for 0.2 mile, the Proposed Route then proceeds east for
13 0.6 mile, crossing Barrie Road. Turning slightly northeast the Route extends for
14 one mile through agricultural fields and enters Verona Township upon crossing
15 Van Dyke Road, approximately 0.2 mile north of Richardson Road.

16 Continuing east the Proposed Route parallels field lines for one mile,
17 crossing Crockard Road, 0.2 mile north of Richardson Road. The Route extends
18 in a northeasterly direction and crosses Hellems Road, 0.4 mile north of
19 Richardson Road. It continues northeast for 0.5 mile and then proceeds east
20 crossing an existing 120-kV transmission line located about 0.2 mile west of
21 Carpenter Road and approximately 0.4 mile north of Richardson Road. From
22 Carpenter Road the Route parallels the existing 120-kV transmission line for 3.5
23 miles crossing Sullivan, Tomlinson, and Verona Roads, approximately 0.4 mile

1 north of Richardson Road. Upon crossing Verona Road the Route enters Sigel
2 Township. Approximately 0.5 mile east of Verona Road the Proposed Route
3 turns south and proceeds about 1.2 miles, crossing Richardson Road/Section
4 Line Road, to enter the proposed Rapson Substation, located in Section 7 of
5 Sigel Township, north of Learman Road, east of Verona Road and west of
6 McKichen Road. In this 1.2 mile section the Proposed Route would include a
7 new double circuit 345 kV line and a new double circuit 120 kV line. The new
8 double circuit 120 kV line is used to route the existing east-west 120 kV line
9 south into Rapson Substation.

10 The Proposed Route exits the Rapson Substation to the south, crossing
11 Learman Road. It continues south, passing through approximately 0.3 mile of
12 forest land and continuing another quarter mile before turning east. In this 0.5
13 mile section the Proposed Route would include a new double circuit 345 kV line
14 and a new double circuit 120 kV line. The new double circuit 120 kV line is used
15 to route the existing east-west 120 kV line north into Rapson Substation. The
16 Route extends to the east approximately 3.1 miles and crosses McKichen Road,
17 MacDonald Road, and Johnston Road approximately 0.5 mile south of each
18 road's intersection with Learman Road. The Proposed Route parallels the north
19 side of an existing ITC-owned 120-kV transmission line for these 3.1 miles.
20 Approximately 0.3 mile east of McKichen Road, the Route would pass within 350
21 feet of a residence, although it is located on the south side of the existing
22 transmission line away from the proposed line. Approximately 0.5 mile east of

1 Johnston Road, the Route turns to the south and crosses the existing 120-kV
2 transmission line.

3 The Route proceeds southward for approximately 4.0 miles, crossing
4 Kipper Road, Sand Beach Road, Duda Road, Ulfig Road, Cook Road, and
5 Helena Road. The Proposed Route crosses these roads approximately 0.5 mile
6 west of their intersections with Parisville Road. The Proposed Route extends
7 through approximately 0.3 mile of forest land between Ulfig Road and Cook
8 Road. Upon crossing Helena Road, the Proposed Route enters Paris Township.
9 The Route continues south for 0.5 mile across agricultural fields before extending
10 to the southwest 0.5 mile to Purdy Road. The Route crosses Purdy Road 0.3
11 mile east of Polk Road and turns to the southeast, extending for one mile across
12 agricultural fields before crossing Priemer Road approximately 0.4 mile west of
13 Parisville Road. Continuing to the southeast, the Route crosses agricultural
14 fields for one mile before turning to the south and crossing Leppek Road 0.2 mile
15 west of Parisville Road. From Leppek Road the Proposed Route continues due
16 south for approximately two miles, crossing Atwater Road and Munford Road at
17 one-mile intervals while extending across open agricultural fields. At Munford
18 Road, the Proposed Route turns south-southwest and continues one mile to
19 Huron Line Road about 0.4 mile west of Parisville Road. At Huron Line Road the
20 Route crosses into Minden Township and Sanilac County, and continues across
21 agriculture fields for one mile before crossing Bay City Forestville Road west of
22 Parisville Road.

Continuing to the southeast for one mile, the Proposed Route crosses Charleston Road west of Parisville Road. Approximately one mile south of Charleston Road, the Proposed Route turns east-southeast and crosses Wetzel Road approximately 0.1 mile west of Parisville Road. The Route extends southeast, crosses Parisville Road approximately 0.2 mile south of Wetzel Road, and continues to the southeast approximately one mile before crossing Ridley Road about 0.5 mile west of Parisville Road. After crossing Ridley Road, the Route extends south across agricultural fields for one mile before crossing Palms Road west of Minden Road. The Proposed Route then crosses through approximately 0.2 mile of forest land before continuing to the south for 0.8 mile to Russell Road. The Route crosses Russell Road approximately 0.2 mile west of Minden Road. Extending south from Russell Road, the Route crosses into Wheatland Township and continues for one mile before crossing Mills Road. The Proposed Route then extends another 0.5 mile before turning to the southwest. The Proposed Route crosses Brady Road approximately 0.4 mile north of Richmondville Road, continues southwest, and crosses Richmondville Road approximately 0.1 mile west of Brady Road. Continuing southwest, the Route extends 0.7 mile before turning to the south and crossing Stone Road 0.2 mile west of Brady Road. From Stone Road, the Proposed Route travels due south for one mile across agriculture fields and crosses Shabbona Road. The Route continues south for one quarter mile, then turns southwest and crosses Farnsworth Road about 0.3 mile south of Shabbona Road. The Route extends southwest for approximately 0.7 mile and crosses Deckerville Road about 0.2

1 mile east of Stringer Road. At Deckerville Road, the Proposed Route turns and
2 continues south for one mile before crossing Downington Road and entering
3 Custer Township.

4 The Proposed Route continues south for one mile, crosses Nicol Road,
5 and continues for another 0.8 mile before turning to the south-southwest and
6 crossing Forester Road east of Stringer Road. The Proposed Route continues in
7 a southwesterly direction and crosses Stringer Road approximately three
8 quarters of a mile south of Forester Road. The Proposed Route extends another
9 0.3 mile and crosses Snover Road approximately 0.1 mile west of Stringer Road.
10 At Snover Road, the Route extends southwest for 0.5 mile before turning south
11 and extending another 0.5 mile to Custer Road, crossing about 0.2 mile west of
12 Stringer Road. At Custer Road, the Route continues south for one mile before
13 crossing Eddy Road. Immediately after crossing Eddy Road, the Route turns
14 due west and parallels Eddy Road for approximately three quarters of a mile
15 before crossing Banner Road. Immediately after crossing Banner Road, the
16 Proposed Route turns due south and parallels Banner Road for one mile. The
17 Proposed Route then turns southeast, crosses at the intersection of Sanilac
18 Avenue and Banner Road on the east side of the town of Sandusky, and enters
19 Watertown Township.

20 The Proposed Route continues approximately 0.4 mile before turning due
21 south and extending across agricultural fields for two miles. The Route then
22 turns southeast and uses part of an ITC *Transmission* 120-kV transmission right-
23 of-way for approximately six miles. This intersection of the Proposed Route and

1 the existing 120 kV line is the location of the new substation containing the
2 Sandusky 345-120 kV transformer as noted in Mr. Vitez's testimony. The
3 existing 120-kV transmission line would be removed within the right-of-way south
4 of this site, and the Proposed Route would be constructed in its place, although
5 110 feet of new right-of-way would be required in addition to the approximately
6 90 feet currently maintained for this 120-kV transmission line. While using this
7 right-of-way, the Proposed Route crosses Walker Road, Cash Road, Ayotte
8 Road, French Line Road, Fetting Road, Applegate Road, Elk Creek Road, Fitch
9 Road, Marlette Road, and Brown Road. The Proposed Route crosses
10 Washington Township along existing right-of-way, entering Buel Township after
11 crossing Marlette Road. The Proposed Route also passes within 250 feet of a
12 residence located along Brown Road. Approximately one quarter mile north of
13 Aitken Road, the Route leaves the existing right-of-way and turns south before
14 intersecting Aitken Road. After crossing Aitken Road about 0.5 mile east of
15 Brown Road, the Route continues to the south for one mile before crossing
16 Stilson Road. After Stilson Road, the Route extends another mile, crossing Hall
17 Road then continues approximately three quarters of a mile south before turning
18 southwest. It extends for 0.3 mile, crossing Harrington Road east of Brown Road
19 and extending south. The Proposed Route crosses Peck Road and continues
20 south for one mile, entering Fremont Township after crossing Sheridan Line
21 Road.

22 The Proposed Route extends south another mile and crosses Mortimer
23 Line Road. Continuing south, the Route extends one mile before crossing Burns

Line Road. The Proposed Route continues south, crosses Gardner Line Road, extends another 0.4 mile before turning southwest for approximately 0.6 mile to the intersection of Brown Road and Galbraith Line Road. The Proposed Route crosses Galbraith Line Road just east of Brown Road in a southerly direction, continuing for approximately 0.2 miles where it turns to the southeast for approximately one quarter mile before crossing Comstock Road, approximately 0.1 mile east of Brown Road. The Proposed Route continues approximately 0.5 miles to the southeast, crosses Wellman Line Road approximately 0.2 miles east of Brown Road, and continues southeast for approximately one mile before turning to the south. The Route enters Greenwood Township and St. Clair County, crossing Fisher Road, and extending south for approximately 0.7 mile. It turns to the south-southwest and continues for 0.3 mile to cross Jeddo Road about 0.4 mile east of Brown Road. Continuing south-southwest, the Route extends approximately 0.5 mile before turning south. The Proposed Route continues south, crossing Yale Road again about 0.4 mile east of Brown Road and approximately 0.2 mile of forest land in a southeasterly direction. The Proposed Route extends to the southeast and then crosses an ITC-owned 120-kV transmission line at Oatman Road. The Route crosses Oatman Road and parallels the east side of the existing ITC-owned transmission line to the south for approximately 1.1 miles. It would turn east, extending approximately 0.1 mile before connecting into the Greenwood Substation at the Greenwood Generation Facility in St. Clair County.

1 The Proposed Route would extend southwest from the Greenwood
2 Substation. Approximately 0.6 miles south of the substation, it would cross an
3 existing ITC-owned 345-kV transmission line. From this point to the southern-
4 most end of the proposed project, the remainder of the Proposed Route would be
5 within a 420-foot-wide, ITC-owned right-of-way. This right-of-way currently only
6 contains one 345-kV circuit on steel lattice tower structures. The existing line is
7 located along the western side of the right-of-way, leaving the remainder vacant
8 for additional circuits. The Proposed Route would be positioned along the east
9 side of the existing right-of-way, leaving vacant space between the proposed
10 project and existing line for future circuits. This right-of-way, although owned by
11 ITC, has not been maintained as utility right-of-way. Portions of the right-of-way
12 are farmed while other areas are overgrown in brush or woodland.

13 The Proposed Route would initially follow the existing right-of-way to the
14 southwest for approximately 0.3 mile before turning due south. The Proposed
15 Route would continue south through Greenwood Township, crossing Norman
16 and Metcalf roads approximately 0.3 mile east of Brown Road. Upon crossing
17 Metcalf Road, the Proposed Route enters Kenockee Township and continues
18 south for approximately four miles to Bryce Road. Within these four miles, the
19 Proposed Route crosses Avoca, Beard, Imlay City, and Bryce roads, all
20 approximately 0.3 mile east of the intersection of these roads with Brown Road.
21 The Proposed Route passes within 350 feet of scattered individual residences
22 located along Avoca, Beard, and Imlay City roads. After crossing Bryce Road,
23 the Route continues south within the existing right-of-way, crossing Rynn Road

1 and Brandon Road approximately 0.7 mile west of the intersection of these roads
2 with Kilgore Road.

3 Approximately 0.5 mile south of Brandon Road, the Route enters Wales
4 Township and continues south for approximately 4.7 miles before connecting to
5 the proposed Fitz Substation site. The proposed Fitz Substation is located in
6 Section 29 of Wales Township. It would be west of the existing 345-kV line and
7 the existing vacant right-of-way being used by the Proposed Route. The
8 substation would be located on land east of Cove Road, south of Marquette
9 Road and north of Smiths Creek Road, just north of an existing 120-kV
10 transmission line. Along the 4.7 miles leading to the Fitz Substation, the
11 Proposed Route would continue to be located in the vacant ITC-owned right-of-
12 way. The Proposed Route would cross Webb Road, Interstate 69, Sparling
13 Road, Hill Road, Green Road, Lambs Road, and Marquette Road. The crossing
14 of these roads would occur approximately 0.2 mile east of the intersections of
15 each of these roads with Cove Road. Individual residences are located within
16 300 feet of the Route along Sparling, Green, and Marquette roads.

17 The Proposed Route would extend south from the Fitz Substation for
18 approximately 1.4 miles, crossing Smiths Creek Road and Alpine Road before
19 entering Columbus Township. The Proposed Route would pass within 250 feet
20 of individual residences along Smiths Creek Road and Alpine Road. Upon
21 entering Columbus Township, the Proposed Route extends south an additional
22 2.1 miles before connecting to an existing ITC-owned 345-kV transmission line.
23 This connection of the proposed and existing 345-kV lines would be located

along the existing 345-kV line in Columbus Township, Section 17. It would be south of Meskill Road and east of Bauman Road in the northeast corner of the section. Within the 2.1 miles leading to the connection, the Route crosses Rattle Run/Dolan, Weber, and Meskill roads. The Proposed Route would also pass within 250 feet of individual residences along Rattle Run/Dolan Road and Weber Road, and within 300 feet of a residence along Meskill Road.

Q11. IN SUMMARY, WHY WAS THE PROPOSED ROUTE SELECTED?

A11. In evaluating potential routes for this proposed project, a number of routing factors were considered, including the following:

- Establish the most direct alignment between the project points (Baker, Rapson, Greenwood, and Fitz Substations)
- Avoid developed and municipal areas
- Maximize distance from residences
- Avoid center pivot irrigation systems
- Avoid state and public lands
- Minimize wetlands within the right-of-way, according to U.S. Army Corps of Engineers, Clean Water Act, Section 404 requirements
- Use or follow existing ITC rights-of-way, subject to the suitability and availability of adjacent lands to meet the proposed project's needs for additional right-of-way
- Cross grassland before cropland, cropland before woodland (important habitat for the endangered Indiana bat and often wetland in this area)
- When crossing cropland, to the extent practicable, locate the line and angles along field borders, fence rows, non-tilled borders or waterways, or in such a manner as to span the field, thus avoiding the need to place a structure within the tilled area
- Avoid airports and landing strips

- Maintain safe and appropriate separation from existing wind turbines

Having developed an extensive number of potential route options as shown on Exhibit SGT-2, 19 evaluation criteria, as noted previously, were identified to screen the potential routes and identify the lowest overall impacting routes for further evaluation. These 19 evaluation criteria were based on 23 quantifiable characteristics of the developed routes. Based on the detailed screening analysis and further comparison and consideration of the lowest scoring routes (identified in the screening analysis) using the evaluation criteria identified, the Proposed Route was selected as the alignment for the proposed project.

None of the potential routes had the least impact for all the criteria evaluated. Therefore, selection of the Proposed Route involved trade-offs. Trade-offs resulted in the selection of the Proposed Route because, overall, it represents the least impacting route. This is not to say that it would be the least impacting for each or any individual evaluation criterion, only that when all the potential impacts to all the environmental criteria are considered, the Proposed Route minimizes all impacts to the extent practicable.

Overall, the Proposed Route would minimize potential project-related impacts. In fact, the Proposed Route had below average impacts for 12 of the 19 criteria, including residential proximity, new right-of-way required, length through cropland, woodland and wetland within the right-of-way, wind zone proximity, length, and number of heavy angles. Additionally, although the western half of the Proposed Route (Baker to Rapson) would have slightly above average

1 visibility, the eastern portion (Rapson to Fitz) would have substantially below
2 average visibility.

3 The Proposed Route was one of the shorter overall routes evaluated,
4 approximately 138.5 miles long. It would be one of the straightest routes, having
5 only 22 required heavy angle lattice tower structures, minimizing land occupied
6 by structures and overall structure visibility and inconvenience to farming
7 property owners. The Proposed Route, by minimizing overall length, would also
8 minimize new right-of-way which would need to be acquired, a total of
9 approximately 2,800 acres over the entire length of the project. Residential
10 proximity to the Proposed Route would also be minimal with only 83 residences
11 within 500 feet of the Proposed Route. Visibility of the Proposed Route would
12 vary depending on the location along the line, as noted previously. However,
13 overall, it was estimated only 517 residences within 1,250 feet of the Proposed
14 Route would have an unobstructed view of the line. Although slightly above
15 average overall, this level of visibility is a reflection of the Proposed Route
16 minimizing woodland clearing, requiring approximately 158 acres of clearing,
17 among the least amount for all potential routes evaluated. Location of the
18 Proposed Route across cropland and pasture, where land use conflicts are
19 considered minimal, rather than through woodland, where permanent conversion
20 of the land use would result, reduces woodland clearing but also reduces
21 potential vegetative screening of the line, resulting in greater visibility. That said,
22 although numerous residences would have an unobstructed view of the
23 Proposed Route, many already have other transmission lines or wind turbines

1 within the viewscape, lessening the overall contrast to the viewshed that would
2 be created by the Proposed Route.

3 The Proposed Route would also have substantially below average impacts
4 to wetlands, incorporating only 83.4 acres into the new right-of-way. Depending
5 on the ultimate alignment exiting the Rapson Substation, this amount may be
6 subject to even further reduction. Wetlands in the project area are prevalent and
7 often include forested wetlands which are difficult to replace and impacts to them
8 often pose substantial regulatory concerns. Minimizing wetland impacts is
9 required as part of obtaining permits for transmission line construction projects.

10 Lastly, the Proposed Route is optimally located to serve the developing
11 wind industry in the Thumb region. As it is more centrally located within the area
12 of high wind potential, this location would minimize the extent of additional
13 transmission lines necessary to connect the proposed project to individual wind
14 farms as they are developed. Reducing the extent of additional transmission
15 lines would also reduce the potential impacts associated with construction and
16 operation of these lines. Minimizing transmission line construction would be
17 expected to minimize future land acquisition, residential proximity, land use
18 conflicts, clearing, and other impacts associated with transmission line
19 construction. Therefore, the Proposed Route not only minimizes impacts directly
20 associated with construction and operation of the proposed project, but will also
21 likely serve to minimize future transmission line construction impacts as a result
22 of its location within the key wind zone development area.

Q12. PLEASE DESCRIBE THE ALTERNATE ROUTE.

A12. The alignment for the Alternate Route was developed in consideration of numerous routing considerations, as discussed previously for the Proposed Route. While this alignment has been determined through the evaluation and comparison process to minimize overall environmental impacts and represents a reasonable and constructible route, it is not intended to be inflexible. In fact, it is expected that as engineering, design, survey, utility locates, and landowner negotiations proceed, and if the Michigan Public Service Commission approves the project and requires construction and operation of the Alternate Route, minor adjustments to the route would be identified and implemented. These adjustments would serve to optimize the route alignment and address localized conditions and accommodate landowner suggestions and requests to the extent practicable. A map of the Alternate Route can be found at Exhibit SGT-5. A detailed description of the Alternate Route is provided below.

The Alternate Route would originate at the Baker Substation located in Tuscola Township, Section 7, in Tuscola County, north of Weaver Road and east of Reese Road. The Alternate Route would extend northeast from the Baker Substation, crossing Hart Road, approximately 0.5 mile north of Weaver Road. The Route would continue northeast through agricultural fields for about 0.8 mile, crossing Richville Road, about 0.2 mile south of Simpson Road. Approximately 60 feet from Richville Road the Route would turn east for 1.7 miles, crossing an existing 138-kV transmission line and Lorenzo Road, about 0.2 mile south of Simpson Road. Approximately 0.7 mile east of Lorenzo Road, the Alternate Route would turn north to parallel the west side of an existing transmission line

corridor containing two 138-kV transmission lines. The existing lines would remain in service in this area and an additional approximately 155 feet of right-of-way would be acquired adjacent to the existing right-of-way to locate the Alternate Route. The Alternate Route parallels the existing line north for 1.1 miles, crossing Simpson Road approximately 0.6 mile south of Saginaw Road, approximately 0.6 mile southeast of its intersection with Waterman Road. The Route continues to parallel the existing 138-kV transmission corridor, crossing Waterman Road approximately 0.4 mile east of the intersection with Saginaw Road. Upon crossing Waterman Road the Route enters Denmark Township.

Approximately 0.5 mile south of Sanilac Road, the Route turns north, still paralleling the existing 138-kV corridor. The Alternate Route crosses Sanilac Road, approximately 0.3 mile east of Bradford Road, before crossing over to the east side of the existing 138-kV transmission lines approximately 100 feet north of Sanilac Road. The Alternate Route continues north paralleling the east side of the existing 138-kV corridor for 1.5 miles, crossing Wilder Road, about 0.4 mile east of Bradford Road, before veering northeast away from the existing transmission corridor.

The Alternate Route crosses Reinbold Road, about 0.5 mile west of Bradleyville Road, before continuing for 0.5 mile and then turning north. Extending north for 1.5 miles the Route crosses Caro and Dixon roads, about 0.3 mile west of Bradleyville Road. Upon crossing Dixon Road, the Route turns north-northeast through agricultural fields for approximately 0.5 mile before turning east to parallel the south side of the existing 120-kV transmission line.

1 The Alternate Route extends 2.2 miles east through agricultural fields and some
2 woodland crossing Bradleyville and Garner roads, about 0.5 mile north of Dixon
3 Road. About 200 feet west of Vassar Road, the Route turns north, crossing the
4 existing 120-kV transmission line it is paralleling. Crossing Vassar Road,
5 approximately 0.5 mile south of Van Geisen Road, the Alternate Route continues
6 east for 1.2 miles across Kirk Road, about 0.4 mile south of Van Geisen Road.
7 Upon crossing Vassar Road the Route enters Juniata Township.

8 A quarter of a mile east of Kirk Road the Alternate Route turns north-
9 northeast for 0.8 mile. Upon crossing Van Geisen Road, about 0.5 mile east of
10 Kirk Road, the Route enters Fairgrove Township. Approximately 0.3 mile north
11 of Van Geisen Road, the Route turns northeast crossing Hinson Road, about 0.4
12 mile north of Van Geisen Road. It continues northeast for about one mile,
13 crossing Ringle Road, about 0.4 mile south of Gilford Road. Immediately after
14 crossing Ringle Road the Route turns north-northeast, crosses Gilford Road
15 approximately 200 feet west of Merry Road, and then Merry Road itself about
16 160 feet north of Gilford Road. The Alternate Route continues north-northeast
17 through agricultural fields for approximately 0.6 mile before crossing Fenner
18 Road, 0.4 mile north of Gilford Road.

19 The Alternate Route continues 1.1 miles through agricultural fields and
20 some woodland before crossing Sheridan Road, just south of Deckerville Road,
21 and then crosses Deckerville Road itself, about 40 feet east of Sheridan Road. It
22 continues in a northeasterly direction for about 1.2 miles before crossing
23 Unionville Road, about 0.2 mile south of Fairgrove Road, and Fairgrove Road,

1 about 0.3 mile east of Unionville Road. Upon crossing Unionville Road the
2 Alternate Route enters Almer Township.

3 The Alternate Route continues northeast for approximately 0.9 mile,
4 crossing Graf Road, about 0.3 mile north of Fairgrove Road. About 0.3 mile
5 northeast of the Graf Road crossing, the Route turns north-northeast, crossing
6 Darbee Road about 0.4 mile west of French Road. It continues north-northeast
7 crossing French Road, approximately 0.6 mile north of Darbee Road. Just south
8 of Dutcher Road, the Alternate Route angles slightly and crosses Dutcher Road
9 about 0.3 mile east of French Road. It continues northeast for 0.7 mile before
10 crossing Colling Road, about 0.3 mile north of Dutcher Road, and then continues
11 through agricultural fields for 0.9 mile before crossing Cleaver Road,
12 approximately 0.4 mile from its intersection with Akron Road. The Alternate
13 Route crosses Akron Road, 0.4 mile east of Ashmore Road, and then extends
14 northeast and crosses Remington Road, about 700 feet south of Bristol Road.
15 The Alternate Route continues for approximately one mile, crossing Elmwood
16 Road, about 0.2 mile west of Colwood Road, and then crosses Colwood Road,
17 about 400 feet north of Elmwood Road. Upon crossing Elmwood Road the
18 Route crosses the corner of Columbia Township and then proceeds into
19 Elmwood Township where it crosses Colwood Road.

20 The Alternate Route proceeds through mostly woodland and wetland for
21 approximately one mile before crossing Hutchinson Road, about 65 feet west of
22 McGregory Road. It then crosses McGregory Road, just north of Hutchinson
23 Road. The Route continues through agricultural fields and woodland for 0.7 mile.

1 It crosses Cass City Road approximately 750 feet east of Dosser Road, coming
2 within 500 feet of several residences, and continues north for about 570 feet
3 before turning in a more easterly direction to cross Jacob Road, approximately
4 700 feet north of Cass City Road. The Alternate Route continues across
5 agricultural fields and woodland for approximately one mile before crossing
6 Hurds Corner, about 0.2 mile north of Cass City Road. Just before crossing
7 Hurds Corner the Route turns northeast and extends through agricultural fields,
8 crossing Seeley Road approximately 0.4 mile north of Cass City Road. The
9 Route continues northeast for approximately 0.2 mile to the quarter section line
10 where it turns east. It extends east, crossing Green Road approximately 0.5 mile
11 north of Cass City Road. It turns north-northeast to again parallel an existing
12 120-kV transmission line. The Alternate Route previously deviated from
13 continuing to parallel this existing line to avoid the town of Caro, through which
14 the existing line passes and where sufficient additional right-of-way is not
15 available adjacent to this existing line to accommodate the proposed project.

16 The Alternate Route parallels the existing 120-kV transmission line for
17 approximately 2.6 miles to the existing Arrowhead Substation. While paralleling
18 the existing transmission line the Route crosses Cedar Run, Hoppe, and Dodge
19 roads. Upon crossing Dodge Road the Route enters Elkland Township. The
20 Alternate Route would not connect into the Arrowhead Substation, bypassing it to
21 take advantage of the existing right-of-way. After extending north of the
22 Arrowhead Substation, the Alternate Route could make use of the existing 120-
23 kV transmission line right-of-way. The existing line would be removed and the

1 Alternate Route would be built in its place. An additional approximately 110 feet
2 of right-of-way would need to be obtained as the current width of right-of-way for
3 the existing line is approximately 90 feet and a 200-foot right-of-way would be
4 required for this project.

5 Extending northeast from Arrowhead Substation within the existing right-
6 of-way, the Alternate Route crosses Penny, Richie, Bay City Forestville,
7 Koepfgen, Huron Line, Maharg, Elkton, Bach, McAlpin, Hartsell, Rescue, Blakely,
8 and Sebewaing roads along an approximately 8.4-mile section. Upon crossing
9 Huron Line Road, the Route enters Grant Township. Approximately 0.3 mile
10 north of Sebewaing Road, the centerline of the Route deviates from the existing
11 transmission line right-of-way to avoid residences which are located within close
12 proximity to the existing transmission line, likely precluding acquisition of
13 sufficient additional right-of-way for the new line through this area. The Route
14 crosses Moore Road approximately 0.4 mile north of Sebewaing Road, and
15 returns to the existing right-of-way. The Route replaces the existing transmission
16 line for approximately 2.1 miles crossing Canboro, Grassmere, and Kilmanagh
17 Roads. Upon crossing Grassmere and Kilmanagh Roads the Route enters Grant
18 Township and then Colfax Township, respectively. Approximately 325 feet
19 northeast of the Kilmanagh Road crossing, the Route turns north away from the
20 existing transmission line to avoid the residences that are located within close
21 proximity to the existing line.

22 The Alternate Route continues north for approximately 1.3 miles, crossing
23 Stein Road, approximately 0.3 mile east of Grassmere Road. After extending

1 north of Stein Road for 0.3 mile, the Route turns east for 1.7 miles through
2 woodland and agricultural fields and crosses Pinnebog Road, approximately a
3 quarter mile south of Glassburner Road. After using the existing line's right-of-
4 way for three quarters of a mile and crossing Lackie Road, the Route again
5 offsets the centerline to avoid a structure located in close proximity to the existing
6 line. The Route crosses Soper Road approximately 670 feet west of McMillan
7 Road. It returns to the existing line right-of-way approximately 100 feet west of
8 McMillan Road and uses the existing right-of-way for approximately 0.4 mile after
9 crossing McMillan Road.

10 Insufficient area is available along this section of line to increase the
11 existing right-of-way to 200 feet without potentially impacting dwellings due to
12 many residences and structures being in close proximity to the existing line.
13 Therefore, the Alternate Route would leave the existing right-of-way to bypass
14 this area and maximize distance from residences by using new alignment. It
15 would extend north-northeast for approximately 0.5 mile, across Geiger Road,
16 about 0.5 mile east of McMillan Road. Approximately 0.7 mile north of Geiger
17 Road the Route turns northeast for 0.5 mile before crossing Pigeon Road, about
18 750 feet west of Thomas Road. The Route proceeds northeast through
19 agricultural fields, crossing Thomas Road about 720 feet north of Pigeon Road.
20 It continues northeast for 0.5 mile before turning north and crossing Richardson
21 Road about 0.4 mile east of Thomas Road. After extending 0.2 mile north, the
22 Alternate Route turns east for 0.6 mile and across Barrie Road. Turning slightly
23 northeast, the Route extends for one mile through agricultural fields and enters

Verona Township, crossing Van Dyke Road approximately 0.2 mile north of Richardson Road.

Continuing due east, the Alternate Route parallels field and fence lines for one mile, crossing Crockard Road 0.2 mile north of Richardson Road. The Route extends in a northeasterly direction and crosses Hellems Road approximately 0.4 mile north of Richardson Road. It continues northeast for 0.5 mile and then proceeds east crossing an existing 120-kV transmission line located about 0.2 mile west of Carpenter Road and approximately 0.4 mile north of Richardson Road. From Carpenter Road the Route parallels the existing 120-kV transmission line for 3.5 miles crossing Sullivan, Tomlinson, and Verona roads, approximately 0.4 mile north of their intersection with Richardson Road. Upon crossing Verona Road, the Route enters Sigel Township. Approximately 0.5 mile east of Verona Road the Alternate Route turns south and extends about 1.2 miles, crossing Richardson Road/Section Line Road, to connect to the proposed Rapson Road Substation, located in Section 7 of Sigel Township, north of Learman Road, east of Verona Road and west of Mckichen Road. In this 1.2 mile section, the Alternate Route would include a new double circuit 345 kV line and a new double circuit 120 kV line. The new double circuit 120 kV line is used to route the existing east-west 120 kV line south into Rapson Substation.

The Alternate Route extends south from the Rapson Substation. It extends south, passing through approximately one quarter mile of forest land and continuing another one quarter mile before turning west. In this 0.5 mile section, the Alternate Route would include a new double circuit 345 kV line and a new

double circuit 120 kV line. The new double circuit 120 kV line is used to route the existing east-west 120 kV line north into Rapson Substation. Upon turning west, the Alternate Route parallels the north side of an existing ITC-owned 120-kV transmission line for approximately 2.9 miles, requiring an additional 155 feet of right-of-way. Within these 2.9 miles, the Alternate Route crosses approximately 1.2 miles of forest land and substantial potential wetland areas, entering Verona Township after crossing Verona Road. The Alternate Route also crosses Tomlinson Road and Sullivan Road approximately 0.5 mile south of the intersections of these roads with Learman Road. Approximately 0.4 mile west of Sullivan Road, just east of the existing Wyatt Substation, the Alternate Route crosses the ITC-owned 120-kV transmission line and parallels the east side of another 120-kV line extending from the south to connect into the Wyatt Substation. It extends south across Murray Road along this existing line and right-of-way. Paralleling this existing line would require acquisition of an additional 155 feet of right-of-way immediately adjacent to the existing line and right-of-way.

The Alternate Route continues south. At the crossing of Sand Beach Road, it crosses over the existing 120-kV transmission line and continues to parallel the west side of this line to avoid residences along the east side of the line. From Sand Beach Road, the Route continues to parallel the existing 120-kV transmission line south approximately 1.4 miles, crossing Thompson Road approximately one quarter mile west of its intersection with Pangborn Road. Approximately 0.1 mile north of Philp Road, the Route turns southeast, crosses

Philp road and continues southeast approximately 0.8 mile before crossing Jurgess Road. Still paralleling the west side of the existing transmission line, the Alternate Route crosses Jurgess and Helena roads and enters Bingham Township.

The Alternate Route then turns due south and continues to parallel the existing transmission line for approximately two miles until crossing Priemer Road. Within this two mile section, the Alternate Route crosses Purdy Road east of its intersection with Jurgess Road. As the Alternate Route continues south and crosses Priemer Road, it passes within 300 feet of a residence located along Priemer Road on the east side of the existing transmission line, the opposite side as the Alternate Route. Approximately 0.2 mile south of Priemer Road, the Route crosses to the east side of the existing 120-kV transmission line to avoid development adjacent to the west side of the line and continues south to Leppek Road. At Leppek Road, the Alternate Route shifts slightly to the east but still passes within 200 feet of a residence. It then turns to the southwest for a short distance as it crosses the roadway and passes by the Leppek Substation.

South of Leppek Substation and for the next 13 miles of the Alternate Route alignment, the existing 120-kV transmission line would be removed and the Alternate Route would be constructed in its place. An additional 110 feet of new right-of-way would need to be required in addition to the current right-of-way of the 120-kV transmission line. As the Alternate Route extends to the south of the Leppek Substation, it enters Austin Township and Sanilac County as it crosses Huron Line Road.

The Alternate Route continues south, using the existing right-of-way, crossing Atwater, Munford, and Huron Line Road approximately 0.2 mile east of the intersection of these roads with Jurgess Road. The Alternate Route passes within 250 feet of a residence along Munford Road and within 350 feet of two residences located along Atwater Road. At Atwater Road, the Route deviates from the existing right-of-way slightly to the west to avoid these two residences before rejoining the existing right-of-way to the south. The Alternate Route continues south through Austin Township, eventually crossing Robinson Road and entering Argyle Township. Along this approximately six miles, the Route crosses Bay City Forestville, Soule, Flannery, Cumber, Cass City, and Robinson roads. The Alternate Route crosses these roads approximately one quarter mile east of their intersections with Freiburger Road. The Alternate Route passes through approximately two miles of forest land and within 350 feet of three residences along Bay City Forestville Road, one of which is within 160 feet of the Alternate Route. The Route briefly deviates from the existing right-of-way along Bay City Forestville Road to provide additional separation for these three residences. The Route passes within 350 feet of two residences along Soule Road, and within 250 feet of two residences along Cumber Road, where the Route again deviates from the existing right-of-way for a short length to provide more separation from these residences. When crossing Cass City Road, the Route deviates from the existing right-of-way to the east to avoid an outbuilding located adjacent to the right-of-way. As the Alternate Route enters Argyle Township, it passes within 350 feet of a residence as it crosses Robinson Road.

1 The Route continues south for six miles still using the existing ITC right-of-
2 way and an additional 110 feet of new right-of-way. It crosses Downington Road
3 into Moore Township. Within these six miles, the Route crosses 0.5 mile of
4 forest land and crosses Shagene, Pringle, Argyle, Stone, Shabbona, Deckerville,
5 and Downington roads. The Alternate Route crosses these roads approximately
6 one quarter mile east of their intersections with Freiburger Road. The Route
7 alignment also shifts slightly to the west of the existing right-of-way along Stone
8 Road to provide 250 feet of separation from a residence.

9 As the Alternate Route crosses Downington Road and enters Moore
10 Township, it continues to use existing right-of-way (and an additional 110 feet of
11 new right-of-way) for approximately 0.8 mile before deviating from the 120-kV
12 transmission right-of-way and continuing south to avoid several homes that are in
13 close proximity to the existing right-of-way. The Route then crosses Mushroom
14 Road approximately 0.2 mile east of Freiburger Road, extends south another 0.2
15 mile, and then turns east and proceeds approximately 0.4 mile before re-entering
16 the existing 120-kV transmission right-of-way and extending to the southeast.
17 The Alternate Route continues across agricultural fields to the southeast,
18 approximately 2.1 miles, before crossing Town Line Road and entering Custer
19 Township. Within these 2.1 miles, the Route crosses Sheriden Road
20 approximately 0.3 mile north of its intersection with Urban Road, and crosses
21 Urban Road approximately 0.3 mile east of its intersection with Sheriden Road.
22 As the Route crosses Town Line Road and enters Custer Township, it passes
23 within 275 feet of a residence located along Town Line Road.

1 The Alternate Route continues southeast for approximately 3.1 miles while
2 using the existing 120-kV right-of-way. Within these 3.1 miles, the Route crosses
3 Snover Road approximately 0.2 mile east of Town Line Road, Gates Road
4 approximately one quarter mile north of Custer Road, and deviates slightly to the
5 east of the existing right-of-way along Custer Road to avoid a residence located
6 along the existing right-of-way. As the Route crosses Custer Road, it is still
7 located within 200 feet of this residence and approximately 875 feet from the
8 runway of the Sandusky Airport. The proximity to this runway, along with the
9 taller structures necessary for the proposed project, could pose concerns for safe
10 operations of aircraft at this airport.

11 Extending to the southeast after crossing Custer Road, the Route
12 continues approximately 1.2 miles before crossing Sandusky Road
13 approximately 0.2 mile north of its intersection with Eddy Road. As the Alternate
14 Route crosses Sandusky Road it passes within 250 feet of one residence located
15 along the west side of Sandusky Road. The Route proceeds to the southeast,
16 crossing Eddy Road and turning to the east. After crossing Eddy Road, the
17 Route leaves the existing right-of-way corridor, extends to the east and parallels
18 the south side of Eddy Road for approximately 0.3 mile, passing within 150 feet
19 of a residence located along the south side of Eddy Road. The Alternate Route
20 crosses Stoutenberg Road just south of its intersection with Eddy Road, passing
21 within 250 feet of two residences located on the north side of Eddy Road. The
22 Route continues to the east another 0.5 mile, turns to the south on the west side
23 of Banner Road, and parallels Banner Road for one mile. The Alternate Route

1 turns southeast, crosses at the intersection of Sanilac Avenue and Banner Road
2 on the east side of the town of Sandusky, and enters Watertown Township.

3 The Alternate Route continues approximately 0.4 mile before turning due
4 south and extending across agricultural fields for two miles. The Route crosses
5 the existing ITC-owned Lee-Sandusky 120-kV transmission line followed by the
6 Proposed Route. This crossing is the location of the new substation containing
7 the Sandusky 345-120 kV transformer as noted in Tom Vitez's testimony. The
8 Alternate Route extends slightly southeast for three quarters of a mile before
9 crossing Walker Road about 0.5 mile east of Banner Road. Upon crossing
10 Walker Road, the Alternate Route extends to the south an additional three miles
11 before crossing Marlette Road and entering Elk Township. Within these three
12 miles, the Route crosses French Line, Elk Creek, and Marlette roads
13 approximately 0.5 mile west of the intersection of these roads with Cash Road.
14 Immediately after crossing Marlette Road, the Route passes within 275 feet of
15 one residence. The Route extends approximately 0.2 mile south, continues 0.4
16 mile southwest, and another 2.3 miles south through agricultural fields. Within
17 these 2.3 miles, the Route crosses Aitken and Stilson roads, approximately one
18 quarter mile west of the intersection of these roads with Orchard Road. The
19 Alternate Route continues to the southeast approximately 1.3 miles and crosses
20 through 0.3 mile of forest land, crosses Harrington Road and continues south
21 one quarter mile before turning southwest through one quarter mile of forest land.
22 The Alternate Route then extends to the southeast to cross Peck Road about 0.2
23 mile east of Duquette Road. It continues to the southeast approximately one

1 mile before crossing Sheridan Line Road 0.4 mile east of Duquette Road and
2 entering Speaker Township.

3 After crossing Sheridan Line Road, the Route continues to the southeast
4 for 1.4 miles, crossing Mortimer Line Road approximately 0.4 mile west of its
5 intersection with Cork Road. The Route continues south approximately 2.5
6 miles, crossing Burns Line, Gardner Line, Fremont, and Galbraith Line roads,
7 approximately 0.3 mile west of the intersection of these roads with Cork Road.
8 The Route also passes within 200 feet of a single residence located along
9 Gardner Line Road. Upon crossing Galbraith Line Road, the Alternate Route
10 continues in a southerly direction for approximately 1.5 miles, passing through
11 approximately one mile of forest land. The Route extends southeast for 0.3 mile
12 before crossing Cork Road about 0.3 mile north of Fisher Road and entering
13 Fremont Township.

14 The Alternate Route continues to the southeast for 0.3 mile, turning south
15 for 0.1 mile and crossing Fisher Road about 0.2 mile east of Cork Road into
16 Greenwood Township and Saint Clair County. The Route continues to the south
17 for 0.2 mile before turning to the southeast for another 0.6 mile and crossing
18 Beckett Road approximately 0.3 mile east of its intersection with Cork Road. The
19 Alternate Route continues south 0.3 mile, crosses Jeddo Road about 0.4 mile
20 east of Cork Road within 225 feet of a residence, and extends another 0.5 mile
21 before turning and extending southeast across Yale Road about 0.5 mile west of
22 Bricker Road. At Yale Road, the Route turns south and extends approximately
23 0.6 mile before turning east and proceeding 1.3 miles to Brown Road. At Brown

1 Road, the Alternate Route crosses the road and also crosses an ITC-owned 120-
2 kV transmission line. The Route turns south and parallels the east side of the
3 existing 120-kV transmission line for approximately 0.9 mile, requiring acquisition
4 of an additional 155 feet of right-of-way adjacent to the existing corridor. It
5 crosses Oatman Road at its intersection with Brown Road. The Route continues
6 to parallel the existing line as it proceeds generally southeast for 0.6 mile and
7 crosses Wilkes Road, turning east and paralleling the existing transmission line
8 for 0.6 mile into the Greenwood Substation at the Greenwood Generation Facility
9 in St. Clair County.

10 The Alternate Route would exit the Greenwood Substation to the
11 southwest. From this point to the southern-most end of the proposed project, the
12 remainder of the Alternate Route would follow the same alignment as the
13 Proposed Route, being located within a 420-foot-wide, ITC-owned right-of-way.
14 This right-of-way currently only contains one 345-kV circuit on steel lattice tower
15 structures. The existing line is located along the western side of the right-of-way,
16 leaving the remainder vacant for additional circuits. The Alternate Route would
17 be positioned along the east side of the existing right-of-way, leaving vacant
18 space between the proposed project and existing line for future circuits. This
19 right-of-way, although owned by ITC, has not been maintained as utility right-of-
20 way. Portions of the right-of-way are farmed while other areas are overgrown in
21 brush or woodland.

22 The Alternate Route would initially follow the existing right-of-way to the
23 southwest for approximately 0.3 mile before turning due south. The Alternate

1 Route would continue south through Greenwood Township, crossing Norman
2 and Metcalf roads approximately 0.3 mile east of Brown Road. Upon crossing
3 Metcalf Road, the Alternate Route enters Kenockee Township and continues
4 south for approximately four miles to Bryce Road. Within these four miles, the
5 Alternate Route crosses Avoca, Beard, Imlay City, and Bryce roads, all
6 approximately 0.3 mile east of the intersection of these roads with Brown Road.
7 The Route passes within 350 feet of scattered individual residences located
8 along Avoca, Beard, and Imlay City roads. After crossing Bryce Road, the Route
9 continues south within the existing right-of-way, crossing Rynn Road and
10 Brandon Road approximately 0.7 mile west of the intersection of these roads with
11 Kilgore Road.

12 Approximately 0.5 mile south of Brandon Road, the Alternate Route enters
13 Wales Township and continues south for approximately 4.7 miles before
14 connecting to the proposed Fitz Substation site. The proposed Fitz Substation is
15 located in Section 29 of Wales Township. It would be west of the existing 345-kV
16 line and the existing vacant right-of-way being used by the Alternate Route. The
17 substation would be located on land east of Cove Road, south of Marquette
18 Road and north of Smiths Creek Road, just north of an existing 120-kV
19 transmission line. Along the 4.7 miles leading to the Fitz Substation, the
20 Alternate Route would continue to be located in the vacant ITC-owned right-of-
21 way. It would cross Webb Road, Interstate 69, Sparling Road, Hill Road, Green
22 Road, Lambs Road, and Marquette Road. The crossing of these roads would
23 occur approximately 0.2 mile east of the intersections of each of these roads with

Cove Road. Individual residences are located within 300 feet of the Route along Sparling, Green, and Marquette roads.

The Alternate Route would extend south from the Fitz Substation for approximately 1.4 miles, crossing Smiths Creek Road and Alpine Road before entering Columbus Township. The Route would pass within 250 feet of individual residences along Smiths Creek Road and Alpine Road. Upon entering Columbus Township, the Alternate Route extends south an additional 2.1 miles before connecting to an existing ITC-owned 345-kV transmission line. This connection of the proposed and existing 345-kV lines would be located along the existing 345-kV line in Columbus Township, Section 17. It would be south of Meskill Road and east of Bauman Road in the northeast corner of the section. Within the 2.1 miles leading to the connection, the Route crosses Rattle Run/Dolan, Weber, and Meskill roads. The Alternate Route would also pass within 250 feet of individual residences along Rattle Run/Dolan Road and Weber Road, and within 300 feet of a residence along Meskill Road.

Q13. WHY WAS THE PROPOSED ROUTE SELECTED OVER THE ALTERNATE ROUTE?

A13. We conducted an extensive and rigorous evaluation and comparison of numerous potential routes. As discussed previously, the Proposed Route was found to, based on the 23 measured criteria and 19 evaluation criteria, not only minimize direct project impacts but also minimize potential indirect future impacts associated with construction of wind zone facilities. Other potential routes considered and evaluated were determined to have greater overall impacts than the Proposed Route. Although one or more of the other evaluated potential

1 routes may have potentially had lower impacts than the Proposed Route in a
2 particular criterion, when all criteria were considered, the Proposed Route was
3 determined to best minimize the effects of the project.

4 Although anticipated to result in greater overall environmental impact than
5 the Proposed Route, an Alternate Route was also identified for the proposed
6 project. The Alternate Route follows a materially different alignment than the
7 Proposed Route, with the exception of approximately 16.4 miles south from
8 Greenwood Substation to the termination of the line where the Proposed Route
9 would be located within existing, vacant ITC owned right-of-way. The Alternate
10 Route would also use this vacant right-of-way. The Alternate Route would also
11 minimize overall environmental impacts from project construction and operation,
12 albeit to a much lesser extent than the Proposed Route.

13 The Alternate Route would use or follow substantial portions of existing
14 ITC rights-of-way, including areas where an existing 120-kV line could be
15 removed and the proposed line constructed in its place following acquisition of
16 additional right-of-way to accommodate the higher voltage double circuit line. As
17 a result of this use of existing rights-of-way, the Alternate Route would require
18 less new right-of-way than the Proposed Route, approximately 2,525.4 acres
19 which would be among the least amount of all routes evaluated. The Alternate
20 Route would be approximately 2 miles longer than the Proposed Route, but still
21 cross less length of cropland. However, the Alternate Route would have
22 substantially more heavy angles than the Proposed, 42 versus 22, resulting in
23 potentially more loss of land for agricultural use, greater inconvenience to

1 farmers, and greater visibility. Additionally, the additional length of the line
2 results in greater length across grassland/pasture, which would not be of great
3 concern for a transmission line, but would also require substantially more
4 woodland clearing than the Proposed Route, 257.6 acres for the Alternate Route
5 versus only 158.1 for the Proposed Route. The Alternate Route would also
6 include approximately 120 additional acres of wetland within transmission line
7 right-of-way with substantially more acres already within the existing rights-of-
8 way that could be impacted during removal of the existing line and construction
9 of the new line. By comparison, the Proposed Route would have 83.4 acres or
10 less total wetland within the right-of-way.

11 Development of a new transmission line in a new corridor provides
12 opportunities for adjusting the alignment to avoid or minimize various impacts.
13 However, the extensive use of existing rights-of-way by the Alternate Route to
14 minimize new right-of-way requirements and confine the proposed project to an
15 existing corridor, does not provide such options. The benefit of following or using
16 an existing line is in confining the new line to the existing corridor, and deviating
17 from it reduces the advantages gained by following or using the existing rights-of-
18 way. Hence, the Alternate Route is subject to creating impacts to land use,
19 residences, or other resources along an existing line that may otherwise have
20 been avoided. The Alternate Route is no exception in that substantial
21 development has occurred along many portions of the existing line that would be
22 followed or used by the Alternate Route. Although requiring less new right-of-
23 way and complying with the routing best practice of using existing rights-of-way,

1 the Alternate Route would have considerable residential proximity, including ~~161~~
2 159 residences within 500 feet, nearly twice as many as the Proposed Route.
3 Visibility of the Alternate Route would be somewhat less than the Proposed
4 Route even with the higher residential proximity, largely due to the extensive
5 wooded areas through which the Alternate Route would extend. While these
6 woodlands would help screen the route from view, a substantial amount of
7 clearing would be required for this route, as previously noted.

8 The Alternate Route extends through substantial portions of the wind zone
9 development area. However, as opposed to the Proposed Route, which is
10 relatively centrally located within this area, the Alternate Route is located more to
11 the inner edge of the wind zone, following an alignment through the more central
12 area of the Thumb, as opposed to the outer periphery of the Thumb. As shown
13 in the map presented to the public by the Wind Energy Resource Zone Board on
14 August 24, 2009 attached as Exhibit SGT-6, and the National Renewable Energy
15 Laboratory maps attached as Exhibit SGT-7, the outer periphery of the Thumb is
16 where the highest potential for wind exists. As a result, as wind farms are
17 developed, use of the Alternate Route would be expected to require construction
18 of longer transmission lines to connect the wind farms to the 345 kV backbone
19 transmission line and subsequently to the overall transmission system. While it
20 is currently impossible to determine exactly where these wind farms and the
21 associated transmission lines would need to be constructed, the additional
22 transmission line construction would be expected to increase future land
23 acquisition needs, residential proximity, land use conflicts, clearing, and other

1 impacts associated with transmission line construction. Therefore, where the
2 Proposed Route would likely minimize these new line constructions, the Alternate
3 Route would not.

4 While the Alternate Route makes effective use of existing transmission
5 line rights-of-way throughout the Thumb Region, the development along these
6 rights-of-way, limited flexibility to avoid areas of potential concern, and the need
7 to acquire between 110 and 155 feet of additional right-of-way (depending on if
8 the existing right-of-way is being used or paralleled, respectively) largely negate
9 the benefits of confining the project to an existing corridor, reducing overall
10 additional property needs, and potential reductions in impacts to agriculture. As
11 a result, although the Alternate Route minimizes overall environmental impacts
12 and would be acceptable as the alignment for the proposed project, the Alternate
13 Route would result in greater environmental impacts than the Proposed Route
14 and is therefore less desirable for this project. Additionally, the Alternate Route
15 would likely result in more extensive future indirect impacts associated with
16 construction and operation of wind farms and their associated facilities. It has,
17 therefore, not been selected as the Proposed route, but instead has been
18 identified as an Alternate Route for consideration.

19 **Q14. IN YOUR OPINION, WOULD THE CONSTRUCTION OF THE PROPOSED**
20 **TRANSMISSION LINE IN THE PROPOSED ROUTE OR THE ALTERNATE**
21 **ROUTE IDENTIFIED IN YOUR TESTIMONY RESULT IN ANY SERIOUS**
22 **SOCIAL IMPACTS?**

23 **A14.** No.

24 **Q15. DOES THAT CONCLUDE YOUR TESTIMONY?**

25 **A15.** Yes, it does.

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITC Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

STEPHEN G. THORNHILL

ON BEHALF OF ITC TRANSMISSION

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
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Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

STEPHEN G. THORNHILL

ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Stephen G. Thornhill. My business address is P.O. Box 419173,
Kansas City, Missouri, 64141 and my office headquarters is located at 9400
Ward Parkway in Kansas City, Missouri.

**Q2. ARE YOU THE SAME STEPHEN G. THORNHILL WHO HAS PREVIOUSLY
FILED DIRECT TESTIMONY IN THIS CASE?**

A2. Yes I am.

Q3. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A3. I am submitting testimony in rebuttal to ABATE witness Dauphinais and
Landowners' witness Zimmer, as filed in this docket on October 29, 2010.

REBUTTAL TO ABATE WITNESS DAUPHINAIS

Q4. DID YOU REVIEW MR. DAUPHINAIS'S TESTIMONY FILED IN THIS CASE?

A4. Yes, I did.

Q5. TO WHAT PORTION OF MR. DAUPHINAIS'S TESTIMONY IS YOUR REBUTTAL BEING SUBMITTED?

A5. My rebuttal testimony focuses on Mr. Daupinais's testimony at page 19 under his heading "Reasonableness of Proposed and Alternate Route". Specifically, Mr. Dauphinais testifies that the Preferred and Alternate routes are unreasonable solely due to ITC's selected use of steel monopole structures and a 200-foot wide right-of-way.

Q6. WHAT WAS YOUR RESPONSIBILITY WITH RESPECT TO THIS PROJECT?

A6. As Project Manager for the routing study, I was responsible for conducting the route selection study and recommending a Proposed and Alternate route. ITC accepted this recommendation.

Q7. DO YOU HAVE AN OPINION REGARDING MR. DAUPHINAIS'S SUGGESTION THAT THE PROPOSED AND ALTERNATE ROUTES ARE UNREASONABLE SOLELY DUE TO ITC'S SELECTED USE OF STEEL MONOPOLE STRUCTURES AND A 200-FOOT WIDE RIGHT-OF-WAY?

A7. Yes.

Q8. WHAT IS YOUR OPINION?

A8. I disagree with his position that the Proposed and Alternate routes are unreasonable. Using steel monopole structures, or lattice towers, or any other structure type has no real bearing on the identification of a route alignment. Route alignments are identified to avoid impacts and are not affected by the type

1 of structure used. Additionally, the 200 foot right of way would be used to
2 quantify potential impacts from the route alignment for comparison purposes, not
3 for identifying the alignment itself. Therefore, these factors are not really
4 considerations in the route evaluation and selection process. Using only these
5 factors as a basis for his opinion ignores the multitude of additional factors that
6 were considered and does not give sufficient weight to other factors that have a
7 true affect on the alignment of a route.

8 **Q9. DOES MR. DAUPHINAIS OPINE THAT THE PROPOSED AND ALTERNATE**
9 **ROUTES ARE UNREASONABLE?**

10 A9. No. Not specifically. Mr. Dauphinais' presentation does not really dispute that
11 the proposed and alternate routes are reasonable – instead, he concludes that
12 the use of monopole structures and the right of way make the cost of the routes
13 unreasonable. In other words, my proposed and alternate routes would
14 apparently pass muster with Mr. Dauphinais if ITC used lattice towers and a
15 narrower right of way. He is apparently not really attacking the proposed and
16 alternate route – instead, he is attacking the final cost due to the use or non-use
17 of monopole structures and a 200 foot right of way.

18 **Q10. IN YOUR EXPERIENCE, IS IT COMMON FOR LATTICE TOWERS TO BE**
19 **REQUESTED OVER MONOPOLE STEEL STRUCTURES?**

20 A10. No. In my over 20 years of conducting routing studies and interacting with
21 governmental agency staff, public officials, and property owners, I have never
22 heard anyone request a lattice tower or express a preference for a lattice tower
23 over other structure designs, particularly in agricultural areas. By far the

1 preferred structures are monopole designs because they take up less land
2 space, are easier to farm around, and provide a more aesthetic appearance. I
3 received similar feedback on this project.

4 **Q11. ARE THERE OTHER ASPECTS OF MR. DAUPHINAIS'S TESTIMONY WITH**
5 **WHICH YOU AGREE?**

6 A11. Yes. I agree with Mr. Dauphinais's statement that numerous factors must be
7 considered in the development of a route for a new transmission line (p 19, line
8 8).

9 **Q12. AFTER YOUR REVIEW OF MR. DAUPHINAIS'S TESTIMONY, DID YOUR**
10 **OPINION REGARDING THE PROPOSED AND ALTERNATE ROUTES**
11 **CHANGE?**

12 A12. No. In my presentation, I cited a number of criteria used in determining the
13 Proposed and Alternate routes. These included, not only the 19 criteria
14 addressed in my direct testimony, but the fact that area is relatively flat, open,
15 and undeveloped. No major topographic considerations, rivers, lakes, or other
16 features that would create significant environmental damage, require complex
17 engineering solutions, or deter construction were identified. Routes were
18 reviewed by ITC and determined to be constructible. Based on the
19 constructability of the routes and the minimal environmental impacts that would
20 result from the construction and operation, it was and is still my professional
21 opinion that the Preferred and Alternative Routes are reasonable.

1 **Q13. IF ITC HAD SELECTED A STRUCTURE TYPE OTHER THAN A STEEL**
2 **MONOPOLE, WOULD YOU HAVE RECOMMENDED THE SAME PROPOSED**
3 **AND ALTERNATE ROUTES?**

4 A13. Yes, I would have.

5 **Q14. IF ITC HAD SELECTED A RIGHT-OF-WAY WIDTH LESS THAN 200 FEET,**
6 **WOULD YOU HAVE RECOMMENDED THE SAME PROPOSED AND**
7 **ALTERNATE ROUTES?**

8 A14. Yes, I would have.

9 **REBUTTAL TO LANDOWNER WITNESS ZIMMER**

10 **Q15. DID YOU REVIEW MR. ZIMMER'S TESTIMONY FILED IN THIS CASE?**

11 A15. Yes, I did.

12 **Q16. TO WHAT PORTION OF MR. ZIMMER'S' TESTIMONY IS YOUR REBUTTAL**
13 **BEING SUBMITTED?**

14 A16. My rebuttal testimony focuses on the following areas in Mr. Zimmer's
15 presentation: (i) the consideration of cropland in my analysis (p 21, lines 6-20),
16 and (ii) the potential impact to cropland (p 6, line 13 et seq).

17 **Q17. HOW DID YOU WEIGHT CROPLAND IN YOUR ANALYSIS?**

18 A17. Before the Open Houses and the interactions with landowners, farmers and
19 residents, cropland was weighted as a 2 on a scale of 10. Following the Open
20 Houses and discussions with landowners, farmers, and residents, the cropland
21 weighting was increased to a 5. To me, this accurately reflects the importance of
22 cropland in the project area.

Q18. DOES MR. ZIMMER'S TESTIMONY CONSIDER ANY FACTORS OTHER THAN CROPLAND?

A18. No. With respect to Mr. Zimmer's testimony on scoring of cropland versus woodland (p 21, line 10 et seq), it should be understood that Mr. Zimmer focused solely on cropland.

Q19. DOES MR. ZIMMER'S APPROACH DIFFER FROM THAT WHICH YOU USED?

A19. Yes. The Proposed Route involved a balancing among 19 different routing criteria – to minimize overall environmental impacts. I respect Mr. Zimmer's concern for cropland but it is only one of many considerations for siting, permitting, and constructing a transmission line that I had to weigh. While the Proposed Route would cross more cropland than the Alternate Route, the Proposed Route would require less woodland clearing, cross less wetland, require less clearing of forested wetland, and better maximize the distance of the project from residences than the Alternate Route. These would be accomplished while still crossing a below average length of cropland among all the routes considered in my analysis. In addition, as addressed in Mr. Koster's testimony, crossing "swampy woods" as opposed to cropland would likely run afoul of governmental agencies and make permitting more difficult.

Q20. PLEASE ADDRESS MR. ZIMMER'S TESTIMONY WITH RESPECT TO THE POTENTIAL IMPACT OF THE PROPOSED LINE ON CROPLAND.

A20. At page 6, line 1, the question posed to Mr. Zimmer cites an "ITC response which claimed that only 2.55 acres of cropland would be lost to the Proposed Route, and that there should be no interference to regular activities like aerial spraying".

1 Mr. Zimmer's testimony does not cite where ITC, in its testimony or in discovery,
2 ever stated that ITC contended that there should be no interference to regular
3 activities like aerial spraying". To my knowledge, that claim was never made by
4 ITC. Instead, discovery requests clearly indicated that a transmission line would
5 have an effect on farming activities, including potential crop damage and damage
6 to drainage tile (which could be repaired), as well as creating an impact
7 associated with having to farm around any structure. However, this impact was
8 considered to be minimal. In fact, the relevant discovery responses stated:

9 Only a minimal amount of land will be removed from production, the right-
10 of-way can continue to be farmed with only minor inconvenience created by
11 structures approximately every 800-1100 feet in some fields, and restoration of
12 any facilities (drain tile, terraces, fences) damaged during construction.

13 Transmission lines cross cropland throughout all parts of the country.
14 These lines have often been in place for decades, yet farming activities continue
15 in the fields through which they pass and up to and around the structures
16 themselves. During field review of the Thumb Region and review of aerial
17 photographs, several existing transmission lines, including the existing lines used
18 by the Proposed and Alternate Routes, were observed to pass through farmland.
19 As can be seen on Exhibit ST-8, these lines cross fields in all manners, including
20 diagonally. It is apparent, however, that farmers have adapted the patterns in
21 which they farm the fields and are capable of farming right up to the structure
22 with very little loss of ground to the structure. Between structures, regardless of
23 the orientation of the right-of-way, no discernible affects to farming practices are

1 apparent. These same observations apply to wind turbines, woodlots, drainage
2 ditches, and any number of other obstructions that occur within farmed fields.

3 See Exhibit ST-9.

4 **Q21. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

5 A21. Yes, it does.

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1 JUDGE NICKERSON: Any objection to
2 proposed Exhibits A-16 through A-24? They are admitted.

3 MR. GORDON: O.K. The next witness, your
4 Honor, is Douglas K. Hodge, who is sponsoring Exhibits
5 A-25 through A-28. There are no changes to his
6 testimony.

7 JUDGE NICKERSON: All right. Any
8 objection to binding in Mr. Hodge's testimony? It may be
9 bound into the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

DOUGLAS K. HODGE

ON BEHALF OF ITCTRANSMISSION

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
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Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

DOUGLAS K. HODGE

ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Douglas K. Hodge. My business address is 411 W. Nepessing Street, Lapeer, MI.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by Farmers National Company ("FNC") as the Eastern District Appraisal Manager covering the United States east of the Mississippi River. As part of my employment responsibilities, in addition to appraisal projects, I am also responsible for business development for FNC related to developing the real estate market and providing consulting services to agricultural enterprises.

Q3. PLEASE DESCRIBE FARMERS NATIONAL COMPANY.

A3. FNC is the nation's largest and leading land owner services company with locations in 23 states. FNC provides farm management, real estate sales,

1 appraisal, oil and gas management, consulting, lake and stream management,
2 insurance, and mapping services to our clients. Currently, FNC manages over
3 5,000 farms totaling over 2.5 million acres with total assets managed valued at
4 \$6.48 billion. In addition, FNC manages over 70,000 mineral properties in 34
5 states. FNC has been in business for over 80 years providing services to
6 farmers and land owners.

7 **Q4. PLEASE SUMMARIZE YOUR QUALIFICATIONS.**

8 **A4.** I have a Bachelor of Science Degree in Finance from Ferris State University and
9 an associates degree in business from Delta College. I have also been awarded
10 the MAI (Member of the Appraisal Institute) designation from the Appraisal
11 Institute, the ARA (Accredited Rural Appraiser) designation from the ASFMRA
12 (American Society of Farm Managers and Rural Appraisers), the CCIM (Certified
13 Commercial Investment Member) designation from the commercial division of the
14 NAR (National Association of Realtors) and also the appraisal certification from
15 the IRWA (International Right of Way Association).

16 I was raised on a dairy farm in the Thumb region of Michigan and for several
17 years operated my own dairy farm near Snover, Michigan in the Thumb. I have
18 concentrated my professional career as a consultant and appraiser in the
19 agricultural field with many years of experience in valuing many aspects of
20 agricultural enterprises and have also had the opportunity to review the impacts
21 of various types of easements on agricultural and residential property. I remain
22 current on farming practices and trends in agriculture as an integral part of my

position with FNC. Prior to joining FNC I was involved in serving agribusiness and agriculture in the valuation, consulting and sales aspects for nearly 25 years.

Q5. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE REGULATORY COMMISSIONS OR IN COURT PROCEEDINGS?

A5. Yes. I have testified many times in various venues including federal tax court, federal bankruptcy courts in Michigan and Minnesota, circuit courts, probate courts, district courts and the Michigan Tax Tribunal. My testimony in most cases has been related to agricultural and agribusiness properties. I have not testified before the Michigan Public Service Commission.

Q6. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS MATTER?

A6. No, I have not.

Q7. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A7. I am submitting testimony in rebuttal to Intervener Mark Zimmer, as filed in this docket on October 29, 2010.

Q8. TO WHAT PORTION OF MR. ZIMMER'S TESTIMONY IS YOUR REBUTTAL BEING SUBMITTED?

A8. My rebuttal testimony focuses on certain of the intermediate and long term risks to farming that Mr. Zimmer believes are possible as a result of ITC's construction, operation and maintenance of the proposed transmission line through cropland. His discussion of the intermediate term risks begins at page 9 under the heading "Intermediate Term Risks To Farming Created By The New ITC Line." His discussion of the long term risks begins at page 15 under the heading "Permanent Risks To Farming Created By The New ITC Line."

Q9. WILL YOU BE ADDRESSING ALL OF THE INTERMEDIATE AND LONG TERM RISKS RAISED BY MR. ZIMMER?

A9. No, I will not. I understand that certain of these issues will be addressed by other witnesses, including Mr. Jason Sutton, Mr. Stephen Thornhill and Mr. Steven Koster.

Q10. WHICH INTERMEDIATE TERM RISKS RAISED BY MR. ZIMMER WILL YOU BE ADDRESSING?

A10. I will be addressing certain issues raised in connection with soil compaction and cross contamination by insects and weeds.

Q11. WHAT IS THE ISSUE WITH RESPECT TO SOIL COMPACTION?

A11. Mr. Zimmer seems to be contending that if transmission poles are placed in cropland, there is an increased risk that productivity will be permanently lost due to soil compaction on the route that farm equipment will have to take around the poles.

Q12. DO YOU AGREE THAT THE PLACEMENT OF TRANSMISSION POLES IN CROPLAND WILL INCREASE THE RISK OF SOIL COMPACTION?

A12. No, I do not.

Q13. HOW DO YOU ADDRESS MR. ZIMMER'S CONCERN?

A13. Mr. Zimmer is correct that soil compaction does have an effect on crop production. However, soil compaction results from several sources, and it is not limited to the areas around transmission poles, but rather impacts all cropland. The greatest risk of soil compaction results from driving equipment on wet soils. While one might expect heavy construction equipment to have the most impact

on soil compaction, the truth is that more compaction results from a pickup truck driving across a field than most heavy equipment due to the configuration of tires and tracks on most equipment. Typical modern farming practices cause significant soil compaction that results from tillage practices, the weight of equipment and crop rotation practices. Tillage operations, wheel traffic and crop rotation practices are major causes of compaction. Notably, the weight of tractors has increased from less than 3 tons in the 1940's to over 20 tons today. See Exhibit DKH-1. The increased weight of farm equipment is a special concern because spring planting is often done before the soil is dry enough to support the equipment. See Exhibit DKH-2. During harvest, significant soil compaction also results from harvesting equipment and the trucks used to transfer crops.

Q14. CAN SOIL COMPACTION BE CORRECTED?

A14. Yes, it can.

Q15. PLEASE EXPLAIN.

A15. Much of the damage caused by soil compaction occurs within the first year following the event that results in compaction. If compaction cannot be avoided corrective measures may be needed. Tillage is an option for reducing the affects of compaction. See Exhibit DKH-3. Correct selection of the proper tillage equipment is needed to alleviate the impacts. The use of subsoilers that result in crop residue being left on the surface are preferable along with the increased use of cover crops. Natural phenomena such as the wetting/drying cycles and freeze/thaw cycles will help to rebuild soil structure over time, but cannot be

1 expected to correct compaction issues by the next season. See Exhibit DKH-4
2 The use of deep tillage or subsoiling implements can be used to remove the
3 restrictive soil structure that results from compaction.

4 Typically, yield losses are greatest in the first year following an event
5 causing a high level of compaction such as harvesting during a wet fall. As
6 previously indicated, most construction equipment used compacts the soil less
7 than typical farming operations as they have been specifically designed with
8 tracks or multiple tires in order to reduce compaction.

9 **Q16. WHAT IS THE ISSUE WITH RESPECT TO CROSS CONTAMINATION BY**
10 **INSECTS AND WEEDS?**

11 **A16.** Mr. Zimmer seems to be contending that as construction equipment traverses
12 multiple fields, there is an increased risk that weeds and insects picked up in one
13 field will cross-populate in other fields on the route. He also seems to be
14 contending that any area around the base of the transmission poles that is
15 unusable will also provide a breeding ground for additional weeds to grow and
16 insects to populate. In both cases, he claims that the burden on farmers to
17 control such insects and weeds will be increased.

18 **Q17. DO YOU AGREE THAT ITC'S CONSTRUCTION ACTIVITIES, AND THE**
19 **PLACEMENT OF POLES IN CROPLAND, WILL NECESSARILY INCREASE**
20 **THE BURDEN ON FARMERS TO CONTROL WEEDS AND INSECTS?**

21 **A17.** No, I do not.

Q18. WHY NOT?

A18. Because in my opinion, there are no additional risks associated with the construction and maintenance of a power line with insect and weed control.

Q19. HOW DO YOU ADDRESS MR. ZIMMER'S CONCERN?

A19. Obviously, insects are capable of transferring themselves across property lines and there are not any methods other than controlling insect populations through proper application of insecticides and pest management practices which are commonly employed in agriculture today. It should also be noted that many times custom harvesting and tillage practices can also result in the transfer of weed seed and other pests from one farming operation to another. Weed seeds can also be transferred from field to field by the wind, birds and animals. Weed and insect control around a typical mono pole structure will not require significant additional costs or time to complete. With modern spraying equipment it is very possible to control the application of herbicides and pesticides very effectively even while working around poles that may exist either in a field or at the edge of a field. It would require some additional care on the part of the applicator to be aware of the pole locations; however, this would not be any different than working around existing utility structures or other obstacles such as trees and fences that may already exist in a particular location.

Q20. WHICH LONG TERM RISKS RAISED BY MR. ZIMMER WILL YOU BE ADDRESSING?

A20. I will be addressing certain issues raised by Mr. Zimmer in connection with the placement of transmission poles in cropland, and with respect to aerial spraying.

1 **Q21. WHAT IS THE ISSUE WITH RESPECT TO THE PLACEMENT OF**
2 **TRANSMISSION POLES IN CROPLAND?**

3 **A21.** Mr. Zimmer seems to be contending that the placement of transmission poles in
4 cropland will result in inefficiencies in farming operations, and may result in
5 damaged equipment.

6 **Q22. DO YOU AGREE THAT THE PLACEMENT OF TRANSMISSION POLES IN**
7 **CROPLAND WILL NECESSARILY RESULT IN INEFFICIENCIES IN FARMING**
8 **OPERATIONS OR AN INCREASED RISK OF EQUIPMENT DAMAGE?**

9 **A22.** No, I do not.

10 **Q23. HOW DO YOU ADDRESS MR. ZIMMER'S CONCERNS ABOUT EQUIPMENT**
11 **DAMAGE?**

12 **A23.** It is my understanding that the proposed transmission line will primarily utilize a
13 single pole structure spaced between 800 and 1100 feet apart. The use of single
14 poles, as opposed to lattice towers, greatly reduces the amount of land lost from
15 production and the risk to equipment that might be associated with placement of
16 the poles in a field. Farmers have been farming around power line poles and
17 other obstructions for many years and while the possibility exists for equipment
18 damage resulting from the poles, this risk is greatly reduced by the use of single
19 pole structures. Some care is required of the operator of equipment to maintain
20 a reasonable distance from a structure; however, I do not consider this risk to be
21 significant.

Q24. MR. ZIMMER SEEMS ESPECIALLY CONCERNED ABOUT THE POSSIBILITY OF EQUIPMENT BEING DAMAGED WHILE BEING OPERATED AT NIGHT. HOW DO YOU ADDRESS THAT CONCERN?

A24. Again, some care is required of the operator of equipment to maintain a reasonable distance from pole structures. To the extent that the risk of damage to equipment is elevated due to night time operation, such risk is mitigated by the fact that farm equipment typically is equipped with headlights. As a result, any possible obstructions should be visible to the operator.

Q25. HOW DO YOU ADDRESS MR. ZIMMER'S CONCERNS REGARDING INEFFICIENCIES IN FARMING OPERATIONS?

A25. I do not believe that Mr. Zimmer's concerns are supported. Certainly an operator will be required to work around a pole, but it would not require an increased number of passes with either tillage equipment or planting and harvesting equipment. For example, if a pole were placed in the middle of a field, an operator would be required to move around the pole, but on the return pass would overlap ground already tilled not resulting in any additional passes to be needed.

Q26. WHAT IS THE ISSUE WITH RESPECT TO AERIAL SPRAYING?

A26. Mr. Zimmer seems to be contending that the proposed transmission lines will increase the risk of flying at low levels, and may prevent certain fields from being sprayed from the air.

1 **Q27. DO YOU AGREE THAT THE PLACEMENT OF TRANSMISSION POLES IN**
2 **CROPLAND WILL HAVE A NEGATIVE EFFECT ON AERIAL SPRAYING?**

3 **A27.** No, I do not.

4 **Q28. HOW DO YOU ADDRESS MR. ZIMMER'S CONCERNS REGARDING AERIAL**
5 **SPRAYING?**

6 **A28.** Aerial applicators have been working around power lines for many years. While
7 they may be considered as an inconvenience, in my opinion, most applicators
8 are very aware of the location of lines and poles and pattern their application
9 efficiently to reach all fields and to avoid any additional risks.

10 **Q29. DOES THAT CONCLUDE YOUR TESTIMONY?**

11 **A29.** Yes, it does.

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1 JUDGE NICKERSON: Any objection to the
2 admission of proposed Exhibits A-25 through A-28? They
3 are admitted.

4 MR. GORDON: The next witness is James W.
5 Smith, who is sponsoring Exhibits A-29 and A-30. There
6 was a substitute exhibit to A-30 provided to all of the
7 parties yesterday which contains the same basic
8 substantive information, but indicates that it was a
9 document that had previously been approved by NERC, and
10 that has been provided to the court reporter, also.

11 JUDGE NICKERSON: Thank you, Mr. Gordon.
12 Any objection to binding Mr. Smith's testimony into the
13 record? It may be bound in the record.

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STATE OF MICHIGAN
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In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

JAMES W. SMITH

ON BEHALF OF ITCTRANSMISSION

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of International
Transmission Company d/b/a ITC *Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
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PREFILED REBUTTAL TESTIMONY

OF

JAMES W. SMITH

ON BEHALF OF ITC *TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is James W. Smith. My business address is 27175 Energy Way, Novi, Michigan 48377.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by ITC Holdings Corp. ("ITC") as its Vegetation Manager and Tower Maintenance Specialist. In that capacity, I have overall maintenance responsibility for the bulk power transmission system at ITC and related programs. My responsibilities include but are not limited to direct strategic design and implementation activities for comprehensive and integrated transmission maintenance and vegetation management programs for ITC. I am directly responsible for improving the reliability of ITC's electric transmission systems by preventing outages from vegetation located on transmission rights-of-way (ROW) and by minimizing outages from vegetation located adjacent to

1 ROW. I also oversee the collective ITC budget for vegetation management and
2 procurement of vegetation management-related services. The success of these
3 programs is measured by our goal of zero vegetation related outages.

4 **Q3. PLEASE SUMMARIZE YOUR QUALIFICATIONS.**

5 **A3.** I have a Bachelor of Business Administration from Eastern Michigan University. I
6 am a member of the International Transmission Vegetation Forum ("Forum"), and
7 I am a member of various groups affiliated with the Forum, including the
8 Vegetation Management Practice Group and the Peer Review Committee. In
9 connection with my participation on the Peer Review Committee, I recently
10 participated in an inspection of the Georgia Transmission Corporation Vegetation
11 Management Transmission System. I am also a member of the Edison Electrical
12 Institute (EEI), and I participate in the Vegetation Management Task Force of the
13 EEI. I am also a member of the International Society of Arboriculture.

14 I have been employed as ITC's Vegetation Manager and Tower
15 Maintenance Specialist since 2006, with overall responsibility for the
16 maintenance and vegetation management of approximately 8,500 miles of
17 transmission lines. From 2002 to 2006, I served as the Program Maintenance
18 Manager and Project Engineering Manager for Michigan Electric Transmission
19 Company, LLC, ("METC"), which is currently owned by ITC, but at that time, was
20 owned by Michigan Transco Holdings, L.P. ("MTH") METC originally was a
21 wholly-owned subsidiary of Consumers Energy ("CE"), having purchased the
22 transmission assets of CE in April 2001. In May 2002, MTH acquired METC.
23 For METC, I was the Project Manager for transmission line and substation

1 maintenance and responsible for all maintenance planning. I was also the
2 Forestry Operations Manager responsible for management of approximately
3 4,400 miles of 345 kV and 138 kV transmission corridors. I also managed the
4 easement corridors, ensuring coordination between the real estate group,
5 environmental services and contractors performing maintenance work. I was
6 also a Project Manager for capital and maintenance projects for towers and
7 vegetation. From 1968 to 2001, I was employed by DTE Energy in various
8 capacities, most recently as a Principal Area Leader responsible for
9 management of unionized field personnel in the construction, maintenance,
10 emergency repair and operation of energized or de-energized
11 underground/overhead transmission and distribution systems, and before that,
12 as the Transmission – Engineering Supervisor, System Project and Engineering,
13 where I managed the development of new electrical service designs and
14 developed a new inspection process for overhead line and vegetation
15 clearances.

16 **Q4. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE REGULATORY**
17 **COMMISSIONS OR IN COURT PROCEEDINGS.**

18 **A4.** Yes, I have testified in the Washtenaw County Circuit Court in the matter of
19 International Transmission Company, d/b/a ITC *Transmission* v. William C. Riney
20 and Marcia L. Riney, husband and wife, and The Detroit Edison Company, Civil
21 Action No. 09-1113-CC, in support of ITC's condemnation of a strip of land for a
22 vegetation management easement. My testimony focused on the right-of-way
23 necessary to ensure the safety and reliability of a 120 kV transmission line

1 traversing a mature subdivision. I have never testified before any regulatory
2 commission.

3 **Q5. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS MATTER?**

4 **A5.** No.

5 **Q6. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

6 **A6.** I am submitting testimony in rebuttal to ABATE witness Dauphinais, as filed in
7 this docket on October 29, 2010.

8 **Q7. TO WHAT PORTION OF MR. DAUPHINAIS' TESTIMONY IS YOUR**
9 **REBUTTAL BEING SUBMITTED?**

10 **A7.** My rebuttal testimony focuses on Mr. Dauphinais' testimony at pages 19 and 21-
11 22 under the heading "Reasonableness of Proposed and Alternate Route."
12 Specifically, Mr. Dauphinais testified that the proposed and alternate routes are
13 unreasonable, in part, because the proposed 200 foot right-of-way is significantly
14 wider than typical for a 345 kV transmission line.

15 **Q8. DO YOU AGREE WITH MR. DAUPHINAIS' SUGGESTION THAT THE**
16 **PROPOSED AND ALTERNATE ROUTES ARE UNREASONABLE DUE TO**
17 **ITC'S USE OF A 200-FOOT WIDE RIGHT-OF-WAY?**

18 **A8.** No, I do not.

19 **Q9. IS IT YOUR OPINION THAT A 200 FOOT RIGHT-OF-WAY IS REASONABLY**
20 **JUSTIFIED FOR THE PROPOSED PROJECT?**

21 **A9.** Yes.

Q10. PLEASE EXPLAIN.

A10. I cannot speak to the historical or typical practice of utilities constructing transmission lines in Texas. However, in Michigan, it has historically been the typical practice of The Detroit Edison Company ("Edison") and Consumers Energy ("CE") to site 345 kV transmission lines with a right-of-way width of 200 feet or greater. See Exhibit JWS-1. As Exhibit JWS-1 demonstrates, for the past several decades, it was Edison's typical practice to site 345 kV transmission lines with a 200 foot right-of-way. During that same time period, it was CE's typical practice to site 345 kV transmission lines with a 230 foot right-of-way. ITC acquired the transmission assets of Edison in February 2003. ITC acquired the transmission assets of MTH (which assets were formerly owned by CE) in October 2006. Since purchasing the transmission assets of Edison and MTH, ITC has continued, where possible, to follow this typical practice.

Q11. WHAT DO YOU MEAN WHEN YOU SAY "WHERE POSSIBLE?"

A11. ITC's rights are sometimes constrained by pre-existing easement rights or other limitations, such as local ordinances and pre-existing structures or roads.

Q12. ARE THERE OTHER REASONS WHY A 200 FOOT RIGHT OF WAY IS REASONABLY JUSTIFIED?

A12. Yes, there are.

Q13. PLEASE EXPLAIN.

A13. Because of the August 2003 blackout, the regulatory environment in which transmission companies must work has changed dramatically, and as a result, ITC must design its rights-of-way to avoid transmission outages under all

1 circumstances. In August 2003, a widespread blackout resulted in a massive
2 loss of power to more than 45 million American homes in eight states. The
3 blackout originated when several tree branches came in contact with
4 transmission lines, causing a cascade of failures and resulting in the most
5 widespread blackout in U.S. history.

6 As a result of the 2003 blackout, pursuant to the U.S. Energy Policy Act of
7 2005, the Federal Energy Regulatory Commission ("FERC") certified the North
8 American Electric Reliability Corporation ("NERC") as the "electric reliability
9 organization" for the United States. As such, NERC was charged with the
10 responsibility to promulgate legally enforceable reliability standards for the bulk
11 power system, subject to FERC approval. FERC has now approved 83 NERC
12 reliability standards, including vegetation management standards that prohibit
13 vegetation-related outages. NERC requires that companies adopt vegetation
14 management policies to eliminate vegetation related power outages. NERC has
15 promulgated certain reliability standards, including among others, a
16 Transmission Vegetation Management Program standard (see NERC Reliability
17 Standard FAC-003-1, attached as Exhibit JWS-2). The stated purpose of this
18 Reliability Standard is:

19 [t]o improve the reliability of the electric transmission systems **by**
20 **preventing outages from vegetation located on transmission rights-**
21 **of-way (ROW) and minimizing outages from vegetation located**
22 **adjacent to ROW**, *maintaining clearances between transmission lines*
23 *and vegetation on and along transmission ROW*, and reporting vegetation-
24 related outages of the transmission systems to the respective Regional
25 Reliability Organizations (RRO) and the North American Electric Reliability
26 Council (NERC).

Standard FAC-003-1, Section A(3), p 1 (emphasis added). Between the NERC reliability standards and utility best practices, ITC must prevent vegetation-related outages under all circumstances. Unlike electric distribution lines, and as demonstrated by the 2003 blackout, transmission line failures can cause thousands of homes and businesses to lose power, significantly impacting commerce and causing related security risks. As a result, ITC has adopted stringent vegetation management policies and works constantly to ensure that proper vegetation management is performed around its transmission lines. It is ITC's policy goal to have zero outages as a result of vegetation interference.

Q14. WOULD THE PROPOSED PROJECT BE SUBJECT TO THE MANDATORY NERC RELIABILITY STANDARDS?

A14. Yes, any transmission line in excess of 200 kV is subject to the mandatory NERC reliability standards, including FAC-003-1, and ITC could be subject to substantial fines of up to \$1,000,000 per day for violation of such standard.

Q15. IS IT YOUR OPINION THAT THE 200 FOOT RIGHT-OF-WAY IS SUFFICIENT TO ENSURE ITC'S COMPLIANCE WITH NERC RELIABILITY STANDARD FAC-003-1 AND TO ALLOW ITC TO MEET ITS STATED POLICY GOAL?

A15. Yes.

Q16. DOES THIS CONCLUDE YOUR TESTIMONY?

A16. Yes, it does.

1 JUDGE NICKERSON: Any objection to
2 proposed Exhibits A-29 and A 30? They may be admitted.

3 MR. GORDON: Thank you, your Honor. The
4 next witness is Michael Silva, who is sponsoring Exhibit
5 A-31. There are no changes to his testimony.

6 JUDGE NICKERSON: Any objection to
7 binding Mr. Silva's direct testimony into the record? It
8 may be bound into the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
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Case No. U-16200

DIRECT PREFILED TESTIMONY OF J. MICHAEL SILVA, P.E.
ON BEHALF OF ITCTRANSMISSION

August 30, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
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Case No. U-16200

DIRECT PREFILED TESTIMONY OF J. MICHAEL SILVA, P.E.
ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is J. Michael Silva. My business address is 494 Salmar Avenue, Suite 200, Campbell, California 95008.

Q2. WHAT IS YOUR OCCUPATION?

A2. I am a research engineer, specializing in issues related to electric and/or magnetic fields (EMF). My work has included a broad range of topics, including instrumentation, exposure assessment, transmission line design, shielding, audible noise, electric field induction, computer chip benchmark testing, electric vehicles, the Global Positioning System, wireless technology, and electromagnetic compatibility.

Q3. WHAT WERE YOU ASKED TO DO FOR THIS PROCEEDING?

A3. I was asked to provide information about EMF levels and exposure assessment, including EMF levels from sources in everyday environments and for the proposed 345 kV transmission line project.

Q4. WHAT DO YOU MEAN BY EMF EXPOSURE ASSESSMENT?

A4. I mean the evaluation of people's exposure to EMF through measurements and computer modeling.

Q5. WHERE ARE YOU EMPLOYED?

A5. I am President of ENERTECH Consultants.

Q6. ARE YOU A LICENSED PROFESSIONAL ENGINEER?

A6. Yes, I am a licensed professional engineer in Electrical Engineering in California and 7 other states.

Q7. HOW LONG HAVE YOU WORKED AS AN ENGINEER?

A7. I have worked as a design and research engineer for over 39 years.

Q8. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A8. I earned a Bachelor of Science degree in Engineering from the University of Alabama and a Master of Science degree in Engineering from Auburn University.

Q9. PLEASE DESCRIBE YOUR WORK EXPERIENCE AFTER YOUR FORMAL EDUCATION.

A9. I worked at the Southern Company from 1971 until 1977, first as a transmission line design engineer and then supervising a group responsible for electric transmission line design. As a supervising engineer, I was responsible for the design and engineering of high voltage electric transmission lines from 46 kV to 500 kV on the Southern Company's electric transmission system in Alabama, Florida, and Mississippi. These responsibilities included developing the engineering details and design specifications necessary for construction of these lines. I was also responsible for conducting studies of the electrical environment in the vicinity of high voltage electric transmission lines and substations, including calcula-

tions and measurements of EMF, audible noise, and evaluations of electromagnetic compatibility.

In 1977, I was appointed Project Manager of the Alternating Current (AC) and Direct Current (DC) Research Program for the Electric Power Research Institute (EPRI) in Palo Alto, California. I was responsible for AC and DC electric transmission line research projects at several facilities located across North America. These research projects included design considerations for electric lines, evaluations of EMF, field induction, audible noise, spark discharge and corona studies, instrumentation for field measurements, and many other technical areas.

From 1979 to early 1982, I worked at GAI, a consulting engineering firm in Pittsburgh, Pennsylvania. My duties included managing and conducting several transmission line projects and various transmission line design and engineering jobs nationwide. In 1982, I founded ENERTECH, which is a scientific and engineering research and consulting firm.

Q10. WHAT KIND OF WORK DOES ENERTECH DO?

A10. ENERTECH is a scientific research and consulting firm that specializes in applied research projects, engineering, exposure assessment, electromagnetic compatibility, and the development of computer modeling software and instruments to calculate and measure EMF. We are involved in a variety of projects for clients around the world.

Q11. PLEASE DESCRIBE SOME OF ENERTECH'S WORK ON EMF.

A11. We perform work related to EMF in three broad areas. First, we conduct applied research projects involving EMF exposure assessment. We have conducted the

EMF exposure assessment for several major EMF studies with researchers at the U.S. National Institute of Environmental Health Sciences (NIEHS), Johns Hopkins University, the University of North Carolina, the California Department of Health Services, and the U.S. National Cancer Institute. Second, we develop and manufacture high quality instrumentation for EMF measurements and conduct a variety of measurement programs around the world. Third, we develop computer software for calculating EMF levels, analyzing measurement data and modeling EMF and electrical environments.

Q12. WHAT KIND OF SOFTWARE HAVE YOU DEVELOPED FOR MODELING EMF ENVIRONMENTS AND EXPOSURES?

A12. ENERTECH designed and developed the computer software used for calculating EMF from electric power lines and also for exposure modeling. We also developed the EMF Workstation, which is a modern software package for calculating electric and magnetic fields in both simple and complex situations, including multiple power lines, substations, and residential environments. The computer program ENVIRO for EMF modeling and other software are part of the EMF Workstation, which is used throughout the world.

Q13. WHAT KIND OF INSTRUMENTS HAVE YOU DEVELOPED FOR MEASURING EMF?

A13. For measuring fields and conducting exposure assessment, we developed portable instrumentation known as the EMDEX system. EMDEX stands for Electric and Magnetic Digital Exposure meter. It is a portable instrument for measuring and recording electric and magnetic fields that can be carried by hand or worn on a belt. It contains a field meter circuit and a small on-board computer which processes and stores the recorded values of the measured fields. This is per-

haps the best data available to document a person's exposure to a variety of magnetic field levels and sources and to identify the variety of field levels that people typically encounter in their everyday environments. We have developed several versions of the EMDEX for a range of measurement users. Our measurement instruments are currently used in 58 countries.

Q14. DOES YOUR EXPERIENCE INCLUDE MAKING MEASUREMENTS OF EMF FROM POWER LINES, SUBSTATIONS, APPLIANCES AND OTHER ELECTRICAL SOURCES?

A14. Yes, I have conducted extensive measurements of such fields throughout the United States and in other countries. This work has included measurements in a variety of everyday residential, commercial, and occupational settings, including extensive measurements of agricultural operations.

Q15. FOR WHAT ORGANIZATIONS HAS ENERTECH PERFORMED EMF EXPOSURE ASSESSMENTS OR EMF CONSULTING WORK?

A15. ENERTECH has performed EMF exposure assessments or EMF consulting work for electric utilities in the United States, Australia, and Canada, and for a wide variety of other clients, including the National Cancer Institute, the United Nations (Headquarters), Stanford University, the Bay Area Rapid Transit District, Kaiser Permanente Hospitals, the San Diego Transit Authority, Walt Disney Company, the San Antonio Express News, the Montana Department of Environmental Quality, Davies Medical Center, the State of Nevada Regional Planning Agency, Los Angeles Unified School District (CA), school districts in other states, the City of Austin, Texas, and the Wisconsin Public Service Commission, among others.

Q16. HAVE YOU PREVIOUSLY APPEARED AS AN EXPERT ON EMF EXPOSURE ASSESSMENT IN TRANSMISSION LINE SITING CASES?

A16. Yes, over the past 25 years I have appeared as an expert on EMF exposure assessment in several transmission line siting cases before public utility commissions or boards.

Q17. ARE YOU ACTIVE IN ANY PROFESSIONAL ORGANIZATION?

A17. I am a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). I served for about 10 years as the Secretary of the IEEE Power Engineering Society's Corona & Field Effects Subcommittee. I was also a member of the IEEE Design and Environmental Considerations Working Group. I also have served as a peer-reviewer of papers submitted for publication in scientific and engineering journals for the IEEE, among others.

Q18. HAVE YOU SERVED ON ANY OTHER TECHNICAL COMMITTEES FOR ENGINEERING ISSUES RELATED TO ELECTRIC TRANSMISSION LINES?

A18. I served as a member of the National Electrical Safety Code (NESC) Committee of the Southeastern Electric Exchange. The Committee was responsible for ongoing review of proposed technical revisions and future recommendations for the NESC. I have also been an advisor on U.S. Department of Energy transmission line research projects, and I participated in the United States – Soviet Union Scientific Exchange Program on electric power transmission as a U.S. representative in meetings arranged by the U.S. Department of State.

Q19. HAVE YOU RECEIVED ANY SPECIAL RECOGNITION FOR YOUR WORK INVOLVING ELECTRIC POWER LINES AND EMF EXPOSURE ASSESSMENT?

A19. I have received awards for my work on IEEE and CIGRE (Conseil International des Grand Réseaux Électriques – International Council on Large Electrical Systems) technical papers and my work on technical committees. I have also been an invited guest lecturer to the Ohio State University Electrical Engineering Dis-

tinguished Lecture Series and the University of Texas at the Power System Seminar Lecture Series and the Power Distribution Conference. I have also been a Lloyd Hunt Distinguished Lecturer in Power Engineering at the University of Southern California.

Q20. WHAT DOES THE TERM “EMF” MEAN?

A20. The term “EMF” refers to electric and/or magnetic fields. EMF are created wherever there is a flow of electricity. A field is a space or region in which an influence can be said to exist. For example, a temperature field exists in the space around a hot or cold object. The EMF associated with alternating electric power are created as a result of electrical voltage, which creates the electric field, and the flow of electric current, which creates the magnetic field.

For alternating current electric power in the United States, the voltage and electric current reverse polarity, or direction, at a rate of 60 cycles per second. The fields created by this voltage and current are known as power frequency or 60 Hertz fields. Hertz (Hz) is a unit that measures the frequency of the field, or the cycles per second. The EMF associated with alternating current electric power in the United States therefore have a frequency of 60 Hz.

A 60 Hz electric field is the field associated with the voltage on the conductors (energized wires) of an electric power line or an electrical device, such as equipment or an appliance. The units commonly used to describe an electric field are volts per meter (V/m) or kilovolts per meter ($1 \text{ kV/m} = 1,000 \text{ V/m}$). One characteristic of a 60 Hz electric field from a transmission line is that it decreases rapidly with distance from source. Electric fields also are shielded by objects such as trees, hedges, houses, buildings or other conducting materials.

A 60 Hz magnetic field is the field associated with the flow of electric current on an electric power line, wires, or in an electrical device, such as an appliance. The most common unit used by engineers in the United States to describe a magnetic field is Gauss (G) or a smaller unit, the milligauss (mG). One milligauss equals 1/1000 of a Gauss (1 mG = 0.001 G). One characteristic of a 60 Hz magnetic field from a transmission line is that it decreases rapidly with distance from source. Magnetic fields are not as easily shielded as electric fields.

Q21. WHAT ARE SOME COMMON SOURCES OF 60 HZ EMF?

A21. Wiring in homes, businesses, and schools, power lines, lighting, home appliances, and electrical equipment in offices and medical or industrial facilities are all common sources of EMF.

Q22. HAVE YOU CONDUCTED MEASUREMENTS OF MAGNETIC FIELDS FROM SOURCES IN EVERYDAY ENVIRONMENTS?

A22. Yes, I have measured magnetic fields many times. ENERTECH has conducted most of the large EMF measurement programs in the United States, including the 1,000 Home and the 1,000 Person studies. EMF personal exposure measurements in Michigan were part of the 1,000 Person study for NIEHS. The results of some of my measurements have been reported in the peer-reviewed literature. Table JMS – 1 (below) shows a range of magnetic fields associated with everyday appliances found in homes. The table provides a range of measured field values associated with the normal use of each appliance, as well as a maximum field level in the region close to the appliance. The range of measured values reflects variations in the field levels from different brands or models of appliances and also variations depending on how far away the appliance is from the measur-

ing point during normal use. An appliance used near the head would result in a higher exposure to the head and a lower exposure at waist level, with the maximum exposure occurring where the appliance is touched. Using the blow dryer as an example, when you hold the blow dryer to dry your hair, you could experience fields above 2,100 mG at your hand. The rest of your body would experience fields anywhere from about one to 75 mG at your head and less near the waist.

TABLE JMS – 1			
Magnetic Fields from Appliances (in mG)			
Appliance Type	Body Location	Typical Range	Maximum Range
Range	Waist	1 – 80	175 – 625
Refrigerator	Chest	1 – 8	12 – 187
Microwave	Waist	3 – 40	65 – 812
Can Opener	Waist	30 – 225	288 – 2,750
Toaster	Waist	2 – 6	9
Coffee Maker	Waist	1 – 2	4 – 25
Mixer	Waist	2 – 11	16 – 387
Dishwasher	Waist	1 – 15	28 – 712
Electric Blanket	Waist	3 – 50	65
Blow Dryer	Head	1 – 75	112 – 2,125
Computer	Waist	1 – 25	49 – 1,875
Electric Shaver	Head	50 – 300	500 – 6,875
Sewing Machine	Chest	1 – 23	26 – 1,125
Electric Drill	Chest	56 – 194	300 – 1,500
Circular Saw	Waist	19 – 48	84 – 562
Clothes Dryer	Waist	1 – 24	45 – 93
Aquarium	Waist	1 – 40	50 – 2,000

Q23. AREN'T PEOPLE EXPOSED TO EMF FROM APPLIANCES FOR JUST A FEW MINUTES OR HOURS A DAY?

A23. Many electrical appliances are used for only a relatively short length of time and the field level decreases rapidly with distance away from the appliance. Some appliances, such as electric blankets, computers or commercial equipment, may be used for longer periods of time. However, each activity and location in a home, at work, in schools, in stores or other environments can have its own sources of EMF that people routinely encounter. Some common magnetic field sources are not at all evident to most people, such as currents flowing on water pipes under the floor of a building or the rotation of the steel-belted radial tires on a car or truck. People move from one activity to the next and from location to location throughout the day, and this can result in an almost continuous range of EMF exposures in a typical day, ranging from less than 1 mG to several hundred or sometimes thousands of mG.

Q24. ARE EMF FOUND IN MOST EVERYDAY LOCATIONS?

A24. Yes. EMF levels have been measured in many different environments, including homes, offices, schools, factories, hospitals and other public locations such as restaurants, shops, and stores. Table JMS – 2 (below) summarizes the range of EMF levels measured in some of these everyday environments. The range of exposure levels extends from below 1 mG to well over 1,000 mG in these different environments.

TABLE JMS – 2**EMF Levels Measured at Public Locations**

Location	Range of Measured Magnetic Fields
Public Libraries	0.3 – 1,659 mG
County Courthouse (Iowa)	1 – 86 mG
Supermarket (Texas)	1 – 568 mG
Machine Shop (Michigan)	0.5-80 mG
Video Store (Wisconsin)	1 – 363 mG
Electric Trains	0.1 – 330 mG
State Capitol (Pennsylvania)	0.5 – 29 mG
Shopping Mall (Iowa)	0.5 – 72 mG
Coffee Shop	0.5 – 923 mG
Medical Clinic (Wisconsin)	1 – 16 mG
BBQ Restaurant (Texas)	6 – 19 mG
Capital Mall (Missouri)	0.5 – 135 mG
Large Discount Store	1 – 401 mG
Bookstore (Virginia)	1 – 21 mG
Ice Cream Store	1 – 1,710 mG
Post Office (Wisconsin)	1 – 17 mG
Hospital ICU	0.1 – 220 mG
Airliners	0.8 – 24 mG
Desks near Electric Wiring	18 – 50 mG

Q25. DID YOU EVALUATE THE EMF LEVELS FOR THE PROPOSED 345 KV TRANSMISSION LINE?

A25. Yes, I calculated EMF levels for the proposed transmission line based on engineering information (line geometry and loading data) provided by ITC engineers. In general, the line design is for a three-phase, 60 Hz double circuit 345 kV

1 transmission line with twin bundled subconductors supported on a steel pole.
2 Each circuit is to be placed in a vertical configuration on opposite sides of the tu-
3 bular steel pole. The phases of each circuit will be arranged with an opposite
4 phasing configuration from the adjacent circuit. The effect of the opposite (or
5 unlike) phasing configuration is to reduce EMF levels. The line is divided into dif-
6 ferent electrical sections between substations, with different power flows depend-
7 ing on load requirements and wind generation availability. EMF levels have been
8 calculated for each of these line sections and for a range of electrical loading
9 conditions. In general, EMF levels are affected by line height above ground, con-
10 figuration (arrangement) and spacing of the phase conductors, line voltage, the
11 amount of current on the line (electrical loading) and, although generally to a
12 lesser extent, the proximity of other transmission lines. EMF values were calcu-
13 lated for a 31-foot minimum clearance above ground at midspan for the maxi-
14 mum on the right-of-way (ROW) and at the edges of a 200-foot ROW. The
15 calculated electric field levels for the different sections of the proposed transmis-
16 sion line at the right-of-way (ROW) edges and the maximum in the middle of the
17 ROW are shown in the attached Exhibit JMS-1.

18 The magnetic field levels, which are affected by loading conditions in addi-
19 tion to line height and configurations, have been calculated for low loading (no
20 wind), medium loading (minimum wind) and high loading (maximum wind) condi-
21 tions. Exhibit JMS – 1 also shows the calculated magnetic levels for the pro-
22 posed transmission line at the ROW edges and the maximum in the middle of the
23 ROW.

For the substations, EMF from the substation equipment are not expected to significantly influence the EMF levels along the substation property lines, as the substation equipment acts as point sources and EMF levels attenuate quickly with distance away from this type of source. The dominant source of EMF along the substation property lines will be the overhead transmission lines as they enter and exit the site. At the substation property lines, the EMF levels from the substation equipment typically are not higher than background levels of EMF found in homes.

Q26. ARE YOU AWARE OF ANY MANDATORY LIMITS FOR PUBLIC EXPOSURE TO MAGNETIC FIELDS IN MICHIGAN?

A26. There are no state or federal exposure limits for magnetic fields in Michigan. In 2003, the IEEE adopted a standard of 9,040 mG for public exposures to 60 Hz magnetic fields. The EMF levels from the proposed 345 kV transmission line are well below that recommended level. The design of the proposed transmission line also meets the National Electrical Safety Code limits for induced currents on large objects under transmission lines, such as large tractor trailer trucks.

Q27. WILL THERE BE ANY "STRAY VOLTAGE" FROM THE PROPOSED 345 KV TRANSMISSION LINE?

A27. The term "stray voltage" generally describes a voltage between two objects where no voltage difference should exist. Typically, high voltage overhead transmission lines do not create stray voltage problems. Commonly accepted sources of stray voltage on a farm include a variety of internal electrical wiring problems, as well as non-farm related problems (such as high resistance wires and connections within the local electric distribution system). Because "stray

voltage” is not a feature of the operation of a transmission line, no problems related to stray voltage would be expected from the proposed transmission line.

Q28. HAVE YOU DONE ANY RESEARCH TO EVALUATE THE POTENTIAL FOR EMF FROM TRANSMISSION LINES TO INTERFERE WITH GLOBAL POSITIONING SYSTEM (GPS) SIGNALS?

A28. I conducted a research project to evaluate whether GPS devices are adversely affected by EMF from electric power lines. The research involved an engineering analysis and extensive measurements in Michigan and other states of a variety of parameters under transmission lines up to 345 kV and 500 kV. As an initial matter, for interference to occur with the GPS signal, there must be a source of “noise” in the frequency band used by the GPS receiver. 60 Hz transmission lines do not produce any significant level of noise at the much higher frequency of the GPS satellite signals of around 1,227 to 1,575 MHz (1 MHz = 1 million Hertz). A second possible mechanism of interference might be partial blocking of the satellite signals (called signal scattering) by the overhead wires. An engineering analysis showed that this was not possible due to the small “electrical size” of power line conductors and large height above ground of the electric wires relative to a GPS signal wavelength. Measurements in Michigan of GPS signal strength under multiple-circuit 120 kV and 345 kV transmission lines in both fair and rainy weather showed no effects on GPS signal strength. These measurements confirmed that EMF from electric transmission lines do not interfere with GPS operation.

1 **Q29. BASED ON YOUR EDUCATION, TRAINING AND EXPERIENCE AS A PRO-**
2 **FSSIONAL ENGINEER AND SPECIALIST IN EMF EXPOSURE ASSESS-**
3 **MENT, HAVE YOU FORMED AN OPINION ABOUT THE EMF FROM THE**
4 **PROPOSED 345 KV TRANSMISSION LINE?**

5 **A29.** Yes, I have.

6 **Q30. WHAT IS THAT OPINION?**

7 **A30.** There is nothing unusual about the EMF from the proposed 345 kV transmission
8 line. The first 345 kV line in the United States was installed over 55 years ago
9 and there are now over 80,000 miles of 345 kV or higher voltage lines in opera-
10 tion in the United States. The EMF levels from the proposed 345 kV transmis-
11 sion line are similar to those from other 345 kV transmission lines already
12 operating in Michigan and throughout the country. The EMF levels from the pro-
13 posed transmission line are below the levels recommended by IEEE for public
14 exposures and the magnetic field levels from the line are within the range of EMF
15 that people can experience every day in their normal living and working environ-
16 ments.

17 **Q31. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

18 **A31.** Yes.

1 JUDGE NICKERSON: Any objection to
2 proposed Exhibit A-31?

3 MR. GORDON: The next witness is --

4 JUDGE NICKERSON: It may be admitted.

5 MR. GORDON: I apologize.

6 JUDGE NICKERSON: I'm not fast enough for
7 you.

8 MR. GORDON: You were fast enough on my
9 objection.

10 JUDGE NICKERSON: That's another matter.

11 MR. GORDON: The next witness is Mark A.
12 Israel, who is not sponsoring any exhibits, and there are
13 no changes to his testimony.

14 JUDGE NICKERSON: All right. Any
15 objection to binding Mr. Israel's testimony into the
16 record? It may be bound into the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC *Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF MARK A. ISRAEL, M.D.
ON BEHALF OF ITC *Transmission*

August 30, 2010

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
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Order in Case No. U-15899.

Case No. U-16200

**DIRECT PREFILED TESTIMONY OF MARK A. ISRAEL, M.D.
ON BEHALF OF ITC*Transmission***

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Mark. A. Israel. My business address is the Norris Cotton Cancer Center, Dartmouth Medical School, 1 Medical Center Drive, Lebanon, NH 03756.

Q2. WHAT IS YOUR OCCUPATION AND WHERE ARE YOU EMPLOYED?

A2. I am a medical doctor, a cancer researcher, and a medical school professor. I am the Director of the Norris Cotton Cancer Center at Dartmouth Medical School. I also head a research laboratory at the Cancer Center and I am a Professor in the Departments of Pediatrics and Genetics at Dartmouth Medical School.

Q3. PLEASE DESCRIBE THE NORRIS COTTON CANCER CENTER AT DARTMOUTH MEDICAL SCHOOL AND YOUR RESPONSIBILITIES AT THE CENTER.

A3. The Norris Cotton Cancer Center at Dartmouth Medical School is a large cancer treatment and research center, one of only approximately 40 such cancer centers in the United States designated as a Comprehensive Cancer Center by the National Cancer Institute. As Director of the Cancer Center, I am responsible for all of the Center's operations. This includes overseeing the delivery of medical

1 care to over 5,000 new patients each year and coordinating the multidisciplinary
2 treatments provided by our medical doctors, surgeons, radiation therapists,
3 nurses and other staff who specialize in the diagnosis and care of patients with
4 cancer. I also oversee the development of the cancer prevention programs we
5 are working to implement in the numerous communities we serve in New
6 England. My responsibilities also include managing our numerous cancer
7 research programs that have a collective annual budget of more than \$65 million.

8 **Q4. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL**
9 **BACKGROUND.**

10 **A4.** I received my undergraduate degree from Hamilton College in 1968. I then
11 earned my medical degree from the Albert Einstein College of Medicine in 1973.
12 After earning my MD, I completed my internship and residency at Children's
13 Hospital Medical Center in Boston, which is the principal pediatric teaching
14 hospital of Harvard Medical School.

15 After completing my residency, I joined the National Institutes of Health
16 (NIH) as a researcher studying the molecular genetics of cancer. At NIH, I
17 completed post-graduate training in pediatric oncology, which involves the
18 specialized diagnosis, care and treatment of cancer in children. I worked at NIH
19 from 1975 to 1989, where I conducted cancer research and treated cancer
20 patients. Throughout this period, I also served as an officer in the Public Health
21 Service, rising to the rank of Captain. In 1984, I became the Head of the
22 Molecular Genetics Section of the Pediatrics Branch at NCI, where we conducted
23 research on the molecular genetics of childhood cancer. Our research led to the
24 discovery of specific genes responsible for the cause of certain cancers in
25 children. Our work also contributed to improvements in the diagnosis and

1 treatment of childhood cancer, as well as early developments in the field of
2 cancer gene therapy.

3 In 1989, I joined the University of California at San Francisco (UCSF)
4 School of Medicine, where I became the Director of the Preuss Laboratory of
5 Molecular Neuro-Oncology and the Kathleen M. Plant Distinguished Professor.
6 The Preuss Laboratory was a major brain cancer research laboratory. The
7 Kathleen Plant professorship is an endowed faculty position at the Medical
8 School. At UCSF, I treated cancer patients, taught medical students and
9 directed research on the molecular causes of brain cancers. In 2001, I was
10 recruited to my present position as Director of the Cancer Center at Dartmouth
11 Medical School.

12 **Q5. ARE YOU A BOARD CERTIFIED PHYSICIAN AND LICENSED TO PRACTICE**
13 **MEDICINE?**

14 **A5.** Yes, I am a board certified pediatrician and I am licensed to practice medicine in
15 New Hampshire and California.

16 **Q6. HAS ANY OF YOUR RESEARCH BEEN PUBLISHED IN SCIENTIFIC**
17 **JOURNALS?**

18 **A6.** I have published over 200 scientific studies on cancer and the molecular genetics
19 of cancer in peer-reviewed scientific journals such as the New England Journal of
20 Medicine, Cancer, Cancer Research, The Proceedings of the National Academy
21 of Sciences, Cancer Cells, and Nature, among others. I have also written
22 chapters in medical textbooks, such as the section on brain cancer in the widely
23 used Harrison's Principles of Internal Medicine, and I am a co-Editor of the
24 textbook The Molecular Basis of Cancer.

Q7. HAVE YOU BEEN AWARDED ANY HONORS IN YOUR PROFESSIONAL CAREER?

A7. In 2007, I was elected to the Association of American Physicians, which is an honorary organization of leading American medical doctors working for the advancement of medical science. I am also an elected member of the American Society for Clinical Investigation, an organization that recognizes scientific researchers of merit. I have also been asked to provide scientific advice and direction to a number of organizations by serving on their advisory boards, such as the Science Advisory Board for the Yale Cancer Center, which I chair, and the External Advisory Boards for, the University of Nebraska Eppley Cancer Center, the Carbone Cancer Center at the University of Wisconsin, and the National Brain Tumor Society, among others. I also serve as a member of the Translational and Clinical Review Committee of the Cancer Prevention and Research Institute of Texas. During my work at the National Cancer Institute, I was awarded two U.S. Public Health Service commendation medals and in 2004 I received an honorary degree from Dartmouth. In 1998, I received the Farber Award, which is awarded annually by the American Association of Neurological Surgeons for excellence in cancer research. I have also served on the Board of Scientific Counselors for the U.S. National Cancer Institute.

Q8. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?

A8. I am a member of a number of professional organizations, including the American Association for Cancer Research, the American Society for Clinical Oncology, and the Society of Neuro-Oncology, among others. I also have recently served on a number of boards for professional organizations, such as the Board of Directors of the Association of American Cancer Institutes and the

Executive Committee of the Board of Directors of the Foundation for the Advancement of Education in Science (FAES).

Q9. WHAT PORTION OF YOUR PROFESSIONAL CAREER HAS INVOLVED CANCER RESEARCH AND TREATMENT?

A9. My entire career has been devoted to studying the causes of cancer, developing cancer therapies, providing treatment to cancer patients and working to improve the quality of cancer care and prevention in this country.

Q10. WHAT WERE YOU ASKED TO DO FOR THIS PROCEEDING?

A10. I was asked to conduct an independent evaluation of the published, peer-reviewed scientific research on power frequency electric and/or magnetic fields ("EMF") in my areas of expertise and to assess what this research shows about exposure to EMF and the development of cancer. I also reviewed background information about the proposed transmission line, and the information about EMF levels prepared by Mr. Silva. My testimony is offered in my individual capacity as a medical doctor and a cancer researcher, and is not offered on behalf of any scientific or medical organization with which I am affiliated.

Q11. HOW DID YOU CONDUCT YOUR EVALUATION OF EMF RESEARCH FOR THIS PROCEEDING?

A11. As a cancer researcher and a specialist in molecular genetics, my focus in reviewing the large body of EMF research is the laboratory studies on animals and cells relevant to cancer causation and development. To identify relevant studies in my areas of expertise, I conducted standard computerized searches for EMF studies published in peer-reviewed scientific journals. I identified, reviewed and evaluated these studies in the same manner as I evaluate scientific studies in the course of my professional activities. My testimony summarizes my

1 review of this research. The specific studies identified in my testimony are
2 examples from this large body of research.

3 **Q12. IN THE COURSE OF YOUR PROFESSIONAL WORK, DO YOU OFTEN**
4 **REVIEW SCIENTIFIC STUDIES ON TOPICS OTHER THAN YOUR OWN**
5 **RESEARCH?**

6 **A12.** Yes, I frequently review scientific publications on topics other than my own
7 research areas. For example, I have served as a reviewer of research proposals
8 for major cancer research organizations such as the U.S. National Cancer
9 Institute, Cancer Research UK, German Cancer Aid, the Cancer Research Fund
10 of Israel, and the Medical Research Council of New Zealand. I also for many
11 years have served as an assistant editor for various scientific and medical
12 journals and have conducted peer-review of articles submitted for publication to
13 leading journals such as Clinical Cancer Research, Neuro-Oncology, Cancer
14 Research, and others.

15 **Q13. HAVE YOU PREVIOUSLY PROVIDED EXPERT TESTIMONY ABOUT**
16 **LABORATORY RESEARCH ON EMF AND CANCER CAUSATION AND**
17 **DEVELOPMENT?**

18 **A13.** Yes, I have provided testimony as an expert in a few cases involving EMF from
19 power lines.

20 **Q14. WHAT EMF RESEARCH DID YOU CONSIDER IN THIS CASE?**

21 **A14.** The studies I considered included cellular level studies and longerm whole
22 animal studies. The cellular level studies examined whether power frequency
23 EMF could cause alterations to the genetic materials in the cell that are known to
24 be required for a normal cell to become a cancer cell. In particular, these studies
25 involved examination of whether cells exposed to EMF show significant,
26 permanent damage to the structure of DNA or chromosomes that could lead to

the development of cancer. Each cell in the body contains DNA, which is the blueprint for that cell's development and characteristics throughout its life. A normal cell does not transform into a cancer cell without significant change in the cell's genetic material, such as the subunits of the cell's DNA called genes. (Chromosomes are units of DNA organization in cells, and damage to the chromosomes may indicate damage to DNA.) The whole animal studies examined whether prolonged exposures to power frequency EMF under various intensities and conditions affected the development of cancer in laboratory animals.

Q15. PLEASE DESCRIBE THE DNA AND CHROMOSOME STUDIES YOU REVIEWED.

A15. Far too many of these studies have been published over the past several decades to describe each of them here. As with any large body of laboratory research, some studies have reported potential effects, but these effects have not been reproduced by subsequent studies from other laboratories. Replication of results is a key concept in scientific research. Findings reported in any particular study are not considered reliable in the absence of robust results that can be reproduced by other laboratories. As a group, the DNA and chromosome studies over the past 20 years do not show that EMF exposures cause any permanent damage to DNA or chromosomes. See e.g., Cohen (1986), Reese (1988), Frazier (1990); Fiorani (1992), Scarfi (1993), Zwingelberg (1993); Fairbairn (1994), Kikuchi (1998), Abramsson-Zetterberg (2001), Heredia-Rojas (2001), McNamee (2002), Heredia-Rojas (2004), Stronati (2004), Testa (2004), Luceri (2005), McNamee (2005), Scarfi (2005), Hone (2006), Williams (2006). For example, Hone (2006) exposed human blood cells to power frequency fields

of up to 7,000 mG (mG = milligauss, a unit of measure for magnetic fields) and found no damage to chromosomes in the exposed cells. Scarfi (2005) exposed human cells to 10,000 mG intermittent magnetic fields and found no increased damage to DNA or chromosomes. Stronati (2004) found no increased DNA or chromosome damage in human blood cells exposed to 10,000 mG fields. Similarly, studies by McNamee (2002, 2005) and Kikuchi (1998) found no significant damage to DNA and/or chromosomes after EMF exposures of up to 50,000 mG.

Q16. DID YOU REVIEW OTHER CELLULAR LEVEL STUDIES RELATED TO CANCER DEVELOPMENT?

A16. I have reviewed many other laboratory studies that examined whether EMF exposures could cause biologically significant effects in cells that might be related to cancer development. These include for example studies on the expression of genes and proteins potentially involved in the development of cancer. Some of the older studies reported potential effects on gene expression, while other studies did not. More recent studies using advanced laboratory technologies for the study of molecular genetics have failed to replicate the earlier claimed effects. For example, a recent study by Henderson used an advanced technique to test the potential effects of EMF exposure on the expression of almost 10,000 different genes. Henderson exposed human cells to fields ranging from 100 mG to 7,000 mG and found no reproducible effects on any of the thousands of genes examined (Henderson 2006). Similarly, studies by Nakasono (2003) and Luceri (2005) also used advanced methodologies to examine the expression of thousands of genes exposed to fields ranging from 10 mG up to 3,000,000 mG. They found no reproducible effects on gene

expression. Other studies have focused specifically on genes whose structure or expression is commonly altered in cancer cells (i.e. "proto-oncogenes"). These studies do not demonstrate that EMF exposures can affect the expression of proto-oncogenes (Balcer-Kubiczek 2000, Loberg 2000, Coulton 2004). Taken as a whole, this additional body of cellular-level studies does not show that EMF exposures cause biologically significant effects in cells that would cause or contribute to the development of cancer.

Q17. WHAT CAN THE LONG-TERM ANIMAL STUDIES TELL US ABOUT CANCER DEVELOPMENT?

A17. The long-term animal studies look for effects on the whole, complex living organism rather than isolated cells or cellular systems. In the long-term whole animal studies of EMF exposure, the laboratory animals typically have prolonged exposures to EMF, often throughout their lives and sometimes over multiple generations. If EMF could cause adverse effects leading to the development of cancer, we could anticipate this would be revealed in the long-term whole animal studies.

Q18. PLEASE DESCRIBE THE LONG-TERM ANIMAL STUDIES ON EMF.

A18. In the late-1990s, the U.S. National Toxicology Program (NTP) conducted large, well-designed long-term animal studies on EMF. These studies followed standard NTP methodologies for long-term animal studies of cancer development. In one of these studies (McCormick 1999), laboratory mice received continuous whole-body exposure to EMF of 20, 2,000 or 10,000 mG for up to two years (most of their lives). Another group of the animals was exposed to intermittent fields (1 hour on/1 hour off) of 10,000 mG. No increases in cancer, including leukemia, breast cancer and brain cancer, were found in any of the

1 exposed animals. Boorman (1999; 2000) conducted a similar study of laboratory
2 rats which found no consistent increase in cancer development. The researchers
3 concluded that the EMF exposures had little or no effect on the incidence of
4 cancer in the exposed animals. Long-term animal studies from independent
5 laboratories in other countries, including Australia, Canada, Europe and Japan
6 similarly found no increased cancer development in animals with prolonged
7 exposures to high levels of EMF. See e.g. Mandeville (1997), Yasui (1997),
8 Harris (1998), Otaka (2002), Sommer (2004).

9 **Q19. DID YOU REVIEW ANY ADDITIONAL ANIMAL STUDIES ON EMF?**

10 **A19.** Yes, a number of animal studies have examined whether exposure to power
11 frequency EMF can contribute to other aspects of cancer development, such as
12 cancer promotion or progression. Negishi (2008) found no cancer promotion
13 effects in laboratory mice exposed to 3,500 mG fields for 30 weeks, 7 days a
14 week, 22 hours a day. Sommer (2006) exposed laboratory mice to 1,000 mG
15 fields for 32 weeks, 7 days a week, 24 hours a day. He found no cancer
16 promotion in the exposed animals. Studies by Sasser (1996; 1998), Anderson
17 (1999), Boorman (1999), DiGiovanni (1999), Devevey (2000), Galloni (2000),
18 Mandeville (2000), Anderson (2001), McLean (2003) and Chung (2009) found no
19 promotion or progression of cancer, including leukemia, in animals exposed to
20 power frequency EMF. In the McLean study, the laboratory animals were
21 exposed to 20,000 mG fields for a year. No effects were seen on cancer
22 development in the exposed animals (McLean 2003).

1 **Q20. BASED ON YOUR EDUCATION, TRAINING AND EXPERIENCE AS A**
2 **MEDICAL DOCTOR, PEDIATRIC ONCOLOGIST, AND RESEARCHER**
3 **SPECIALIZING IN THE MOLECULAR GENETICS OF CANCER, HAVE YOU**
4 **FORMED AN OPINION ABOUT WHETHER EXPOSURE TO POWER**
5 **FREQUENCY EMF CAUSES OR CONTRIBUTES TO THE DEVELOPMENT OF**
6 **CANCER?**

7 **A20.** Yes, I have. The published, peer-reviewed laboratory research on power
8 frequency EMF and cancer development, including the long-term animal studies
9 and the cellular level studies, do not provide a reliable scientific basis to conclude
10 that exposure to power frequency EMF causes or contributes to the development
11 of cancer, including leukemia.

12 **Q21. BASED ON YOUR EDUCATION, TRAINING AND EXPERIENCE AS A**
13 **MEDICAL DOCTOR, PEDIATRIC ONCOLOGIST, AND RESEARCHER**
14 **SPECIALIZING IN THE MOLECULAR GENETICS OF CANCER, DO YOU**
15 **HAVE AN OPINION ABOUT WHETHER POWER FREQUENCY EMF FROM**
16 **THE PROPOSED 345 KV TRANSMISSION LINE WOULD CAUSE OR**
17 **CONTRIBUTE TO THE DEVELOPMENT OF CANCER IN CHILDREN OR**
18 **ADULTS ALONG THE PROPOSED LINE ROUTE?**

19 **A21.** Yes. Based on my education, training and experience as a medical doctor,
20 pediatric oncologist, and cancer researcher, and on my evaluation of the
21 scientific research and the information provided by Mr. Silva, there is no reliable
22 scientific basis to conclude that exposure to power frequency EMF from the
23 proposed transmission line will cause or contribute to the development of cancer
24 in children or adults along the proposed line's route.

25 **Q22. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

26 **A22.** Yes, it does.

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1 MR. GORDON: The next exhibit has been
2 marked as A-32, and consists of discovery, selected
3 discovery responses from the various parties, and has
4 been provided to the court reporter and to all of the
5 parties.

6 JUDGE NICKERSON: Any objection to the
7 admission of proposed Exhibit A-32? It may be admitted.

8 MR. GORDON: An additional witness is
9 Nancy C. Lee, who is not sponsoring any exhibits and has
10 no changes to her testimony.

11 JUDGE NICKERSON: Any objection to
12 binding in Ms. Lee's testimony?

13 MR. GORDON: Finally, your Honor --

14 JUDGE NICKERSON: It may be bound into
15 the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

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In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF NANCY C. LEE, M.D.
ON BEHALF OF ITCTRANSMISSION

August 30, 2010

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In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
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Case No. U-16200

**DIRECT PREFILED TESTIMONY OF NANCY C. LEE, M.D.
ON BEHALF OF ITCTRANSMISSION**

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Nancy C. Lee. My business address is 347 Winnona Drive, Decatur, Georgia, 30030.

Q2. WHAT IS YOUR OCCUPATION?

A2. I am a medical doctor, medical epidemiologist and public health specialist.

Q3. WHAT IS A MEDICAL EPIDEMIOLOGIST?

A3. Epidemiology is the basic science of public health. Epidemiologists use health data and statistical analysis to study the incidence and risks of diseases and conditions in human populations. A medical epidemiologist is an epidemiologist who also is a physician.

Q4. WHERE ARE YOU EMPLOYED?

A4. Since 2004, when I retired from the U.S. Centers for Disease Control and Prevention, I have been self-employed as an independent consultant on public health, epidemiology and cancer prevention issues.

Q5. WHAT IS THE CENTERS FOR DISEASE CONTROL AND PREVENTION?

A5. The Centers for Disease Control and Prevention (CDC) is the leading governmental public health agency in the United States. The CDC is an agency in the U.S. Department of Health and Human Services. The overall mission of CDC is to protect the health of Americans by identifying public health problems, and developing and implementing strategies to address those problems.

Q6. WHAT POSITION DID YOU HOLD AT CDC IN 2004?

A6. From 1999 to 2004, I was the Director of the Division of Cancer Prevention and Control (DCPC) in the National Center for Chronic Disease Prevention and Health Promotion at CDC. The DCPC is the division at CDC that develops public health programs and strategies for cancer prevention and control in the U.S. The division also conducts surveillance and research in support of its mission. As Director of the DCPC, I was responsible for developing and implementing the vision, goals and priorities of the Division. I also managed the activities of over 130 public health professionals and an annual budget of approximately \$280 million for public health research and programs.

Q7. DID YOU HOLD ANY OTHER POSITIONS IN THE DIVISION OF CANCER PREVENTION AND CONTROL AT CDC?

A7. Before I became the Director of DCPC in 1999, I was the Associate Director for Science (1993-99) and Chief of the Epidemiology and Statistics Branch (1991-93). As Associate Director for Science, I was the Division's chief scientist. In that capacity I provided scientific, medical, and epidemiologic review and guidance to the Division Director and staff, led efforts to translate scientific knowledge into public health policy, and participated in designing and conducting

research projects. As Chief of the Epidemiology and Statistics Branch, I conducted epidemiologic research and supervised the public health research conducted by physicians, epidemiologists, and statisticians in the Branch.

Q8. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A8. I received a B.A. in mathematics (Summa cum Laude) from the University of Texas at Austin in 1971. In that year, I was named an Outstanding Woman of the University of Texas. In 1974, I entered medical school at Baylor College of Medicine in Houston, and earned my medical degree (cum Laude). After receiving my M.D., I completed an internship in Obstetrics-Gynecology and a residency in Internal Medicine at the University of Pennsylvania. I then was accepted into CDC's Epidemic Intelligence Service in 1981, which is a very selective and rigorous two-year post-graduate training program in epidemiology and public health research, equivalent to a Masters program in Public Health.

Q9. WHAT DID YOU DO AFTER YOU COMPLETED YOUR TRAINING IN MEDICINE AND EPIDEMIOLOGY?

A9. After I completed my training with the CDC Epidemic Intelligence Service, I was offered a position as a medical epidemiologist at CDC's Division of Reproductive Health (DRH) in the Epidemiologic Studies Branch. I worked there as an epidemiologist and then deputy branch chief until 1991, when I became a chief of the Epidemiology and Statistics Branch in the Division of Cancer Prevention and Control. In each of these positions, I conducted epidemiology and public health research. My work in this period included epidemiology studies on a range of public health issues, including major analyses of data from the then largest-ever case-control study to identify risk factors for breast, endometrial, and ovarian

1 cancers. I also designed a new nationwide system to monitor outcomes of
2 breast and cervical cancer screening tests conducted in the National Breast and
3 Cervical Cancer Early Detection Program. This system is still in use today and
4 continues to yield important data for evaluating the effectiveness of the cancer
5 screening program, and for researching public health and clinical issues related
6 to the detection and treatment of breast and cervical cancer in the United States.
7 Throughout my time at CDC, I served as an officer in the Commissioned Corps of
8 the Public Health Service and retired with the rank of Captain.

9 **Q10. ARE YOU A BOARD CERTIFIED MEDICAL DOCTOR?**

10 **A10.** Yes, I am board certified in Internal Medicine.

11 **Q11. HAVE YOU BEEN LICENSED TO PRACTICE MEDICINE?**

12 **A11.** Yes, I was initially licensed in Pennsylvania during my residency at the University
13 of Pennsylvania. When I began working at CDC, I obtained a license to practice
14 medicine in Georgia. Both licenses are currently inactive.

15 **Q12. WHAT TYPES OF EPIDEMIOLOGY AND PUBLIC HEALTH RESEARCH HAVE**
16 **YOU CONDUCTED?**

17 **A12.** My epidemiology and public health research has focused on the causes and
18 detection of cancers, reproductive health issues, and the use of public health
19 resources for cancer prevention and control. I have analyzed existing
20 epidemiologic and surveillance data, and have designed new disease
21 surveillance systems, case-control studies, and population surveys. These
22 research studies have been conducted in the United States, Latin America, and
23 Africa. In addition to conducting epidemiology research, I have served as a
24 scientific advisor on epidemiology and public health issues to the National

Cancer Institute, the U.S. Institute of Medicine, the Food and Drug Administration, the World Health Organization, and the American Cancer Society. I also served as a consultant on public health research projects in China, Indonesia, and Scandinavia.

Q13. HAS YOUR RESEARCH BEEN PUBLISHED IN SCIENTIFIC JOURNALS?

A13. Yes, I have published over 95 articles involving causes of cancer, as well as other epidemiology and public health research and programs in such peer-reviewed scientific journals as The New England Journal of Medicine, the American Journal of Epidemiology, the Journal of the American Medical Association, the Journal of the National Cancer Institute, Cancer, the American Journal of Public Health, Cancer Causes and Control, the American Journal of Preventive Medicine, and the International Journal of Cancer, among others.

Q14. AS PART OF YOUR PROFESSIONAL RESPONSIBILITIES, DO YOU REVIEW SCIENTIFIC LITERATURE ON TOPICS ON WHICH YOU DO NOT PERSONALLY CONDUCT RESEARCH?

A14. Yes, frequently. Over the course of my career at CDC, I regularly reviewed proposals for studies that other researchers submitted for funding to CDC, the National Cancer Institute, the American Cancer Society (ACS) and other organizations. I have also been a peer-reviewer of research manuscripts for scientific journals such as the Journal of the American Medical Association, the American Journal of Public Health, Cancer Causes and Control, and Obstetrics & Gynecology. Additionally, in my role as a senior scientist at CDC, I reviewed several hundred scientific papers on a broad variety of subjects written by other CDC scientists for required official agency clearance prior to publication. As part

of my consulting work, I now regularly review and assess scientific literature on a variety of topics for my clients.

Q15. HOW MUCH OF YOUR PROFESSIONAL CAREER HAVE YOU DEVOTED TO PUBLIC HEALTH ISSUES?

A15. Over the past 29 years, my entire professional career has been devoted to public health.

Q16. PLEASE BRIEFLY DESCRIBE YOUR RECENT WORK ON PUBLIC HEALTH PROJECTS.

A16. As an independent public health consultant since 2004, I have provided epidemiology and public health advice and assistance on a variety of projects to public health organizations such as CDC, ACS, and the World Health Organization (WHO). A major project was The Cancer Atlas, a book that I co-authored and which was published by the ACS in 2006. The Cancer Atlas was developed through joint efforts of the ACS, the CDC, the WHO and others. The Atlas is a comprehensive overview of our knowledge about cancer risk factors, the worldwide burden of cancer, and cancer prevention and control activities by nations around the globe. This information is presented in visual format to make the data readily accessible to policy makers, health officials, and cancer advocacy groups. I have also helped prepare international scientific guidance documents on skin cancer prevention and lung cancer screening, and I prepared a lengthy report assessing worldwide progress on cancer prevention and control efforts for use by the International Union Against Cancer. In 2009, the Cancer Prevention and Research Institute of Texas (CPRIT) asked me to serve as Chair of a committee to review applications to CPRIT for funding of cancer prevention programs in Texas. In that capacity, I chair the scientific peer review of

1 applications submitted to CPRIT and participate in the final selection of projects
2 to be funded.

3 **Q17. HAVE YOU RECEIVED ANY AWARDS FOR YOUR PROFESSIONAL WORK**
4 **IN EPIDEMIOLOGY AND PUBLIC HEALTH?**

5 **A17.** Yes, I have received a number of Public Health Service awards including a
6 Commendation Medal (1987), two Unit Commendations (1987, 1992), an Honor
7 Award (1989), and an Outstanding Service Medal (1990). In 2004, I was a finalist
8 for the CDC's Shephard Award for Lifetime Scientific Achievement, an award
9 given annually to a single individual in honor of a body of outstanding scientific
10 work over many years at CDC.

11 **Q18. WHAT WERE YOU ASKED TO DO IN CONNECTION WITH THIS**
12 **PROCEEDING?**

13 **A18.** I was asked to provide information about the epidemiology research on EMF and
14 health from the perspective of a medical doctor and a specialist in epidemiology
15 and public health. In addition to reviewing the scientific materials discussed
16 below, I have reviewed information about EMF levels in the testimony of Mr.
17 Silva, as well as some background materials about the proposed transmission
18 line.

19 **Q19. ARE YOU TESTIFYING ON BEHALF OF THE CDC OR ANY OTHER**
20 **SCIENTIFIC OR PUBLIC HEALTH ORGANIZATION?**

21 **A19.** No, I am testifying in my own capacity as a medical doctor, medical
22 epidemiologist and public health specialist, and not on behalf of any medical or
23 public health organization.

Q20. HOW DID YOU CONDUCT YOUR EVALUATION OF THE SCIENTIFIC RESEARCH ON EMF?

A20. I concentrated my review in this case on the epidemiologic research involving EMF and children, as this has been an area of principal interest in recent years. I conducted literature searches to identify relevant studies, then reviewed and evaluated the studies. I also examined several recent scientific reviews of EMF research prepared by reputable public health entities such as the WHO, the International Agency for Research on Cancer (IARC), and the U.S. National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health. In conducting my evaluation I followed the same methodologies I have used throughout my professional career to evaluate epidemiologic and public health issues.

Q21. COULD YOU BRIEFLY DESCRIBE EPIDEMIOLOGY?

A21. As I mentioned previously, epidemiology is a field of science that uses health data and statistical analysis to study the incidence and risks of disease and conditions in human populations. Epidemiology grew out of the effort to understand epidemics and is used in public health to try to identify causes of disease and ways to prevent disease.

There are several types of epidemiology studies. One common type of study is the case-control study, which compares exposures in people who have been diagnosed with a particular disease (cases) to the exposures experienced in a comparable group of people who do not have that disease (controls). Another common type of study is the “cohort” study, which groups people (such as workers in a particular industry) by their different occupations and/or environmental exposures, and then compares rates of disease among these different groups.

Epidemiology studies are different than laboratory experiments. For a laboratory experiment, the researcher administers an exposure to cells or animals while holding other conditions constant, and then examines the effects the exposure has had on the cells or animals. In contrast, epidemiology studies are not experimental because the researchers do not administer an exposure to study participants or change any other conditions experienced by participants. Rather, epidemiologists collect information about exposures and disease occurrence that happened before the study began or that occur during the study, without changing any conditions. As a result, epidemiology is often described as an “observational” science as compared to “experimental” laboratory research.

Q22. HOW DO YOU EVALUATE EPIDEMIOLOGY STUDIES TO DETERMINE IF A PARTICULAR EXPOSURE MAY BE ASSOCIATED WITH A PARTICULAR DISEASE?

A22. Epidemiology studies are not conducted in the controlled environment of the laboratory. Instead, they involve examination of information collected about people, their health conditions and potential exposures. Epidemiology studies therefore involve many “real-world” factors that can be difficult to identify and

measure with precision. As epidemiology has developed as a science, the complex challenges of conducting research using “real-world” data and deriving valid conclusions from statistical analyses has led epidemiologists to develop specific criteria for the design, conduct, and interpretation of epidemiology research.

In assessing a body of epidemiology research, an epidemiologist must first evaluate individual studies to determine their strengths and weaknesses, and to assess their validity. This includes evaluating the validity and accuracy of exposure assessment, the determination of disease, the selection of the study populations, the manner in which the study was conducted, and the appropriateness of the data analysis, conclusions, and interpretations. After evaluating the individual studies, groups of similar studies must be evaluated as a whole. This involves an evaluation of several factors to determine if the body of research has reported a valid, coherent relationship between an exposure and a disease. These factors include the strength of the supposed risk or association, the likelihood that the results were due to chance (i.e. statistical significance), whether increasing exposure increases disease risk (dose-response relationship), and whether results make sense given what is known about the relevant biology (biological plausibility).

Q23. ARE THERE EXAMPLES WHERE EPIDEMIOLOGIC STUDIES HAVE SUGGESTED AN ASSOCIATION BETWEEN AN EXPOSURE AND A DISEASE, BUT THERE ACTUALLY WAS NOT A CAUSAL RELATIONSHIP BETWEEN THE EXPOSURE AND THE DISEASE?

A23. Yes. For example, a number of early epidemiology studies on the effects of estrogen replacement therapy (ERT) for menopausal symptoms indicated that

women who used ERT had a reduced risk of cardiovascular disease. As a result, for many years ERT was thought to have a beneficial, protective effect on women's hearts. Subsequently, a large controlled clinical trial showed that ERT did not protect women from heart disease; additionally, women who took ERT plus another hormone, progestin, actually experienced a higher risk of cardiovascular disease compared with those who took placebo pills. The initial erroneous result, i.e. the "spurious" association between ERT and the reduced risk of heart disease, is most likely because women who used ERT were healthier overall compared to the entire population.

Another example is an association that was reported in some epidemiology studies between coffee drinking and increased risk of lung cancer. Further analysis determined that people who drank large amounts of coffee also smoked more cigarettes than people who drank less coffee. Smoking, as the true cause of the increased risk of lung cancer, was a "confounder" for the reported association between coffee drinking and cancer, because smoking was associated with both the exposure, coffee drinking, and the disease, lung cancer.

Q24. PLEASE DESCRIBE THE RESEARCH ON EMF AND CHILDHOOD LEUKEMIA.

A24. This body of epidemiology research includes a number of studies of varying quality. The early studies, from the late 1970's and the 1980's, have substantial limitations in study design, exposure assessment, and analysis (e.g. Wertheimer 1979; Fulton 1980; Tomenius 1986; Savitz 1988). These early studies relied on crude estimates of children's exposure to EMF such as residential proximity to power lines and/or visual estimates of the numbers and thickness of power line

wires near homes (called “wire codes”); some studies also included spot measurements of magnetic fields. Some of these early studies reported positive associations for some estimates of EMF exposure but not others, and other studies did not report such associations.

Subsequent studies in the 1990's improved upon study design (e.g. London 1991; Feychting 1993; Olsen 1993; Verkasalo 1993; Tynes 1997). Several of these studies were conducted in Scandinavia, where population registries and records from power companies were used to calculate estimates of past EMF exposures. The results of these studies were also inconsistent and limited by the small number of children in the higher exposure groups. Data from a recent study (Maslanyj 2009) show that distance from power lines is a poor predictor of actual magnetic field levels in homes. This raises the prospect that the results based on distance from power lines as an element of magnetic field exposure assessment – which would include most of these earlier EMF childhood leukemia studies – may not be reliable or even capable of interpretation.

A more recent generation of major studies conducted in the U.S., United Kingdom, and Canada included larger groups of study subjects, improved epidemiologic design, and more sophisticated measures of EMF exposure. These studies found no consistently statistically significant increased risks in childhood leukemia associated with measured fields (Linnet 1997; McBride 1999; UKCCS 1999; Kleinerman 2000), estimates based on wire codes (Linnet 1997; McBride 1999; Kleinerman 2000) or calculated estimates of past exposures

(UKCCS 2000). Taken as a whole, these epidemiology studies do not provide a reliable scientific basis to conclude that exposure to magnetic fields is associated with an increased risk of childhood leukemia. Data from subsequent studies (e.g. Draper 2005; Foliart 2006, 2007; Kabuto 2006; Mejia-Arangure 2007; Yang 2008 Malagoli 2010) do not change that conclusion.

Q25. IS THERE OTHER RESEARCH ON EMF RELEVANT TO CHILDHOOD LEUKEMIA?

A25. Yes. There are several “pooled-analysis” studies (a type of “meta-analysis,”) that selected and combined original data from previously conducted research published by 2001 in order to create larger sets of data for statistical analysis (Ahlbom 2000; Greenland 2000; Schüz 2007). Based on the reanalysis of the combined data, each of the pooled-analysis studies reported a weak association between childhood leukemia and magnetic fields.

Pooled-analysis studies can be useful, but have methodological limitations. These include in particular the problem of combining data from studies of differing designs and time periods that used widely differing methods for many aspects of exposure assessment, data collection and analysis. The limitations and methodological challenges in meta-analysis studies are well-known, and as noted by Linet (2003), these limitations are particularly a concern for epidemiology research where the reported association is both weak and inconsistent, as it is for EMF and childhood leukemia. An analysis by Elwood (2006) has emphasized the important question of whether the data from multiple studies that used widely different methods of EMF exposure assessment can be reliably combined.

1 The authors of the pooled-analysis studies on EMF and childhood
2 leukemia were clearly aware of these limitations and the need for caution in
3 interpreting the results of their studies. The authors of one pooled-analysis noted
4 that while there was a small positive association in the higher exposure group,
5 “the explanation for the elevated risk is unknown, but selection bias may have
6 accounted for some of the increase.” (Ahlbom 2000). Selection bias is a well-
7 known methodological problem related to the inclusion of study subjects which
8 can cause a false association to be reported. The authors of the second pooled-
9 analysis stressed that “the inconclusiveness of our results seems inescapable.”
10 (Greenland 2000).

11 Another set of studies relevant to whether exposure to EMF may cause
12 childhood leukemia and other cancers is laboratory research on cancer causation
13 by EMF in animals and cells. Credible sources such as the NIEHS and the WHO
14 have conducted detailed reviews of this extensive body of laboratory research
15 (which is not my specific area of expertise) and have found that the animal and
16 other laboratory research do not provide consistent or compelling results to
17 indicate that exposure to EMF is involved in the development of cancer or other
18 illness.

19 **Q26. WHAT DID THE NIEHS REVIEW CONCLUDE ABOUT EMF AND HEALTH?**

20 **A26.** The NIEHS, which is one of the National Institutes of Health, issued a report on
21 EMF to the U.S. Congress in 1999. NIEHS noted that some of the epidemiology
22 studies of childhood leukemia reported “weak” associations and that there was
23 no support for those associations from the laboratory research. NIEHS
24 concluded overall that, “[t]he weak epidemiological associations and the lack of

any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm." NIEHS also concluded that it would not rank EMF as an exposure "reasonably anticipated" to be a cause of cancer.

Q27. WHAT DID THE REVIEW OF EMF BY THE WHO CONCLUDE?

A27. The WHO issued its extensive review of EMF in 2007. This review found that there is "inadequate evidence" to conclude that EMF causes or contributes to almost all health conditions examined. The WHO Report noted that there was "limited evidence" of an association from the childhood leukemia studies, and that a cause and effect relationship had not been demonstrated. The WHO Report also concluded that there was "inadequate evidence" for an association between EMF and all other childhood cancers, all adult cancers and other adult health conditions such as cardiovascular and neurodegenerative diseases. On its website, WHO currently reports that: "Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields."

Q28. BASED ON YOUR EDUCATION, TRAINING AND EXPERIENCE AS A MEDICAL DOCTOR AND A SPECIALIST IN EPIDEMIOLOGY AND PUBLIC HEALTH, HAVE YOU FORMED AN OPINION ABOUT WHETHER EXPOSURE TO POWER FREQUENCY EMF CAUSES CANCER OR OTHER ADVERSE HEALTH EFFECTS?

A28. Yes, I have.

Q29. WHAT IS THAT OPINION?

A29. The epidemiology studies that have examined power frequency EMF and human health, along with the laboratory studies on animals and cellular systems, do not

1 provide a reliable scientific basis to conclude that exposure to EMF would cause
2 or contribute to childhood leukemia, other childhood and adult cancers, or other
3 chronic health problems.

4 **Q30. HAVE YOU REVIEWED INFORMATION ABOUT THE EMF LEVELS FROM**
5 **THE PROPOSED 345 KV TRANSMISSION LINE?**

6 **A30.** Yes, I reviewed information on the calculated EMF levels for the proposed
7 transmission line provided in the direct testimony of Mr. Silva.

8 **Q31. BASED ON YOUR EDUCATION, TRAINING, AND EXPERIENCE AS A**
9 **MEDICAL DOCTOR AND A SPECIALIST IN EPIDEMIOLOGY AND PUBLIC**
10 **HEALTH, DO YOU HAVE AN OPINION ABOUT WHETHER EXPOSURE TO**
11 **POWER FREQUENCY EMF FROM THE PROPOSED 345 KV TRANSMISSION**
12 **LINE WOULD CAUSE OR CONTRIBUTE TO ADVERSE HEALTH EFFECTS IN**
13 **PEOPLE ALONG THE ROUTE OF THE LINE?**

14 **A31.** Yes, I have.

15 **Q32. WHAT IS THAT OPINION?**

16 **A32.** Based on my education, training, and experience as a medical doctor,
17 epidemiologist and specialist in public health, and on my review of the scientific
18 research in my areas of expertise, there is no reliable scientific basis to conclude
19 that exposure to power frequency EMF from the proposed 345 kV transmission
20 line will cause or contribute to adverse health effects in people living or working
21 along the proposed line route.

22 **Q33. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

23 **A33.** Yes.

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1 MR. GORDON: The next witness is Jason
2 Sutton, who is not sponsoring any exhibits. However,
3 there has been a change to his testimony which has been
4 provided to the court reporter and all the parties. That
5 change is on page 5, line 13 [sic], and is an insertion
6 of the legal description of the Sandusky substation. It
7 does not change the location of the station as proposed
8 in any way, but it's simply a legal description.

9 JUDGE NICKERSON: All right. Any
10 objection to binding Mr. Sutton's testimony into the
11 record?

12 MR. STRONG: Is it Jason Sutton?

13 MR. CHRISTINIDIS: It's Jason.

14 MR. GORDON: Jason Sutton.

15 MR. STRONG: Not James.

16 MR. CHRISTINIDIS: Your Honor, just to
17 clarify, there was a discussion as to whether or not
18 Edison might need Mr. Sutton for cross-examination.
19 We've spoken with counsel for ITC, and we no longer
20 believe that's necessary, so we don't oppose binding in
21 his testimony at this time.

22 JUDGE NICKERSON: Thank you,
23 Mr. Christinidis.

24 Any objections to binding Mr. Sutton's
25 testimony? It may be bound into the record.

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION
 * * * * *

In the matter of the application of International
 Transmission Company d/b/a *ITC Transmission*, for
 an expedited siting certificate for a transmission line,
 pursuant to 2008 PA 295, Part 4, for Region No. 4
 (Thumb Region), as designated by the Michigan Wind
 Energy Resource Zone Board and the Commission's
 Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF JASON SUTTON
ON BEHALF OF ITC TRANSMISSION

August 30, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International Transmission Company d/b/a ITC*Transmission*, for an expedited siting certificate for a transmission line, pursuant to 2008 PA 295, Part 4, for Region No. 4 (Thumb Region), as designated by the Michigan Wind Energy Resource Zone Board and the Commission's Order in Case No. U-15899. Case No. U-16200

DIRECT PREFILED TESTIMONY OF JASON SUTTON
ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Jason Sutton. My business address is 27175 Energy Way, Novi, Michigan 48377.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY.

A2. I am employed by ITC Holdings (ITC) as a Principal Engineer in the Project Engineering group.

Q3. PLEASE SUMMARIZE YOUR QUALIFICATIONS.

A3. I earned a Bachelor of Science Degree in Nuclear Engineering from the University of Michigan in 1995.

I began working in the electric utility industry in June of 1995 as a summer student with The Detroit Edison Company ("Detroit Edison"). In December 1995, I joined Detroit Edison in its Professional Opportunity Program—a two year developmental program with a variety of assignments, including system engineering, component engineering, in-service inspection/plant equipment performance & work control.

1 In December 1997, I was appointed to the position of Project Manger for
2 Detroit Edison. From June 2001 until December of 2001, I was temporarily
3 assigned to the Staff Manager for the President of Energy Distribution and Vice
4 President of Corporate Strategy during Detroit Edison's merger with MichCon. In
5 January of 2002, I resumed my duties as Project Manager.

6 In June of 2003, I joined ITC as a Senior Project Engineer. In that role, I
7 managed the scope, schedule, and budget for various transmission system
8 capital projects. Such projects included new construction projects, as well as
9 upgrades of substations and high voltage transmission lines. In 2008, I was
10 promoted to a Principal Engineer's position. In this position, I continue to perform
11 the duties of the Senior Project Engineer, but also serve as a work leader for
12 several other Project Engineers as well as perform overarching reporting duties.

13 I most recently served as the Project Engineer for the Genoa-Prism line,
14 which was approved by this Commission in Case No. U-14861.

15 **Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

16 **A4.** My testimony is submitted in support of International Transmission Company
17 d/b/a ITC*Transmission's* August 30, 2010 application requesting an expedited
18 siting certificate to serve Michigan's Thumb region, which was identified as
19 Region No. 4 by the Michigan Wind Energy Resource Zone Board's ("Board")
20 October 15, 2009 Final Report and the Michigan Public Service Commission's
21 January 27, 2010 Order in Case No. U-15899 ("Wind Zones Order"). My
22 testimony describes the proposed line's configuration and use, and describes the
23 proposed construction schedule.

Q5. PLEASE PROVIDE A DETAILED DESCRIPTION OF THE PROPOSED TRANSMISSION LINE AND ITS EXPECTED CONFIGURATION AND USE.

A5. The proposed transmission line will be designed and constructed as a double circuit 345 kV line utilizing double bundled Drake/VR2 (2 x 795-26/7 ACSR) or equivalent conductor on primarily steel monopoles. Steel lattice towers will be utilized as line angle changes necessitate. It will also include four new substations, and an expansion of an existing substation. These lines and substations will provide the needed transmission to bring bulk power from the Region No. 4 Wind Zone to the load centers in Michigan and adjacent states.

Q6. PLEASE DESCRIBE THE PROPOSED SUBSTATIONS REFERENCED IN YOUR TESTIMONY ABOVE.

A6. The "Fitz" substation will be a new substation located on approximately 25 acres in St. Clair County. The property where the substation will sit is located at Cove Road, in Wales Township, and is identified with tax identification number 74310293003001. The legal description of the property is as follows: BEG. SECOR. TH N 89D 45M W 1362.9', TH N00D 10 MW 1351.2', TO BEG. TH N 00D 10M W 1058.83', TH E 617.76', TH N 291.29', TH S 89D 54M E 307.06' TH S00D 19M 09S E 1352.435', TH N 89D 49M 31S W 929.28' TO BEG. SECTION 29 T6N R15E 24.64 A.

The unmanned high voltage transmission station will contain electrical equipment and a control center. Fitz will initially consist of equipment energized at a voltage of 345kV with space inside the station for additional future 345kV and 120kV equipment. The station will have approximately 10 acres completely fenced in and have a security gate which will allow access to ITC *Transmission* and Michigan Electric Transmission Company, LLC (METC) personnel only.

1 The “Baker” substation will be a new substation located on approximately
2 41 acres in Tuscola County. The property where the substation will sit is located
3 in Tuscola Township, and is identified with tax identification number
4 019007000080001. The legal description of the property is as follows: TUS-7-
5 403 SEC 7 T11N R7E SW 1/4 ALSO W 1/2 OF SE FRL 1/4 LYING N OF OLD
6 INDIAN RESERVATION EX N 25 A THEREOF ALSO EX COM AT A PT THAT
7 IS N 1508 FT N OF SW COR OF SEC, TH E 412.5 FT, TH N 132 FT, TH E 80.5
8 FT, TH N 132 FT, TH W 493 FT, TH S 264 FT TO POB ALSO EX COM AT A PT
9 THAT IS S 01 DEG 01’47” E 248.37 FT TO E 1/4 COR OF SEC 12 T11N R6E &
10 S 00 DEG 57’57” E 205.64 FT FROM W 1/4 COR OF SD SEC, TH 00 DEG
11 57’57” E 44.37 FT, TH N 89 DEG 54’53” E 1095.14 FT, TH S 01 DEG 36’28” E
12 1559.38 FT TO N LN OF INDIAN RES, TH N 89 DEG 35’56” E 250.05 FT, TH N
13 01 DEG 36’28” W 1631.61 FT, TH S 88 DEG 39’46” W 1343.57 FT TO POB.
14 78.31 A.

15 The unmanned high voltage transmission station will contain electrical
16 equipment and a control center. Baker will initially consist of equipment
17 energized at 345kV with space inside the station for additional future 345kV and
18 120 kV and/or 138kV equipment. The station will have approximately 12 acres
19 completely fenced in and have a security gate which will allow access for
20 ITC *Transmission* and METC personnel only.

21 The “Rapson” substation will be a new substation located on
22 approximately 40 acres in Huron County. The property where the substation will
23 sit is located in Sigel Township, and is identified with tax identification number

2600700600. The legal description of the property is as follows: That certain real property consisting of approximately the southwest 40 acres located in the SE 1/4 of SECTION 7, TOWN 16 NORTH, RANGE 14 EAST, Sigel Twp., County of Huron, State of Michigan.

The unmanned high voltage transmission station will contain electrical equipment and a control center. Rapson will initially consist of equipment energized at voltages of 345kV and 120kV with space inside the station for additional future 345kV and 120 kV equipment. The station will have approximately 10 acres completely fenced in and have a security gate which will allow access to ITC *Transmission* and METC personnel only.

There will be a new substation at a location along the new 345 kV right-of-way south of the existing Sandusky station to facilitate support for the existing 120 kV facilities in the Sandusky area.

The unmanned high voltage transmission station will contain electrical equipment and a control center. This new station will initially consist of equipment energized at voltages of 345kV and 120kV with space inside the station for additional future 345kV and 120 kV equipment. The station will have a security gate that will allow access to ITC *Transmission* and METC personnel only.

ITC *Transmission* will also expand the existing "Greenwood" substation. The legal description of the property where the Greenwood substation is located at is as follows: PART OF THE NORTHEAST 1/4 OF SECTION 28, TOWN 8 NORTH, RANGE 15 EAST, GREENWOOD TOWNSHIP, ST. CLAIR COUNTY,

MICHIGAN. COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 28; THENCE NORTH 89°54'16" WEST, 627.91 FEET, ALONG THE NORTH LINE OF SAID SECTION 28; THENCE SOUTH 00°08'31" WEST, 236.85 FEET, TO THE POINT OF BEGINNING; THENCE SOUTH 00°08'31" WEST, 404.00 FEET; THENCE NORTH 90°00'00" WEST, 418.00 FEET; THENCE NORTH 00°00'00" WEST, 188.00 FEET; THENCE NORTH 90°00'00" WEST, 290.00 FEET; THENCE NORTH 00°00'00" WEST, 259.55 FEET; THENCE NORTH 89°46'33 EAST, 503.12 FEET; THENCE SOUTH 00°08'31 WEST, 45.00 FEET; THENCE SOUTH 89°51'29" EAST, 206.00 FEET, TO THE POINT OF BEGINNING.

The expansion of Greenwood will initially contain equipment energized at 345kV.

Q7. DID YOU PROVIDE INFORMATION REGARDING THE PROPOSED LINE TO AN EXPERT WITNESS IN THIS CASE?

A7. Yes, I provided the technical details of the line configuration on the proposed right-of-ways, dimensions locating the conductors, circuit information and preliminary station layouts to Mr. Michael Silva for the purpose of calculations and opinions on the electric magnetic fields of the proposed facilities.

Q8. WHAT IS THE PLANNED DATE FOR BEGINNING CONSTRUCTION?

A8. We intend to begin construction in the first quarter of 2012.

Q9. WHEN DO YOU ANTICIPATE COMPLETION OF CONSTRUCTION?

A9. We intend to complete construction by the fourth quarter of 2015.

Q10. PLEASE BRIEFLY DESCRIBE THE CONSTRUCTION PROCESS AND WHAT IT ENTAILS.

A10. Each substation will be constructed by removing topsoil and bringing the station elevation to grade, installing concrete foundations, setting steel support structures, setting high voltage equipment (breakers, disconnects, control center, transformers, etc) installing underground conduit and a ground grid, installing relay panels along with control and relay cables and installing all interconnecting high voltage conductor and bus-work. Cleanup and site restoration is typically performed after the substation is placed in-commission.

Each new line will be constructed by laying access matting along the right-of-way where necessary, drilling holes for each new structure, pouring concrete for those structures requiring a foundation, framing the steel poles, erecting the steel poles and lattice towers, pulling the conductor and shield wire, and sagging and clipping the conductor and shield wire. Cleanup and site restoration is typically performed after the line is placed in-commission.

Q11. ARE THERE ANY ENVIRONMENTAL OR STANDARDS OR LAWS THAT WILL APPLY TO THE CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE?

A11. The following list represents the permits that ITC *Transmission* must commonly obtain when constructing a transmission line or substation:

- Michigan Department of Natural Resources and Environment (MDNRE) permits for wetlands;
- MDNRE permits for threatened and endangered species;
- U.S. Fish and Wildlife Service permits;
- Floodplain permits;
- Soil Erosion and Sedimentation Control permits;

- Drain permits; and,
- National Pollutant Discharge Elimination System permits.

Q12. WILL ITC *TRANSMISSION* COMPLY WITH ALL ENVIRONMENTAL STANDARDS OR LAWS THAT APPLY TO THE CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE?

A12. Yes—ITC obviously plans to comply with any environmental standard or law that is applicable to the proposed line's construction. Mr. Koster's testimony addresses environmental issues in more detail.

Q13. ARE THERE ANY SAFETY STANDARDS THAT APPLY TO THE DESIGN AND CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE?

A13. The Institute of Electrical and Electronics Engineers and the National Electric Safety Code outline the safety standards for line and substation designs. OSHA / MI-OSHA also have safety requirements that apply to construction.

Q14. PLEASE BRIEFLY DESCRIBE HOW THE DESIGN AND CONSTRUCTION OF THE PROPOSED TRANSMISSION LINE WOULD COMPLY WITH THESE SAFETY STANDARDS AND GUIDELINES.

A14. ITC *Transmission's* design and construction specifications meet or exceed IEEE / NESC requirements. All ITC contractors are required to meet all NESC and OSHA/MIOSHA standards. Compliance will be ensured by the direct review and oversight of ITC *Transmission* engineers and field supervisors.

Q15. DOES THIS CONCLUDE YOUR TESTIMONY?

A15. Yes, it does.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International)
Transmission Company d/b/a ITC*Transmission*, for)
an expedited siting certificate for a transmission line,)
pursuant to 2008 PA 295, Part 4, for Region No. 4)
(Thumb Region), as designated by the Michigan Wind)
Energy Resource Zone Board and the Commission's)
Order in Case No. U-15899.)
)

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

JASON SUTTON

ON BEHALF OF ITC*TRANSMISSION*

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

JASON SUTTON

ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is Jason Sutton. My business address is 27175 Energy Way, Novi,
Michigan 48377

**Q2. ARE YOU THE SAME JASON SUTTON WHO HAS PREVIOUSLY FILED
DIRECT TESTIMONY IN THIS CASE?**

A2. Yes I am.

Q3. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A3. I am submitting testimony in rebuttal to ABATE witness Dauphines and
Landowners' witness Zimmer, as filed in this docket on October 29, 2010.

REBUTTAL TO ABATE WITNESS DAUPHINAIS

Q4. DID YOU REVIEW MR. DAUPHINAIS'S TESTIMONY FILED IN THIS CASE?

A4. Yes, I did.

1 **Q5. TO WHAT PORTION OF MR. DAUPHINAIS'S TESTIMONY IS YOUR**
2 **REBUTTAL BEING SUBMITTED?**

3 A5. My rebuttal testimony focuses on (i) Mr. Dauphinais's suggestion that a single
4 circuit, double-circuit capable transmission line be constructed at what he claims
5 would result in a cost savings (p 18, line 16) and (ii) construction considerations
6 associated with lattice towers vs. steel monopole towers (p 20 et seq).

7 **Q6. PLEASE RESPOND TO THE COST ASSUMPTIONS INHERENT IN MR.**
8 **DAUPHINAIS'S COST SAVINGS CLAIM.**

9 A6. Mr. Vitez will be testifying as to the single circuit 345 kV line versus double circuit
10 345 kV line capability issue. My rebuttal testimony focuses on why it is
11 appropriate to build both circuits at one time rather installing the second circuit at
12 a later time and Mr. Dauphinais's assumptions as to the benefits of installing a
13 double circuit-capable single circuit line at this time.

14 **Q7. WHY DO YOU BELIEVE IT APPROPRIATE TO BUILD BOTH CIRCUITS AT**
15 **ONE TIME RATHER THAN INSTALLING THE SECOND CIRCUIT AT A LATER**
16 **TIME?**

17 A7. Mr. Vitez testifies that both circuits are needed in order for the line to be of the
18 appropriate capability to enable the minimum and maximum wind potential
19 identified in the WERZ Board Report to be realized. Mr. Dauphinais is
20 suggesting that installation of the second circuit be deferred to a future date. I
21 disagree with that proposition. First, there are many costly construction activities
22 that would need to be repeated when installing the second circuit at a later time.
23 For example, a significant amount of time in line construction is spent preparing

1 and accessing rights-of-way. Activities such as matting the right of way, installing
2 temporary drives, and setting up equipment for work at each tower location would
3 need to be repeated. Some of these activities have impacts beyond the cost.
4 For example, the matting and/or temporary bridge construction across wetlands a
5 second time is not only costly, but has unnecessary environmental impacts and
6 repeated permitting considerations. In addition, there would be duplicate
7 interruption and disturbance to farming activities.

8 In my estimation, there would be between 30-40% of additional labor cost
9 resulting from pulling the second circuit at a later date. These additional costs
10 would be due to repeated mobilization, matting, and restoration work as well as
11 the additional costs incurred due to working next to an energized 345 kV line.

12 **Q8. PLEASE ADDRESS CONSTRUCTION CONSIDERATIONS ASSOCIATED**
13 **WITH LATTICE TOWERS VERSUS STEEL MONOPOLE TOWERS.**

14 A8. The man-hours required to erect a steel lattice tower is anywhere from 5 to 10
15 times that of a steel monopole. Steel monopoles are typically manufactured and
16 delivered in 2 or 3 sections, depending on the design of the particular structure.
17 The time required to erect the monopole is, for the most part, the time it takes a
18 crane to lift each section of the structure and set into place. On the other hand, a
19 lattice tower, by nature, is manufactured to be assembled in the field. The steel
20 is delivered to the structure site as a bundle of steel angles and requires field
21 labor to bolt the structure together on the ground in sections. Once the sections
22 have been assembled, they are lifted into place by a crane, similar to the erection
23 of a monopole. In addition, the foundation work for a lattice tower involves four

1 foundations instead of one for a steel monopole. This adds to labor costs. These
2 labor costs typically outweigh the cost differential in material even when longer
3 ruling spans are used for the lattice structures. Thus, the cost difference actually
4 favors using monopoles over lattice structures.

5 Finally, other considerations that favor a steel monopole include the fact
6 that its footprint is smaller, it can be installed more quickly, it requires less space
7 for installation, and feedback from the Open Houses indicate that monopole steel
8 is preferred over lattice towers.

9 **REBUTTAL TO LANDOWNER WITNESS ZIMMER**

10 **Q9. DID YOU REVIEW MR. ZIMMER'S TESTIMONY THAT WAS FILED IN THIS**
11 **CASE?**

12 A9. Yes, I did.

13 **Q10. TO WHAT PORTION OF MR. ZIMMER'S TESTIMONY IS YOUR REBUTTAL**
14 **BEING SUBMITTED?**

15 A10. My rebuttal testimony focuses on Mr. Zimmer's presentation with respect to soil
16 erosion, soil compacting, drain tile damage and ground water discharge.

17 **Q11. PLEASE ADDRESS MR. ZIMMER'S DISCUSSION WITH RESPECT TO SOIL**
18 **EROSION, SOIL COMPACTING DRAIN TILE DAMAGE AND GROUND**
19 **WATER DISCHARGE.**

20 A11. With respect to soil erosion and ground water discharge, ITC will obtain all
21 appropriate permits for construction (including soil erosion and sedimentation
22 control permits). As part of my job responsibilities, I will ensure that ITC follows
23 all requirements contained in those permits. Mr. Koster's rebuttal testimony
24 addresses specific measures normally required by such permits.

1 **Q12. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

2 A12. Yes, it does.

3
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1 MR. GORDON: Your Honor, that completes
2 the ITC part of the stipulation. I'll defer to the other
3 parties to identify their witnesses and exhibits.

4 JUDGE NICKERSON: All right. Are we
5 going to take the cross of Mr. Vitez now?

6 MR. GORDON: Subject to your ruling, your
7 Honor, the parties' pleasure.

8 JUDGE NICKERSON: Off the record.

9 (At 10:10 a.m., a discussion was held off the
10 record.)

11 JUDGE NICKERSON: On the record.
12 Mr. Strong.

13 MR. STRONG: Your Honor, I would move,
14 pursuant to the stipulation of the parties, to bind in
15 the testimony of James R. Dauphinais. That consists of a
16 cover page followed by questions and answers totaling 23
17 pages, and an Appendix A entitled Qualifications of James
18 R. Dauphinais. Mr. Dauphinais initially sponsored four
19 exhibits, which have been identified for the record as
20 AB-1, 2, 3 and 4.

21 Your Honor, I would note that on these
22 exhibits, there is an electronic signature for myself.
23 The normal lady who was governing the docket was on
24 vacation this week, and the replacement required that we
25 sign the exhibits; she would not accept them for filing.

1 So this is why that appears, but it's really not part of
2 the exhibits that were filed by Mr. Dauphinais. So I
3 just wanted to note that clarification for the record.

4 JUDGE NICKERSON: When you say this is
5 why it appears, what do you mean?

6 MR. STRONG: Your Honor, if I may
7 approach.

8 JUDGE NICKERSON: Yes, sir.

9 MR. STRONG: Your Honor, I had to put
10 that on the document in order for it to be accepted for
11 filing, but it's not really part of the exhibit.

12 JUDGE NICKERSON: Thank you. Thank you
13 for that clarification, Mr. Strong.

14 MR. STRONG: In addition, your Honor.
15 ABATE is sponsoring a number of other exhibits, they have
16 been labeled or identified for the record as Exhibits
17 AB-5 through AB-22. They are answers to discovery
18 questions that were submitted by the other parties in
19 this case. If you want me to go through and identify
20 each exhibit, I can do so; if not, you know, these are
21 exhibits that have been stipulated to by the other
22 parties. They've been provided in advance to the other
23 parties, plus I have additional copies today. So however
24 you would want me to deal with that.

25 JUDGE NICKERSON: I don't think it's

1 necessary if they have been stipulated to the --

2 MR. STRONG: Thank you, your Honor.

3 JUDGE NICKERSON: -- and provided to the
4 parties.

5 MR. STRONG: At this point, your Honor, I
6 would move to bind in the testimony James R. Dauphinais,
7 and I would move admission of Exhibits AB-1 through
8 AB-22.

9 JUDGE NICKERSON: All right. Any
10 objection to binding in the testimony of Mr. Dauphinais?

11 MR. GORDON: No objection, your Honor,
12 with the understanding that we are not waiving a
13 potential appeal of your ruling on the motion to strike.

14 JUDGE NICKERSON: All right. Thank you,
15 Mr. Gordon. Appreciate your position on that.

16 Any objection to the admission of
17 proposed Exhibits AB-1 through AB-22. All right. They
18 are admitted.

19 - - -

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of
**INTERNATIONAL TRANSMISSION
 COMPANY d/b/a ITC**
TRANSMISSION, for an expedited
 siting certificate for a
 transmission line, pursuant to
 2008 PA 295, Part 4, for Region
 No. 4 (Thumb Region), as
 designated by the Michigan Wind
 Energy Resource Zone Board and
 the Commission's Order in Case
 No. U-15899.

Case No. U-16200

Direct Testimony and Exhibits of

James R. Dauphinais

On behalf of

Association of Businesses Advocating Tariff Equity

Project 9379
 October 29, 2010



STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

_____)
 In the matter of the application of)
 INTERNATIONAL TRANSMISSION)
 COMPANY d/b/a ITC)
 TRANSMISSION, for an expedited)
 siting certificate for a)
 transmission line, pursuant to)
 2008 PA 295, Part 4, for Region)
 No. 4 (Thumb Region), as)
 designated by the Michigan Wind)
 Energy Resource Zone Board and)
 the Commission's Order in Case)
 No. U-15899.)
 _____)

Case No. U-16200

Table of Contents for the Direct Testimony of James R. Dauphinais

I.	Introduction	1
II.	Appropriate Capability	6
III.	Reasonableness of Proposed and Alternate Routes	19
IV.	Conclusions and Recommendations.....	22

Appendix A

Exhibit AB-1 (JRD-1) MISO MTEP10

Out of Cycle Project Study Report for Michigan Thumb Project

Exhibit AB-2 (JRD-2) ERCOT CTO Study Report

Exhibit AB-3 (JRD-3) Attachment No. 3A and 3B of

Oncor's Application in PUCT Docket No. 38597

Exhibit AB-4 (JRD-4) Data Request Responses cited by Mr. Dauphinais

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of
 INTERNATIONAL TRANSMISSION
 COMPANY d/b/a ITC
 TRANSMISSION, for an expedited
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 2008 PA 295, Part 4, for Region
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 designated by the Michigan Wind
 Energy Resource Zone Board and
 the Commission's Order in Case
 No. U-15899.

Case No. U-16200

Direct Testimony of James R. DauphinaisI. Introduction

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A James R. Dauphinais. My business address is 16690 Swingley Ridge Road,
Suite 140, Chesterfield, MO 63017.

Q WHAT IS YOUR OCCUPATION?

A I am a consultant in the field of public utility regulation and principal of Brubaker &
Associates, Inc., energy, economic and regulatory consultants.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A I earned a Bachelor of Science in Electrical Engineering from the University of
Hartford and have completed a number of graduate level courses in electric power
systems through the Engineering Outreach Program of the University of Idaho. In the

1 twelve and one-half years prior to the beginning of my current employment with BAI, I
2 was employed in the Transmission Resource Planning Department of the Northeast
3 Utilities Service Company. While employed in that function, I conducted numerous
4 dynamic and load flow analyses related to thermal, voltage and stability issues that I
5 studied in support of Northeast Utilities' planning and operation of its electric
6 transmission system. This also included participation in the New England Power Pool
7 Stability Task Force and several technical working groups within the Northeast Power
8 Coordinating Council ("NPCC"). Since my employment with BAI, I have testified
9 before the Federal Energy Regulatory Commission ("FERC") and many state
10 commissions on a wide variety of issues including, but not limited to, avoided cost
11 calculations, certification of public convenience and necessity, fuel adjustment
12 clauses, interruptible rates, market power, market structure, prudence, resource
13 planning, standby rates, transmission rates, transmission losses, transmission
14 planning and transmission line routing. This has included providing testimony before
15 the Michigan Public Service Commission ("Commission"). I have also assisted
16 end-use customers with power procurement and assisted a variety of clients in regard
17 to transmission access issues. My background is further detailed in Appendix A to
18 my testimony.

19 **Q CAN YOU PLEASE BRIEFLY OUTLINE YOUR PARTICIPATION IN**
20 **TRANSMISSION LINE CERTIFICATION CASES WITHIN THE PAST FIVE YEARS?**

21 **A** Yes. In the past five years, I have filed testified in 10 transmission line certification
22 cases in Texas and one in Colorado. In Texas, I have filed testimony with and/or
23 testified before the Public Utility Commission of Texas ("PUCT") on transmission line
24 need, reliability issues and/or transmission line routing issues in Docket Nos. 32707,

34440, 37464, 37778, 38140, 38230, 38290, 38324, 38354 and 38517. In Colorado, I have testified before the Colorado Public Utilities Commission in Docket No. 09A-324A/09-325E in regard to transmission line need, resource planning issues and reliability issues. In all of these cases, except PUCT Docket Nos. 32707 and 34440, the subject transmission line proposal was associated with providing delivery from areas of potential renewable generation resource development.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A I am testifying on behalf of the Association of Businesses Advocating Tariff Equity ("ABATE"), a group of businesses including many of Michigan's largest employers and energy users.

Q WHAT IS THE SUBJECT MATTER OF YOUR TESTIMONY?

A My testimony addresses International Transmission Company's ("ITC Transmission") application for an expedited siting certificate under 2008 PA 295, Part 4 for a double-circuit 345 kV transmission line running from the southwest side of Michigan's Thumb Region in Tuscola County to the north-central area of the Thumb Region in Huron county, then running south through Sanilac County. I will refer to this proposed transmission line project as the "Proposed Project" or "Michigan Thumb Project".

Consistent with Act 295 of 2008 ("Act 295"), my testimony specifically addresses whether:

- The Proposed Project will be of appropriate capability to enable the wind potential of Wind Energy Resource Region No. 4 ("Thumb Region") to be realized.
- The proposed and alternate route for the Proposed Project is reasonable.

1 Because ITC Transmission is not requesting a certificate under Act 30 of 1995
2 ("Act 30"), I do not testify in regard to whether the Proposed Project meets the
3 requirements for a certificate to be granted by the Michigan Public Service
4 Commission under Act 30. This should not be interpreted as a concession that either
5 the Act 30 requirements do not need to be met for the Proposed Project or ITC
6 Transmission has met the Act 30 requirements for the Proposed Project because the
7 Commission's October 14, 2010 Order clearly states that this case is being conducted
8 solely under Act 295 at ITC Transmission's request.

9 Finally, my silence on any issue should not be taken as an endorsement of
10 any position that ITC Transmission has taken in this proceeding.

11 **Q WHAT MATERIALS DID YOU REVIEW IN PREPARATION FOR YOUR**
12 **TESTIMONY?**

13 **A I have reviewed ITC Transmission's application including the testimony and exhibits**
14 **filed by ITC Transmission in support of the application. I have also reviewed the**
15 **responses of ITC Transmission, Consumers Energy Company ("CECo" or**
16 **"Consumers"), Detroit Edison Company ("DECo" or "Edison") and the Commission**
17 **Staff to data requests in this proceeding. In addition, I have reviewed the MTEP10**
18 **Out of Cycle Project Study Report that was performed Midwest Independent**
19 **Transmission System Operator, Inc. ("MISO") for the Proposed Project. Finally, I**
20 **have reviewed public information from several 345 kV transmission line certification**
21 **proceedings that have taken place in Texas.**

1 **Q CAN YOU PLEASE SUMMARIZE YOUR CONCLUSIONS AND**
2 **RECOMMENDATIONS?**

3 A I recommend the commission reject ITC Transmission's expedited certificate
4 application as filed for the following reasons:

- 5 • The Proposed Project does not provide the appropriate capability to enable the
6 wind potential of the Thumb Area to be realized. The appropriate capability would
7 be provided by constructing the Proposed Project as a single-circuit,
8 double-circuit capable transmission line rather than a double-circuit transmission
9 line. Such a single-circuit, double-circuit capable transmission line would for the
10 Thumb Region support the minimum potential wind capacity estimated by the
11 WERZ Board, the sum of existing wind capacity and wind capacity currently in the
12 interconnection queue, and the wind capacity necessary for Michigan utilities to
13 meet the 10% Renewable Portfolio Standard of Act 295 through at least 2015. It
14 would also be readily expandable to a double-circuit line capable of supporting up
15 to the maximum potential wind capacity estimate of the WERZ Board when and *if*
16 wind capacity in excess of the initial capability of the single-circuit, double-circuit
17 capable line appears to be realizable in the Thumb Region such that it justifies a
18 second circuit. Finally, I estimate it would reduce the cost of the Proposed Project
19 by at least \$45 million.
- 20 • The proposed and alternative routes for the Proposed Project are not reasonable
21 because ITC Transmission has not justified its selection of expensive monopole
22 structures over steel lattice towers or its use of an unusually wide right-of-way
23 where new right-of-way is necessary along the transmission route. I estimate that
24 if the Proposed Project is built as a double-circuit line predominantly on lattice
25 towers, the potential cost savings for the Proposed Project would be \$39 million.
26 If the Proposed Project is instead built as a single-circuit, double circuit capable
27 line predominantly on lattice towers the potential cost savings would be an
28 additional \$33 million on top of the \$45 million of savings I have estimated for
29 single-circuit, double-circuit capable construction (for a total potential savings of
30 \$78 million). Additional cost savings and a reduction of other adverse impacts
31 would be achievable by narrowing the proposed right-of-way width for the
32 Proposed Project to a width closer to that typically being proposed for
33 double-circuit 345 kV transmission line projects in Texas.

1 **II. Appropriate Capability**

2 **Q WHAT IS THE ACT 295 REQUIREMENT REGARDING APPROPRIATE**
3 **CAPABILITY?**

4 A The requirement is as follows:

5 "The Proposed Transmission line will be of appropriate capability to
6 enable the wind potential of the wind energy resource zone to be
7 realized." (MCL 460.1153 (3) (d))

8 **Q IS THE TERM "APPROPRIATE CAPABILITY" DEFINED IN ACT 295?**

9 A No, it is not. Furthermore, this is a case of first impression for the Commission under
10 the Act 295 expedited certificate provisions. Therefore, there is no Commission
11 precedent that addresses the meaning of "appropriate capability" as that term is used
12 in Act 295.

13 **Q DID THE WERZ BOARD MAKE A RECOMMENDATION IN REGARD TO THE**
14 **APPROPRIATE CAPABILITY FOR A TRANSMISSION LINE TO ENABLE THE**
15 **WIND POTENTIAL OF THE THUMB REGION TO BE REALIZED?**

16 A No. The WERZ Board's Report of October 15, 2009 identified:

- 17 • The regions in Michigan with the highest wind energy harvest potential;
- 18 • The estimated minimum and maximum potential number of wind turbines, amount
19 of wind capacity and annual wind energy production for each identified region
20 (ITC Transmission Exhibit TWV-1 at 6-11).

21 I would also note that Act 295 did not charge the WERZ Board with making a
22 recommendation in regard to the appropriate capability for a transmission line to
23 enable the wind potential of each of the wind energy resource zones to be realized.

1 **Q HAS THE COMMISSION IN ANY ORDER IN ANY PROCEEDING TO DATE**
2 **DETERMINED THE APPROPRIATE CAPABILITY FOR A TRANSMISSION LINE**
3 **TO ENABLE THE WIND POTENTIAL OF THE THUMB REGION TO BE**
4 **REALIZED?**

5 A No. The Commission's January 27, 2010 Order in Case No. U-15899 identified the
6 Thumb Region as the primary wind energy resource zone in Michigan. It also
7 acknowledged to WERZ Board's findings in regard to estimated minimum and
8 maximum potential number of wind turbines, amount of wind capacity and annual
9 energy production for the Thumb Region (ITC Transmission Exhibit TWV-2 at 5,
10 11 and 20).

11 **Q HAS THE WERZ BOARD, ITC TRANSMISSION OR THE COMMISSION**
12 **PERFORMED ANY ANALYSIS OF EITHER THE MINIMUM OR MAXIMUM**
13 **POTENTIAL WIND TURBINE, WIND CAPACITY AND ANNUAL WIND ENERGY**
14 **PRODUCTION LEVELS BEING REALIZED?**

15 A No. The WERZ Board did not address this in its report and the Commission has not
16 done so in its orders. Furthermore, ITC Transmission admits it has not performed
17 such analysis (ITC Transmission Response to Data Request ABATE-ITC-8).

18 **Q WHAT IS ITC TRANSMISSION'S POSITION ON THIS ISSUE?**

19 A It is ITC Transmission's position that the Proposed Project is of the appropriate
20 capability to enable the wind potential of the Thumb Region because the Proposed
21 Project will be able to transmit both the minimum and maximum potential wind
22 capacity identified by the Commission (ITC Transmission Application at 9). ITC
23 Transmission witness Vitez expands on this in his direct testimony by indicating that

1 for all of the various power system transfers and wind generation location and
2 dispatch scenario studied, the Proposed Project was shown to be able to support
3 wind generation capacity up to both the minimum and maximum levels estimated by
4 the WERZ Board (Vitez Direct Testimony at 19-20).

5 **Q DO YOU AGREE WITH ITC TRANSMISSION'S POSITION ON THIS ISSUE?**

6 A No. First, neither the WERZ Board nor the Commission has estimated or otherwise
7 determined the appropriate capability for a transmission line to enable the wind
8 potential of the Thumb Region to be realized. What the WERZ Board and
9 Commission have done is estimate the minimum and maximum potential number of
10 wind turbines, amount of wind capacity and annual energy production for the Thumb
11 Region.

12 Second, by showing the Proposed Project is able to support the minimum and
13 maximum estimated wind capacity potential for the Thumb Region, ITC Transmission
14 is showing that the Proposed Project is of sufficient capability to enable the wind
15 potential of the Thumb Region to be realized. Sufficient capability and appropriate
16 capability are not the same. There are many possible transmission line projects that
17 may be sufficient, but not all projects that are sufficient are necessarily appropriate.

18 Third, Act 295 does not require that the appropriate capability be that
19 necessary to enable realization of the maximum potential.

20 Fourth, the nature of transmission capability is such that if it is sufficient to
21 meet a maximum potential, it will implicitly be able to also meet the minimum
22 potential. As such, it would be nonsensical for Act 295 to require the WERZ Board,
23 the Commission and transmission owners, such as ITC Transmission, to examine
24 both minimum and maximum potential for wind generation and the transmission lines

1 necessary to support such levels if Act 295 required the appropriate capability of a
2 transmission line to be granted expedited certification to enable the maximum
3 potential of a wind energy resource zone.

4 **Q DO YOU HAVE A POSITION IN REGARD TO THE APPROPRIATE CAPABILITY**
5 **TO ENABLE THE WIND POTENTIAL OF THE THUMB REGION TO BE**
6 **REALIZED?**

7 A Yes. My position is that appropriate capability for a transmission line to enable the
8 wind potential of a wind energy resource zone to be realized is the minimum level of
9 capability that is necessary to make it unlikely that wind energy production in the
10 associated wind energy zone will be significantly constrained by the transmission
11 limitations. A transmission line that provides capability in excess of the minimum
12 capability necessary to make it unlikely that wind energy production in the associated
13 wind energy resource zone will be significantly constrained by transmission limitations
14 is inappropriate because it requires the construction of facilities that are currently
15 unnecessary to realize the wind potential of the wind energy resource zone. The only
16 exception to this would be when it is not possible to provide just the minimum
17 capability due to the occasionally "lumpy" nature of transmission upgrades. By
18 "lumpy", I mean that, on occasion, it is not possible to provide exactly the amount of
19 transmission capability needed such that a project that provides greater than needed
20 transmission capability must be pursued. Thus, occasionally, transmission upgrades
21 must be made in "lump" amounts that exceed the minimum amount of new
22 transmission capability that is required.

1 **Q HAS ITC TRANSMISSION PRESENTED ANY ANALYSIS OF THE MINIMUM**
2 **TRANSMISSION LINE CAPABILITY NECESSARY TO MAKE IT UNLIKELY THAT**
3 **WIND ENERGY PRODUCTION IN THE THUMB REGION WILL NOT BE**
4 **SIGNIFICANTLY CONSTRAINED BY TRANSMISSION LIMITATIONS?**

5 A No. ITC Transmission's analysis focused on providing minimum transmission
6 capability sufficient to support both the minimum and maximum amount of potential
7 wind capacity for the Thumb Region that was estimated by the WERZ Board. While
8 that approach will define sufficient transmission capability to make it unlikely wind
9 energy production in the Thumb Region will be significantly constrained by
10 transmission limitations within the Thumb Region, it does not identify the minimum
11 amount of transmission capability necessary to meet that need.

12 **Q IF NO ANALYSIS HAS BEEN PERFORMED OF THE MINIMUM TRANSMISSION**
13 **CAPABILITY NECESSARY TO MAKE IT UNLIKELY FOR WIND ENERGY**
14 **PRODUCTION IN THE THUMB REGION TO BE SIGNIFICANTLY CONSTRAINED**
15 **BY TRANSMISSION LIMITATIONS, CAN THE ISSUE BE APPROACHED IN A**
16 **REASONABLE ALTERNATIVE MANNER?**

17 A Yes. The WERZ Board has provided estimates of the minimum and maximum
18 potential for wind capacity in the Thumb Region. Logically, the minimum potential for
19 wind capacity is much more likely to be realized than the maximum potential for wind
20 capacity since the maximum potential cannot be realized before the minimum
21 potential is realized. Furthermore, assuming the maximum potential wind capacity
22 level is ultimately realized, which is not necessarily likely, it will take some time for this
23 to happen. Considering all of this, a reasonable alternative to determining the
24 minimum capability necessary to make it unlikely wind energy production in the

1 Thumb Region will be constrained by transmission limitations is to provide sufficient
2 capability to delivery the WERZ Board's estimate of minimum potential wind capacity
3 for the Thumb Region in a manner that could later be readily expanded to deliver the
4 WERZ Board's estimate of maximum potential wind capacity for the Thumb Region.
5 This would make it very unlikely that wind energy production would be significantly
6 constrained by transmission limitations if wind capacity up to the WERZ Board
7 minimum estimate were realized. It would also provide for the ready expansion of the
8 project to support up to the WERZ Board's maximum potential wind capacity estimate
9 for the Thumb Region when and if evidence presents itself that actual wind capacity
10 in excess of the initial capability of the project justifies the expansion.

11 **Q CAN ITC TRANSMISSION'S PROPOSED PROJECT BE READILY MODIFIED TO**
12 **PROVIDE SUCH AN APPROPRIATE LEVEL OF TRANSMISSION CAPABILITY?**

13 A Yes. The Proposed Project can very easily be modified by constructing the Proposed
14 Project as a single-circuit, double-circuit capable 345 kV transmission line rather than
15 as a double-circuit transmission 345 kV transmission line. Essentially, the Proposed
16 Project would utilize the same structures and spans as the proposed double-circuit
17 line, but utilize only one set of phase and shield wires rather than two. In addition, the
18 substations associated with the Proposed Project would initially be constructed with
19 only the equipment necessary for the first circuit. The phase and shield wires for the
20 second circuit would be added to the towers of the transmission line when and if wind
21 capacity in excess of the initial capability of the single-circuit, double-circuit capable
22 line appears to be realizable in the Thumb Region such that it justifies the addition of
23 the second circuit. The additional substation equipment necessary for the second
24 circuit would also be added at that time.

**Q WOULD THE INITIAL SINGLE-CIRCUIT CONSTRUCTION PROVIDE SUFFICIENT
TRANSMISSION CAPABILITY TO SUPPORT ALL WIND CAPACITY IN THE
THUMB REGION THAT IS EITHER ALREADY OPERATIONAL OR IN THE MISO
AND DECO GENERATION INTERCONNECTION QUEUES?**

A Yes. Construction as a single-circuit, double-circuit capable transmission line would initially provide half the transmission capability of Proposed Project or nominally about 2,500 MW. This figure is based on the worst case North American Electric Reliability Corporation ("NERC") category B or C contingency applicable to the Proposed Project built as a single-circuit, double-circuit capable transmission line being the N-1 loss of the 345 kV line on either the east or west side of its loop through the Thumb Region. Note that unlike for the Proposed Project built as a double-circuit line, the NERC category C.5 N-2 contingency of loss of both circuits of a multiple circuit tower line would not be a limiting contingency for the Proposed Project if it is built as single-circuit, double-circuit capable line since that configuration would not initially place multiple 345 kV transmission circuits on the tower line of the Proposed Project.

2,500 MW of transmission capability would be sufficient to support all currently operational wind capacity and the wind capacity in the generation interconnection queue for the Thumb Region. However, I would caution that all of the wind capacity for the Thumb Region that is currently in the interconnection queue may not be realized. Submission of a generation interconnection request is not a commitment to build a generation facility. Rather, it is a request for MISO and/or DECo to study the possible interconnection of such facilities. Therefore, it is possible a significant portion of even the transmission capability of my single-circuit modification of the Proposed Project may go unused.

1 **Q WOULD BUILDING THE PROPOSED PROJECT AS A SINGLE-CIRCUIT,**
2 **DOUBLE-CIRCUIT CAPABLE LINE PROVIDE ENOUGH INITIAL CAPABILITY TO**
3 **ALLOW MICHIGAN'S UTILITIES TO MEET THEIR RESPECTIVE RENEWABLE**
4 **PORTFOLIO STANDARD REQUIREMENT AT LEAST THROUGH 2015?**

5 A Yes. An examination of Consumers' and Edison's current, contracted and pending
6 renewable generation is very illustrative in this regard.

7 Consumers serves greater than 1,000,000 customers, but less than 2,000,000
8 customers. In its 2011 Power Supply Cost Recovery ("PSCR") Plan filing in Case No.
9 U-16432, Consumers is forecasting total full service electricity sales of 35.815 million
10 MWh for 2015 (Consumer's Case No. U-16432 Application at page 3 of Exhibit A-19
11 (LDW-2)). Under Act 295, by the end of 2015, Consumers is required to have a
12 renewable capacity portfolio of 500 MW and a renewable energy credit portfolio of
13 10% of electricity sales, which based on Consumers sales forecast, would be
14 approximately 3.6 million MWh. In response to Data Requests AB-CE-2 through
15 AB-CE-5, Consumers indicated it currently (i) owns 131 MW of renewable capacity,
16 (ii) has contracted for 534 MW of renewable capacity and (iii) has pending at the
17 Commission 1.6 MW of renewable capacity. This exceeds Consumers' Act 295
18 renewable capacity requirement of 500 MW by almost 167 MW. Furthermore, in
19 response to Data Request AB-CE-6, Consumers indicated only 218.4 MW of its
20 666.6 MW of renewable capacity is or will be located in the Thumb Region.

21 Consumers also indicated in the aforementioned data request responses that
22 it expects annual energy production from its renewable capacity to total to
23 approximately 2.5 million MWh (0.404 million MWh + 2.094 million MWh + 0.004
24 million MWh). Conservatively, neglecting currently banked renewable energy credits,
25 this leaves Consumers only 1.1 million MWh short of the renewable energy portfolio

1 requirement of Act 295. Continuing to be conservative, if we assume 100% of that
2 amount will come from the Thumb Region, which it may not, and a 32% capacity
3 factor for wind generation in the Thumb Region, Consumers would only need to
4 acquire the equivalent of 392 MW of additional renewable generation capacity from
5 the Thumb Region bringing Consumers' total Thumb Region renewable generation
6 capacity up to only approximately 610 MW under this worst case scenario for 2015.

7 **Q CAN YOU PLEASE DESCRIBE THE SITUATION FOR EDISON?**

8 A Yes. Edison serves greater than 2,000,000 customers. In its 2011 Power Supply
9 Cost Recovery ("PSCR") Plan filing in Case No. U-16434, Edison is forecasting total
10 full service electricity sales of 41.887 million MWh for 2015 (Edison's Case No.
11 U-16434 Application at Exhibit A-10). Under Act 295, by the end of 2015, Edison is
12 required to have a renewable capacity portfolio of 600 MW and a renewable energy
13 credit portfolio of 10% of electricity sales, which based on Consumers sales forecast,
14 would be approximately 4.2 million MWh. In response to Data Requests ABDE-1.2
15 through ABDE-1.5, Edison indicated it currently (i) owns 0 MW of renewable capacity,
16 (ii) has contracted for 246 MW of renewable capacity and (iii) has pending at the
17 Commission 3.2 MW of renewable capacity. This leaves Edison only 351 MW short
18 of its Act 295 renewable capacity requirement of 600 MW. Furthermore, in response
19 to Data Request ABDE-6, Edison indicated none of its 249.2 MW of renewable
20 capacity is or will be located in the Thumb Region.

21 Edison also indicated in the aforementioned data request responses that it
22 expects annual energy production from its renewable capacity to total to
23 approximately 0.74 million MWh (0.716 million MWh + 0.021 million MWh).
24 Conservatively, neglecting currently banked renewable energy credits, this leaves

Edison 3.46 million MWh short of the renewable energy portfolio requirement of Act 295. Continuing to be conservative, if we assume 100% of that amount will come from the Thumb Region, which it may not, and a 32% capacity factor for wind generation in the Thumb Region, Edison would need to acquire the equivalent of 1,234 MW of additional renewable generation capacity from the Thumb Region, which is also sufficient to cover Edison's aforementioned Act 295 renewable capacity shortfall of 351 MW. Taking this worst case scenario for Edison with that for Consumers, the two utilities would only have 1,844 MW of renewable capacity owned or contracted for in the Thumb Region by 2015 leaving nominally at least 656 MW (2,500 MW – 1,844 MW) out of the Thumb Region available for the smaller electric providers in Michigan that are subject to the Act 295 renewable portfolio requirements. Thus, building the Proposed Project as a single-circuit, double-circuit capable 345 kV transmission line will allow Michigan's utilities to meet their respective renewable portfolio standard requirements at least through 2015.

Q HAS ITC TRANSMISSION PERFORMED ANY ANALYSIS OF THE CAPABILITY OF THE PROPOSED PROJECT IF IT WERE BUILT AS A SINGLE-CIRCUIT, DOUBLE-CIRCUIT CAPABLE 345 KV TRANSMISSION LINE?

A In response to Date Request ABATE-ITC-3, ITC Transmission indicated it has not performed any analysis of a single-circuit configuration for the Proposed Project. However, ITC Transmission did indicate that MISO performed its own planning analysis and determined a single-circuit configuration would not be capable of supporting the minimum and maximum potential wind capacity levels estimated by the WERZ Board for the Thumb Region.

1 **Q HOW DO YOU RESPOND TO THIS CLAIM?**

2 A ITC Transmission's portrayal of MISO's analysis is incorrect.

3 I have attached a copy of the MISO analysis as Exhibit AB-1 (JRD-1). MISO
4 did not examine whether a single-circuit configuration of the Proposed Project would
5 support the minimum potential wind capacity estimated by the WERZ Board for the
6 Thumb Region. MISO, under the misguided presumption the Proposed Project must
7 support both the minimum and maximum potential wind capacity estimated by the
8 WERZ Board, only studied the capability of a single-circuit configuration to support
9 the maximum potential wind capacity estimated by the WERZ Board for the Thumb
10 Region. Therefore, the MISO study does not indicate that the Proposed Project built
11 as a single-circuit, double-circuit transmission line cannot support the minimum
12 potential wind capacity estimated by the WERZ Board for the Thumb Region.

13 **Q IF A POWERFLOW ANALYSIS WERE INTRODUCED BY A PARTY THAT**
14 **SHOWED THAT THE PROPOSED PROJECT BUILT AS A SINGLE-CIRCUIT,**
15 **DOUBLE-CIRCUIT CAPABLE TRANSMISSION LINE WOULD JUST FALL SHORT**
16 **OF SUPPORTING THE MINIMUM POTENTIAL WIND CAPACITY ESTIMATE OF**
17 **THE WERZ BOARD, WOULD THAT SHOW THE SINGLE-CIRCUIT**
18 **CONFIGURATION FAILS TO PROVIDE THE APPROPRIATE CAPABILITY TO**
19 **ENABLE THE WIND POTENTIAL OF THE THUMB REGION TO BE REALIZED?**

20 A No. First, if the capability just falls short of the minimum potential wind capacity
21 estimate of the WERZ Board, the shortfall may not significantly increase the amount
22 of wind energy in the Thumb Region that is constrained by transmission limitations.

23 Second, the analysis may not have been performed with the correct ampacity
24 rating for the transmission line. For example, the MISO study assumed bundled

1 1431 ACSR conductor while ITC Transmission is proposing to use Drake/VR2
2 (2 x 795 - 26/7 ACSR) conductor. According to information provided by Southwire
3 Company that was provided in ITC Transmission's response to Data Request
4 ST-ITC-42, Drake/VR2 has an allowable ampacity of 1434 amperes at 25°C ambient,
5 75°C conductor, 2 ft./second wind speed and sun, while 1431 ACSR only has an
6 ampacity of 1272 amperes under those same conditions.

7 Third, ITC Transmission could potentially use a conductor with a larger
8 ampacity for the transmission line. Using conductor with a larger ampacity for the
9 transmission line would increase the transmission capability that could be provided by
10 the Proposed Project.

11 The bottom line is that any analysis provided late in this proceeding (e.g., in
12 rebuttal testimony) claiming a single-circuit 345 kV line would not support the
13 minimum potential wind capacity estimated by the WERZ Board for the Thumb
14 Region should be considered with a great deal of skepticism.

15 **Q DO YOU HAVE AN ESTIMATE OF THE COST SAVINGS ASSOCIATED WITH**
16 **BUILDING THE PROPOSED PROJECT AS A SINGLE-CIRCUIT,**
17 **DOUBLE-CIRCUIT CAPABLE TRANSMISSION LINE RATHER THAN A**
18 **DOUBLE-CIRCUIT TRANSMISSION LINE?**

19 **A** Yes. While ITC Transmission has not provided such a cost estimate (ITC
20 Transmission Response to Data Request ABATE-ITC-4), it is possible to develop an
21 estimate based on public sources.

22 Pursuant to a Public Utility Commission of Texas ("PUCT") order, the Electric
23 Reliability Council of Texas, Inc. ("ERCOT") in 2008 filed a Competitive Renewable
24 Energy Zones ("CREZ") Transmission Optimization Study ("CTO Study") in PUCT

Docket No. 33672. The purpose of the CTO Study was to develop transmission plans to deliver large quantities of electric power from wind resources in western Texas to load in central and eastern Texas. I have attached a copy of the study report as my Exhibit AB-2 (JRD-2). As part of the study, ERCOT developed transmission equipment cost estimates for various types of transmission and substation equipment types (Exhibit AB-2 (JRD-2) at page 5). Included in those estimates were the per mile cost for 345 kV single-circuit, double-circuit capable transmission lines and 345 kV double-circuit transmission lines for three different conductor types. I have reproduced this information along with the percentage savings from single-circuit, double-circuit capable construction in Table JRD-1.

Table JRD-1			
<u>ERCOT Double-Circuit Tower Line Cost Estimates</u>			
<u>Conductor Type</u>	<u>Single-Circuit Cost per Mile</u>	<u>Double-Circuit Cost per Mile</u>	<u>% Cost Savings using Single-Circuit</u>
2-1433 ACSS	\$1.50M	\$1.88M	20.2%
2-1590 ACSR	\$1.40M	\$1.68M	16.7%
2-959 ACSS/TW	\$1.30M	\$1.56M	16.7%

Conservatively rounding this data down to a cost savings of 15% and only applying the percentage to the line costs portion of ITC Transmission's \$510 million Proposed Project that I have estimated from the confidential portion of ITC Transmission's Response to Data Request ST-ITC-11, I estimate the cost savings from the use of single-circuit, double-circuit construction for the Proposed Project instead of double-circuit construction to be at least \$45 million.

III. Reasonableness of Proposed and Alternate Routes

Q WHAT IS THE ACT 295 REQUIREMENT REGARDING THE REASONABLENESS OF THE PROPOSED AND ALTERNATE ROUTE?

A The requirement is as follows:

“The proposed or alternate route to be authorized by the expedited siting certificate is feasible and reasonable.” (MCL460.1153 (3) (3))

Q WHAT DOES THIS ENTAIL?

A It involves consideration of all aspects of the proposed and alternative routes including, but not limited to, the proposed structures for the line, the proposed width of the right-of-way for the line, the proposed span between towers for the line and the areas to be crossed by the proposed transmission line. Factors such as cost, public health, safety, reliability, environmental impact, historical and archeological impact, community values and aesthetics are typically considered.

Q WILL YOU BE TESTIFYING IN REGARD TO ALL OF THESE FACTORS IN THIS PROCEEDING?

A No. I have only been engaged to address limited aspects associated with these factors.

Q HAS ITC TRANSMISSION DEMONSTRATED THAT EITHER ITS PROPOSED ROUTE OR ALTERNATIVE ROUTE ARE REASONABLE?

A No. Both the proposed route and alternative route utilize expensive monopole structures and utilize a right-of-way that is significantly wider than typical in my experience.

1 **Q PLEASE DESCRIBE YOUR CONCERN WITH THE STRUCTURES ITC**
2 **TRANSMISSION HAS PROPOSED FOR THE PROPOSED AND ALTERNATIVE**
3 **ROUTES.**

4 A ITC Transmission is proposing to use monopole structures except where there are
5 significant bends in the route of the transmission line. A cost premium needs to be
6 typically paid to use monopole structures rather than lattice towers. As a rule, lattice
7 towers should be used on the route for the transmission line except where a
8 demonstrated need for the use of monopoles is reasonably made, such as when
9 close proximity to habitable structures or placement in a recognized scenic viewshed
10 cannot be reasonably avoided.

11 **Q DO YOU HAVE AN ESTIMATE OF THE POTENTIAL COST SAVINGS FROM**
12 **USING LATTICE TOWERS INSTEAD OF MONOPOLES WHERE IT IS**
13 **REASONABLE TO DO SO?**

14 A Yes. As part of its application for a double-circuit 345 kV CREZ transmission line in
15 Texas in PUCT Docket No. 38597, Oncor Electric Delivery Company ("Oncor")
16 provided cost estimates for construction predominately on lattice towers and
17 predominately on monopoles for 96 different alternative routes. I have provided a
18 copy of these cost estimates from Attachment Nos. 3A and 3B of Oncor's Application
19 in PUCT Docket No. 38597, in my Exhibit AB-3 (JRD-3). The average line cost for
20 the 96 routes built predominately on lattice towers is \$2.0 million per mile and the
21 average line cost for the 96 routes built on monopoles is \$2.3 million per mile. Thus,
22 on average, the 96 routes are 13% less expensive if built predominately on lattice
23 towers rather than predominately monopoles. Applying this percentage to the line
24 costs portion of the \$510 million Proposed Project, I estimate the potential cost saving

1 for the Proposed Project to be approximately \$39 million if Proposed Project is
2 predominately built on lattice towers rather than monopoles.

3 **Q WHAT IS YOUR ESTIMATE OF POTENTIAL SAVINGS IF THE PROPOSED**
4 **PROJECT WERE BOTH CONSTRUCTED AS SINGLE-CIRCUIT,**
5 **DOUBLE-CIRCUIT CAPABLE TRANSMISSION LINE AND CONSTRUCTED**
6 **PREDOMINATELY ON LATTICE TOWERS?**

7 A Approximately \$78 million. This is based on reducing the line costs portion of the
8 \$510 million Proposed Project by 13% for lattice towers and then by 15% for
9 single-circuit, double-circuit capable construction.

10 **Q PLEASE DESCRIBE YOUR CONCERN WITH THE WIDTH OF RIGHT-OF-WAY**
11 **THAT ITC TRANSMISSION IS PROPOSING FOR THE PROPOSED AND**
12 **ALTERNATIVE ROUTES.**

13 A ITC Transmission is proposing a right-of-way width of 200 feet with its proposed
14 monopole structures where new right-of-way will be utilized. This is substantially
15 wider than the right-of-way widths currently being used in Texas for transmission lines
16 being constructed on similar structures of similar height and span between structures.
17 Specifically, as shown below in Table JRD-2, in several recent transmission line
18 certificate proceedings in Texas, the width of new 345 kV double-circuit transmission
19 line right-of-way has been proposed between 100 and 140 feet for monopole
20 construction and between 100 and 175 feet for lattice tower construction.

<p style="text-align: center;">Table JRD-2</p> <p style="text-align: center;"><u>Comparison of Right-of-Way Widths for</u> <u>Double-Circuit 345 kV Transmission Lines</u></p>					
<u>Electric Utility</u>	<u>Docket/Case No.</u>	<u>Type of Structure</u>	<u>Height of Structure (feet)</u>	<u>Typical Span Length (feet)</u>	<u>Right-of-Way Width (feet)</u>
Lone Star Transmission	PUCT 38230	Monopole	110	Not Given	100
LCRA Transmission	PUCT 38354	Monopole	140	800 – 900	100
		Lattice Tower	145 - 185	1000 - 1500	100 - 160
Sharyland Utilities	PUCT 38290	Monopole	115 - 125	800	140
		Lattice Tower	123 - 130	1000 - 1200	175
Oncor Electric Delivery	PUCT 38597	Monopole	115	800	100
		Lattice Tower	125	1200	160
ITC Transmission	MPSC U-16200	Monopole	120 - 160	800 - 1100	200

The use of wider than typical right-of-way width should only occur when it is reasonably justified along specific areas of a proposed transmission line route. Otherwise, the cost impact and other adverse impacts associated with the transmission right-of-way easements for the proposed project will be larger than necessary and not reasonable.

IV. Conclusions and Recommendations

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A I recommend the commission reject ITC Transmission's expedited certificate application as filed for the following reasons:

- The Proposed Project does not provide the appropriate capability to enable the wind potential of the Thumb Area to be realized. The appropriate capability would be provided by constructing the Proposed Project as a single-circuit, double-circuit capable transmission line rather than a double-circuit transmission line. Such a single-circuit, double-circuit capable transmission line would for the Thumb Region support the minimum potential wind capacity estimated by the

1 WERZ Board, the sum of existing wind capacity and wind capacity currently in the
2 interconnection queue, and the wind capacity necessary for Michigan utilities to
3 meet the 10% Renewable Portfolio Standard of Act 295 through at least 2015. It
4 would also be readily expandable to a double-circuit line capable of supporting up
5 to the maximum potential wind capacity estimate of the WERZ Board when and *if*
6 wind capacity in excess of the initial capability of the single-circuit, double-circuit
7 capable line appears to be realizable in the Thumb Region such that it justifies a
8 second circuit. Finally, I estimate it would reduce the cost of the Proposed Project
9 by at least \$45 million.

- 10 • The proposed and alternative routes for the Proposed Project are not reasonable
11 because ITC Transmission has not justified its selection of expensive monopole
12 structures over steel lattice towers or its use of an unusually wide right-of-way
13 where new right-of-way is necessary along the transmission route. I estimate that
14 if the Proposed Project is built as a double-circuit line predominantly on lattice
15 towers, the potential cost savings for the Proposed Project would be \$39 million.
16 If the Proposed Project is instead built as a single-circuit, double circuit capable
17 line predominantly on lattice towers the potential cost savings would be an
18 additional \$33 million on top of the \$45 million of savings I have estimated for
19 single-circuit, double-circuit capable construction (for a total potential savings of
20 \$78 million). Additional cost savings and a reduction of other adverse impacts
21 would be achievable by narrowing the proposed right-of-way width for the
22 Proposed Project to a width closer to that typically being proposed for
23 double-circuit 345 kV transmission line projects in Texas.

24 **Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

25 **A** Yes, it does.

Qualifications of James R. Dauphinais

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A James R. Dauphinais. My business address is 16690 Swingley Ridge Road,
3 Suite 140, Chesterfield, MO 63017.

4 **Q PLEASE STATE YOUR OCCUPATION.**

5 A I am a consultant in the field of public utility regulation and a principal with the firm of
6 Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

7 **Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
8 **EXPERIENCE.**

9 A I graduated from Hartford State Technical College in 1983 with an Associate's Degree
10 in Electrical Engineering Technology. Subsequent to graduation I was employed by
11 the Transmission Planning Department of the Northeast Utilities Service Company as
12 an Engineering Technician.

13 While employed as an Engineering Technician, I completed undergraduate
14 studies at the University of Hartford. I graduated in 1990 with a Bachelor's Degree in
15 Electrical Engineering. Subsequent to graduation, I was promoted to the position of
16 Associate Engineer. Between 1993 and 1994, I completed graduate level courses in
17 the study of power system transients and power system protection through the
18 Engineering Outreach Program of the University of Idaho. By 1996 I had been
19 promoted to the position of Senior Engineer.

20 In the employment of the Northeast Utilities Service Company, I was
21 responsible for conducting thermal, voltage and stability analyses of the Northeast
22 Utilities' transmission system to support planning and operating decisions. This

1 involved the use of load flow and power system stability computer simulations.
2 Among the most notable achievements I had in this area include the solution of a
3 transient stability problem near Millstone Nuclear Power Station, and the solution of a
4 small signal (or dynamic) stability problem near Seabrook Nuclear Power Station. In
5 1993 I was awarded the Chairman's Award, Northeast Utilities' highest employee
6 award, for my work involving stability analysis in the vicinity of Millstone Nuclear
7 Power Station.

8 From 1990 to 1997 I represented Northeast Utilities on the New England
9 Power Pool Stability Task Force. I also represented Northeast Utilities on several
10 other technical working groups within the New England Power Pool ("NEPOOL") and
11 the Northeast Power Coordinating Council ("NPCC"), including the 1992-1996 New
12 York-New England Transmission Working Group, the Southeastern
13 Massachusetts/Rhode Island Transmission Working Group, the NPCC CPSS-2
14 Working Group on Extreme Disturbances and the NPCC SS-38 Working Group on
15 Interarea Dynamic Analysis. This latter working group also included participation
16 from a number of ECAR, PJM and VACAR utilities.

17 In addition to my technical responsibilities, I was also responsible for oversight
18 of the day-to-day administration of Northeast Utilities' Open Access Transmission
19 Tariff. This included the creation of Northeast Utilities' pre-FERC Order No. 889
20 transmission electronic bulletin board and the coordination of Northeast Utilities'
21 transmission tariff filings prior to and after the issuance of Federal Energy Regulatory
22 Commission ("FERC" or "Commission") FERC Order No. 888. I was also responsible
23 for spearheading the implementation of Northeast Utilities' Open Access Same-Time
24 Information System and Northeast Utilities' Standard of Conduct under FERC Order
25 No. 889. During this time I represented Northeast Utilities on the Federal Energy

1 Regulatory Commission's "What" Working Group on Real-Time Information Networks.
2 Later I served as Vice Chairman of the NEPOOL OASIS Working Group and
3 Co-Chair of the Joint Transmission Services Information Network Functional Process
4 Committee. I also served for a brief time on the Electric Power Research Institute
5 facilitated "How" Working Group on OASIS and the North American Electric Reliability
6 Council facilitated Commercial Practices Working Group.

7 In 1997 I joined the firm of Brubaker & Associates, Inc. The firm includes
8 consultants with backgrounds in accounting, engineering, economics, mathematics,
9 computer science and business. Since my employment with the firm, I have filed or
10 presented testimony before the Federal Energy Regulatory Commission in
11 Consumers Energy Company, Docket No. OA96-77-000, Midwest Independent
12 Transmission System Operator, Inc., Docket No. ER98-1438-000, Montana Power
13 Company, Docket No. ER98-2382-000, Inquiry Concerning the Commission's Policy
14 on Independent System Operators, Docket No. PL98-5-003, SkyGen Energy LLC v.
15 Southern Company Services, Inc., Docket No. EL00-77-000, Alliance Companies, et
16 al., Docket No. EL02-65-000, et al., Entergy Services, Inc., Docket No.
17 ER01-2201-000, and Remedying Undue Discrimination through Open Access
18 Transmission Service and Standard Electricity Market Design, Docket No.
19 RM01-12-000. I have also filed or presented testimony before the Colorado Public
20 Utilities Commission, Connecticut Department of Public Utility Control, Illinois
21 Commerce Commission, the Indiana Utility Regulatory Commission, the Iowa Utilities
22 Board, the Kentucky Public Service Commission, the Louisiana Public Service
23 Commission, the Michigan Public Service Commission, the Missouri Public Service
24 Commission, the Public Utility Commission of Texas, the Wisconsin Public Service
25 Commission and various committees of the Missouri State Legislature. This

1 testimony has been given regarding a wide variety of issues including, but not limited
2 to, avoided cost calculations, certification of public convenience and necessity, fuel
3 adjustment clauses, interruptible rates, market power, market structure, prudence,
4 resource planning, standby rates, transmission losses, transmission planning and
5 transmission line routing.

6 I have also participated on behalf of clients in the Southwest Power Pool
7 Congestion Management System Working Group, the Alliance Market Development
8 Advisory Group and several working groups of the Midwest Independent
9 Transmission System Operator, Inc. ("MISO"), including the Congestion Management
10 Working Group. I am currently an alternate member of the MISO Advisory Committee
11 in the end-use customer sector on behalf of a group of industrial end-use customers
12 in Illinois. I am also the past Chairman of the Issues/Solutions Subgroup of the MISO
13 Revenue Sufficiency Guarantee ("RSG") Task Force.

14 In 2009, I completed the University of Wisconsin-Madison High Voltage Direct
15 Current ("HVDC") Transmission course for Planners that was sponsored by MISO. I
16 am a member of the Power Engineering Society of the Institute of Electrical and
17 Electronics Engineers ("IEEE").

18 In addition to our main office in St. Louis, the firm also has branch offices in
19 Phoenix, Arizona and Corpus Christi, Texas.

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1 JUDGE NICKERSON: All right.

2 MR. KERSHNER: Your Honor, I would like
3 to offer the testimony of Mr. Mark Zimmer on behalf of
4 the associated -- the Affected Landowners. I have two
5 corrections to that testimony. On page 23, the last page
6 of the prefiled testimony, there is a reference to
7 Exhibit MTZ-1, and I would like to change that reference
8 to Exhibit AL-2. And I would -- and the prefiled
9 testimony had attached to it Exhibit MTZ-1, which I will
10 be offering as Exhibit AL-2. So I would like to move
11 that the testimony of Mr. Zimmer, with those corrections,
12 be bound into the record, and I would like to move the
13 acceptance into evidence of Exhibit AL-1, which is
14 sponsored by Mr. Zimmer.

15 JUDGE NICKERSON: Any objection to
16 binding Mr. Zimmer's testimony into the record? It may
17 be bound into the record.

18 - - -
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25

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International)	
Transmission Company d/b/a ITCTransmission, for)	
an expedited siting certificate for a transmission line,)	
pursuant to 2008 PA 295, Part 4, for Region No. 4)	Case No. U-16200
(Thumb Region), as designated by the Michigan Wind)	
Energy Resource Zone Board and the Commission's)	
Order in Case No. U-15899.		

TESTIMONY OF INTERVENOR MARK ZIMMER

on behalf of

AFFECTED LANDOWNERS

October 29, 2010

MARK ZIMMER
INTERVENOR TESTIMONY

1 **INTRODUCTION**

2 **Q: What is your name and address?**

3 A: My name is Mark Zimmer. My address is 3222 Loomis Road, Unionville,
4 Michigan.

5 **Q: By whom are you employed?**

6 A: I'm self-employed as a farmer.

7 **Q: How long have you been farming?**

8 A: I'm the fifth generation of our family to work our farm. I began working our
9 fields when I was 12, so I've been involved in farming for a more than four
10 decades. Given that time in the field and what's been passed down to me, it's fair
11 to say that I'm familiar with farming in and around Tuscola and Huron Counties.

12 **Q: Where is your property located?**

13 A: My wife and I own property in Sections 25, 34 and 36 of North Akron Township.

14 **Q: Is your property on one of the routes that ITC proposes for a transmission**
15 **line?**

16 A: I believe at least one of the parcels is on ITC's Proposed Route; the others are
17 believed to be in proximity. Because we have committed to coordinate our
18 activities to the extent possible, though, I've also been tasked to speak on behalf
19 of the twenty four farmers who were granted intervention in this proceeding on
20 October 14. Collectively, we own about 4,500 acres in Tuscola and Huron
21 Counties, all believed to be on or near ITC's Proposed Route.

22 **Q: Have you reviewed any filings in this proceeding in order to prepare for this**
23 **testimony?**

MARK ZIMMER
INTERVENOR TESTIMONY

1 A: Yes. I have reviewed the Direct Prefiled Testimony submitted by Mr. Thornhill
2 for ITC and the maps of the Proposed Route and Alternate Route attached to his
3 testimony. I have also reviewed many of ITC's answers to discovery, in
4 particular those that provide ITC's sense of how a transmission line will impact
5 farming.

6
7 **PURPOSE OF TESTIMONY**

8 **Q: What is the purpose of your testimony?**

9 A: Farmers generally support Michigan's effort to increase renewable energy. We
10 believe that a new industry can help our state's economy. But it's also important
11 to balance the goal of increasing renewable energy with the important
12 contribution that agriculture already makes to Michigan. Farming is our state's
13 second largest industry, and contributes about \$70 billion each year to Michigan's
14 collective pocketbooks. We should build a new renewable energy industry in our
15 state in a way that tries to minimize adverse impacts to Michigan's agriculture. It
16 would be counterproductive if the growth of renewable energy came at a higher
17 expense to farming than necessary.

18 **Q: How does an effort to balance renewable energy and agriculture relate to**
19 **ITC's proposed transmission line?**

20 A: Many farmers think of wind energy as a new crop. Rent received from leases
21 signed with wind developers can help preserve family farming, which is
22 struggling in Michigan.
23

MARK ZIMMER
INTERVENOR TESTIMONY

1 Like with all crops, wind energy has to get to market. So new transmission is part
2 of the renewable energy deal. A transmission line has to be placed somewhere.
3 We believe, though, that any new lines should be placed where they pose the
4 fewest number of inefficiencies and risks to agriculture. Farmers have been living
5 with transmission lines in their backyards for decades, so this is more than a self-
6 interested issue. Preserving farmland is part of Michigan's existing policy, is
7 important to the vast majority of Michigan's residents, and is also important to
8 our state's economy. These matters should be carefully considered when routes
9 are selected.

10
11 **GENERAL RISKS TO FARMING POSED BY ITC's NEW TRANSMISSION**
12 **LINE**

13
14 **Q: In general terms, are there risks that a new transmission line can pose to**
15 **farming?**

16 **A:** To understand the risks to farming it's important to first understand the current
17 challenges that agricultural faces in Michigan. According to the US Department
18 of Commerce's Bureau of Economic Analysis, Michigan lost 30,300 farming jobs
19 between 1969 and 2000, or nearly 30% of the total employment in the sector.
20 Nearly 7,000 *more* jobs were lost between 2000 and 2008. The average age of
21 farmers in Michigan is increasing and transfers of land from one generation to the
22 next are decreasing. The number of Michigan farms is also declining, as is the
23 amount of land devoted to farming. Costs, however, continue to rise.

MARK ZIMMER
INTERVENOR TESTIMONY

1 The best way to combat these challenges is to push the productivity of land up, to
2 maintain efficiencies, and to keep risks and associated costs down. Unfortunately,
3 ITC's new transmission line will reduce existing efficiencies and productivity.
4 New risks associated with the line will also create opportunity costs and cash flow
5 issues that will pose additional challenges to our operations.

6 **Q: Could you provide a few examples?**

7 A: Yes, there are many. Efficiencies are lost when poles are placed in fields, because
8 the poles create a physical obstacle to regular farming. Examples of risks to
9 productivity include soil compaction, soil mixing, crushed tiles, and the
10 introduction of new weeds and insects to areas that can no longer be farmed.
11 Risks to cash flow and opportunity costs include the cost of time lost to the
12 negotiation of easements or a condemnation proceeding, and potential crop
13 destruction during original construction and ongoing access.

14
15 Some of these risks might be short in duration, others longer. Some risks might
16 also be reduced or eliminated through proper mitigation and remediation by ITC.
17 Even so, if risks to productivity and cash flow can be avoided altogether or at
18 least minimized by a selected route, that would be a reasonable path.

19 **Q: You said that you had read some of ITC's responses to discovery,**
20 **particularly those questions that asked about impacts to farming?**

21 A: Yes.

MARK ZIMMER
INTERVENOR TESTIMONY

1 **Q: So you saw the ITC response which claimed that only 2.55 acres of cropland**
2 **would be lost to the Proposed Route, and that there should be no interference**
3 **to regular activities like aerial spraying?**

4 A: Yes.

5 **Q: Do you disagree?**

6 A: ITC seems to view risks associated with a new transmission line as black and
7 white issues: either the risks will create an impact or they won't. If an impact
8 does occur, ITC seems to believe that the impact can be easily quantified. Those
9 familiar with farming know, however, that there aren't too many black or white
10 issues. ITC's new line will create gray areas of risk that have the potential to
11 impact farming far beyond the borders of a new ITC easement.

12 **Q: Please explain?**

13 A: Take ITC's response that the cropland that will be lost is only 2.55 acres for the
14 Proposed Route and 2.4 acres for the Alternate Route. ITC assumes that the land
15 under the line could still be farmed and there would be nothing else lost. It's not
16 that simple. Heavy equipment on the easement should be expected to compact the
17 soil, leading to less productivity. This heavy construction equipment will also
18 introduce new weeds to the area as the equipment travels down a 130 mile route
19 and across many different fields. Implements have to be swung around the poles
20 in a way that leaves plenty of clearance, which means that much more than the
21 foundation of the pole is lost from production. Because there is no crop planting
22 in proximity to the poles, weeds and insects there have to be controlled in a way
23 that does not leach into the field and affect the crops. Despite efforts to navigate

MARK ZIMMER
INTERVENOR TESTIMONY

1 around supports, much of our work is now done after dark and poles in fields will
2 create hazards for very large and difficult-to-navigate equipment. Some damage
3 to equipment will result. These risks aren't limited to just the square footage
4 measured at the foundation of each pole; instead, these risks pose the potential to
5 creep beyond the foundation, past the easement, and into the fields as well.

6

7 **SHORT TERM RISKS TO FARMING CREATED BY THE NEW ITC LINE**

8 **Q: You said that some risks associated with placement of the new line might be**
9 **short in duration. Can you provide examples?**

10 A: Most short term impacts would include cash and crop issues. For example, this
11 proceeding has already taken many of us out of the field during the harvest, which
12 is our busiest time of the year. We hope to catch up, but much of our work
13 depends on the weather. When there's good weather we need to devote attention
14 to farming; if there's a distraction, our primary business will suffer.

15

16 That same fear extends to negotiations involving the line. Many farmers will
17 have to spend a significant amount of time negotiating easements with ITC along
18 the route that the Commission approves. ITC expects that much of this
19 negotiation will occur in the second and third quarters of the year, which are our
20 busiest. If for some reason we can't reach a negotiated agreement with ITC, I
21 understand that a lawsuit may follow. That would require a lot of time and create
22 anxiety, too, which again means that our focus is not on farming.

23

MARK ZIMMER
INTERVENOR TESTIMONY

1 Even if we do reach agreement with ITC, I'm not sure of when we would get paid
2 for the easements. It seems that there would be some difference in the time when
3 the easement is lost to production and when payment for the easement might
4 arrive. A cash flow issue would be created.

5 **Q: Are there other risks that you would put into the "short term" category?**

6 A: Yes, there are. I'm not sure if ITC will be able to access every bit of the route off
7 of public roads. If not, there may be a need to run heavy construction equipment
8 over our farm access roads which could cause damage. In Huron County there
9 are dairy and grazing operations; new fences might have to be erected to prevent
10 animals from wandering into the construction corridor. Crops could be lost
11 during the construction process, not only on the actual right-of-way but also if
12 additional access or laydown areas are required. I expect that there would be
13 compensation for such losses, but there might be a cash flow issue created there,
14 too. If farmers use irrigation systems, those systems would have to be altered
15 during construction.

16
17 Many of these short-term issues might be considered nuisances by some. Just the
18 same, if nuisances can be avoided you try to do it. Some others, though, might
19 start as short term risks but move into the permanent risk category. For example,
20 if a grazing area or field is permanently split by a fence bordering the easement, a
21 fundamental change in the entire farming operation would be created. Again, you
22 try to avoid such risks because related costs can be difficult to calculate.
23

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INTERVENOR TESTIMONY

**INTERMEDIATE TERM RISKS TO FARMING CREATED BY ITC's NEW
LINE**

Q: You've suggested that there is a class of risks that might be either short- or long-lived depending on how well they are handled?

A: Yes. Soil erosion, soil compaction and mixing, and potential damage to drainage tiles are all part of that category. Unfortunately, there was no information in ITC's Application which related to ITC's mitigation and remediation plans in these areas. So we don't know whether these risks will be avoided in large part and corrected when they occur, or if serious longer-term impacts will be created.

Q: Please explain the risk of soil erosion?

A: The Thumb has some of the best farmland in the State of Michigan. But as many have now come to realize, it's windy on our farms and it can also be wet. With wind there's a risk that topsoil will be blown away. That's potentially a big problem for us, because in many places you don't have to go much more than ten inches deep and you'll hit clay. There isn't much that will grow in clay, so you need to keep that topsoil in place. We do that by using good tilling techniques and by keeping our fields planted. Neither would occur, though, during the line's construction. That poses the risk of erosion. In addition to blowing, if there is rain during construction there's a chance of rutting by heavy equipment. Rain can carry away topsoil as it flows through the ruts. Large tires on construction equipment can also carry off wet topsoil in treads.

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INTERVENOR TESTIMONY

1 If topsoil is lost during construction, the land below the transmission line will
2 become less productive. ITC has said that it will employ techniques that will
3 reduce erosion, but no additional information has been provided to this point.

4 **Q: Please explain the risk of soil compaction?**

5 A: Soil compaction occurs when heavy equipment runs over ground. The weight of
6 the equipment reduces the air space between the particles of the soil. That can
7 reduce the water and the amount of air that gets to roots. Compaction can also
8 change the soil temperature and the infiltration rate, thereby reducing the volume
9 of nutrients reaching the roots.

10

11 Compaction is an issue that we have to watch closely in the Thumb because of the
12 nature of our soil. Yields on compacted ground can be reduced by 10% to 40%.
13 Some land that is badly compacted will not come back and be fully productive for
14 years, even with deep ripping techniques. So it's best to avoid the compaction
15 before it even occurs.

16 **Q: Are there ways that soil compaction can be reduced?**

17 A: Yes. Vehicles with extra-wide tires or tracks help spread the load and can reduce
18 compaction. Work can be scheduled when the soil can best bear the weight: the
19 first choice would be winter, when the ground is frozen, and the next best would
20 be summer, when it's not as wet as in spring or fall. Restricting vehicle access on
21 an easement to only those necessary for the particular task can help. Construction
22 mats can be used to help spread the load, especially where larger tires or tracks
23 aren't used. Again, if the soil becomes compacted, it can take three or four years

MARK ZIMMER
INTERVENOR TESTIMONY

1 of continuous effort, including ripping and deep tilling, to restore the ground to its
2 former productivity. Unfortunately, some compaction will also be unavoidable
3 and will permanently affect the ground.

4 **Q: What compaction can't be avoided?**

5 A: Soil will become compacted on the route around poles placed in fields.
6 Implements and trailers will have to be driven and pulled around those poles on a
7 route that will keep enough clearance from the poles to avoid damage but not so
8 much that ground is lost unnecessarily. Only one best path per pole will exist,
9 and it will become compacted. Productivity will be permanently lost on that
10 ground.

11 **Q: Please explain soil mixing?**

12 A: Soil mixing occurs when top soil is mixed with subsoils. Crops will grow well in
13 topsoil, but not in the clay and rock which is found in layers just below the topsoil
14 in our area. In addition to avoiding topsoil erosion and compaction, farmers must
15 avoid soil mixing if they are to keep the land most productive.

16
17 In the case of the transmission line, the greatest risk of unintended mixing will
18 arise when foundations for the monopole and lattice structures are excavated. If
19 the foundations for the monopoles are approximately six feet in diameter and
20 eight feet deep, there would be about 225 cubic feet of material that would be
21 brought up for each of the 500 or so estimated monopoles, or more than 112,000
22 cubic feet in total. Just about one-tenth of that, or 22.5 cubic feet per pole, would
23 be topsoil. The rest would be clay and rock. If these holes are augured, there will

MARK ZIMMER
INTERVENOR TESTIMONY

1 be some inevitable mixing. If the spoil can be separated, the different layers
2 should be placed in separate piles and proper handling should be determined by
3 the layer at issue. Separated topsoil can be spread around the base of a
4 foundation, and sloped. Clay and rock, however, should be hauled away.

5
6 Some excavators who are not careful will place all excavated spoil into one pile
7 and then spread and level that material. What gets spread in that process is a lot
8 of clay and rock with just a little topsoil. Both rocks and clay pose potential
9 damage issues to equipment once brought to the surface. If not properly removed,
10 there's also a real risk that this subsoil material will eventually find its way into
11 the remaining field. Therefore, improperly handled spoil will reduce productivity
12 under the line and also poses the potential to reduce productivity if it creeps into
13 the balance of the field.

14 **Q: Are there other risks that could be temporary or permanent, depending on**
15 **the way in which they are managed?**

16 A: Yes. There's a risk of new weeds and insects being encountered, tiles being
17 damaged, and unintentional groundwater hits all posing problems.

18 **Q: What might cause you to encounter new weeds or insects?**

19 A: Farmers try to keep our equipment in our own fields. Because we are very
20 familiar with our own fields we know what weeds have to be controlled. There's
21 little risk of cross contamination because the amount of farming equipment that
22 crosses into other farmers' fields is kept to a minimum. That wouldn't be the case
23 here. Heavy construction equipment would be traveling from one field to the next

MARK ZIMMER
INTERVENOR TESTIMONY

1 along much of the 130 mile route. When this construction occurs, there is a risk
2 that weeds picked up on one portion of the route will cross-populate in new places
3 on the route, which creates a new issue in need of control.

4
5 There will also be an area around each supporting structure that won't be planted
6 extending beyond the foundation. The total area lost will depend on where the
7 pole is placed in the field; but regardless, some area will be lost. If that area is not
8 planted and cultivated, weeds will have a chance to grow and insects will
9 populate. If the weeds sprout in these non-planted areas or insects go unchecked,
10 both will pose risks to the remainder of the field. The method of control would
11 have to be similar to the one already utilized by the farmer (organic or non-
12 organic) and one that would not leach into the crops.

13
14 We don't know yet whether ITC plans to control all unplanted areas around poles,
15 or whether there would be an expectation that the landowner would have to
16 control them. If the landowner is expected to control the weeds and insects, the
17 landowner will be redirecting time and resources that would otherwise be devoted
18 to other farming activities.

19 **Q: Please explain the risk to drainage tiles?**

20 A: Tiles can be thought of as a system of underground plumbing. Today, the "tiles"
21 are most often plastic pipe placed below the surface at a depth of about 1 ½ to 3
22 feet. The tiles carry excess water away from the field so that the ground doesn't
23 become too saturated. Eventually the tiles drain to a collection spot. In our area

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INTERVENOR TESTIMONY

1 the drained water flows to a system of deep ditches which eventually drain to
2 Saginaw Bay. The drainage that's created by tiles helps to avoid ponding,
3 improves the soil structure, creates better infiltration and permeability of the soil
4 because there are more air pockets between the soil particles, and creates better
5 root aeration and a longer growing season.

6
7 Like with soil compaction, when heavy equipment runs over tiles there is a risk
8 that the tiles will be crushed. There is also a risk that the tiles will be hit during
9 excavation activities, such as when the foundations for the new line's supporting
10 structures are placed. Some of these risks can be reduced if care is taken to
11 understand the layout of the tile field in advance. In some cases, though, good
12 layout maps may not be available. It's also sometimes difficult to know if tile has
13 been compromised because it is below the surface and there is often no sign of
14 trouble until water begins to pool up in a field where it didn't appear before.

15
16 At this point, we don't know how potential damage to tiles will be determined and
17 evaluated, who will select those responsible for making the repairs, and the
18 compensation for crop loss if problems are encountered after the construction
19 period has closed.

20 **Q: What is the risk associated with hitting ground water?**

21 A: Wells in this area for drinking water have to be drilled at a depth of around 100
22 feet or a little more. You can hit water just a few feet below the surface, though.
23 There's a chance that a shallow well with a high recharge rate will be

MARK ZIMMER
INTERVENOR TESTIMONY

1 unintentionally created during excavation. When that happens, the water would
2 have to be pumped from the hole to a location other than the field for disposal.
3 The land here is very flat, so improper disposal could cause a significant problem.
4

5 **PERMANENT RISKS TO FARMING CREATED BY THE NEW ITC LINE**

6 **Q: Will the ITC transmission line cause permanent impacts on farming?**

7 A: Yes. A new line would adversely impact our efficiencies and the productivity of
8 the land.

9 **Q: Please explain issues related to efficiency?**

10 A: When a pole is placed in a field an obstacle is created. Once placed, the obstacle
11 will probably have to be farmed around for generations. That slows down our
12 operation, and makes us less efficient because time is lost and the full capacity of
13 our existing equipment can not be utilized. The extent of the inefficiency will
14 depend on pole placement.
15

16 All poles will have some impact on our efficiencies, but some placements will
17 have more of an effect than others. Many of us use planters, cultivators and spray
18 booms that range in length from 35 to 120 feet. If a pole is placed on the edge of
19 a field and no other pole is placed, the path of our implements will only be
20 potentially affected on the first pass around the pole – that path will be planned so
21 the pole will pass on the side of the of the equipment that doesn't have an
22 implement attached. Thereafter, the process can continue uninterrupted, and we
23 can get use of the full width and capacity of our equipment, too. Some different

MARK ZIMMER
INTERVENOR TESTIMONY

1 types of issues are created when poles are placed on the edge of a field; for
2 example, there is an additional loss of productive ground when a pole is placed
3 there -- but the efficiency lost in our farming operation is minimized because only
4 one pass would be affected by the pole. The same can be said for a pole line that
5 runs parallel to a field's boundary. One pass has to be planned and productive
6 ground is lost, but operational inefficiencies are minimized.

7
8 That is not the case when a pole line runs diagonally through a field. In that case,
9 every pass can be affected, and every pass has to be calculated based on the
10 widths of the implements then being used. A significant amount of time can be
11 lost because paths will have to be plotted and those passes will probably not
12 utilize the full width and capacity of the equipment that you have purchased. The
13 inefficiencies can be several times those encountered with a pole line on the edge
14 of a field.

15
16 Compounding these inefficiencies is the fact that some of our operations require
17 semi trailers or other equipment to run side-by-side with the primary implements.
18 This is particularly true during the harvest. For example, large grain carts run
19 alongside combines during the wheat harvest about 75% of the time, and beets are
20 almost always placed in semi trailers the moment they are harvested, all as part of
21 a single operation. In these cases, you have to become concerned about moving at
22 least two large pieces of equipment around a pole, together with the equipment
23 that connects the operation and loads the transport.

MARK ZIMMER
INTERVENOR TESTIMONY

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The route of the line, therefore, can have a very dramatic effect on the efficiency with which we can do our work and on the productivity of the equipment we use. Poles placed along field edges will have a less dramatic impact than those lines and poles that run diagonally across a field.

Q: Have you examined any maps to determine whether the route that ITC offers as its “Proposed Route” takes a diagonal path through fields?

A: Yes. The Proposed Route runs at roughly a 45 degree angle from its entry into Gilford Township and through Colfax Township. The Alternate Route entering Denmark and eventually also running through Colfax, on the other hand, appears to have more right angles, and the Alternate Route covering that area also appears to make greater use of existing right of way. That suggests that the Proposed Route, at least over the stretch roughly from Reese to Bad Axe, would cut through a lot of fields diagonally and through more fields not previously confronted by these types of obstacles.

Q: Could you please describe potential losses to the productivity of the land which would be created by a new line?

A: Yes. Soil erosion, soil compaction, soil mixing, weed and insect control, and the impact to tiles can be short- or long-lived, depending on how well those issues are mitigated and remediated. Other risks could also be permanent in nature. They include permanent loss of production around poles, risks to aerial spraying and seeding, risks to equipment, and field fragmentation.

MARK ZIMMER
INTERVENOR TESTIMONY

1
2 **Q: Please explain the permanent loss of productivity?**

3 A: As just mentioned, many of our operations in Tuscola and Huron Counties use
4 very large equipment that is not easily navigated. If a pole is placed in a field, a
5 route around that pole has to be plotted. Ideally, the route will be far enough from
6 the pole to avoid potential damage, but close enough so no more ground is lost to
7 production than necessary. The amount of ground actually lost will depend on
8 whether the pole is placed in the heart of the field or in the headland. Also of
9 some issue is the size of the equipment involved, because the greater the size of
10 the equipment the more difficult it can be to navigate with precision, and a wider
11 berth may be required.

12
13 If placed in the middle of the field, equipment will have to be routed around a
14 pole on both sides of that pole, and a shape roughly resembling an oval will be
15 created around the structure. If the pole is placed in the headland, it means that
16 the pole will be erected just off a property boundary. In such a case, the
17 equipment may not be able to pass on the side of the pole nearest to the boundary.
18 This creates a larger space that will not be planted, because the ground lost
19 includes not only that half of the oval on the side of the pole that can still be
20 farmed, but also includes the area between the pole and the property boundary
21 where equipment can not be driven. In either case, the resulting area lost would
22 be many times the size of the pole that you're attempting to avoid. This lost area
23 will not be planted and cultivated as we otherwise would, so special control

MARK ZIMMER
INTERVENOR TESTIMONY

1 measures would be required to make sure that new weeds and bugs do not find a
2 home in these areas and spread to the rest of the field.

3 **Q: You mentioned a permanent risk to aerial spraying?**

4 A: Yes. Some farming operations in this area make extensive use of aerial spraying.
5 The line will pose a risk to flying at low levels. Depending on placement of the
6 line, some fields may no longer be able to be sprayed from the air and more time
7 consuming methods of application would be required.

8 **Q: Please explain damage to equipment as a long term risk with a transmission**
9 **line?**

10 A: Despite the fact that the poles are easily spotted in the daylight, much of our work
11 occurs after dark. The poles can be difficult to see at night, and it is also more
12 difficult to visually calculate clearances when there's no natural light. Some
13 poles will be hit despite every effort to avoid them. I'm aware of one pole that
14 was hit just this past season. It was a wooden pole. It broke in two and
15 fortunately the higher portion was suspended from the ground by the line. So
16 there was no downed transmission wire. The equipment, though, was damaged.
17 Subsoils brought to the surface can also damage equipment easily if not carefully
18 removed from the site. A rock just two inches in diameter can cause significant
19 damage to some types of equipment.

20 **Q: Please describe field fragmentation.**

21 A: The larger the field and the fewer the obstacles, the more efficient it is to farm the
22 field. Greater efficiencies lead to greater productivity. The opposite is also true.
23 If a field is split by a creek or a fence or a line of poles that has to be farmed

MARK ZIMMER
INTERVENOR TESTIMONY

1 around, you've really created two smaller fields. It's not as efficient to farm these
2 smaller areas.

3
4 We're not sure at the moment if any portion of the ITC routes will be fenced. If
5 portions are, the field will be physically split in two. Even if not fenced, though,
6 poles that are placed in fields also fragment those fields because there's a good
7 deal of additional time necessary to work around those poles, and some areas will
8 be lost to production.

9

10 **PROPOSED VS. ALTERNATE ROUTE**

11 **Q: You've mentioned many risks that would be posed to farming by a new ITC**
12 **transmission line. Could most of these risks be avoided by ITC?**

13 A: We're concerned that won't be the case. We don't know yet how ITC intends to
14 mitigate and remediate these risks. We also don't know whether ITC intends to
15 fully compensate for those risks that can't be avoided. Even if ITC does intend to
16 pay full compensation, the impact in many cases may be very difficult to fully
17 predict and quantify and may not appear until some time after construction is
18 complete. Regardless, the farmers will probably be left to farm around the
19 facilities for generations after the construction is complete.

20 **Q: You mentioned, though, that an energy crop, like any other, has to get to**
21 **market. How does that occur if the line does not cross your properties?**

22 A: ITC has proposed two routes: They call one their "Proposed Route" and the other
23 their "Alternate Route." To this point, we understand that ITC has said that there

MARK ZIMMER
INTERVENOR TESTIMONY

1 is no material difference in the cost of the two routes, that both routes would
2 reliably transmit the required amount of wind energy out of the Thumb, and that
3 both routes were among the best scoring after their routing criteria was
4 considered. That sounds like a pretty even race.

5
6 What didn't seem to be given much of a priority when weighing the routes,
7 though, was the relative impact the two routes would have on agriculture and on
8 other state policy priorities. State programs like Act 116 are used to preserve
9 croplands, which seems to be some indication of where our state believes the
10 emphasis should be placed. But the scoring criteria used by ITC valued cropland
11 *and* woodland evenly, and placed a *greater* value on wetlands than on *either*
12 cropland *or* woodland. In fact, as I read one of ITC's answers, ITC placed more
13 than twice the value on avoiding woods that also contained wetlands than on
14 avoiding fields that are among the state's best cropland. At least in our view,
15 swampy woods shouldn't be viewed as twice as important as good cropland. As
16 with the goal of preserving cropland, Michigan also wants to build a renewable
17 energy industry in our state to create new investments and opportunities. But
18 ITC's Proposed Route cuts through the heart of some of the windiest areas in
19 Michigan, and seems to pose a real risk that land that could otherwise be devoted
20 to wind turbines would instead be devoted to transmission lines.

21
22 We're trying to fully understand both routes and we are in the process of seeking
23 more information from ITC. For the reasons just mentioned, though, it currently

MARK ZIMMER
INTERVENOR TESTIMONY

1 seems that the Alternate Route better supports certain long-term goals in
2 Michigan. Many of us, for example, have already entered into leases with wind
3 developers. But a transmission line along the Proposed Route would compete for
4 use of the same land already leased for wind energy. It seems that Michigan's
5 goal is to generate new renewable energy, not to build new transmission for
6 transmission's sake. If that's true, the property already known to be of interest to
7 developers should be used to the extent that it can be for wind generation. The
8 Alternate Route also seems to pose fewer risks to farming than the Proposed
9 Route. For example, the Alternate Route involves about half of the new
10 "greenfield alignment" that the Proposed Route would create. That means that
11 the Alternate Route would make a much greater use of existing rights-of-way and
12 corridors, leaving more currently-undisturbed cropland alone.

13
14 **CONCLUSION**

15 **Q: Please briefly summarize your testimony?**

16 A: Preserving Michigan's agricultural heritage is important to our state and to the
17 families that still earn a living in farming. Farming is under pressure, though, and
18 we are constantly attempting to avoid additional risks so that healthy operations
19 can be maintained. The new ITC line will reduce our existing efficiencies and the
20 productivity of cropland and will pose risks that create opportunity and other
21 costs. Some risks can be reduced and possibly avoided depending on how ITC
22 approaches the project. We don't currently have enough information to evaluate
23 ITC's mitigation and remediation plans, though.

MARK ZIMMER
INTERVENOR TESTIMONY

1 Risks can also be avoided, of course, if currently-undisturbed cropland remains
2 fully devoted to agriculture. If the best wind areas and farmland are preserved for
3 wind farms and crops rather than for transmission, we will also advance
4 Michigan's efforts to promote renewable energy and preserve farmland. We
5 appreciate the Commission's consideration of these issues as it deliberates on the
6 best route for ITC's transmission line.

7 **Q: Are you sponsoring any exhibits?**

8 A: Yes. Attached as Exhibit MTZ-1 is a Michigan State Land Policy Institute
9 Bulletin titled, "How Important are the Agricultural Industry and Farmland to
10 Michigan's Economic Recovery?" The Bulletin was published in August, 2010,
11 and summarizes the perceptions of Michigan's residents regarding the importance
12 of farming to Michigan and to our economic recovery. Among other things, the
13 Bulletin notes that when asked about the importance of agriculture to Michigan's
14 economic recovery, 97% of the respondents felt that agriculture was "very
15 important" or "somewhat important." That score placed agriculture higher than
16 *any other industry in the state*, including renewable energy, the automobile
17 industry, parks and trails, and tourism. The survey underscores that preservation
18 of the family farm is important to all of Michigan's residents, and not just to those
19 on ITC's Proposed Route.

20 **Q: Does that conclude your testimony?**

21 A: Yes.

1 JUDGE NICKERSON: Any objection to the
2 admission of proposed Exhibit AL-1?

3 MR. KERSHNER: In addition, your Honor --

4 JUDGE NICKERSON: It may be admitted.

5 MR. KERSHNER: In addition, your Honor,
6 the Affected Landowners have stipulated, or have offered,
7 pursuant to the stipulation a No. 1 additional exhibit,
8 which has been marked as AL-1, Exhibit AL No. 1. It
9 comprises a hundred and --

10 JUDGE NICKERSON: Off the record. Excuse
11 me.

12 (At 10:15 a.m., a discussion was held off the
13 record.)

14 JUDGE NICKERSON: On the record.

15 MR. KERSHNER: Your Honor, the exhibit
16 sponsored by Mr. Zimmer has been marked as Exhibit AL-2,
17 not Exhibit AL-1. Pardon me for the error. I would like
18 to move the admission of Exhibit AL-2.

19 And in addition, I would like to move the
20 admission of Exhibit AL-1, which is a number of answers
21 to discovery bound together in a single exhibit of 136
22 pages.

23 In addition, your Honor, I would like to
24 move the binding in of the testimony of Dr. Andrew
25 Oliver.

1 JUDGE NICKERSON: Hold on just a second.
2 I didn't know you were moving on to Mr. Oliver.

3 Let's finish with the proposed exhibits
4 for Mr. Zimmer. I think we -- I may have misspoke, also,
5 as it relates to that prior exhibit. Mr. Zimmer's
6 exhibit, as you indicate, is AL-2. Any objection to the
7 admission of proposed Exhibit AL-2? It is admitted.

8 Any objection to the admission of
9 proposed Exhibit AL-1? AL-1 is admitted.

10 MR. KERSHNER: Thank you, your Honor.
11 I'd like to move the binding in of the testimony of
12 Dr. Andrew Oliver. There are no changes to the testimony
13 as previously filed with the Commission. And in
14 addition, I would like to move the admission of Exhibit
15 RES-1, which comprises questions and answers from the
16 discovery that we expect will be stipulated to be
17 admitted. It's a package of several questions and
18 answers comprising 24 pages, again, marked as a single
19 Exhibit RES-1. I would move the admission.

20 JUDGE NICKERSON: All right. Any
21 objection to binding Mr. Oliver's testimony into the
22 record? It may be bound into the record.

23 JUDGE NICKERSON: Any objection to the
24 admission of proposed Exhibit RES-1.

25 MR. STRONG: Your Honor, could we go off
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1 the record?

2 JUDGE NICKERSON: Off the record.

3 (At 10:18 a.m., a discussion was held off the record
4 and a brief recess was taken.)

5 (Back on the record at 10:40 a.m.)

6 JUDGE NICKERSON: Mr. Kershner.

7 MR. KERSHNER: Your Honor, the court
8 reporters and I have conferred, and as a matter of course
9 they would have stripped the extraneous page off of the
10 testimony that the court reporters had, so I don't think
11 we need to take any further action on that.

12 At this time I would move again to bind
13 into the record the testimony of Dr. Oliver and the
14 acceptance into evidence of Exhibit RES-1.

15 JUDGE NICKERSON: Any objections to
16 binding in Mr. Oliver's testimony? It may be bound into
17 the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of International)	
Transmission Company d/b/a ITC <i>Transmission</i> , for)	
an expedited siting certificate for a transmission line,)	
pursuant to 2008 PA 295, Part 4, for Region No. 4)	Case No. U-16200
(Thumb Region), as designated by the Michigan Wind)	
Energy Resource Zone board and the Commission's)	
Order in Case No. U-15899.)	
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TESTIMONY OF ANDREW OLIVER, PhD

on behalf of

INTERVENOR RES NORTH AMERICA LEASING, LLC

October 29, 2010

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 **Q: WHAT IS YOUR NAME AND ADDRESS?**

2 **A:** My name is Andrew George Oliver, and my address is 7589 Crestview Dr Longmont,
3 Colorado.

4 **Q: BY WHOM ARE YOU EMPLOYED?**

5 **A:** Renewable Energy Systems Americas Inc.

6 **Q: IN WHAT CAPACITY ARE YOU EMPLOYED BY RENEWABLE ENERGY**
7 **SYSTEMS AMERICAS INC.?**

8 **A:** I hold the position of Vice President Technologies and Resource Analysis, and the
9 additional post of Senior Vice President of RES America Developments Inc.

10 **Q: WHAT IS THE BUSINESS OF RENEWABLE ENERGY SYSTEMS AMERICAS**
11 **INC.?**

12 **A:** Renewable Energy Systems Americas Inc. ("RES Americas") is in the business of
13 developing and constructing wind farms on the North American continent. Since 1997,
14 RES Americas has either developed or constructed more than 10% of the installed
15 capacity of wind generating facilities in the United States. As of October 29, 2010, RES
16 Americas and its affiliates developed or built 4,048 megawatts of operating wind
17 generating facilities and have 851 megawatts of wind generation under construction. RES
18 Americas is a wholly owned subsidiary of Renewable Energy Systems Ltd. headquartered
19 in England. Renewable Energy Systems Ltd is an international developer and constructor
20 of wind farms and other renewable energy projects with operations in the UK and Ireland,
21 North America, the Mediterranean, Australia and New Zealand, Scandinavia and South
22 Africa.

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 **Q: AS VICE PRESIDENT TECHNOLOGIES AND RESOURCE ANALYSIS, WHAT**
2 **ARE YOUR DUTIES AND RESPONSIBILITIES?**

3 **A:** I direct and manage a team of approximately 20 people charged with the responsibility for
4 wind analysis, layout design, and energy analysis for all of the projects in which RES
5 Americas is involved. Among other duties, it is my responsibility to predict, to the extent
6 possible, the electric energy yield from the site of a proposed wind farm, to determine the
7 exact optimum placement of wind turbines on such a site, and to recommend the specific
8 make and model of equipment to optimize electric production.

9 **Q: WHAT ARE YOUR QUALIFICATIONS WITH RESPECT TO THE POSITION**
10 **YOU HOLD?**

11 **A:** I received a Bachelor's Degree in Aeronautical Engineering from City University in
12 London, England in 1993. In 1997 I earned my PhD from City University in Wind
13 Turbine Aerodynamics with a thesis entitled *Air Jet Vortex Generators for Wind Turbines*.
14 I have worked for Renewable Energy Systems and RES Americas in England or America
15 since receiving my PhD. In North America I am the person chiefly responsible for wind
16 analysis and application of science. I am the author or co-author of seven published
17 papers or articles on the subject of the technology of power generation using wind. I was
18 the co-chair of the American Wind Energy Association's WINDPOWER 2010
19 conference, and as such I was responsible for the technical portions of the conference.

20 **Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

21 **A:** I will testify as to the probable effects upon RES Americas' proposed wind power
22 generating projects in Huron County, Michigan if the ITC Thumb Loop were to be

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 constructed on the proposed route as described in the prefiled testimony of Mr. Vitez and
2 Mr. Thornhill.

3 **Q: WHAT ARE THE FACTORS THAT LIMIT HOW TURBINES ARE LOCATED**
4 **WITHIN A PROPOSED WIND FARM?**

5 **A:** There are a number of types of limiting factors. Some of those factors are imposed by law
6 and can generally be categorized as “set backs” or “exclusions”. Other limitations are
7 technical limitations having to do with the effects that turbines may have upon each other
8 depending upon where each is located in proximity to the others. A third limitation has to
9 do with the performance characteristics and limitations of particular types of equipment
10 which may potentially be installed in a proposed project.

11 **Q: PLEASE DESCRIBE WHAT “SET BACKS” ARE AND HOW THEY AFFECT**
12 **THE PLACEMENT OF WIND TURBINES WITHIN THE BOUNDARIES OF A**
13 **WIND FARM.**

14 **A:** Set backs are a product of local laws, such as zoning laws, and of prudent industry
15 practice. Set backs can be required from roads, houses, electric transmission and
16 distribution lines, gas and oil pipelines, and gas or oil wells, among other things. The
17 purpose of a set back is to ensure, largely for health and safety reasons, that there will be
18 an appropriate amount of space between wind turbines and homes and potentially
19 hazardous co-uses of the property.

20 **Q: CAN YOU GIVE US EXAMPLES OF HOW SET BACKS PROTECT THE**
21 **PUBLIC SAFETY?**

22 **A:** One good example is the need to set turbines and towers away from electric transmission
23 and distribution lines. It is only common sense that in the extremely rare case of a

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 catastrophic failure of wind equipment, we have provided that the equipment is installed
2 far enough from inherently dangerous facilities, like high voltage transmission lines, that a
3 bad situation is not compounded.

4 **Q: HOW ARE SET BACKS DETERMINED?**

5 **A:** Many of the set back distances, such as the distance from roads and power lines, are
6 dependent upon and relative to the overall height of the turbine from the ground to its
7 blade tip in the vertical position, known as the “tip height”. Other set backs - for example
8 typical set backs from gas pipelines - are based on the distance from the pipeline to the
9 tower foundation.

10 **Q: ARE SET BACKS REQUIRED FROM PEOPLE’S HOUSES?**

11 **A:** Yes. In most places, prudent industry practice or local law requires that turbines be
12 removed from occupied dwellings a distance which is usually based upon the acoustic
13 properties of the proposed generating equipment. In such cases, turbines must be
14 removed to a distance such that the sound produced from the turbines measured at the
15 dwelling is below a prescribed decibel limit. In such cases, the set-back can be estimated
16 in the early planning stages of a project layout but can be determined with precision only
17 when the manufacturer and model of the turbines to be installed is known.

18 **Q: WHAT ARE EXCLUSIONS?**

19 **A:** Exclusions are areas of land upon which, by reason of local law or prudent industry
20 practice, no turbine may be located.

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 **Q: WHAT ARE EXAMPLES OF EXCLUSIONS?**

2 **A:** Excluded areas include environmentally sensitive areas such as some wildlife habitat or
3 wetlands, areas of archeological or historic interest, pre-existing easements that would not
4 permit use of the easement area for wind generation purposes, and microwave paths.

5 **Q: WHY ARE MICROWAVE PATHS EXCLUSIONS?**

6 **A:** In some instances the turbine blades have been known to interfere with transmission of
7 signals by use of microwaves. For that reason, turbines are generally located so that the
8 turbine blades will not enter airspace that could interfere with communications. This is a
9 rare example of a case where exclusion can be determined only after equipment selection,
10 including blade diameter, is known.

11 **Q: HOW DO SET BACKS AND EXCLUSIONS AFFECT YOUR DETERMINATION**
12 **OF THE SIZE, PLACEMENT AND TYPE OF WIND TURBINES IN THE**
13 **DESIGN OF A WIND FARM?**

14 **A:** Exclusions and set backs contribute to reducing the overall area where turbines may be
15 placed. And while many set backs and exclusions are already known with respect to the
16 proposed project site, useable land area cannot be definitively calculated until such time
17 as a final survey of the site is completed.

18 **Q: AT WHAT POINT IN THE WIND FARM DEVELOPMENT PROCESS IS A**
19 **FINAL SURVEY AVAILABLE?**

20 **A:** As you might imagine, because wind farm sites can involve tens of thousands of acres, a
21 definitive survey is a very expensive proposition. It can cost hundreds of thousands of
22 dollars to prepare a final site survey. For that reason, the preparation of the definitive
23 survey is one of the last steps in the development process and is undertaken only after all

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 the land which is going to be acquired has been acquired and it is apparent that
2 construction of a wind farm is a reasonable certainty.

3 **Q: HAS THE LACK OF A DEFINITIVE SURVEY PREVENTED YOU FROM**
4 **ESTIMATING THE EFFECT OF BUILDING A TRANSMISSION LINE ON**
5 **ITC'S PROPOSED ROUTE ON RES'S PROPOSED WIND PROJECTS?**

6 **A:** No. We can make a good estimate of that effect without a definitive survey. Because our
7 results are estimates and not conclusive because we do not yet have a definitive survey of
8 the site, we have not yet established with precision all of the set-backs which will affect
9 the layout of our project. But we do have general information about the site and by
10 applying the rules regarding set backs and exclusions to that general site information we
11 can be confident that our estimates are reasonably reliable.

12 **Q: ARE THERE ANY OTHER UNKNOWN FACTORS WHICH MIGHT AFFECT**
13 **THE CALCULATION OF USEABLE LAND WITHIN THE PROJECT SITE AND**
14 **TURBINE LAYOUT AND PLACEMENT?**

15 **A:** Yes. Before we can finally determine turbine location we need to have selected the
16 turbine type.

17 **Q: HOW DOES THE TYPE OF TURBINE AFFECT THE TURBINE LAYOUT?**

18 **A:** Turbine spacing is usually measured in terms of the number of "rotor diameters" between
19 turbines. A rotor diameter is just what the term implies, the diameter of the circle the
20 blades will occupy when installed on the turbines. As a general rule of thumb, if turbine
21 A has a rotor diameter that is 10% larger than turbine B, the spacing between the places
22 where turbine A's may be installed will be 10% greater than the space required between
23 turbine B's. Turbine types may vary considerably in dimensions, with rotor diameters

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 typically in the 250' to 370' range and with hub heights (the center of the rotor disc) in the
2 range of 260' to 330' above the ground. Most manufacturers will specify a minimum
3 turbine spacing of 3 rotor diameters. As a result, the spacing between turbines may vary
4 between 750' and 1110' in order to conform to the manufacturer's requirements. In
5 addition, as I mentioned before, the noise produced by turbines may vary from turbine to
6 turbine and may have an effect on the required set-back from occupied dwellings.

7 **Q: ONCE YOU DETERMINED THE TOTAL AMOUNT OF LAND AVAILABLE**
8 **WITHIN THE PROJECT BOUNDARIES FOR TURBINE PLACEMENT, WERE**
9 **YOU THEN ABLE TO MAKE AN ESTIMATE OF THE AMOUNT BY WHICH**
10 **THAT AVAILABLE TURBINE SITE AREA WOULD BE REDUCED BY THE**
11 **PRESENCE OF A 200' TRANSMISSION LINE RIGHT-OF-WAY?**

12 **A:** Yes. According to our calculations, the presence of the ITC proposed transmission line
13 over the proposed route would reduce our useable land area by approximately 10%. This
14 10% loss of turbine site flexibility may then manifest itself in a number of different ways
15 that affect the potential installed capacity of wind generating facilities and, therefore, the
16 production of wind-generated electricity.

17 **Q: CAN YOU DESCRIBE ONE OF THOSE WAYS?**

18 **A:** Suppose a turbine had been tentatively located in a place where a 150' gap exists between
19 a house set-back and a road set-back, for example. If you now introduce a 200'
20 transmission easement completely overlapping the gap, that turbine cannot now be
21 relocated in the same vicinity. Each such turbine affected in this way would result in a
22 loss of capacity of between 0.75% and 1.5% of the total project generating capacity.
23

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 **Q: CAN YOU GIVE US ANOTHER EXAMPLE?**

2 **A:** If, for example, a turbine had been tentatively located at any spot on a project site and the
3 definitive survey discloses a set-back or exclusion that we hadn't previously
4 contemplated, we would then have to relocate that turbine to another site and the
5 imposition of the proposed transmission corridor on the project site would prevent us from
6 relocating that turbine to anyplace occupied by the ITC transmission corridor.

7 **Q: COULDN'T YOU JUST FIND ANOTHER PLACE TO LOCATE A TURBINE**
8 **THAT HAD TO BE MOVED FOR EITHER OF THE REASONS YOU JUST**
9 **DESCRIBED?**

10 **A:** Yes, potentially. But, relocating a turbine will, as a result of the land area being a total of
11 10% less than before the ITC transmission facilities were sited there, cause the turbine
12 density to increase.

13 **Q: WHAT IS TURBINE DENSITY?**

14 **A:** Turbine density is nothing more than the number of turbines located within a given land
15 area.

16 **Q: GO ON.**

17 **A:** The increase in turbine density will cause a loss of production of possibly up to 2% due to
18 increased "wake" or "array" effects among the installed turbines. Wind turbines extract
19 energy from the wind and downstream there is a wake from the wind turbine, where wind
20 speed is reduced. As the flow proceeds downstream, there is a spreading of the wake and
21 the wake recovers towards free stream conditions. The wake effect is the aggregated
22 influence on the energy production of the wind farm, which results from the changes in
23 wind speed caused by the impact of the turbines on each other. We can't determine the

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 extent of the reduction in generating capacity due to increased turbine density at this point
2 in the process because it depends on the number of turbines ultimately displaced by the
3 transmission line. It is also possible, though, that the turbine or turbines cannot be
4 relocated at all due to any of the constraints I mentioned earlier in this testimony.

5 **Q: WHAT DO YOU CALCULATE WILL BE THE TOTAL IMPACT ON RES'S**
6 **HURON COUNTY PROJECTS IF ITC IS PERMITTED TO BUILD THE THUMB**
7 **LOOP ON THE PROPOSED ROUTE?**

8 **A:** We have, to date, leased 30,476 acres in Huron County. Using the best available
9 information, we have calculated the acreage unavailable for turbine construction after
10 allowing for set backs and exclusions. When the acreage subject to set back and
11 exclusions is subtracted from the total acreage leased, there remains only 3,167 of the
12 original 30,476 acres on which turbines can be installed--a reduction of nearly 90%. If a
13 200' right-of-way for the ITC proposed route is then superimposed on RES' proposed
14 wind farm site, the 3,167 acres available for turbine construction are further reduced to a
15 net available acreage estimated to be only 2,841 acres.

16 **Q: ARE THERE ANY OTHER FACTORS THAT TEND TO CAUSE SITING**
17 **DIFFICULTIES AND CAUSE POTENTIAL LOSS OF GENERATING**
18 **CAPACITY IN THE THUMB?**

19 **A:** Yes there is one. The Thumb area of Michigan is a more complicated place to locate
20 wind turbines than many areas of the United States. Because land in the Thumb has been
21 sold and farmed for so many years there is a relatively larger degree of land fragmentation
22 than has occurred than in the Western states. Whereas it is common to find ranches and
23 farms of 1000 or more acres in a single parcel in the West, in the Thumb generations of

ANDREW OLIVER
TESTIMONY for INTERVENOR RES NORTH AMERICA LEASING, LLC

1 land division has resulted in many parcels in the 40 to 160 acre size. Many of those
2 parcels have homes built on them which results in a high residence density and more land
3 being unavailable for turbine siting than is typical due to residential set-backs. Also, the
4 grid style road layout results in more land being rendered unusable for wind power
5 production due to road set-back requirements.

6 **Q: DOES THAT CONCLUDE YOUR TESTIMONY?**

7 **A:** Yes, it does.

1 JUDGE NICKERSON: Any objection to
2 admission of proposed Exhibit RES-1? It may be admitted.

3 All right. Mr. Beach.

4 MR. BEACH: Your Honor, pursuant to the
5 stipulation of the parties, Staff would first like to
6 bind in the testimony of Staff Witness Catherine Cole.
7 The direct testimony consists of a cover page and 38
8 pages of questions and answers. Also included with that
9 testimony the Staff would like to admit Exhibits S-1
10 through S-32.

11 JUDGE NICKERSON: All right. Any
12 objection to binding Ms. Cole's testimony into the
13 record? It may be bound in the record.

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**In the matter of the application of
International Transmission Company d/b/a)
ITC Transmission for an expedited siting) Case No. U- 16200
certificate for a transmission line, pursuant to)
2008 PA 295, Part 4, for Region No. 4)
(Thumb Region), as designated by the Michigan)
Wind Energy Resource Zone Board and the)
Commission's Order in Case No. U-15899.)
_____)**

**QUALIFICATIONS AND DIRECT TESTIMONY OF
CATHERINE COLE
MICHIGAN PUBLIC SERVICE COMMISSION**

October 29, 2010

**QUALIFICATIONS AND DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200**

1 **Q. Would you please state your name and business address for the record?**

2 **A.**My name is Catherine E. Cole. My business address is 6545 Mercantile Way,
3 Lansing, Michigan.

4 **Q. By whom are you employed and what is your position?**

5 **A.**I am employed by the Michigan Public Service Commission (Commission),
6 Electric Reliability Division. I am a Staff Engineer in the Generation and
7 Certificate of Need Section which is responsible for evaluating generation and
8 transmission expansion plans.

9 **Q. Would you please outline your educational background?**

10 **A.**I earned a Bachelor of Science Degree in Mechanical Engineering from Michigan
11 Technological University in 1993, and I earned a Masters of Business
12 Administration Degree from the University of Wisconsin – Milwaukee in 2000.
13 Since joining the Commission Staff, I have also attended several training
14 programs sponsored by the National Association of Regulatory Utility
15 Commissioners and Michigan State University including the Annual Regulatory
16 Studies Program (August 2008), the Advanced Regulatory Studies Program
17 (October 2009), Grid School (March 2010), and Forecasting for Regulators (July
18 2010).

19 **Q. Would you please outline your professional experience?**

20 **A.**In November 1993, I joined Lobdell-Emery Manufacturing Company, an
21 automotive supplier located in Alma, Michigan. As a Tooling Engineer, I worked
22 in the areas of prototype development and sales until July of 1995. In 1995, I
23 joined A.O. Smith Automotive Products Company, an automotive supplier in

**QUALIFICATIONS AND DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200**

1 Milwaukee, Wisconsin as a Product Development Engineer. In 1997, A. O.
2 Smith Automotive Products Company was purchased by Tower Automotive,
3 which was based in Novi, Michigan. In 1998, I was promoted to the position of
4 Product Design Leader at Tower Automotive and later relocated to Novi,
5 Michigan. As a Product Design Leader, I was responsible for all aspects of the
6 initial product design of automotive chassis and suspension assemblies for
7 original equipment manufacturers including the oversight of computer aided
8 design models, detailed product drawings, finite element models, prototype
9 development, lab testing, and product changes post production launch.

10 In July 2006, I joined the Michigan Public Service Commission
11 (MPSC) Staff as a Staff Engineer. Presently, I work in the Generation and
12 Certificate of Need Section in the Electric Reliability Division of the MPSC with
13 a focus on transmission planning. Other assignments have included investigations
14 of distribution reliability, increasing the use of underground distribution lines, and
15 reviewing supply adequacy plans. In 2006, I participated in the development of
16 the MPSC's 21st Century Energy Plan. Beginning in 2008, I was selected to serve
17 in several leadership roles, including the vice chair of the Midwest ISO Supply
18 Adequacy Working Group. In 2008 and 2009, I co-chaired two workgroups of
19 the Michigan Planning Consortium, which were focused on transmission planning
20 in Michigan. Also, in 2009, I served on the Technical Review Committee for the
21 Eastern Wind Integration and Transmission Study (EWITS) sponsored by the
22 National Renewable Energy Laboratory. In 2009 and 2010, I assisted with the
23 development of Staff reports in dockets U-15996, U-16000, and U-16077,

**QUALIFICATIONS AND DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200**

1 evaluating electric generating alternatives for proposed generation in the
2 permitting process. Specific transmission siting cases that I have worked on
3 include U-14933, and U-15680. I assisted other Staff with research and testimony
4 development in U-14933, and I was the case coordinator for U-15680.

5 **Q. Have you previously presented testimony?**

6 **A. No.**

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. What is the purpose of your testimony?**

2 **A.**The purpose of my testimony is to present the Staff's position in the matter of ITC
3 Transmission's (ITC) Application for an expedited siting certificate for a
4 transmission line, pursuant to 2008 PA 295 (Act 295), Part 4, for Region No. 4
5 (Thumb Region), as designated by the Michigan Wind Energy Resource Zone
6 (WERZ) Board and the Commission's January 27, 2010, Order in Case No. U-
7 15899.

8 **Q. What specific guidance was available to Staff in its review of ITC's**
9 **application for an expedited siting certificate for its proposed transmission**
10 **line?**

11 **A.**Staff relied upon Act 295, specifically MCL 460.1149 through MCL 460.1153.

12 **Q. What specific elements of ITC's application requirements will be covered by**
13 **your testimony?**

14 **A.**My testimony will cover the application filing requirements outlined in MCL
15 460.1151, and MCL 460.1149 sub-sections (3), (4), and (5).

16 **Q. Are you sponsoring any exhibits?**

17 **A.**Yes.

18 **Q. Were these exhibits prepared by you or under your direction?**

19 **A.**Yes.

20 **Q. Please list the exhibits you are sponsoring?**

21 **A.**Exhibits S-1 through S-31 are photographs taken while on an aerial review of the
22 proposed and alternate routes on September 30, 2010. Exhibits S-32 is a map
23 showing wind potential in townships near the proposed and alternate routes.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

Q. Please describe the requirements outlined in Section 149(4) of Act 295 that must occur prior to an application being filed with the Commission.

A. Section 149(4) of Act 295 provides that “Sixty days before seeking approval from the applicable RTO for a transmission line as described in subsection (3), an electric utility, affiliated transmission company, or independent transmission company shall notify the commission in writing that it will seek the approval.”

Q. According to the information provided to Staff by ITC, did ITC fully meet the requirements in Section 149(4) of the Act?

A. Yes.

Q. When did ITC provide written notice to the Commission that it would seek approval from the Midwest ISO for a transmission line in the Thumb Region (Thumb Project)?

A. On February 3, 2010, ITC submitted a letter to the Commission stating that in sixty days, or soon thereafter, it would seek approval from the Midwest ISO for the Thumb Project.

Q. How did the Commission respond?

A. On February 4, 2010, the Regulatory Affairs Division of the Commission responded to ITC’s February 3, 2010 letter with a letter acknowledging that ITC had fulfilled the written notice requirement set forth in Section 149(4) of Act 295, MCL 460.1149(4). The February 3rd and February 4th letters are attached to ITC witness Tom Vitez’s testimony as Exhibit TWV-4.¹

¹ Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-4.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. Did ITC submit the proposed Thumb Project to the Midwest ISO requesting**
2 **Out-of-Cycle approval?**

3 **A. Yes. ITC submitted the Thumb Project to the Midwest ISO requesting Out-of-**
4 **Cycle approval on April 14, 2010.²**

5 **Q. What is meant by Out-of-Cycle approval?**

6 **A. An Out-of-Cycle approval by the Midwest ISO is an expedited process that allows**
7 **for approval more quickly than through the standard annual transmission planning**
8 **process. Additional provisions for the Out-of-Cycle process are included in the**
9 **introduction of the Midwest ISO Out-of-Cycle Project Review Request Form**
10 **submitted by ITC.³**

11 **Q. Please describe the requirements outlined in Section 149(5) of Act 295 that**
12 **must occur prior to an application being filed with the Commission.**

13 **A. Section 149(5) of Act 295 provides that “The commission shall represent this**
14 **state's interests in all proceedings before the applicable RTO for which the**
15 **commission receives notice under subsection (4).”**

16 **Q. Did the Commission represent the State of Michigan’s interests in all**
17 **proceedings before the Midwest ISO.**

18 **A. Yes.**

19 **Q. In what way did the Commission represent the State of Michigan’s interests**
20 **in all proceedings before the Midwest ISO as required by Act 295?**

² Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-5.

³ Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-5, page 2.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **A.** Commission Staff regularly participates in stakeholder meetings concerning
2 Midwest Transmission Expansion Planning (MTEP) projects at the Midwest ISO.
3 The proposed Thumb Project was first introduced by Midwest ISO stakeholders at
4 the December 2009 East Region Sub-Regional Planning Meeting (SPM), held as
5 part of the MTEP10 process.

6 **Q.** **Was Staff present at this meeting?**

7 **A.** Representatives from the Commission Staff were present at this meeting.

8 **Q.** **Please describe the Midwest ISO meetings at which the Out-of-Cycle Thumb**
9 **Project was discussed.**

10 **A.** The proposed Thumb Project was discussed at meetings after ITC submitted the
11 out-of-cycle approval request:

12	Planning Advisory Committee - introduced issue	April 20, 2010
13	Planning Subcommittee - introduced issue	April 29, 2010
14	2nd Michigan Technical Study Task Force	May 20, 2010
15	Planning Advisory Committee - update	May 26, 2010
16	3rd Michigan Technical Study Task Force	June 15 2010
17	3rd East Sub Regional Planning Meeting	June 21, 2010
18	Planning Advisory Committee - update	June 23, 2010
19	Planning Subcommittee - update	June 24, 2010
20	4th Michigan Technical Study Task Force	July 09, 2010
21	5th Michigan Technical Study Task Force	July 19, 2010
22	Planning Advisory Committee - update	July 21, 2010
23	General stakeholder meeting on regional cost allocation	

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1	(pursuant to July 15th RECB filing)	July 28, 2010
2	System Planning Committee of the Board of Directors	August 3, 2010
3	System Planning Committee of the Board of Directors	August 17, 2010
4	Midwest ISO Board of Directors Meeting	August 19, 2010

5 **Q. Were representatives from Staff present at all of the above meetings, either**
6 **in person or via telephone?**

7 **A.** Yes. Representatives from the Commission Staff were present at all of the above
8 meetings, either in person or via telephone. The 5th Michigan Technical Task
9 Force Meeting was hosted by Commission Staff and was held at the MPSC
10 offices on July 19, 2010.

11 **Q. Did you personally attend any of the meetings discussed in the previous**
12 **question?**

13 **A.** Yes.

14 **Q. Which meetings did you attend?**

15 **A.** I attended all of the above listed meetings either in person or via telephone with
16 the exception of the last two on August 17th and August 19th 2010. The last two
17 meetings were attended by MPSC Staff, including Paul Proudfoot.

18 **Q. Was the proposed Thumb Project challenged by stakeholders within the**
19 **Midwest ISO Out-of-Cycle review process?**

20 **A.** Yes.

21 **Q. In what way was the proposed project challenged by the Midwest ISO**
22 **stakeholders?**

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **A.** Certain stakeholders challenged the necessity of handling the project approval
2 out-of-cycle as opposed to approval with the remaining MTEP10 projects in the
3 4th quarter of 2010. Certain stakeholders questioned whether the WERZ Board's
4 minimum or maximum wind capacity potential in megawatts (MW) would come
5 to fruition and if that magnitude of wind generation development would actually
6 happen in the Thumb of Michigan. Some stakeholders challenged the designation
7 of the project as a Multi-Value Project (MVP) for regional cost allocation by the
8 Midwest ISO. Paul Proudfoot testifies to Staff positions regarding the stakeholder
9 challenges to the Thumb project.

10 **Q. What is a Multi-Value Project (MVP)?**

11 **A.** Multi-Value Project refers to a new designation for certain transmission projects
12 that qualify for Midwest ISO regional cost sharing based upon a filing made by
13 the Midwest ISO to the Federal Energy Regulatory Commission (FERC) on
14 7/15/10. For more information on MVP cost allocation, please refer to FERC
15 docket ER10-1791.

16 **Q. Prior to the Midwest ISO approval of the Thumb Project, were alternative**
17 **transmission configurations evaluated by the Midwest ISO?**

18 **A.** Yes.

19 **Q. What were those alternative configurations?**

20 **A.** The Midwest ISO also evaluated some 230 kV configurations. The Midwest ISO
21 started by replacing the existing 120 kV loop in the Thumb Region with 230 kV
22 resulting in four 230 kV circuits exiting the Thumb Region. Subsequently, the

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 Midwest ISO added two additional 230 kV circuits to have six 230 kV circuits
2 exiting the Thumb Region.

3 **Q. Were the alternative configurations evaluated by the Midwest ISO**
4 **approved?**

5 **A.** No.

6 **Q. Why weren't the alternative configurations approved?**

7 **A.** The four circuit and six circuit 230 kV configuration options were not approved
8 because the Midwest ISO found they were not capable of supporting the
9 minimum and maximum wind potential of the Thumb Region.

10 **Q. Please describe the configurations presented by ITC that were found to be**
11 **capable of supporting the minimum and maximum potential of the Thumb**
12 **Region.**

13 **A.** Two transmission configurations were presented by ITC to meet both the
14 minimum and maximum wind potential in the Thumb Region, set forth by the
15 WERZ Board and adopted by Commission Order; an eight circuit 230 kV high
16 temperature configuration that is capable of interconnecting 4,750 MW of wind
17 and a four circuit 345 kV loop configuration around the Thumb Region that is
18 capable of interconnecting 5,000 MW of wind.⁴

19 **Q. Why was the four circuit 345 kV configuration chosen instead of the eight**
20 **circuit 230 kV configuration?**

⁴ Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-3, p. 20.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** Both configurations could meet the wind potential declared by the WERZ Board
2 for the Thumb Region, but the double-circuit 345 kV configuration was selected
3 due to a lower cost estimate of \$510 million compared to \$740 million.⁵

4 **Q. Did ITC's application for the expedited siting certificate contain "evidence**
5 **that the proposed transmission line received any required approvals from the**
6 **applicable RTO" as outlined in Section 151(a) of Act 295?**

7 **A.** Yes. A letter from the Midwest ISO stating ITC's Out-of-Cycle request
8 concerning a thumb loop high voltage electric transmission line project (Project
9 ID# 3168) was approved by the Midwest ISO Board at its August 19, 2010 Board
10 meeting.⁶

11 **Q. According to the information provided to Staff by ITC, did ITC fully meet**
12 **the requirements in Section 149(3) of Act 295 which stipulates that RTO**
13 **approval is required prior to filing an application for expedited siting with**
14 **the Commission?**

15 **A.** Yes. Following approval from the Midwest ISO on August 19, 2010, ITC filed an
16 application with the MPSC for an expedited siting certificate on August 30, 2010.

17 **Q. Did the application for the expedited siting certificate contain "the planned**
18 **date for beginning construction of the proposed transmission line," as**
19 **outlined in Section 151(b) of Act 295?**

20 **A.** Yes. ITC witness Jason Sutton states, "we intend to begin construction in the first
21 quarter of 2012."⁷

⁵ Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-5, p. 8.

⁶ Tom Vitez, Prefiled Direct Testimony, Exhibit TWV-8.

⁷ Jason Sutton, Prefiled Direct Testimony, page 6, line 20

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

Q. Has ITC identified other issues and factors which could potentially require modification of the planned date for beginning construction of the proposed transmission line?

A. Yes.

Q. Please identify the other issues and factors which could potentially require modification of the planned date for beginning construction of the proposed transmission line.

A. ITC submitted a timeline, ST-ITC-25, (which they contend is the same regardless of the route) of the project detailing the events from construction to completion.⁸ Built into the timeline is approximately 7 months of contingency in order for project completion by the end of 2015, assuming the expedited siting certificate is obtained by February 25, 2011. Mr. Sutton's testimony along with the construction timeline indicates that ITC intends to start construction in the first quarter of 2012.

However, ITC admits in discovery, "With regard to easements for right of way, ITC has not contacted affected landowners nor made any proposals for easement acquisition."⁹ ITC further states that the, "timeline would be extended in the event condemnation procedures are required for those landowners who do not voluntarily sign easements."¹⁰

Q. Please summarize Staff's conclusion regarding ITC's planned date for beginning construction.

⁸ ITC Answer to Staff Discovery, ST-ITC-25.

⁹ ITC Answer to Staff Discovery, ST-ITC-44.

¹⁰ ITC Answer to Staff Discovery, ST-ITC-53.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** ITC has identified a factor that may modify the beginning date of construction
2 and Staff notes that while ITC has built in 7 months worth of contingency, ITC
3 admits that factors including land acquisition could potentially delay the start of
4 construction.

5 **Q.** **Did the Application contain “a detailed description of the proposed**
6 **transmission line, its route, and its expected configuration and use,” as**
7 **required by Section 151(c) of Act 295?**

8 **A.** Yes. ITC witness Jason Sutton provides a detailed description of the proposed
9 transmission line including substations along with its expected configuration and
10 use.¹¹ ITC witness Stephen Thornhill also provides a detailed description of the
11 proposed route.¹² The descriptions consist of a comprehensive breakdown of the
12 exact length, direction, road crossings and terrain of all segments of the proposed
13 route.

14 **Q.** **Did the Application contain “information addressing potential effects of the**
15 **proposed transmission line on public health and safety,” as required by**
16 **Section 151(d) of Act 295?**

17 **A.** Yes. ITC provided testimony from three witnesses that contains information
18 addressing potential effects of the proposed transmission line on public health and
19 safety; Michael Silva, Mark A. Israel, M.D. and Nancy C. Lee, M.D.

20 **Q.** **Please describe Mr. Silva’s testimony.**

¹¹ Jason Sutton, Prefiled Direct Testimony, pages 3- 6.

¹² Stephen Thornhill, Prefiled Direct Testimony, pages 11-25.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **A.** Mr. Silva sponsors Exhibit JMS-1 containing calculated EMF levels for the
2 proposed transmission line at various wind levels at the right-of-way (ROW)
3 edges and in the center of the ROW. Mr. Silva’s testimony states, “The EMF
4 levels from the proposed 345 kV transmission line are similar to those from other
5 345 kV transmission lines already operating in Michigan and throughout the
6 country.”¹³ Mr. Silva’s testimony also states, “The EMF levels from the proposed
7 transmission line are below the levels recommended by IEEE for public exposure
8 and magnetic field levels from the line are within the range of EMF that people
9 can experience every day in their normal living and working environments.”¹⁴

10 **Q.** **What is IEEE?**

11 **A.** IEEE is the Institute of Electrical and Electronics Engineers.

12 **Q.** **Please describe Dr. Israel and Dr. Lee’s testimony.**

13 **A.** Drs. Israel and Lee reviewed calculated EMF levels for ITC’s proposed 345 kV
14 transmission line provided by Mr. Silva.¹⁵ Dr. Israel concluded, “there is no
15 reliable scientific basis to conclude that exposure to power frequency EMF from
16 the proposed transmission line will cause or contribute to the development of
17 cancer in children or adults along the proposed line’s route.”¹⁶ Dr. Lee’s
18 conclusions were similar stating, “there is no reliable scientific basis to conclude
19 that exposure to power frequency EMF from the proposed 345 kV transmission

¹³ J. Michael Silva Prefiled Direct Testimony, page 15, lines 10-12.

¹⁴ J. Michael Silva Prefiled Direct Testimony, page 15, lines 12-16.

¹⁵ Mark Israel, M.D., Prefiled Direct Testimony, page 5, lines 12-14; Nancy Lee, M.D., Prefiled Direct Testimony, page 16, lines 6-7.

¹⁶ Mark Israel, M.D., Prefiled Direct Testimony, page 11, lines 21- 24.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 line will cause or contribute to adverse health effects in people living or working
2 along the proposed line route.”¹⁷

3 **Q. Did the application for the expedited siting certificate contain information**
4 **indicating that the proposed transmission line will comply with all applicable**
5 **state and federal environmental standards, laws, and rules as required in**
6 **Section 151(e) of Act 295?**

7 **A.** Yes. Mr. Sutton lists various permits ITC commonly obtains when constructing a
8 transmission line or substation and states “ITC obviously plans to comply with
9 any environmental standard or law that is applicable to the proposed line’s
10 construction.”¹⁸ In addition, ITC witness Steve Koster’s testimony provides
11 additional detail of local, state, and federal environmental laws and regulations
12 which ITC must comply with as well as a description of how ITC plans to comply
13 with these requirements. Mr. Koster concludes “the proposed Project will comply
14 with all applicable state and federal environmental standards, laws, and rules.”¹⁹

15 **Q. Did ITC provide a list of all applicable laws, ordinances, regulations, and**
16 **standards that apply to the proposed transmission line, substations, and**
17 **engineering for which ITC states the proposed transmission line will comply?**

18 **A.** No. ITC responded with an objection to that discovery request as overly broad
19 and unduly burdensome.²⁰

20 **Q. Did the application for the expedited siting certificate contain “a description**
21 **and evaluation of one or more alternate transmission line routes and a**

¹⁷Nancy Lee, M.D., Prefiled Direct Testimony, page 16, lines 18 – 21.

¹⁸Jason Sutton, Prefiled Direct Testimony, page 8, lines 6-7.

¹⁹ Steven Koster Prefiled Direct Testimony, page 10, lines 17-19.

²⁰ ITC Answer to Staff Discovery. Dated 10/15/10, answer 15.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **statement of why the proposed route was selected,” as required in MCL**
2 **Section 151(f) of Act 295?**

3 **A.** Yes.

4 **Q.** **What did the description of the alternate route consist of?**

5 **A.** Mr. Thornhill provides a detailed description and evaluation of an alternate
6 route.²¹ The description of the alternate route consists of a comprehensive
7 breakdown of the exact length, direction, road crossings and terrain of all
8 segments of the alternate route. Mr. Thornhill testified to the route selection
9 process and routing analysis that started with several potential routes shown in
10 Exhibit SGT-2.²²

11 **Q.** **Did Mr. Thornhill conduct a routing evaluation?**

12 **A.** Yes.

13 **Q.** **Please describe how Mr. Thornhill evaluated the alternate route.**

14 **A.** Mr. Thornhill explained that field reviews were conducted, screening and
15 evaluation criteria were developed, weights were assigned to the routing criteria
16 to develop scores for the potential routes, and finally adjustments were made
17 based upon the feedback received from the local open house meetings discussed
18 in Mr. Kirsch’s testimony.²³ The results of the routing evaluation led to the
19 proposed and alternate routes shown on Mr. Thornhill’s Exhibit SGT-3.²⁴

20 **Q.** **Did Mr. Thornhill’s testimony include a statement regarding why the**
21 **proposed route was selected?**

²¹ Stephen Thornhill, Prefiled Direct Testimony, pages 29-46.

²² Stephen Thornhill, Prefiled Direct Testimony, Exhibit SGT-2,

²³ Stephen Thornhill, Prefiled Direct Testimony, pages 4-10.

²⁴ Stephen Thornhill, Prefiled Direct Testimony, Exhibit SGT-3.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** Yes. Mr. Thornhill states that “the Proposed Route was found to, based on the 23
2 measured criteria and 19 evaluation criteria not only minimize direct project
3 impacts but also minimize potential indirect future impacts associated with
4 construction of wind zone facilities.”²⁵ Mr. Thornhill also submits that “[B]ased
5 on the detailed screenings analysis and further comparison and consideration of
6 the lowest scoring routes (identified in the screening analysis) using the
7 evaluation criteria identified, the Proposed Route was selected as the alignment
8 for the proposed project.”²⁶

9 **Q. What information did Staff rely upon for use in evaluating the proposed and
10 alternate routes that are contained within ITC’s Application?**

11 **A.** Staff relied upon ITC’s prefiled testimony and answers to discovery questions
12 pertaining to the proposed route, alternate route, and route selection process.

13 **Q. Did ITC provide detailed aerial maps of the proposed and alternate routes?**

14 **A.** Yes. ITC included detailed aerial maps²⁷ of the entire length of the proposed and
15 alternate routes in discovery.

16 **Q. Did Staff also consider comments from interested parties and landowners
17 with regard to the routes and selection process?**

18 **A.** Yes.

19 **Q. Did Staff conduct a field review of the proposed and alternate route?**

20 **A.** Yes. At Staff’s request, ITC arranged for an aerial review of the proposed and
21 alternate routes which took place on September 30, 2010.

²⁵ Stephen Thornhill, Prefiled Direct Testimony, page 46, lines 19 - 22.

²⁶ Stephen Thornhill, Prefiled Direct Testimony, page 26, lines 7-11.

²⁷ ITC Answer to Staff Discovery received on 9/29/10, Answer ST-ITC-26.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. Did you participate in the aerial review of the proposed and alternate routes?**

2 **A. Yes.**

3 **Q. Please list the names of all individuals that participated in the aerial review**
4 **of the proposed and alternate route.**

5 **A. The individuals that participated in the aerial review of the routes include:**
6 Catherine Cole, MPSC Staff, Paul Proudfoot, MPSC Staff, Stephen Thornhill,
7 ITC witness, Jason Sutton, ITC witness, Kwafo Adarkwa, ITC Regulatory Staff,
8 and Nicholas McMahon, pilot, McMahon Helicopters.

9 **Q. Please provide an overview of the aerial review of the proposed route.**

10 **A. The aerial review of the proposed route started near the proposed Baker substation**
11 in Tuscola County near Frankenmuth, and continued northeast towards
12 Unionville, Elkton, the Harvest Wind Farm, and then east toward Bad Axe and
13 the area of the proposed Rapson substation in Sigel Township, Huron County.
14 From there the tour went south passing near Minden City and Deckerville to
15 where the proposed route meets existing transmission infrastructure near
16 Sandusky in Sanilac County, and continued south of the Greenwood generating
17 station to where both the proposed route and the alternate route traverse adjacent
18 to existing transmission infrastructure in St. Clair County.

19 **Q. Please describe the observations you made while on the review of the**
20 **proposed route.**

21 **A. The aerial review of the proposed route started near the proposed Baker substation**
22 site in Tuscola Township. In this area, there are existing transmission lines that
23 traverse cropland nearly perpendicular to the edges of fields at the entry and exit

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 of a particular field or cropland. Photographs taken during the aerial review near
2 the site for the proposed Baker substation are included as Exhibits S-1, S-2, and
3 S-3.

4 **Q. What did you observe while traversing the proposed route in between the**
5 **area of the proposed site for the Baker substation and the Harvest Wind**
6 **Farm?**

7 **A.** Continuing northeast towards the areas of Unionville and Elkton, the proposed
8 route leaves the area of the existing transmission structures and traverses a
9 diagonal pattern through cropland. Exhibits S-4 and S-5 are photographs taken
10 while flying directly above the proposed route northeast of the proposed Baker
11 substation, but prior to reaching the area of the Harvest Wind Farm in Huron
12 County. Shown in the foreground of these photographs near the right-of-way for
13 the proposed route are very large fields of cropland through which the proposed
14 route would traverse in a diagonal pattern.

15 **Q. What did you observe as you traversed near the Harvest Wind Farm?**

16 **A.** Exhibits S-6, S-7, S-8, S-9, and S-10 are photographs taken along the proposed
17 route as it traverses near the Harvest Wind Farm. Shown in the foreground of
18 these five photographs are large fields of cropland, through which the proposed
19 route traverses.

20 **Q. What did you observe as you traversed east along the proposed route near**
21 **the area where the proposed Rapson substation would be sited?**

22 **A.** East of Bad Axe, the area where the proposed Rapson substation would be sited in
23 Sigel Township, Huron County is photographed and shown as Exhibit S-11.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 There are trees in portions of the area near where the proposed Rapson substation
2 may be sited that may help to at least partially shield the substation from view.

3 **Q. What did you observe as you traversed south of the area near where the**
4 **proposed Rapson substation would be sited along the proposed route?**

5 **A.** Traversing beyond the area of the proposed Rapson substation towards Minden
6 City and Deckerville in Sanilac County, the proposed route heads south through
7 more open cropland. South of Sandusky, the proposed route meets existing
8 transmission infrastructure for a few miles and then heads due south away from
9 the existing transmission lines toward the Greenwood generating station in St.
10 Clair County.

11 **Q. What did you observe as you traversed near the Greenwood generating**
12 **station?**

13 **A.** Exhibits S-12, S-13, and S-14 were taken near the Greenwood generating station
14 along the proposed route. Cropland and existing transmission infrastructure are
15 shown in those photographs, along with the generating station. South of the
16 Greenwood generating station, the proposed route traverses adjacent to existing
17 transmission infrastructure.

18 **Q. Where did the aerial review of the proposed route end?**

19 **A.** The aerial review of the proposed route ended in St. Clair County in an area south
20 of Greenwood where both the proposed route and the alternate route traverse
21 adjacent to existing transmission infrastructure.

22 **Q. Please provide an overview of the aerial review of the alternate route.**

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** The review of the alternate route began where the review of the proposed route
2 ended in St. Clair County. The review followed the alternate route north into
3 Sanilac County, past Sandusky, and Uby towards the area near the site for the
4 proposed Rapson substation in Huron County. The review continued to follow
5 the alternate route past Gagetown, before deviating from the alternate route and
6 following some of the existing transmission infrastructure near Caro. After
7 leaving Caro to rejoin the alternate route, the review continued back to the area
8 near the site for the proposed Baker substation in Tuscola County. While
9 reviewing the alternate route, the pilot navigated away slightly from the centerline
10 of the alternate route in order to allow for photographs of the existing
11 transmission infrastructure to be taken.

12 **Q. Please describe observations made while on the review of the alternate route.**

13 **A.** Between the Greenwood generating station in St. Clair County, and the town of
14 Sandusky in Sanilac County, the alternate route traverses an area that would
15 require new right-of-way across cropland. Exhibits S-15 and S-16 are
16 photographs taken in this area on the alternate route. Continuing north, the
17 alternate route joins the existing transmission infrastructure in the area of
18 Sandusky.

19 **Q. What did you observe while traversing the alternate route in the area of**
20 **existing transmission infrastructure north of Sandusky?**

21 **A.** As the pilot followed the alternate route along the existing transmission
22 infrastructure, ITC witness Mr. Thornhill pointed out areas where the centerline
23 of the alternate route would deviate from the centerline of the existing right-of-

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 way. Exhibits S-17 and S-18 are photographs taken along the alternate route
2 where the existing transmission lines, with a right-of-way width of 90 feet, come
3 within close proximity of a building.

4 **Q. How much right-of-way width is required for the alternate route?**

5 **A.** The right-of-way width required for either the alternate route or proposed route is
6 200 feet.

7 **Q. How does the right-of-way width requirement impact the alternate route in**
8 **Exhibits S-17 and S-18?**

9 **A.** The right-of-way for the alternate route would need to deviate slightly from the
10 existing right-of-way, with the centerline being moved further away from the
11 existing building compared to the current transmission line.

12 **Q. Please continue describing your observations of the alternate route.**

13 **A.** As the aerial review continued north, Mr. Thornhill continued to point out areas
14 where residences and buildings have been constructed in near proximity to the
15 existing transmission line. Exhibits S-19 and S-20 are photographs showing the
16 existing transmission line running next to a church. Due to the increase in width
17 of right-of-way required for 345 kV lines, the centerline of the right-of-way
18 would need to be moved further away from the church.

19 **Q. What would happen if the alternate route is moved away from the church?**

20 **A.** Should the alternate route move away from the church, it would come closer to
21 the residence shown in the photograph. It would traverse cropland further into the
22 field as opposed to near the edge of the field where the existing transmission line
23 is present.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. Please continue and describe Exhibit S-21.**

2 **A.**Exhibit S-21 is a typical example of the existing transmission line near a road
3 crossing. The existing line is not quite at the edge of the field and it is
4 approximately perpendicular to the entry and exit points of the field. There is a
5 residence and another building in the photograph, however there is more
6 clearance between the buildings and the right-of-way than was shown in Exhibits
7 S-19 and S-20.

8 **Q. Were additional areas of congestion observed along the alternate route?**

9 **A.**Continuing north along the alternate route, additional areas of congestion near the
10 existing transmission line were noted by Mr. Thornhill. Exhibits S-22 and S-23
11 show the existing transmission line traversing across cropland and crossing a road
12 near several residences. The alternate route would not be located in the same
13 position as the existing transmission line in this area due to the proximity of
14 residences.

15 **Q. What would be the result of moving the alternate route to avoid the**
16 **residences?**

17 **A.**In this instance, if the centerline of the right-of-way was moved away from the
18 closest home, the 345 kV structures and transmission line would be moved closer
19 to the neighbor's residence and may not be located in the same field as the
20 existing transmission line. In order to avoid congestion as shown in Exhibits S-22
21 and S-23 ITC would shift the centerline of the proposed or alternate right-of-way
22 away from the centerline of the existing right-of-way.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. Do you have an example of the centerline of the alternate route shifting away**
2 **from the existing transmission infrastructure?**

3 **A.** Several examples of centerline shifts are shown in ITC's discovery answer ST-
4 ITC-26. An example of a centerline shift to avoid a congested area is shown on
5 sheet 25 of the map book as the alternate route crosses Bay City Forestville Road.
6 Additional examples of centerline shifts to avoid congested areas around the
7 existing transmission line are shown on sheet 27 of the map book where the
8 alternate route crosses Cumber Road and again where it crosses Cass City Road.

9 **Q. Are there areas along the current transmission line where a slight shift in the**
10 **centerline of the right-of-way is not possible due to the proximity of**
11 **residences and other buildings?**

12 **A.** There were certain congested areas along the current transmission line where a
13 slight shift in the centerline of the right-of-way was not possible due to the
14 proximity of residences and other buildings. An example of a more substantial
15 deviation of the alternate route from the existing transmission line is shown on
16 sheet 31 of the map book surrounding Mushroom Road.

17 **Q. Why were the areas of congestion along the alternate route demonstrated?**

18 **A.** ITC demonstrated the areas of congestion to show reasons why the alternate route
19 will not precisely follow the centerline of the existing transmission rights-of-way.

20 **Q. Please continue describing your observations of the alternate route.**

21 **A.** Continuing the review of the alternate route, a photograph of the existing wind
22 generation system at Michigan Wind 1 near Ubyly is shown as Exhibit S-24.

23 **Q. Please describe what is observed in Exhibit S-25.**

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** Exhibit S-25 illustrates farming at harvest time. The picture shows crops being
2 harvested in a field. It appears that the immediate area beneath and around the
3 existing transmission structure may not be harvested with the equipment shown in
4 the photograph.

5 **Q.** **Please describe what is observed in Exhibits S-26 and S-27.**

6 **A.** Exhibits S-26 and S-27 show the existing transmission line traversing cropland
7 that has existing structures within tilled areas of fields. These photographs show
8 areas surrounding the base of the structure that do not currently appear to be
9 productive.

10 **Q.** **Does there appear to be concerns for affected farms regarding the placement**
11 **of transmission poles on productive land?**

12 **A.** Yes. The loss of productive land and reduced harvest yields would likely be of
13 concern for affected farms, and there are additional agricultural impacts raised by
14 affected landowners through comments.²⁸ Aerial applications such as spraying or
15 seeding, and the difficulty or inability to use large farm equipment such as pivot
16 irrigation systems near or around transmission poles and wires, especially where
17 the proposed transmission lines traverse the cropland in a diagonal pattern, have
18 been stated concerns reviewed in comments.²⁹

19 **Q.** **Please describe what is observed on Exhibit S-28.**

20 **A.** Exhibit S-28 shows an existing structure at the edge of a field. The base of this
21 existing pole is similar to the proposed monopole structure for the 345 kV loop as

²⁸ <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200>.

²⁹ <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200>.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 shown in ITC's discovery answer ST-ITC-48. The smaller base on the proposed
2 pole structures may potentially allow for less unproductive cropland in the area of
3 the base of the transmission structures as compared to the majority of the existing
4 120 kV transmission structures with a typical configuration as shown in Exhibits
5 S-26 and S-27.

6 **Q. Did ITC explain the typical span between structures or poles for the existing**
7 **120 kV lines?**

8 **A.** Yes. While on the aerial review, ITC explained that the typical span between
9 structures or poles for the existing 120 kV lines in the thumb is approximately 450
10 feet, whereas the typical span between poles or structures for the proposed or
11 alternate 345 kV line would be approximately 900 feet.

12 **Q. What is the significance of the increased span between poles or structures?**

13 **A.** This significantly reduces the number of structures as compared to the existing
14 120 kV lines in the area, which reduces the number of structures in tillable areas
15 of cropland, in wetlands, etc.

16 **Q. Please continue describing your observations of the alternate route.**

17 **A.** Continuing the aerial review of the alternate route, the group instructed the pilot
18 to deviate from the alternate route so ITC could point out examples of congestion
19 where minor deviations from the existing 120 kV route were not feasible.

20 **Q. Do you have an example showing where ITC pointed out an area of**
21 **congestion along the existing transmission rights-of-way where a minor**
22 **deviation for the alternate route was not possible?**

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** Yes. Exhibits S-29, S-30 and S-31 are photographs of lines near or entering and
2 exiting a substation near Caro, Michigan.

3 **Q.** **Please describe what is observed in Exhibits S-29 and S-31.**

4 **A.** Exhibits S-29 and S-31 show in detail the close proximity of several homes to the
5 existing structures. ITC stated that there was not enough room in the area for the
6 required 200 feet of right-of-way for the 345 kV transmission line.

7 **Q.** **How did ITC propose to site around areas of congestion as shown in Exhibits**
8 **S-29 and S-31?**

9 **A.** ITC explained that the Caro area had enough congestion to warrant a significant
10 deviation away from the current structures and rights-of-way. Mr. Thornhill's
11 Exhibit SGT-3 shows the alternate route leaving the existing transmission rights-
12 of-way in Elmwood Township, bypassing Caro, and rejoining the existing
13 transmission rights-of-way in Juniata Township. Mr. Thornhill's Exhibit SGT-2
14 shows that all of the routes that were evaluated completely bypassed the Caro area
15 in order to avoid the congestion in the area.

16 **Q.** **Where did the review of the alternate route end?**

17 **A.** The aerial review of the alternate route ended near the area of the proposed Baker
18 substation in Tuscola County.

19 **Q.** **Please summarize your observations of the proposed and alternate routes.**

20 **A.** The proposed route requires a significant amount of new rights-of-way in areas
21 where there is not any existing transmission infrastructure. While the alternate
22 route follows the existing 120 kV transmission route more closely than the
23 proposed route, there are still many areas along the alternate route that would

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 require a shift in centerline of right-of-way, and some areas that would require a
2 significant deviation from the existing 120kV transmission route in order to avoid
3 residences and structures that have been built in close proximity to the existing
4 120 kV transmission line. Significant portions of the alternate route would
5 require new rights-of-way in areas where there are not any existing transmission
6 lines.

7 **Q. Did ITC provide a comparison chart of the proposed route to the alternate**
8 **route?**

9 **A.** Yes.

10 **Q. Did Commission Staff observe advantages and disadvantages between the**
11 **proposed and alternative routes outlined by ITC on the comparison chart?**

12 **A.** Yes. ITC provided a comparison chart of the proposed route to the alternate route
13 in response to Staff's discovery question #73.

14 **Q. Please highlight the advantages of the proposed route observed from the data**
15 **provided in ITC's comparison chart.**

16 **A.** The proposed route has 99.5 less acres of woodland within the right-of-way as
17 compared to the alternate route, and 36.6 less acres of wetlands within the right-
18 of-way as compared to the alternate route. The proposed route has twenty less
19 heavy angles greater than 30 degrees than the alternate route, and traverses areas
20 of low residential density, with less congestion as compared to the alternate route.
21 The proposed route also has 21 less residences within 500 feet of the proposed
22 transmission line along new rights-of-way as compared to the alternate route.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **Q. Please highlight the disadvantages of the proposed route observed from the**
2 **data provided in ITC's comparison chart.**

3 **A.**The proposed route requires 278.1 more acres of new right-of-way, and even
4 though the proposed route has fewer residences within 500 feet along new rights-
5 of way, it has 128 more residences within 1,250 feet along new right-of-way with
6 an unobstructed view. The proposed route crosses 7.8 more miles of cropland
7 than the alternate route.

8 **Q. Please highlight the advantages of the alternative route observed from the**
9 **data provided in ITC's comparison chart.**

10 **A.**The alternate route parallels 11.8 more miles and replaces 23.5 more miles of
11 existing 120 kV transmission lines than the proposed route. The alternate route
12 requires 278.1 less acres of new right-of-way, and has 33 less miles of new
13 greenfield alignment (areas without existing transmission infrastructure).

14 **Q. Please highlight the disadvantages of the alternative route observed from the**
15 **data provided in ITC's comparison chart.**

16 **A.**The alternate route has 99.5 more acres of woodland within the right-of-way, and
17 36.6 more acres of wetlands within the right-of-way as compared to the alternate
18 route. The alternate route has twenty more heavy angles greater than 30 degrees
19 than the proposed route, and traverses areas of higher residential density, with
20 more congestion as compared to the alternate route. The alternate route also has
21 21 more residences within 500 feet along new rights-of-way, and 57 more
22 residences within 500 feet along existing transmission lines with an unobstructed
23 view as compared to the proposed route.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **Q. Are there similarities between the proposed and alternate routes?**

2 **A.** The routes are of similar length, require significant acres of new rights-of-way,
3 and both traverse a significant amount of cropland. Regarding projected cost
4 differences between the proposed and alternate routes, ITC states that “there is
5 likely to be a negligible cost differential between the proposed and alternate
6 routing options.”³⁰ Both the proposed and alternate routes have advantages when
7 compared to the other. ITC admits, “none of the potential routes had the least
8 impact for all the criteria evaluated. Therefore, selection of the proposed route
9 involved trade-offs.”³¹

10 **Q. Please describe the proximity of potential wind generation to the proposed**
11 **route?**

12 **A.** ITC discussed the proximity of wind zones to the proposed route, and in
13 testimony ITC submits, “As it is more centrally located (referring to the proposed
14 route) within the area of high wind potential, this location would minimize the
15 extent of additional transmission lines necessary to connect the proposed project
16 to individual wind farms as they are developed.”³² The proposed route crosses
17 through areas that are closer to the shoreline than the alternate route. The areas
18 closer to the shoreline have higher wind potential than the areas further inland as
19 shown in Mr. Thornhill’s Exhibits SGT-6 and SGT-7.

20 **Q. Please explain Staff’s analysis of Mr. Thornhill’s Exhibits SGT-6 and SGT-7.**

³⁰ ITC Answer to Staff Discovery, ST-ITC-12.

³¹ Stephen Thornhill Prefiled Direct Testimony, p. 26, starting at line 12.

³² Stephen Thornhill Prefiled Direct testimony, p. 28, starting at line 11.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **A.** Staff overlaid Witness Thornhill's Exhibit SGT-6 showing the relative wind
2 performance within the townships, onto Witness Thornhill's exhibit SGT-3
3 showing the map of the proposed and alternate routes through the same
4 townships. Exhibit S-32 attached to this testimony is the combination of those
5 two exhibits provided by Mr. Thornhill.

6 **Q.** **Please explain Staff's conclusions drawn from Exhibit S-32.**

7 **A.** Exhibit S-32 shows that the proposed route is traversing through five townships
8 rated to have the greatest wind potential in the region in the area between the
9 proposed Baker substation and the proposed Rapson substation.

10 **Q.** **Please describe the proximity of potential wind generation to the alternate**
11 **route?**

12 **A.** The alternate route traverses relatively near those same highly rated townships,
13 yet traverses directly through only one township rated to have the greatest wind
14 potential between Baker and Rapson. On the east side, between the proposed
15 Rapson and Fitz substations, the proposed route also travels through townships
16 that were rated to have a higher wind potential as shown on Exhibit S-32 than the
17 alternate route, but to a lesser extent than on the west side between Baker and
18 Rapson.

19 **Q.** **Please describe the advantages of locating the transmission line within the**
20 **townships shown to have greater wind potential.**

21 **A.** ITC testified that the close proximity of the proposed route to the areas of high
22 wind potential would minimize additional transmission lines that may be
23 necessary to connect the future wind generation to the proposed transmission line.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 Reducing future additional transmission line miles may reduce future costs that
 2 would eventually be passed on to ratepayers and may minimize additional new
 3 rights-of-way that may be required for new transmission lines to interconnect
 4 wind in the Thumb Region. However, ITC also admits in a discovery answer that
 5 “the exact locations and amounts of future wind in the Thumb are not known.”³³

6 **Q. What is Staff’s assessment of ITC’s answers?**

7 **A.** If the exact locations and amounts of future wind in the Thumb Region are
 8 unknown, then it is difficult to believe that a solid conclusion may be drawn
 9 regarding one route requiring less future transmission for wind interconnections
 10 than the other, unless it is based upon the wind potential in the local region
 11 surrounding the route, and an assumption that wind generation will locate within
 12 the townships rated to have the highest wind potential in the region.

13 **Q. Please describe the disadvantages of locating the transmission line within the**
 14 **townships shown to have greater wind potential.**

15 **A.** Locating the proposed route directly within some of the townships with the
 16 highest rated wind potential takes portions of land rated at high wind potential out
 17 of production and uses it for rights-of-way for transmission lines as opposed to
 18 future wind generation. Exhibit S-32 shows that the majority of the western
 19 portion of the proposed route from Baker to Rapson is in townships rated with the
 20 highest wind potential in the region, and the proposed route would reduce the
 21 amount of land available to wind generation by at least 200 feet plus any
 22 necessary clearances.

³³ ITC Answer to Staff Discovery Question No. 9, dated 10/15/10.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

Q. Does it appear that ITC considered the planned wind projects contained within the Midwest ISO queue when developing the proposed and alternate routes?

A. No, it is not clear to Staff whether ITC considered the planned wind projects within the Midwest ISO queue when developing the proposed and alternate routes.

Q. Why is it not clear if ITC considered the planned wind projects contained within the Midwest ISO queue when developing the proposed and alternate routes?

A. ITC testimony describes interconnection requests for projects in the Thumb Region; “The generation interconnection queue information was used as an input by the company to decide that beginning construction activities in the west side of the Thumb would best align with current generation interconnection queue requests.”³⁴ Although ITC states that interconnection requests were used to develop a construction schedule, it is unclear if or how ITC used interconnection requests when developing the proposed and alternate routes. In response to Staff discovery questions, ITC provided a map showing the approximate locations of the generation interconnection requests in the Thumb Region, but states “the geographical locations shown on this diagram are approximate and, as such are not sufficiently accurate to be used for the purposes of determining the exact juxtaposition of these sites to either the proposed or alternate route.”³⁵ Based

³⁴ ITC witness Tom Vitez testimony, answer 15.

³⁵ ITC Answer to Staff Discovery Question No. 1, dated 10/15/10.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 upon the fact that ITC did not produce a map that was sufficiently accurate to be
2 used for determining the exact juxtaposition of the wind sites of the Midwest ISO
3 interconnection requests to either the proposed or alternate route, it is not apparent
4 to Staff that any serious attempt to coordinate the proposed or alternate routes
5 with planned wind generation has taken place.

6 **Q. Have concerns regarding the proposed or alternate route been raised to**
7 **Commission Staff by landowners that have not intervened in this case?**

8 **A. Yes.**

9 **Q. What were the concerns regarding the proposed or alternate routes that**
10 **were raised to Commission Staff by landowners?**

11 **A. Several landowners contacted Staff because they had difficulty determining the**
12 location of the proposed or alternate transmission route with respect to their
13 property. Some landowners expressed concerns to Staff regarding the difficulties
14 that transmission lines and structures would pose for farming operations.³⁶
15 Several landowners expressed concern regarding proposed transmission lines
16 spanning the field in a diagonal fashion as opposed along the edge of a field.
17 Some expressed concern regarding the interference of the lines with aerial
18 applications, while one landowner expressed a concern about not being able to
19 use his pivot irrigation system for some portion of property depending upon the
20 pole placement.

21 **Q. What has ITC stated regarding possible accommodations to alleviate**
22 **concerns raised by landowners?**

³⁶ <http://efile.mpasc.state.mi.us/efile/viewcase.php?casenum=16200>.

DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II

1 **A.** ITC has repeatedly presented statements such as, “ITC will work with landowners
2 during the right of way acquisition process to *consider* special farming
3 concerns,”³⁷ and “in general, irrigation systems are not incompatible with the
4 proposed line and the routing process attempts to avoid conflicts with existing
5 irrigation systems. ITC will work with landowners during the right of way
6 acquisition process to *consider* irrigation system concerns.”³⁸ (*emphasis added*)

7 **Q.** **Has ITC made guarantees to affected landowners that their farming activity**
8 **will not be negatively impacted due to the transmission line?**

9 **A.** No. Staff is not aware that ITC has made any guarantees to affected landowners
10 that their farming activities will not be negatively impacted due to the
11 transmission line, but only that their concerns will be considered. Contrary to
12 considering such concerns, ITC downplayed potential impacts the routes may
13 have on farming in answers to Staff discovery questions; specifically “ITC objects
14 to this request because it assumes that there are concerns related to aerial seeding
15 and spraying, irrigation, or the inability to use large farm equipment between
16 poles.”³⁹ ITC continues, “overall, the project will have little impact to cropland.
17 Only a minimal amount of land will be removed from production and the right-of-
18 way can continue to be farmed with only minor inconvenience created by
19 structures every 900 feet in some fields.”⁴⁰ Although ITC claims that they will
20 consider concerns raised by landowners, there are no guarantees that ITC will
21 take any action to alleviate those concerns.

³⁷ ITC Answer to Staff discovery received on 10/15/10, answer 6.

³⁸ ITC Answer to Staff discovery received on 10/15/10, answer 7.

³⁹ ITC Answer to Staff discovery received on 10/15/10, answer 7.

⁴⁰ ITC Answer to Staff discovery received on 10/15/10, answer 6.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 **Q. Are the proposed and alternate routes provided by ITC subject to change?**

2 **A.** Yes.

3 **Q. Why are the proposed and alternate routes provided by ITC subject to**
4 **change?**

5 **A.** ITC admits, “While this route has been determined through the evaluation and
6 comparison process to minimize overall environmental impacts and represents a
7 reasonable and constructible route, it is not intended to be inflexible. In fact, it is
8 expected that as engineering, design, survey, utility locates, and landowner
9 negotiations proceed, assuming the Michigan Public Service Commission
10 approves ITC’s Application and the Proposed Route, minor adjustments to the
11 route would be identified and implemented. These adjustments would serve to
12 optimize the route alignment and address localized conditions and accommodate
13 landowner suggestions and requests to the extent practicable.”⁴¹ ITC further
14 states “during the right-of-way acquisition process, ITC will actively work with
15 landowners to consider requests for pole placement.”⁴² Because ITC has not
16 obtained the rights-of-way for the proposed or alternate route, coupled with ITC’s
17 statement regarding working with landowners, the proposed and alternate routes
18 are still subject to modification.

19 **Q. Please summarize your findings from the evaluation of the proposed route.**

20 **A.** Advantages of the proposed route include a lesser impact to residences and a
21 closer proximity to assumed future wind generation locations. The disadvantages

⁴¹ Stephen Thornhill Prefiled Direct testimony, Answer 10, page 11.

⁴² ITC Answer to Staff Discovery received on 10/15/10, Answer 4.

**DIRECT TESTIMONY OF CATHERINE COLE
CASE NUMBER U-16200
PART II**

1 are that this route will require significant new greenfield rights-of-way; it would
2 reduce the amount of land available for wind generation in highly rated wind
3 areas, and has a possibility of minor deviations and changes which are unknown.

4 **Q. Please summarize your findings from the evaluation of the alternate route.**

5 **A.** The advantages of selecting the alternate route include preservation of higher
6 rated wind potential areas for wind turbines as opposed to rights-of-way for
7 transmission, and a reduction in the length of new greenfield alignment. The
8 disadvantages are that this route will require significant new rights-of-way, may
9 require additional future transmission miles to interconnect wind generation, will
10 impact more residences, and has a possibility of minor deviations and changes
11 which are unknown.

12 **Q. Did ITC's application contain "other information reasonably required by**
13 **commission rules" as outlined in Section 151(g) of Act 295?**

14 **A.** No. Commission rules have not been developed regarding other information
15 reasonably required to be included in an application.

16 **Q. Does this complete your testimony?**

17 **A.** Yes, it does.

1 JUDGE NICKERSON: Any objection to the
2 admission of proposed Exhibits S-1 through S-32? They
3 are admitted.

4 MR. BEACH: And your Honor, also pursuant
5 to the stipulation of the parties, Staff would like to
6 admit the direct testimony of Staff Witness Paul
7 Proudfoot, which consists of a cover page and 19 pages of
8 questions and answers. Mr. Proudfoot is not sponsoring
9 any exhibits in this matter.

10 JUDGE NICKERSON: Any objection to
11 binding Mr. Proudfoot's direct testimony into the record?
12 It may be bound in the record.

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S T A T E O F M I C H I G A N
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * *

In the matter of the application of)	
International Transmission Company d/b/a)	
ITC Transmission for an expedited siting)	Case No. U- 16200
certificate for a transmission line, pursuant to)	
2008 PA 295, Part 4, for Region No. 4)	
(Thumb Region), as designated by the Michigan)	
Wind Energy Resource Zone Board and the)	
Commission's Order in Case No. U-15899.)	
_____)	

QUALIFICATIONS AND DIRECT TESTIMONY OF

PAUL PROUDFOOT

MICHIGAN PUBLIC SERVICE COMMISSION

October 29, 2010

**QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I**

1 **Q. Would you please state your name and business address for the record?**

2 **A.**My name is Paul A. Proudfoot. My business address is 6545 Mercantile Way,
3 Lansing, Michigan.

4 **Q. By whom are you employed and what is your position?**

5 **A.**I am employed by the Michigan Public Service Commission as Director of the
6 Electric Reliability Division. The primary responsibility of the Electric
7 Reliability Division is implementation of Michigan 2008 PA 2008 (Act 295 or
8 Act) which required electric and gas providers to file plans to meet renewable
9 energy and energy efficiency standards contained in the Act. The division is also
10 responsible for electric reliability and planning issues, Certificate of Need issues
11 surrounding construction of new electric power plants and the certification of
12 electric transmission projects including regional transmission planning issues.

13 **Q. Would you please state your educational background?**

14 **A.**I hold a Bachelor of Science Degree from the Michigan State University School
15 of Packaging, which is within the College of Agriculture. As a student in the
16 School of Packaging, I studied the technical areas required to design and
17 manufacture packaging systems, which included, material characteristics, physical
18 design, and material testing. The management tract in which I was enrolled also
19 included a general business curriculum courses in accounting, economics, and
20 marketing. I was interested in Data Processing and took my electives in that area.
21 During my senior year, I worked for the School of Packaging as a Programming
22 Consultant and Lab Instructor.

23 **Q. Would you please state your professional experience?**

QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I

1 **A.** After graduation, I started at the MPSC as a Data Systems Analyst with the Utility
2 Systems Audit Section. The function of the Utility Systems Audit Section was to
3 provide the Commission Staff with assistance and expertise in the areas of Data
4 Processing, statistical analysis and special studies. In the four years I was with
5 the Utility Systems Audit Section, I concentrated my efforts in the area of
6 computerized statistical analysis. To assist in that, I attended seminars and short
7 courses on the subject.

8 Then I transferred to the Operational Development Division. The
9 Operational Development Division's primary purpose was to provide technical
10 research and planning capabilities within the Commission Staff. I held the
11 position of Quantitative Methods Specialist within the Operational Support
12 Section. My job function was to assist and direct the Commission Staff in the
13 application of quantitative problem solving techniques requiring utilization of
14 computer resources. I also performed or directed various special studies and
15 projects which required my quantitative analytical expertise.

16 In 1985 I went to work for the Communication Division of the MPSC in
17 the Engineering and Tariff Section where my duties included: review of tariff
18 filing including the filing of direct testimony in support of the Staff's position,
19 quality of service analysis, and provision of support to management and other
20 Staff in the review of utility filings.

21 In June of 1986 I was loaned to the Michigan Electricity Options Study
22 (MEOS). MEOS was a joint public/private sector project, created by Governor
23 Blanchard, to plan for the electric needs of the State of Michigan into the next

QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I

1 century. I was responsible to the project manager and served as technical
2 consultant to the project in the computer and computer modeling areas.

3 In September of 1987 after completion of the project I returned to the
4 Commission as Supervisor of the Forecasting Section within the Strategic
5 Planning Division. I was responsible for supervising the forecasting activity
6 within the MPSC.

7 In February of 1989 I assumed a position as Supervisor of the Planning
8 Section where I was responsible for review of electric utility planning efforts.
9 Included in this function was the development of a workable integrated resource
10 planning process.

11 In May of 1996 I was appointed to the position of Supervisor of the Gas
12 Safety Section. In this position I have passed the pipeline inspector courses
13 offered by the Transportation Safety Institute.

14 In 2003 the responsibilities of the gas and electric were merged at the
15 Commission and I was assigned additional of areas responsibility including
16 electric safety, electric reliability including the monitoring any emergency or
17 outage event and reporting to and advising the Commission on actions to be
18 taken. Serving in this function I was the lead investigator regarding technical
19 issues surrounding the August 14, 2003 blackout and a chief author of the
20 Commission's report. During this period I also assisted in the management of the
21 Capacity Need Forum (CNF) including managing the capacity expansion
22 modeling portion of the project. The Capacity Need Forum (CNF) was an

**QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I**

1 industry-wide collaborative process created by MPSC order to assess the
2 projected need for electrical generating capacity in Michigan.

3 From 2007 to 2008 I was Supervisor of the Electric Operations Section,
4 within the Operations and Wholesale Markets Division. In this position I was
5 responsible for electric reliability issues, electric energy planning, electric
6 distribution performance, pole attachments issues, Rule 411 disputes, electric
7 metering issues, and electric engineering support regarding wholesale market
8 issues. During this period I also assisted in the management of the 21 Century
9 Energy Plan as a key adviser and chairman of the workgroup responsible for
10 managing the capacity expansion modeling and reviewing proposed changes to
11 the structure of the electric industry in Michigan. The 21 Century Energy Plan
12 project was created by executive directive No. 2006-2 and called for the
13 development of a comprehensive plan for meeting the state's electric power needs
14 and asked for recommendations to ensure the state can both reliably meet its
15 growing electric needs and keep electric costs competitive.

16 During the period from 2008 to 2009 I served as Director of the
17 Operations and Wholesale Markets Division. The Operations and Wholesale
18 Markets Division is responsible for electric reliability issues, electric energy
19 planning, electric distribution performance, pole attachments issues, Rule 411
20 disputes, electric metering issues, wholesale market issues, natural gas pipeline
21 safety, natural gas production issues and natural gas pipeline and electric
22 transmission certification issues. I assumed the responsibilities as the Director of

QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I

1 Electric Reliability Division at the end of 2008 and served in both capacities until
2 early 2009.

3 **Q. Have you previously testified before this Commission?**

4 **A.** Yes, I have testified before this Commission on a number of occasions: U-5141,
5 which was an application by Michigan Consolidated Gas Company for permission
6 to implement an energy conservation program, U-5510, which was a similar case
7 involving the Consumers Power Company, U-6633, which was the initial cost
8 recovery hearing for Detroit Edison's RCS Program, U-7660, which was a Detroit
9 Edison rate case in which I testified as to the amount of revenue deferral for
10 Fermi II, and U-8128 where I testified as to private line tariffs for Michigan Bell.
11 I have also testified in a large number of cases in the settlement of pole
12 attachment issues. I have testified in the following cases relative to IRP and
13 planning: U-9346 which was a Consumers Power general rate case, U-9507 which
14 was an application by Consumers Power to seek approval of the Palisades
15 Generating Company contract, U-9586 which was the Consumers Power bidding
16 framework case, U-9798 which was the Detroit Edison bidding framework case,
17 U-10059/U-10061 which was a case regarding need for a new transmission line,
18 U-10143/U-10176 which was the retail wheeling case, U-10335 which was a
19 Consumers Power general rate case, U-10102 which was a Detroit Edison general
20 rate case, U-10554 a Consumers Power DSM reconciliation, U-10671 a Detroit
21 Edison DSM reconciliation, U-10710 a Consumers Power PSCR, U-10685 a
22 Consumers Power general rate hearing and U-10840 a Detroit Edison capacity
23 planning case. Working in the gas safety area I have testified in support of rule

QUALIFICATIONS OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART I

- 1 making activities regarding the Michigan Gas Safety Standards most notably case
- 2 U-11750 which implemented additional standards for natural gas pipeline
- 3 operators transporting natural gas with high levels of Hydrogen Sulfide.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **Q. What is the purpose of your testimony?**

2 **A.**The purpose of my testimony is to present Staff's position in the matter of ITC
3 Transmission's (ITC) application for an expedited siting certificate for a
4 transmission line, pursuant to 2008 PA 295, Part 4, for Region No. 4 (Thumb
5 Region), as designated by the Michigan Wind Energy Resource Zone (WERZ)
6 Board and the Commission's January 27, 2010, Order in Case No. U-15899.

7 **Q. What specific guidance was available to Staff in its review of ITC's**
8 **application for an expedited siting certificate for its proposed line?**

9 **A.**Provisions for expedited siting certificates are contained in MCL 460.1149
10 through 460.1153; 2008 PA 295 (Act 295).

11 **Q. What specific elements of ITC's application requirements will be covered by**
12 **your testimony?**

13 **A.**My testimony will cover the requirements outlined in MCL 460.1153. Staff
14 witness Catherine Cole will present Staff's review of MCL 460.1151 and MCL
15 1149 sub-sections (3), (4), and (5).

16 **Q. Did the Commission designate a wind zone in an area near the proposed**
17 **transmission line?**

18 **A.**Yes. The WERZ Board identified Region 4 which includes portions of Huron,
19 Bay, Saginaw, Sanilac, and Tuscola counties as the area within the state having
20 the highest wind energy potential. Region 4 was designated by the Commission

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 in a January 27, 2010 Order in Case No. U-15899 as the “primary wind energy
2 resource zone.”¹

3 **Q. What is the maximum and minimum wind energy potential of Region 4 as**
4 **identified by the WERZ Board and accepted by Commission’s January 27,**
5 **2010 Order in Case No. U-15899?**

6 **A.** The WERZ Board found that Region 4 had a minimum wind potential of 2,367
7 MW and a maximum wind potential of 4,236 MW.

8 **Q. Could the minimum and maximum wind energy potential in Region 4 as**
9 **reported by the WERZ Board be supported without transmission**
10 **infrastructure upgrades?**

11 **A.** No. The Midwest ISO queue has a number of projects located in the region that
12 are unable to move forward because “existing ITC transmission facilities within
13 the Thumb area [are] already at capacity.”² Midwest ISO studies show that
14 additional transmission infrastructure is needed for wind projects to go forward.
15 Further, Midwest ISO modeled the wind generation potential for the Thumb
16 Project and their analysis showed that the existing transmission infrastructure was
17 unable to support the projected increase in wind generation. Furthermore, in
18 ITC’s direct testimony, Thomas Vitez states, “extensive backbone transmission
19 facilities would be required in the ITC Transmission footprint to support the
20 minimum and maximum wind potential in Region No. 4, the Thumb region.”³

¹ <http://efile.mpsc.state.mi.us/efile/docs/15899/0089.pdf>.

² ITC witness Tom Vitez testimony, Exhibit TWV-3, page 16 of 31.

³ ITC witness Tom Vitez testimony, page 9, lines 22 – 24.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

Q. Did you personally attend any of the stakeholder meetings held by the Midwest ISO where the proposed transmission line was first discussed?

A. Yes. I attended the following meetings in person or via telephone on the following dates where the proposed transmission line was discussed:

2nd Michigan Technical Study Task Force May 20, 2010

3rd Michigan Technical Study Task Force June 15 2010

3rd East Sub Regional Planning Meeting June 21, 2010

4th Michigan Technical Study Task Force July 09, 2010

5th Michigan Technical Study Task Force July 19, 2010

System Planning Committee of the Board of Directors August 3, 2010

System Planning Committee of the Board of Directors August 17, 2010

Midwest ISO Board of Directors Meeting August 19, 2010

The remaining stakeholder meetings were attended by Cathy Cole, or alternate Commission Staff.

Q. Did Staff support the use of an out-of-cycle review and approval process for this project?

A. Yes.

Q. Why did Staff support the use of an out-of-cycle review and approval process for this project?

A. Staff supported an out-of-cycle review process for this project because timely approval from the Midwest ISO for a transmission line in the Thumb Region would assist wind developers that are in the Midwest ISO interconnection queue. Also, it would allow further wind development in Region 4 supporting

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 Michigan's Renewable Portfolio Standard (RPS) requirements which start in 2012
2 and ramp up to a 10% renewable energy requirement by 2015.

3 **Q. What was Staff's position regarding the cost allocation treatment for the**
4 **proposed project?**

5 **A.** The project was designated as a Multi-Value Project (MVP) eligible for regional
6 cost sharing per the Midwest ISO's July 15, 2010 filing to the Federal Energy
7 Regulatory Commission (FERC). The MPSC filed comments with the FERC in
8 docket ER10-1791. All questions regarding the MPSC position on the MVP cost
9 allocation proposal should be directed to the MPSC comments filed in FERC
10 docket ER10-1791.

11 **Q. Has FERC approved Midwest ISO's July 15, 2010 proposed cost allocation**
12 **filing?**

13 **A.** No. FERC has not yet issued an order approving or denying Midwest ISO's July
14 15, 2010 filing in docket ER10-1791.

15 **Q. If FERC approves Midwest ISO's July 15, 2010 filing, please describe the**
16 **cost allocation for the proposed transmission line.**

17 **A.** As a MVP, the annual revenue requirement for the proposed transmission line
18 would be allocated to all load within the Midwest ISO footprint on a usage
19 (MWh) basis. However, certain load served by grandfather agreements is
20 expected to be exempt from the charges.

21 **Q. If FERC rejects Midwest ISO's July 15, 2010 filing, please describe the cost**
22 **allocation for the proposed transmission line.**

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **A.** If FERC rejects Midwest ISO's July 15, 2010 filing and the default cost allocation
2 methodology that was in place prior to July 15, 2010 applies, then this
3 transmission project would be classified as an "other" project and would be
4 allocated to the customers of ITC Transmission according to Attachment FF of
5 the MISO tariff.

6 **Q.** **Staff witness Catherine Cole testifies that some stakeholders challenged the**
7 **transmission project at the Midwest ISO due to uncertainty in the amount of**
8 **future wind generation in the Thumb area and the need to build**
9 **transmission for an uncertain amount of wind generation. What is Staff's**
10 **position regarding building the proposed transmission for an uncertain**
11 **future amount of wind generation?**

12 **A.** It is Staff's position, based on Act 295 and the Commission Order, to build
13 transmission to meet the maximum capability of Region No. 4.

14 **Q.** **Please explain Staff's position that transmission should be built to meet the**
15 **maximum capability of Region No. 4.**

16 **A.** Act 295, MCL 460.1153(3)(d) states, "the proposed transmission line will be of
17 appropriate capability to enable the wind potential of the wind energy resource
18 zone to be realized." Staff is of the opinion that the wind potential for Region 4
19 was specified by the WERZ Board in their October 15, 2009 report at a minimum
20 of 2,367 MW and a maximum of 4,236 MW. On January 27, 2010, the
21 Commission issued an order stating, the "primary wind energy resource zone is
22 Region 4 as specified in the Wind Energy Resource Zone Board report."

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **Q. Could you comment on issues concerning interconnection requests for wind**
2 **generators in the Midwest ISO?**

3 **A.** Over the past several years, a significant number of interconnection requests for
4 wind generators have failed to complete the interconnection queue process and
5 become operational. According to projections made by the Midwest ISO in 2007,
6 only 31% of wind interconnection requests would reach interconnection
7 agreement and enter construction.⁴ In the recent past, several issues have
8 contributed to low numbers of interconnection requests moving forward.

9 **Q. Please describe the issues that have contributed to difficulties in the**
10 **interconnection process.**

11 **A.** The Midwest ISO queue has seen an increase in wind projects due to State
12 Renewable Energy Portfolio Standards. Select states in the Midwest ISO must
13 meet a certain percent of renewable energy in a defined timeframe, resulting in a
14 backlog of interconnection requests that needed processing. Secondly, many
15 wind projects in the queue have failed to move forward due to significant
16 transmission upgrade requirements that would be necessary to support the
17 proposed wind generation and a lack of funding, or a lack of willingness to
18 provide the funding on the part of the developer to move forward with
19 transmission upgrades.

20 **Q. Please explain Staff's view of how the Act 295 provisions will assist with the**
21 **interconnection process.**

⁴ <http://www.ferc.gov/eventcalendar/Files/20071211092554-Moeller,%20Midwest%20ISO.pdf>, p.4

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **A.** Act 295 differs from traditional transmission planning by providing provisions for
2 siting approval for a transmission line capable of meeting future generation
3 potential in a wind resource zone instead of a specific amount of planned
4 generation. Staff expects the expedited siting provisions of Act 295 will remove a
5 barrier to entry for wind generation projects.

6 **Q.** **Is the need for this transmission line based upon current interconnection**
7 **requests or currently planned wind generation?**

8 **A.** No. The primary reason Staff supports the granting of a siting certificate in this
9 case is to fulfill the requirements of Act 295 and to allow some projects in the
10 Midwest ISO queue to move forward.

11 **Q.** **Is the need for this transmission line based upon future expected load growth**
12 **in the local area surrounding the transmission line?**

13 **A.** No. ITC admits in discovery, ST-ITC-43 “ITC currently expects very moderate
14 load growth throughout Michigan, including the Thumb area” and the existing
15 120 kV system in the Thumb, “provide[s] reliable delivery of electricity to meet
16 the load in this region.”⁵

17 **Q.** **Will the proposed transmission line facilitate transmission of electricity**
18 **generated by wind energy conversion systems located in a wind energy**
19 **resource zone?**

20 **A.** Yes. ITC’s proposed transmission line consists of four new 345 kV circuits in the
21 area of the primary wind zone as designated by the Commission in Michigan’s
22 Thumb area. ITC witness Thomas Vitez states the proposed transmission line

⁵ ITC Answer to Staff discovery question, STC-ITC-43.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 “will facilitate transmission of electricity generated by wind energy conversion
2 systems located in Region 4.”⁶ Regarding the use of the proposed transmission
3 line, ITC witness Mr. Sutton states that, “these lines and substations will provide
4 needed transmission to bring bulk power from the Region No. 4 Wind Zone to the
5 load centers in Michigan and adjacent states.”⁷ The Midwest ISO, after analyzing
6 the configuration’s ability to meet the requirements of the wind generation,
7 approved this proposed transmission line. The Midwest ISO deemed the
8 transmission line to be capable of delivering the minimum and maximum wind
9 potential in the primary wind resource zone as declared by the MPSC in its Order.

10 **Q. Has the proposed transmission line received federal approval?**

11 A. Yes. As previously answered, ITC’s out-of-cycle request for the proposed project
12 was approved on August 19, 2010 by the Midwest ISO Board of Directors and a
13 letter from the Midwest ISO regarding project approval is included as Exhibit
14 TWV-8 of ITC witness Mr. Vitez’s direct testimony.

15 **Q. Does the proposed transmission line represent an unreasonable threat to the
16 public convenience, health, and safety?**

17 A. No. ITC has used the expert knowledge of three witnesses along with proven
18 scientific data to confirm the proposed transmission line does not represent an
19 unreasonable threat to the public convenience, health and safety. The information
20 presented by ITC includes the review of material from reputable institutes, such
21 as the World Health Organization, numerous peer-reviewed research and multiple

⁶ ITC witness Tom Vitez testimony, page 18, lines 16 – 18.

⁷ ITC witness Jason Sutton testimony, page 3, lines 7 – 9.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 laboratory experiments. The data concludes there is no reasonable connection
2 with the proposed route and an unreasonable threat to public convenience, health,
3 and safety.

4 **Q. Will the proposed transmission line be of appropriate capability to enable the**
5 **wind potential of the wind energy resource zone to be realized?**

6 A. Yes. As described above, the WERZ Board determined the Thumb Region has a
7 minimum nameplate wind capability of 2,367 MW and a maximum nameplate
8 wind capability of 4,236 MW. A review of several transmission alternatives took
9 place within the Midwest ISO out-of-cycle review of this proposed project.

10 Two transmission configurations were presented by ITC to meet both
11 capabilities set forth by the Board, an 8-230 kV high temperature configuration
12 that is capable of interconnecting 4,750 MW of wind and a double-circuit 345 kV
13 loop configuration around the Thumb that is capable of interconnecting 5,000
14 MW of wind. Both configurations could meet the wind potential declared by the
15 WERZ Board for Region 4 in the Thumb, but the double-circuit 345 kV
16 configuration was selected due to a lower cost estimate of \$510 million compared
17 to \$740 million.

18 Also, the double-circuit 345 kV was found to have lowered losses. Public
19 Act 295 requires the transmission line be built to enable the wind potential,
20 including the maximum capability of the wind zone. As required by Act 295, ITC
21 has demonstrated that the proposed 345 kV double-circuit transmission line is of
22 appropriate capability to enable the wind potential of the resource zone to be
23 realized.

DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II

1 **Q. Does Staff believe that the maximum MW wind potential approved by the**
 2 **WERZ Board for Region No. 4 overly optimistic?**

3 A. While the wind potential reported by the WERZ Board and adopted by
 4 Commission Order for Region No. 4 is higher than the amount of wind
 5 interconnections requests in the Thumb Region, the WERZ Board took steps to
 6 ensure the reported wind potential was not overly optimistic. In its report, the
 7 WERZ Board states it undertook “a high-level study based on publicly available
 8 information and does not explicitly account for site-specific conditions and other
 9 important factors that may affect development trends statewide and at the local
 10 level.”⁸ The WERZ Board acknowledged in its report that the theoretical
 11 maximum estimates may be on the high side because they did not account for
 12 market, economic, social and operational constraints that may restrict the
 13 development of wind generating capacity. To make accommodations for these
 14 unknown factors, the WERZ Board reduced the theoretical maximum annual
 15 energy production by 66 percent and 81 percent to “provide more realistic
 16 estimates of maximum and minimum wind generating capacity and energy
 17 production potential.”⁹

18 It is Staff’s position that the maximum and minimum wind generating
 19 capabilities that were reported by the WERZ Board for Region No. 4 and adopted
 20 through Commission Order are reasonable estimates of potential wind generation
 21 development in the Thumb Region.

⁸ ITC witness Tom Vitez testimony, Exhibit TWV-1, p. 11 of 99.

⁹ ITC witness Tom Vitez testimony, Exhibit TWV-1, p. 23 of 99.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **Q. Explain how the expedited transmission line siting provisions in Act 295**
2 **relate to Michigan's renewable portfolio standard.**

3 A. The RPS and the expedited transmission siting provisions for wind resource zone
4 areas are both contained within Act 295, and are related by the fact they both
5 facilitate the development of clean, renewable energy in the State of Michigan.
6 However, Act 295 does not directly connect the RPS and wind potential in wind
7 resource zones. While expediting transmission siting will help Michigan meet
8 RPS requirements, the wind potential in the wind resource zones is not directly
9 tied to the requirements in the Michigan RPS. Act 295 Part 4 is designed first to
10 complement Part 1 and further to support the development of clean, renewable
11 energy in Michigan.

12 **Q. Did you personally see the proposed and alternate route?**

13 A. Yes. I participated in the aerial review of the proposed and alternate routes that
14 took place on September 30, 2010.

15 **Q. Do you concur with the observations and analysis of the proposed and**
16 **alternate routes as outlined in Staff Witness Catherine Cole's direct**
17 **testimony in this case?**

18 A. Yes.

19 **Q. Is the proposed route that may be authorized by the expedited siting**
20 **certificate feasible?**

21 A. Yes.

22 **Q. Is the alternate route that may be authorized by the expedited siting**
23 **certificate feasible?**

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 **A.** Yes.

2 **Q.** **Please explain how Staff arrived at the conclusion that the proposed and**
3 **alternate routes are feasible.**

4 **A.** In order to determine if the proposed and alternate routes are feasible and
5 reasonable, Staff conducted an evaluation of the proposed and alternate routes as
6 testified to by Staff witness Catherine Cole. While ITC admits that deviations or
7 changes to the routes may still occur, nothing was discovered during Staff's
8 evaluation of the proposed or alternate route that lead Staff to the conclusion that
9 either of the routes is infeasible. While Staff submits that both the proposed and
10 alternate routes are feasible, Staff also contends that there may be other routes that
11 have not been presented by ITC that may also be feasible.

12 **Q.** **Is the proposed route that may be authorized by the expedited siting**
13 **certificate reasonable?**

14 **A.** Yes.

15 **Q.** **Is the alternate route that may be authorized by the expedited siting**
16 **certificate reasonable?**

17 **A.** Yes.

18 **Q.** **Please explain how Staff arrived at the conclusion that the proposed and**
19 **alternate routes are reasonable.**

20 **A.** Staff relied upon the evaluation of the proposed and alternate routes testified to by
21 Staff witness Catherine Cole, and the wind potential adopted by the Commission
22 in its Order dated January 27, 2010 Order in Case No. U-15899.

**DIRECT TESTIMONY OF PAUL PROUDFOOT
CASE NUMBER U-16200
PART II**

1 Based upon the wind potential confirmed by the Commission in its Order,
2 Staff submits that the alternate route is reasonable.

3 Regarding the proposed route, Staff notes that the western portion between
4 Baker and Rapson would reduce the amount of land available for wind turbines in
5 some of the townships rated with the highest wind potential. Even with that
6 reservation, Staff submits that the proposed route is also reasonable, based upon
7 the wind potential confirmed by the Commission in its Order.

8 Furthermore, Staff acknowledges that there may be a multitude of
9 alternative routes available to ITC that are likely reasonable, but have not been
10 evaluated.

11 **Q. Have all of the requirements outlined in Act 295, Section 153(3) been**
12 **fulfilled?**

13 A. Yes.

14 **Q. Explain Staff's recommendation to the Commission.**

15 A. Act 295, Section 153(3) states that the Commission shall grant an expedited siting
16 certificate if it determines that the requirements outlined in Act 295, Section
17 153(3) have been fulfilled. Therefore, Staff recommends that an expedited siting
18 certificate be granted.

19 **Q. Does this complete your testimony?**

20 A. Yes.

1 MR. BEACH: Thank you, your Honor. The
2 Staff would also like to move to admit the following
3 discovery. The exhibits will be Exhibit S-33 through
4 S-49, and if I could quickly move through them to
5 specifically identify them.

6 Exhibit S-33, also known as ST-ITC-73
7 consists of two pages. Exhibit S-34, also known as
8 ST-ITC-25, consists of eight pages. Exhibit S-35, also
9 known as ST-ITC-26, consists of 46 pages. Exhibit S-36,
10 also known as ST-ITC-44, one page. Exhibit S-37, also
11 known as ST-ITC-53, consists of one page. Exhibit S-38,
12 also known as ST-ITC-12, consists of two pages. Exhibit
13 S-39, also known as ST-ITC-43, consists of one page.
14 Exhibit S-40, also known as ST-ITC-59, consisting of two
15 pages. Exhibit S-41 consisting of two pages. Exhibit
16 S-42 consisting of two pages. Exhibit S-43 consisting of
17 two pages. Exhibit S-44 consisting of one page. Exhibit
18 S-45 consisting of three pages. Exhibit S-46 consisting
19 of two pages. Exhibit S-47 consisting of three pages.
20 Exhibit S-48 consisting of three pages. And finally S-49
21 consisting of one page.

22 JUDGE NICKERSON: All right. Any
23 objection to the admission of proposed Exhibits S-33
24 through S-49?

25 MR. STRONG: Can we go off the record?

1 JUDGE NICKERSON: Yes.

2 (Brief discussion was held off the record.

3 JUDGE NICKERSON: On the record. Any
4 objection to the admission of Staff's proposed exhibits?
5 Very well. They are admitted.

6 MR. BEACH: That concludes the Staff's
7 presentation of testimony and exhibits and discovery,
8 your Honor.

9 JUDGE NICKERSON: All right. Thank you,
10 Mr. Beach. Mr. Pattwell.

11 MR. PATTWELL: Yes. Pursuant to the
12 stipulation of the parties, I move to bind into the
13 record the testimony of David Walters. There have been
14 no changes to Mr. Walters' testimony. Mr. Walters
15 therein sponsored one exhibit which is marked as Exhibit
16 MPP-2, which consists of one page.

17 Also pursuant to the stipulation I move
18 to bind into the record what is marked as Exhibit MPP-1,
19 which consists of 122 pages and includes selected
20 discovery responses which have been provided to all the
21 parties and the court reporter.

22 JUDGE NICKERSON: Very well. Any
23 objection to binding in Mr. Walters' direct testimony?
24 It may be bound in the record.

25 - - -

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International) Transmission Company d/b/a ITC Transmission,) for an expedited siting certificate for a) transmission line, pursuant to 2008 PA 295, Part) 4, for Region No. 4 (Thumb Region), as) designated by the Michigan Wind Energy) Resource Zone Board and the Commission's) Order in Case No. U-15899.) <hr style="width: 40%; margin-left: 0;"/>	Case No. U-16200 ALJ: Daniel E. Nickerson, Jr.
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**DIRECT TESTIMONY OF DAVID WALTERS ON BEHALF OF MICHIGAN PUBLIC
POWER AGENCY AND MICHIGAN MUNICIPAL ELECTRIC ASSOCIATION**

OCTOBER 29, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International) Transmission Company d/b/a ITC Transmission,) for an expedited siting certificate for a) transmission line, pursuant to 2008 PA 295, Part) 4, for Region No. 4 (Thumb Region), as) designated by the Michigan Wind Energy) Resource Zone Board and the Commission's) Order in Case No. U-15899.) <hr style="width: 40%; margin-left: 0;"/>	Case No. U-16200 ALJ: Daniel E. Nickerson, Jr.
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**DIRECT TESTIMONY OF DAVID WALTERS ON BEHALF OF MICHIGAN PUBLIC
POWER AGENCY AND MICHIGAN MUNICIPAL ELECTRIC ASSOCIATION**

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. My name is David R. Walters. My business address is 809 Centennial Way, Lansing, Michigan 48917.

Q2. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A2. I am employed by the Michigan Public Power Agency ("MPPA") as its General Manager.

Q3. WHAT IS MPPA?

A3. MPPA is a public agency formed pursuant to the Energy Employment Act of 1976, Public Act 448 of 1976, MCL 460.801 *et seq.*, for the purpose of providing wholesale electric power and other services to its municipal members all of which own and operate electric utility systems. MPPA and its members own electric generation and transmission facilities located in Michigan.

Q4. PRIOR TO JOINING MPPA, BY WHOM WERE YOU EMPLOYED AND IN WHAT CAPACITY?

A4. Prior to June 2009, I was the General Manager of the Zeeland Board of Public Works, a municipally owned water and electric utility of the City of Zeeland, Michigan, for almost 20 years.

Q5. DESCRIBE YOUR DUTIES AS GENERAL MANAGER OF MPPA.

A5. As General Manager, I serve as the Agency's chief executive and operating officer responsible to its Board of Commissioners for the management of all properties and business of the organization and its employees.

Q6. WHAT EXPERIENCE DOES MPPA HAVE WITH THE TRANSMISSION SYSTEM?

A6. MPPA is a Transmission Owner as defined by the Midwest System Operator ("MISO"), holding title to portions of the transmission system on behalf of its members. MPPA also acts as a Market Participant for its members, scheduling the usage of its transmission ownership entitlements and purchasing supplemental Network and Point-to-Point Transmission Service for serving member loads.

Q7. WHAT INVOLVEMENT DO YOU HAVE WITH RESPECT TO MPPA'S TRANSMISSION RELATED ACTIVITIES?

A7. I oversee MPPA's transmission business summarized in A6. Specifically, this entails reviewing, among other things: transmission load projections, corresponding transmission reservations, and MISO transmission cost and billing calculations.

Q8. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A8. I earned a Bachelor of Science Degree in Civil Engineering from Michigan State University in 1983, and a Master of Business Administration Degree from Grand Valley State University in 2002. I also completed the United States Navy's Nuclear Power Officer Training Program and received qualification as a submarine officer in 1985.

Q9. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE REGULATORY COMMISSIONS OR IN COURT PROCEEDINGS?

A9. No, I have not.

Q10. DID YOU HAVE ANY ROLE ON THE WIND ENERGY RESOURCE ZONE BOARD?

A10. I was appointed as a member of the Wind Energy Resource Zone Board ("WERZB" or "Board") to represent the electric utility industry and was subsequently elected by the WERZB as its Chairman. I served in this role from December of 2008 to December of 2009.

Q11. WHAT WAS THE WIND ENERGY RESOURCE ZONE BOARD'S STATUTORY CHARGE?

A11. The Clean, Renewable, and Efficient Energy Act, Public Act 295 of 2008 established the WERZB and its powers, duties, and decision making authority (MCL 460.1141). Briefly, the Board, in consultation with local units of government, was to study wind energy production potential and the viability of wind as a source of commercial wind generation in the State. More specifically, it was charged with conducting modeling and other studies to evaluate existing wind energy conversion systems, estimate the potential for additional wind energy conversion systems, and review average annual recorded wind velocity levels and applicable interconnection requests at MISO. The Board's review was limited to an onshore evaluation. The Act further required the Board to publish its findings in a proposed report within 240 days after the effective date of the Act and submit a final report, after receiving and reviewing public input, to the Michigan Public Service Commission.

Q12. HOW DID THE WIND ENERGY RESOURCE ZONE BOARD MEET ITS STATUTORY CHARGE?

A12. From December 2008 through the end of May 2009, the Board met approximately every two weeks to consider data, analysis, and other information related to topics set forth in Act 295. The Board also received and reviewed information and provided direction to its consultants, the Michigan State University Land Policy Institute ("LPI") and Public Sector Consultants Inc ("PSC"). LPI was primarily tasked with technical analysis while PSC assisted in report writing and preparation and outreach to the public and local units of government. After drafting its initial report, the Board held two public hearings where it presented its findings and solicited input from the general public. Later, the Board also reviewed transmission plans submitted by the electric utilities and transmission companies within or adjacent to regions with the highest potential for wind energy development.

The Commission highlighted the WERZB activities recommendations in its Case No. U-15899 Order dated January 27, 2010.

Q13. PLEASE PROVIDE A SUMMARY OF THE WIND ENERGY RESOURCE ZONE BOARD'S FINDINGS AND CONCLUSIONS

A13. The WERZB findings and conclusions are contained in its final report entitled "Final Report of the Wind Energy Resource Zone Board" dated October 15, 2009. *See* Doc. No. 8 in Case No. U-15899. In summary, the WERZB determined four regions within the State possessing, in its estimation, the highest wind energy harvest potential. The report contains a description of each region, the Board's estimated maximum and minimum wind generating capacity (in MW) for each region, an estimate of the regions' annual maximum and minimum energy production potential (in MWh), and an presentation of the existing wind energy systems already in service within each region. The report specified "Region 4" in the "thumb" of Michigan (parts of Bay, Huron, Saginaw, Sanilac, and Tuscola Counties) as the region with the highest potential of these four regions.

Q14. WHAT IS MEANT BY THE TERMS ENERGY AND CAPACITY POTENTIAL AND HOW WERE THESE DETERMINED BY THE WIND ENERGY RESOURCE ZONE BOARD?

A14. Generating capacity refers to the maximum rated output of an energy conversation system. Collectively, the estimated wind generating capacity (in megawatts) of a region is the sum of the rated capacities of all "potential" wind turbines. The WERZB, though its analysis, determined the potential number of 1.5 MW turbines that could be located in a region after excluding undevelopable properties and a buffer around the excluded areas. Using a 200 meter setback from structures and 450 meter turbine spacing, a "theoretical maximum" turbine grid was modeled in all non-excluded areas of a region. Many factors were not considered in the WERZB analysis. The theoretical maximum number of turbines was reduced by an "aggregate percentage" to determine the minimum and maximum potential installed capacity to account for some of these factors. Energy production potential refers to the portion of the rated output (measured in MWh) that can be reasonably anticipated from installed generating capacity consistent with expected operating conditions (wind resources and generator operating characteristics). To determine the energy production potential of a region, the Board evaluated the "potential" wind turbine installations operating under projected annual wind conditions in that region. A more specific description of this methodology is included in Appendix B of the WERZB Final Report.

Q15. DID THE WIND ENERGY RESOURCE ZONE BOARD EVALUATE THE LIKELY DEMAND FOR WIND ENERGY?

A15. The WERZB only evaluated the "potential" supply of wind energy from a region. The Board did not determine or evaluate if this potential, or any portion of it, was needed by customers of any utility or what the potential demand would be for wind energy from any region. The Board did not believe this analysis or charge was assigned to the Board in Act 295.

Q16. DID THE WIND ENERGY RESOURCE ZONE BOARD CONSIDER TRANSMISSION UPGRADES THAT MIGHT BE NECESSARY IN REGION IV?

A16. The WERZB briefly reviewed initial submittals from electric utilities and transmission companies identifying existing and new transmission infrastructure that may be necessary to deliver the wind potential for each region in its report. No action was taken by the Board after this review nor was any action required by the Board in Act 295 in response to these submittals. The Board only reviewed transmission information after its report was finalized.

Q17. DID THE WIND ENERGY RESOURCE ZONE BOARD CONSIDER THE LONG-TERM COSTS AND BENEFITS OF WIND PRODUCTION CAPACITY WHEN FORMULATING ITS FINDINGS AND CONCLUSIONS?

A17. The cost of wind production of any region or its cost competitiveness in comparison to another region was not part of the WERZB analysis. Vacant land was assumed to be available for wind development if it was not in an exclusion area. The cost of the land was not considered. Competing land uses were not specifically evaluated. Other costs and benefits were also not considered. Although the Board was tasked with evaluating the "viability of wind as a source of commercial energy generation in this state," the Board did not consider in its charge the evaluation of the "economic" viability of wind in Michigan or in any particular region. The requirements for the Board's final report established in Act 295 do not contain any reference to the findings of economic feasibility for "potential" installations or regions. The assumption was the 10% mandate established in Act 295 for in-state renewable resources created a need for wind. What portion of that 10% that may come from wind generally or a particular region specifically was not analyzed by the WERZB.

Q18. IN YOUR OPINION, DID THE COMMISSION ACCURATELY SUMMARIZE THE CONCLUSIONS OF THE WIND ENERGY RESOURCE ZONE BOARD IN ITS JANUARY 27, 2010 ORDER?

A18. Yes

Q19. IN ACCEPTING THE WIND ENERGY RESOURCE ZONE BOARD'S FINDINGS AND CONCLUSIONS DID THE COMMISSION GIVE ANY INDICATION THAT IT FURTHER EVALUATED THE LIKELY DEMAND FOR WIND ENERGY FROM REGION IV?

A19. To my knowledge, no reference is made to a demand evaluation or need determination for any level of wind energy for Michigan generally or a region specifically in the Commission's January 27, 2010 Order.

Q20. IN ACCEPTING THE WIND ENERGY RESOURCE ZONE BOARD'S FINDINGS AND CONCLUSIONS DID THE COMMISSION INDICATE THAT IT CONSIDERED THE DEMAND OR NEED FOR WIND ENERGY FROM REGION IV IN DETERMINING THE NEED FOR TRANSMISSION UPGRADES IN THIS REGION?

A20. Other than the general statement on page 12 of the order stating, "The vast potential for wind development in Region 4, however, reveals a need to upgrade that area's transmission infrastructure," I see no reference to any evaluation performed to determine what portion of this vast potential can or will be needed to comply with Act 295.

Q21. WHAT IS THE CAPACITY OF THE TRANSMISSION SYSTEM BEING PROPOSED BY ITC?

A21. Submitted documentation suggests ITC's proposed design of two double circuit 345 kV lines has a "wind interconnection capability" of 5,000 megawatts.

Q22. WHAT IS MICHIGAN'S TOTAL ANNUAL ENERGY REQUIREMENT FOR ALL UTILITY CUSTOMERS?

A22. From my understanding, approximately 100-110 million MWh.

Q23. WHAT IS THE TOTAL AMOUNT OF RENEWABLY GENERATED ELECTRICITY NEEDED FOR MICHIGAN UTILITIES TO MEET THE 10% RENEWABLE PORTFOLIO STANDARD?

A23. If my understanding in A22. is correct, 10% would be approximately 10-11 million MWh.

Q24. WHAT PERCENTAGE OF THE RENEWABLY GENERATED ELECTRICITY NEEDED FOR MICHIGAN UTILITIES TO MEET THE 10% RENEWABLE PORTFOLIO STANDARD COULD BE MET FROM REGION IV IF 5,000 MW OF WIND IS INTERCONNECTED WITH ITC'S PROPOSED TRANSMISSION INFRASTRUCTURE?

A24. The WERZB used an approximate 32.4% capacity factor to determine its minimum and maximum wind energy potential for Region IV. If this same capacity factor is used on 5,000 MW of installed wind capacity, approximately 14 million megawatt-hours of wind energy could be expected annually from these installations. This would result in about 13% of Michigan's total current electric utility needs being supplied from wind energy

from within this region. In other words, no renewable energy would be required from any other installations outside of Region IV.

Q25. IN TERMS OF CAPACITY, HOW MUCH WIND GENERATED ELECTRICITY IS CURRENTLY IN THE QUEUE FOR REGION IV?

A25. Approximately 1,300 MW.

Q26. IN YOUR OPINION, IS THE SIZE OF THE PROPOSED TRANSMISSION SYSTEM APPROPRIATE?

A26. This question cannot be answered with certainty without a comprehensive analysis and economic feasibility study of the likely demand for wind energy from Region IV which we do not have. Likely demand will be based on factors such as the cost of wind energy and transmission in Region IV, the availability and cost of alternative sources of renewable energy, whether there will be demand from out-of-state utilities for wind power from Region IV and so on. From my experience, it appears, at least in the short term, that energy from renewable energy resources will be more expensive than energy from non-renewable resources. This makes it unlikely that Michigan utilities will purchase significantly more renewable energy than the 10% portfolio requirement. Further, it appears that wind energy from Region IV will be more expensive than at least some alternative sources of renewable energy making out-of-state demand less likely. Based on these assumptions and the fact that the proposed transmission system is designed to carry more MWh from this one type of resource in this one region than is needed for all utilities in Michigan to meet the 10% portfolio standard, it would appear that the proposed transmission line is significantly larger than necessary.

Q27. WHAT IS THE STATED COST OF ITC'S PROPOSED TRANSMISSION SYSTEM AND ITS EXPECTED ANNUAL REVENUE REQUIREMENT WITHOUT CONSIDERING COST OVERRUNS, UNDER-BUILD, AND INTERCONNECTIONS?

A27. ITC submitted materials suggest \$510 million. Calculations contained in MISO related documentation suggest a 27.18% annual revenue requirement or approximately \$138,618,000 annually.

Q28. HAVE YOU DONE ANY ANALYSIS OF THE COST PER MEGAWATT HOUR OF THE PROPOSED TRANSMISSION SYSTEM?

A28. Yes. My analysis is contained in **Exhibit A**. To illustrate, if somehow 5,000 MW of wind turbines were actually constructed and these installations were to actually achieve the projected 32.4% capacity factor, the transmission costs (not including interconnection

costs) would be \$9.76/MWh (or approximately \$2.31/kW-month). Making a more modest estimate of 2,500 MW installed, the cost for the proposed transmission would be \$19.52/MWh (or approximately \$4.62/kW-month). If only 1,300 MW is installed, the cost of these transmission improvements would rise to \$37.54/MWh (or \$8.88/kW-month).

Q29. HOW DOES THE COST PER MEGAWATT HOUR OF THE PROPOSED TRANSMISSION LINE COMPARE TO THE AVERAGE TRANSMISSION COST PER MEGAWATT HOUR IN MICHIGAN?

A29. The current charge of network transmission service for the Michigan Joint Zone (2010 MISO Rates for OATT Schedule 9 only) is \$2.82/kW-month. Accordingly, the additional required annual revenue requirement per megawatt-month for the proposed transmission line collected over the potential MW of installed capacity will range somewhere between \$2.31/kW-month more for 5,000 MW to \$8.88/kW-month more for 1,300 MW. In other words, it could cost up to 3 times more than the current cost of network transmission service to deliver energy out of this zone using the proposed system.

Q30. CONSIDERING ALL AVAILABLE FACTS, DO YOU BELIEVE THERE EXISTS ADEQUATE INFORMATION TO DETERMINE WHETHER CONSUMER DEMAND SUPPORTS THE EXPENDITURE OF \$510,000,000 (EXCLUDING OVERRUN, UNDERBUILD, AND INTERCONNECTION COSTS) FOR THE PROPOSED TRANSMISSION LINE?

A30. No.

Q31. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A31. Yes.

1 JUDGE NICKERSON: Any objection to
2 proposed Exhibits MPP-1 and MPP-2? They are admitted.

3 All right. I believe that's all of the
4 witnesses' testimony. All right, Mr. Gordon.

5 MR. GORDON: Thank you, your Honor.
6 Pursuant to the stipulation of the parties we would call
7 to the stand Thomas Vitez.

8 T H O M A S W. V I T E Z
9 was called as a witness on behalf of ITCTransmission and,
10 having been duly sworn to testify the truth, was examined
11 and testified as follows:

12 DIRECT EXAMINATION

13 BY MR. GORDON:

14 Q Mr. Vitez, could you state your name and place of
15 employment and business address, please.

16 A Yes. Thomas Vitez. I work at ITC Holdings, and we're
17 located at 27175 Energy Way in Novi, Michigan.

18 Q And in connection with this case did you prepare direct
19 testimony consisting of 24 pages of questions and
20 answers?

21 A Yes.

22 Q Do you have any corrections, additions, or deletions to
23 make to that testimony?

24 A Yes, I do.

25 Q Go on.

1 A On page 7 of that testimony, line 16, the original
2 testimony said, "The Board consisted of 9 members." The
3 correction would be to say eleven members. So the
4 sentence should begin, "The Board consisted of 11
5 members..."

6 On page 16, line 14, of my direct
7 testimony, the sentence actually starts on line 13, says,
8 "The two new facilities exiting the Thumb area would
9 extend from a new station north of the existing Wyatt
10 station down the west side of the Thumb..." It should
11 say, "down the east side of the Thumb." So we should
12 change the word "west" to "east".

13 Q Did you also prepare rebuttal testimony consisting of 13
14 pages of questions and answers?

15 A Yes.

16 Q Do you have any corrections, additions or deletions to
17 make to that testimony?

18 A Yes, I do. On page 5 of the testimony, the correction
19 should be made on line 6 but the sentence begins on line
20 5. The sentence says, "As noted on page 2 of Exhibit
21 TWV-6, which was attached to my direct testimony in this
22 case, the Midwest ISO..." In front of the Midwest ISO it
23 should say "a letter from the Midwest ISO Staff to the
24 Midwest ISO System Planning Committee."

25 So the sentence should read, "As noted on
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1 page 2 of Exhibit TWV-6, which was attached to my direct
2 testimony in this case, a letter from Midwest ISO Staff
3 to the Midwest ISO System Planning Committee," and then
4 the sentence goes on.

5 Also in my rebuttal testimony on page 10,
6 line 9, the word, the fourth word in that line is "feed",
7 it should be "fed." So it should say, 34 MWs of load fed
8 directly from the transmission system..."

9 Q If I were to ask you the questions contained in your
10 direct testimony and your rebuttal testimony today under
11 oath, would your answers be the same?

12 A Yes.

13 Q Did you also sponsor any exhibits?

14 A Yes, I did.

15 MR. GORDON: Your Honor, for purposes of
16 identifying exhibits may I lead the witness?

17 JUDGE NICKERSON: Yes, sir.

18 MR. GORDON: Thank you, your Honor.

19 Q (By Mr. Gordon): Do you have Exhibit 1 in front of you,
20 A-1?

21 A I do.

22 Q Would you identify that for us, please.

23 A Exhibit A-1 is the final report from the Michigan Wind
24 Energy Resource Zone Board.

25 Q And to your knowledge is this a correct and accurate copy
Metro Court Reporters, Inc. 248.426.9530

1 of the final report of that Board?

2 A Yes.

3 Q Thank you. Exhibit 2, would you identify that, please.

4 A Yes. Exhibit 2 is the order from the Michigan Public
5 Service Commission in Case No. U-15899.

6 Q And that exhibit consists of 21 pages, does it not?

7 A I believe it --

8 Q 24, I'm sorry.

9 A 24, yes.

10 Q And to your knowledge is that a correct and accurate copy
11 of the final order of the Public Service Commission in
12 that case?

13 A Yes.

14 Q Exhibit 3 is a 31-page exhibit captioned
15 ITCTransmission/METC and Wolverine Power Supply
16 Cooperative, Inc., Michigan Wind Zones Transmission
17 Analysis. Could you tell us what that is and what its
18 source is?

19 A Yes. That's a report that ITCTransmission, METC and
20 Wolverine Power Supply Cooperative traded in conjunction
21 to insert into the Wind Zone Board with respect to our
22 view of the transmission needs.

23 Q And this was submitted and is part of the records of the
24 Wind Zone Board?

25 A Yes.

1 Q Turning to Exhibit 4, which is a four-page document dated
2 February 3, 2010, it appears to be a letter addressed to
3 Mary Jo Kunkle, Executive Secretary, Michigan Public
4 Service Commission, and is followed by a letter dated
5 February 4, 2010, to Christine Mason Soneral, Vice
6 President/General Utility Counsel of ITC from Robert
7 Kehres. Could you tell us what those letters are?

8 A Yes. The letter from ITC to the Michigan Public Service
9 Commission was a letter notifying them that we intended
10 to go to the Midwest ISO and seek approval for our
11 transmission line in this case. The letter from the
12 State back to Ms. Christine Mason Soneral was the State's
13 response.

14 Q And are these true and accurate copies of documents
15 contained in the ITC business records?

16 A Yes.

17 Q Exhibit 5 is a 21-page exhibit with the first page
18 identified as Michigan Wind Energy Zone Transmission
19 Projects. Would you identify that and its source,
20 please.

21 A Yes. This was created by ITC under my direction and
22 control. And this is a document that we provided to the
23 Midwest ISO when we initiated the Out of Cycle review for
24 the project in this case.

25 Q Exhibit 6 is a two-page document with the Midwest ISO
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1 mark to System Planning Committee from Clair Moeller.

2 Would you identify that for us, please.

3 A Yes. Clair Moeller is the Vice President of Planning at
4 the Midwest ISO. In this letter he outlines to the
5 System Planning Committee, which is a committee of the
6 MISO Board of Directors, he gives a briefing on the
7 Michigan Thumb Loop Project Out of Cycle request.

8 Q And this is an accurate copy of a document contained in
9 the business records of ITC?

10 A Yes.

11 Q Turning to Exhibit 7, it is a ten-page document with the
12 Midwest ISO mark on it and captioned ITC Michigan Thumb
13 Loop Project Out of Cycle approval recommendation,
14 August 2010. Could you identify that and the source of
15 this document?

16 A Yes. This is a detailed presentation that was also given
17 to the System Planning Committee, which again is a
18 committee of the MISO Board of Directors. MISO staff
19 gave this to them outlining some of the details around
20 the Michigan Loop project.

21 Q Is this also a true and accurate copy of the MISO
22 document and is it contained in the business records of
23 ITC?

24 A Yes.

25 Q Exhibit 8 is a one-page document with the Midwest ISO

moniker, a letter dated August 23, 2010, to Mr. Joseph Welch, Chairman, President, and CEO International Transmission Company, signed by Stephen G. Kozey. Could you identify -- with a copy to you. Would you identify the source and what that document is?

A Yes. This is a letter from the Midwest ISO to the Chairman, President, and CEO of ITC notifying us that the Board of Directors had approved the Out of Cycle request for our Thumb Loop Project.

Q This is an accurate copy of the document contained in the records of ITC and which you received a copy of?

A Yes.

Q Exhibit 9 is a 47-page document with the ITC mark and captioned Michigan Regional 4 -- I'm sorry, Michigan Region 4 Thumb Loop Project Development 4-30-10. Would you identify the source of that document?

A Yes. Well, this document actually has two sources. It is a presentation that we gave, ITC gave for an update on the Thumb Loop Project. Contained in that presentation, beginning on page 35 of 47 of the exhibit -- I'm sorry, wait. Beginning on page 30 of 47 of the exhibit, it's an attachment that is the NERC Planning Standard, and NERC being the North American Electric Reliability Council Planning Standard related to system performance following a loss of a single BES, Bulk Electric System Element.

1 Q Are these accurate copies of documents contained in the
2 business records of ITC?

3 A Yes.

4 Q To your knowledge are these accurate copies of NERC
5 standards that you have referenced?

6 A Yes.

7 Q Exhibit 10 is a ten-page document. The first page is
8 captioned Standard TPL-002-0b - System Performance
9 Following Loss of a Single BES Element. Would you
10 identify that and its source, please.

11 A Yes. This is the North American Electric Reliability
12 Council's, commonly referred to as NERC, TPL Standard 2
13 which has to do with system performance following a loss
14 of a single BES, or Bulk Electric System Element.

15 Q And each document is listed as adopted by NERC Board of
16 Trustees November 5, 2009?

17 A Correct.

18 Q And this is a true and accurate copy of documents in the
19 business records of ITC?

20 A Yes.

21 Q And you believe this is an accurate copy of the NERC
22 standards that it purports to represent?

23 A Yes.

24 Q Exhibit No. 11 consists of one page with the heading
25 Standard TPL-002-0b - System Performance Following Loss

1 of a Single BES Element. Could you identify that?

2 A Yes. This document is an excerpt from the document that
3 was included in Exhibit 10, and it's commonly referred to
4 as Table 1 in the industry. And that lays out some of
5 the -- at a high level -- the system standards with
6 respect to normal and emergency conditions from again the
7 North American Electric Reliability Council.

8 Q And do you believe this is an accurate copy of Table 1
9 and is it contained in the ITC business records?

10 A It's an accurate copy of the beginning of Table 1. Table
11 1 actually goes on to include a different category,
12 Category D, which is not included in this table.

13 Q Thank you. And then Exhibit 12 is one page, is a color
14 map titled Illustrative Example of Shutdown plus
15 Contingency for Single Circuit 345 kV. Could you
16 identify that and its source, please.

17 A Yes. This document was created at ITC under my direction
18 and control, and is intended to depict the implications
19 of a shutdown plus a single circuit contingency if the
20 Thumb Loop were constructed as a single circuit 345 kV
21 loop.

22 Q Thank you, Mr. Vitez.

23 MR. GORDON: At this point I would move
24 that the direct and rebuttal testimony of Mr. Vitez be
25 bound in the record, and I would also move for admission

1 of Exhibits A-1 through A-12.

2 JUDGE NICKERSON: Thank you, Mr. Gordon.
3 Any objection to binding the direct and rebuttal
4 testimony of Mr. Vitez into the record? It may be bound
5 in the record.

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STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

DIRECT PREFILED TESTIMONY OF THOMAS W. VITEZ
ON BEHALF OF ITCTRANSMISSION

December 1, 2010

* * * * *

In the matter of the application of International Transmission Company d/b/a ITC *Transmission*, for an expedited siting certificate for a transmission line, pursuant to 2008 PA 295, Part 4, for Region No. 4 (Thumb Region), as designated by the Michigan Wind Energy Resource Zone Board and the Commission's Order in Case No. U-15899.))))))) Case No. U-16200

I have been involved in the utility industry for the past 29 years. I began my career in 1981 as a co-op at the Cleveland Electric Illuminating Company (now a subsidiary of FirstEnergy Corp.). In 1986, as an Underground Engineer, I was responsible for residential development of distribution systems. In 1992, I joined The Detroit Edison Company (Detroit Edison) in its Professional

1 Opportunity Program – a two year developmental program with a variety of
2 assignments, including Transmission Planning. In 1994, I was assigned to the
3 Demand Side Management section of the Marketing Department where I
4 analyzed demand side management options. In 1995, I returned to Transmission
5 Planning where I performed studies of Detroit Edison's transmission system. In
6 1998, I was promoted to Principal Engineer in Transmission Projects.

7 When Detroit Edison formed a separate transmission subsidiary, I was
8 appointed Principal Engineer in Transmission Projects. In 2003, I was promoted
9 to become ITC's Director—Transmission Planning. I subsequently was
10 promoted to Director—Reliability Planning in 2006, and to my current position in
11 2007.

12 I am responsible for all system planning in my current position. In my
13 current position as Vice President – Planning, I oversee planning of the ITC
14 system including the ITC*Transmission*, Michigan Electric Transmission
15 Company, LLC ("METC"), ITC Midwest LLC ("ITCM") and ITC Great Plain
16 ("ITCG") systems. My work includes planning expansions to the transmission
17 system by developing planning models, performing assessments of expected
18 future system performance, and studying requests to interconnect load and
19 generation as well as ensuring compliance with any applicable planning
20 standards, setting Transmission Planning related policies and working with
21 stakeholders on Transmission Planning related issues. Load forecasting and
22 economic analysis are also part of the Transmission Planning organization. I
23 oversee this work for all ITC subsidiaries.

I also serve on a variety of industry working groups and panels. Most recently I served as the ITC representative on the Wind Energy Resource Zone Board (WERZ) representing independent transmission companies. I am the past chairman of the East Central Area Reliability Council's (ECAR) Future System Study Group as well as the ECAR Transmission System Performance Panel Working Group. I also served on the North American Electric Reliability Council (NERC) Distribution Factors Task Force. With respect to the Midwest Independent Transmission System Operator, Inc. (Midwest ISO), I am the past chair of the Midwest ISO's Expansion Planning Group. I currently participate and continue to serve as an active participant in Midwest ISO's Planning Advisory Committee. Finally, I served as Chairman of the Transmission and Distribution Group for the Michigan Public Service Commission's Capacity Needs Forum.

Q4. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE REGULATORY COMMISSIONS OR IN COURT PROCEEDINGS?

A4. Yes, I have testified before the Iowa Utilities Board in Docket No. SPU-07-11 and before the Minnesota Public Utilities Commission in Docket No. E-001/PA-07-540, both in support of ITCM's 2007 acquisition from Alliant Energy of the transmission assets of Interstate Power & Light. I have also testified before the Michigan Public Service Commission in two cases:

Case No. U-14861, In the matter of the application of International Transmission Company d/b/a *ITCTransmission*, for a certificate of public convenience and necessity for the construction of a transmission line running from and through Genoa, Oceola, Hartland, Brighton, and Milford Townships in Livingston and Oakland Counties; and, – Durant.

Case Nos. U-12780 and U-12781 addressing actions ITC had taken on its system to fulfill the 2000 PA 141 Section 10v requirement of expanding, by 2000 MWs, the transmission system's firm commercial capability if the projects identified in the Joint Report were also completed. I also supported the "Joint Report" filed by ITC, Consumers Energy Company (Consumers) and Great Lakes Energy Cooperative (Great Lakes) on December 28, 2000.

I also testified in Docket No. ER09-681-000 at the Federal Energy Regulatory Commission (FERC) to explain the technical analysis that lead to and supported ITC's Green Power Express project aimed at significantly increasing the amount of power that can be moved from regions with good renewable resources to load centers.

Q5. PLEASE DESCRIBE ITC.

A5. ITC is the nation's largest independent electric transmission company. ITC owns four operating subsidiaries, International Transmission Company, d/b/a *ITCTransmission*, Michigan Electric Transmission Company (METC), ITC Midwest (ITCM), and ITC Great Plains (ITCG), all of which are engaged in the FERC jurisdictional transmission of electricity. Through its operating subsidiaries, ITC focuses solely on electric transmission. It is ITC's mission to be a best-in-class transmission owner. ITC invests in electric transmission to enhance reliability and relieve electric transmission congestion, connect renewable energy resources to customers, and to lower the delivered energy cost to consumers.

Q6. PLEASE DESCRIBE ITCTRANSMISSION.

A6. *ITCTransmission*, which is the ITC operating subsidiary making this application, is a Michigan corporation engaged in the FERC jurisdictional transmission of

1 electricity throughout southeastern Michigan, including the Detroit metropolitan
2 area. *ITCTransmission*, incorporated on December 30, 2002, was the first
3 independently owned and operated electric transmission company in the United
4 States. *ITCTransmission* operates solely in the State of Michigan, and provides
5 open, non-discriminatory access to its transmission facilities.

6 *ITCTransmission* purchased its transmission assets from DTE Energy
7 Company (DTE Energy) on February 28, 2003. The purchase was approved by
8 the FERC on February 20, 2003 in Docket Nos. EC03-40-000 and ER03-343-
9 000. *ITCTransmission* is totally independent of DTE Energy—there are no
10 common directors between the two entities and all *ITCTransmission* employees
11 and their spouses are prohibited from owning DTE Energy stock.
12 *ITCTransmission*'s current system footprint mirrors DTE Energy's retail service
13 territory and is located in approximately 7,600 square mile area having a
14 population of approximately 4.9 million. *ITCTransmission* is a transmission
15 owning member of Midwest ISO.

16 **Q7. PLEASE DESCRIBE ITC'S OTHER OPERATING SUBSIDIARIES.**

17 **A7.** METC transmits high voltage electricity in the western and northern portions of
18 Michigan's Lower Peninsula. The METC system, acquired by ITC in October
19 2006, serves approximately 4.9 million people in 53 counties with a current
20 system footprint that mirrors Consumers Energy's retail service territory. METC's
21 operating assets include 5,400 circuit miles of transmission lines, approximately
22 44,000 transmission towers and poles and 81 stations. METC is a transmission
23 owning member of Midwest ISO.

ITCM connects more than 700 communities in almost 54,000 square miles in Iowa, southern Minnesota and northwest Illinois. ITCM acquired the electric transmission assets of Alliant Energy's Interstate Power & Light Co. subsidiary in December 2007. The company owns more than 6,800 miles of transmission lines and 208 electric transmission substations in Iowa, Minnesota, Illinois and Missouri, and maintains operating locations at Dubuque, Iowa City and Perry, Iowa; and Albert Lea and Lakefield, Minnesota. ITCM is a transmission owning member of Midwest ISO.

ITCG is a transmission-only utility which seeks to build a more robust electric transmission system providing access to reliable, non-discriminatory, competitive and low-cost energy throughout the Southwest Power Pool (SPP) region. ITCG holds transmission-only utility status in Kansas and Oklahoma with the authority to construct, own, operate, and maintain a regulated, high-voltage transmission system. ITCG is a transmission owning member of the SPP.

Q8. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A8. My testimony is submitted in support of ITC*Transmission's* application for an expedited siting certificate for a proposed transmission line to serve the area identified as Region No. 4 by the Michigan Wind Energy Resource Zone Board's (Board) October 15, 2009 Final Report (WERZ Final Report) and the Michigan Public Service Commission's January 27, 2010 Order in Case No. U-15899 (Wind Zones Order). For convenience, a copy of the WERZ Final Report and Wind Zones Order are attached as Exhibits TWV-1 and TWV-2, respectively. More specifically, to facilitate the development of wind in Michigan's Thumb area, ITC*Transmission* intends to construct a transmission line running through the

1 following municipalities: Tuscola Township, Denmark Township, Gilford
2 Township, Fairgrove Township, Akron Township, Columbia Township,
3 Sebewaing Township, Brookfield Township, Winsor Township, Oliver Township,
4 Colfax Township, Verona Township, Sigel Township, Paris Township, Minden
5 Township, Wheatland Township, Custer Township, Sandusky Township,
6 Watertown Township, Washington Township, Buel Township, Fremont Township,
7 Greenwood Township, Kenockee Township, Wales Township, Columbus
8 Township, and the City of Sandusky. My testimony describes the transmission
9 planning process for the proposed line and why the proposed line will facilitate
10 the transmission of electricity generated by wind energy conversion systems
11 located in Region No. 4 and the process ITC *Transmission* followed in obtaining
12 approval from Midwest ISO for the proposed line. My testimony also identifies
13 and describes background relating to the Board, the WERZ Final Report and the
14 Wind Zones Order.

15 **Q9. PLEASE PROVIDE AN OVERVIEW OF THE BOARD.**

16 **A9.** The Board consisted of 9 11 members: one representing the Commission, two
17 representing electric utilities, one representing alternative electric suppliers, one
18 representing the Michigan Attorney General, one representing the renewable
19 energy industry, one representing cities and villages, one representing
20 townships, one representing independent transmission companies, one
21 representing a statewide environmental organization, and one representing the
22 public at large. I served as the member representing independent transmission
23 companies.

1 The Board contracted a consultant with expertise in land usage and policy
2 related issues to conduct modeling and other studies related to wind energy in
3 Michigan. On October 15, 2009, the Board issued the WERZ Final Report
4 detailing its findings and listing the regions of Michigan with the highest level of
5 wind energy harvest potential and describing the estimated maximum and
6 minimum energy production potential for each identified region of this state. In
7 that report, the Board identified the four regions in the state with the highest level
8 of wind energy harvest potential; defined the estimated minimum and maximum
9 generating capacity in megawatts that could be installed in each identified region;
10 gave an estimate of the annual maximum and minimum energy production
11 potential for each identified region; and estimated the maximum wind generation
12 capacity already in service in each identified region.

13 **Q10. WHAT WAS ITC *TRANSMISSION* REQUIRED TO GIVE TO THE BOARD?**

14 **A10.** ITC *Transmission* was required to identify existing or new transmission
15 infrastructure necessary to deliver maximum and minimum wind energy
16 production potential for each of the potential wind regions the Board identified.
17 The information regarding the transmission infrastructure was required to be
18 submitted to the Board for its review. On November 30, 2009, ITC *Transmission*,
19 METC, and Wolverine Power Supply Cooperative, Inc. (WPSC) submitted a joint
20 report, entitled "Michigan Wind Zones Transmission Analysis" (Joint Report). I
21 was responsible for overseeing the technical information in the report related to
22 ITC *Transmission* and METC, and the drafting of ITC *Transmission* and METC's
23 portions of the report. It is attached as Exhibit TWV-3.

1 **Q11. PLEASE DESCRIBE THE JOINT REPORT IDENTIFYING THE EXISTING AND**
2 **NEW INFRASTRUCTURE NECESSARY TO DELIVER THE MAXIMUM AND**
3 **MINIMUM WIND ENERGY POTENTIAL.**

4 **A11.** In order to assess the transmission infrastructure needs for each of the 4
5 Regions identified by the Board, ITC (on behalf of *ITC*Transmission and METC)
6 and WPSC each individually analyzed their transmission facilities located within
7 or adjacent to the regions. WPSC has transmission facilities within or adjacent to
8 Region Nos. 1 through 3 and ITC has transmission facilities within or adjacent to
9 all 4 Regions. Once individual analysis was performed by each entity, for
10 efficiency purposes, one report was developed identifying the backbone
11 transmission facilities across both WPSC and ITC service territories that would
12 be required to support the minimum and maximum wind generation capacity in
13 each region as identified by the Board. For Region No. 1 no upgrades or new
14 facilities were required for either the METC or WPSC service territories in order
15 to support the minimum or maximum capabilities as identified by the Board. For
16 Region Nos. 2 and 3, upgrades to existing facilities were identified as necessary
17 on both the METC and WPSC systems in order to support the minimum and
18 maximum wind potential as identified by the Board. Because WPSC does not
19 have facilities located within or adjacent to Region No. 4, the Thumb region, no
20 WPSC facilities were identified as necessary to support the minimum or
21 maximum wind potential in Region No. 4. As further described below, the report
22 indicated that extensive backbone transmission facilities would be required in the
23 *ITC*Transmission footprint to support the minimum and maximum wind potential
24 in Region No. 4, the Thumb region.

1 **Q12. PLEASE CLARIFY WHAT YOU MEAN WHEN USING THE TERM**
2 **“BACKBONE” TRANSMISSION.**

3 **A12.** Backbone transmission is the transmission that supports the ability to move
4 power from an area to the rest of the grid. In the context of this testimony,
5 backbone transmission is the transmission needed to move power out of the
6 thumb wind zone to the rest of the grid. Additional transmission may be needed
7 to bridge the gap between new wind generation and the backbone transmission
8 system. This additional transmission will be highly dependent upon the actual
9 geographic location and size of the wind generation facilities. More detailed
10 studies to determine these interconnection facilities would likely occur through
11 the Midwest ISO generation interconnection process after the specifics regarding
12 wind generation locations and amounts are established.

13 **Q13. WHAT IS THE “MIDWEST ISO GENERATION INTERCONNECTION**
14 **PROCESS”?**

15 **A13.** The Midwest ISO Generation Interconnection process is commonly referred to as
16 the “queue” or “generation interconnection queue.” The WERZ Final Report is
17 attached as Exhibit TWV-1. Beginning on page 37 of the WERZ Final Report is a
18 section that describes the generation interconnection queue process.

19 **Q14. ARE THERE ANY ADDITIONAL GENERATION INTERCONNECTION QUEUE**
20 **REQUESTS FOR THE THUMB WIND ZONE BEYOND THOSE SHOWN IN**
21 **THE WERZ FINAL REPORT?**

22 **A14.** Yes. Current Midwest ISO generation interconnection queue requests for the
23 thumb wind zone include projects J074, J075 and J122 that were not listed in the
24 WERZ Final Report. Project J074 is a request for interconnection of 350 MWs in
25 northeast Huron county. Project J075 is a request for interconnection of 350
26 MWs in west Huron county and project J122 is a request for interconnection of

60 MWs in northeast Huron county. All of these interconnection requests are for wind generation.

Q15. HOW DID ITC USE THIS GENERATION INTERCONNECTION QUEUE INFORMATION?

A15. The generation interconnection queue information was used as an input by the company to decide that beginning construction activities in the west side of the Thumb would best align with current generation interconnection queue requests.

Q16. PLEASE BRIEFLY SUMMARIZE THE WERZ FINAL REPORT'S FINDINGS FOR THE FOUR SEPARATE REGIONS IN MICHIGAN.

A16. The Board identified four areas in Michigan with the highest wind energy harvest potential and specified the minimum and maximum nameplate capabilities for these four regions. From the Final Report, the Board's findings are summarized below:

<u>Region</u>	<u>Minimum Nameplate Wind Power Capability</u>	<u>Maximum Nameplate Wind Power Capability</u>
Region No. 4 – Thumb Region	2,367 MW	4,236 MW
Region No. 1 – Allegan, et al	249 MW Region 4 is 851% greater	445 MW Region 4 is 851% greater
Region No. 2 – Antrim, et al	153 MW Region 4 is 1,446% greater	274 MW Region 4 is 1,446% greater
Region No. 3 – Benzie, et al	652 MW Region 4 is 263% greater	1,167 MW Region 4 is 263% greater

As this chart makes clear, Region No. 4 had by far the most potential for wind development.

Q17. WHAT OCCURRED FOLLOWING THE ISSUANCE OF THE WERZ BOARD'S FINAL REPORT AND SUBMISSION OF THE JOINT REPORT?

A17. The WERZ Final Report was sent to the Commission for its consideration during the process of identifying wind zones. On January 27, 2010, the Commission issued the Wind Zone Order designating Region No. 4, the Thumb Region, as the "primary wind energy resource zone." Based on the WERZ Final Report, Region No. 4 had by far the most wind energy potential.

Q18. DID THE COMMISSION'S ORDER ADDRESS THE MINIMUM AND MAXIMUM MEGAWATT OUTPUT FOR REGION 4?

A18. Yes. The order included, in Table 2, the Board's findings on minimum and maximum nameplate capability for Region No. 4 (2,367 MW as the minimum and 4,236 MW as the maximum). That table is summarized above in response to Question 16.

Q19. DID THE ORDER ADDRESS TRANSMISSION UPGRADES FOR REGION NO. 4?

A19. Yes. On page 12 of the Order, the Commission stated that the "vast potential for wind development in Region 4...reveals a need to upgrade that area's transmission infrastructure." The Commission's Order went on to state that "significant transmission system enhancements would be required" in Region 4.

Q20. WHAT IS THE SIGNIFICANCE OF THE COMMISSION DESIGNATING REGION NUMBER 4 AS THE PRIMARY WIND ZONE?

A20. It is my understanding that once an area is designated by the Commission as a wind energy resource zone, an independent transmission company may apply for an expedited siting certificate for a project so that the appropriate transmission

1 infrastructure will exist in the wind energy resource zone in order for wind
2 projects to develop. Essentially, designating an area as a wind zone potentially
3 expedites the necessary transmission upgrades in order to facilitate wind
4 development. The Commission's designation of Region No. 4 as the Primary
5 Wind Zone led to this application for an expedited certificate for siting a
6 transmission line in Region No. 4.

7 **Q21. BASED ON THE MINIMUM AND MAXIMUM MW OUTPUTS TO BE**
8 **PRODUCED BY WIND ENERGY CONVERSION SYSTEMS IN REGION NO. 4**
9 **THAT WERE IDENTIFIED BY THE BOARD AND LATER ADOPTED BY THE**
10 **COMMISSION, DID YOU DEVELOP TRANSMISSION MODELING FOR**
11 **REGION NO. 4?**

12 **A21.** Yes, I oversaw both the development of the models that were utilized to
13 determine the transmission plan and the development of the backbone
14 transmission facilities that will be required to meet the minimum and maximum
15 capabilities identified by the Board and adopted by the Commission.

16 **Q22. IN YOUR PROFESSIONAL OPINION, ARE "SIGNIFICANT TRANSMISSION**
17 **SYSTEM ENHANCEMENTS REQUIRED" IN REGION NO. 4 TO DELIVER**
18 **ENERGY FROM WIND ENERGY CONVERSION SYSTEMS REACHING THE**
19 **MINIMUM AND MAXIMUM NAMEPLATE CAPACITIES AS IDENTIFIED?**

20 **A22.** Yes. As explained in the Joint Report attached as Exhibit TWV-3, the ability to
21 move power out of the area designated as Region No. 4 on ITC*Transmission's*
22 existing facilities is hampered because ITC*Transmission's* existing facilities in
23 Region No. 4 are already at, or very near, capacity. The current transmission
24 system connecting Region No. 4 (Michigan's Thumb area) with the rest of the
25 Michigan transmission system consists of two relatively low-capacity 120 kV
26 transmission circuits. One traversing south in the western half of the region that
27 is capable of carrying approximately 225 megawatts, and another traversing

1 south along the eastern half of the region that is capable of carrying
 2 approximately 150 megawatts. The current system is shown on page 16 of
 3 Exhibit TWV-3. Transmission planning studies consider many factors such as
 4 the ability of the transmission system to withstand potential outages, the
 5 predicted distribution of flows across various facilities and the existing usage of
 6 transmission capacity. Even without considering the factors used in transmission
 7 planning studies, the current capacity of the transmission facilities can be seen to
 8 be much lower than the minimum and maximum wind capacity levels identified
 9 for Region No. 4. In fact, there have been numerous generation interconnection
 10 studies conducted that have documented that there is essentially no additional
 11 transmission capacity available in Michigan's Thumb area¹. For those reasons,
 12 ITC *Transmission* is filing this application for the proposed transmission line.

13 **Q23. PLEASE EXPLAIN THE METHODOLOGIES USED IN DEVELOPING THE**
 14 **TRANSMISSION PLAN.**

15 **A23.** The effort to develop a transmission backbone capable of supporting the Board-
 16 identified minimum and maximum wind generation capacity for this region began
 17 by considering a rebuild of the 120 kV circuits that traverse the Thumb region
 18 from the southwest region of the Thumb to the north central region and down the
 19 southeast side, referred to herein as the "Thumb Loop," utilizing a typical 230 kV
 20 double-circuit tower configuration. This would be accomplished by replacing the
 21 existing single-circuit 120 kV structures with double-circuit 230 kV structures.

¹Examples of such studies may be found at the following web links:

http://www.midwestmarket.org/publish/Folder/7be606_10b7aacd66e_-79870a48324a?rev=1

http://www.midwestmarket.org/publish/Folder/75871b_126e10582e3_-7c030a48324a?rev=1

1 Such a configuration would provide four 230 kV circuits exiting the Thumb area.²
2 However, this approach was insufficient to carry the minimum (and thus
3 maximum) wind capacity identified by the Board.

4 The next consideration was utilizing a special conductor. This special
5 conductor would be constructed so that it could operate at higher temperatures
6 and would be more expensive than conductors typically used by
7 ITC *Transmission* for 230 kV lines. Special hardware would have to be used that
8 could also operate at higher temperatures. However, these hi-temp 230 kV
9 double-circuit tower configurations, allowing for four 230 kV circuits to exit the
10 Thumb area, utilizing existing rights-of-way to the extent possible, were also
11 found to be insufficient even for the minimum capacity.

12 Because the double-circuit 230 kV configurations discussed above were
13 found to be inadequate for the minimum wind generation capacity, it would be
14 necessary either to continue a 230 kV build-out by adding additional 230 kV
15 circuits exiting the Thumb area, or to rebuild the existing Thumb Loop utilizing a
16 higher voltage configuration. Both of these options were considered.

17 First, in order to support the identified minimum and maximum capacities
18 with 230 kV facilities, a rebuild of the existing 120 kV Thumb Loop was modeled
19 with double-circuit 230 kV towers and the larger conductor that can be operated
20 at higher temperatures, plus the addition of two more circuits on a new double-
21 circuit tower line that would extend north from a 230 kV station at or near the

² The four circuits come from two circuits on the double circuit tower in the western thumb loop and two circuits on the double circuit tower in the eastern thumb loop.

1 existing Wyatt station and run south down the west side of the Thumb to a new
2 station that would connect the four new 230 kV circuits, two along the exiting
3 right-of-way to the extent possible and two to the north and west of the existing
4 right-of-way, to the existing 345 kV system that traverses north and south just
5 west of the Thumb area. This configuration would allow six 230 kV circuits to exit
6 the Thumb area: two along the east side and four along the west side. Based on
7 the input assumptions considered, this configuration was shown to be able to
8 support the minimum identified wind generation capacity but not the maximum.

9 In order to support the connection of wind generation up to the maximum
10 identified capacity utilizing 230 kV facilities the configuration with six 230 kV
11 circuits discussed above along with the addition of two more 230 kV circuits
12 exiting the Thumb area and at least one 230 kV circuit within the Thumb area
13 were analyzed. The two new facilities exiting the Thumb area would extend from
14 a new station north of the existing Wyatt station down the ~~west~~ east side of the
15 Thumb to the existing Greenwood station. A new 230 kV facility within the Thumb
16 was modeled from the existing Wyatt station to a new 230 kV station at or near
17 the existing Harbor Beach station. This would allow eight 230 kV circuits to exit
18 the Thumb area, four along the east side and four along the west side and was
19 shown to be able to support both the minimum and maximum wind generation
20 capacity as identified by the Board.

21 The second option considered to support the Board-identified minimum
22 and maximum capacities was to add a double-circuit 345 kV loop around the
23 Thumb. This would allow for four new 345 kV circuits to exit the Thumb area,

two circuits on one double circuit tower line along the western half of the Thumb and two circuits on one double circuit tower line along the eastern half of the Thumb as opposed to six or eight circuits as mentioned in the previous 230 kV scenarios. Based on the input assumptions considered, this configuration was shown to be capable of supporting both the minimum and maximum wind generation capacities identified in Region No. 4.

In this proceeding, ITC *Transmission* has proposed the four new 345 kV circuits option because it was found to be the least expensive option that would support both the minimum and maximum wind generation capacities as identified by the Board. Further, the four new 345 kV circuits option was also found to result in lower losses.

Q24. PLEASE DESCRIBE THE ELECTRICAL CONNECTIONS OF THE PROPOSED TRANSMISSION LINE AND ITS INTENDED USE.

A24. The proposed transmission line will connect into a new station to south and west of the Thumb area that will tap three existing 345 kV circuits, one between the Manning and Thetford 345 kV stations, one between the Hampton and Pontiac 345 kV stations and one between the Hampton and Thetford 345 kV stations. Two new 345 kV circuits will extend from this new station, to be called Baker, up to a new station, to be called Rapson that will be located to the north and east of the existing 120 kV Wyatt station. In order to support the existing 120 kV system in the northern tip of the Thumb, the two existing 120 kV circuits between the Wyatt and Harbor Beach stations, one that connects directly between Wyatt and Harbor Beach and one that connects Wyatt to Harbor Beach through the Seaside station, will be cut into the new Rapson station. From the Rapson station, two

345 kV circuits will extend down the east side of the Thumb to the existing Greenwood 345 kV station and then continue south to the point where the existing three ended Pontiac to Greenwood to Belle River 345 kV circuit combines. To facilitate connection to the existing transmission system a new 345 kV station, to be called Fitz, is included in the plan at a site due south of the existing Greenwood station and just north of where the existing three ended Pontiac to Greenwood to Belle River 345 kV circuit combines. The Fitz station will then tap the existing Pontiac to Belle River to Greenwood 345 kV circuit and the existing Belle River to Blackfoot 345 kV circuit. Transformation from the 345 kV facilities to the 120 kV facilities will be necessary to maintain continuity to the existing system in and around the Sandusky area. The existing 120 kV facilities between the site that will facilitate the new 345 kV to 120 kV transformation can be utilized to facilitate a connection between the new 345 kV to 120 kV transformation and the existing 120 kV facilities in the Sandusky area. The proposed transmission line will provide a transmission system backbone that enables the minimum and maximum wind potential in Region No. 4, and will facilitate transmission of electricity generated by wind energy conversion systems located in Region 4.

Q25. PLEASE DESCRIBE HOW THE PROPOSED TRANSMISSION LINE WILL FACILITATE REGION NO. 4 WIND POTENTIAL.

A25. As explained in the Joint Report attached as Exhibit TWV-3 and above in Question 22, the ability to move power out of the area designated as Region No. 4 on ITC *Transmission's* existing facilities is hampered because existing facilities in Region No. 4 are already essentially at capacity. The current capacity of the

facilities within and exiting the Thumb area is significantly lower than the minimum and maximum wind capacity levels identified for Region No. 4.

Q26. IS THE PROPOSED LINE OF THE APPROPRIATE CAPABILITY TO ENABLE REGION NO. 4 WIND POTENTIAL AS IDENTIFIED IN THE WERZ FINAL REPORT?

A26. Yes.

Q27. PLEASE DESCRIBE HOW YOU REACHED THIS CONCLUSION.

A27. When performing the studies utilized to test the proposed line, the system was tested with various combinations of power transfers across the Thumb and the rest of the transmission system and the addition of various combinations of wind generation located within Region No. 4. (See the Joint Report, attached as Exhibit TWV-3). This included evenly distributing wind generation across the Thumb area up to both the minimum and maximum capacities identified by the Board and also testing variations of wind generation locations including considering more wind generation locating on the western side of the Thumb and more wind generation locating on the eastern side of the Thumb. In all of the varying generation location scenarios, transfers across the rest of the system, from the east to the west and from the west to the east were also tested. In order to create the models utilized for these studies, several generation dispatch scenarios were considered allowing the line to be tested for a considerable array of power flows across the system. These various configurations and scenarios were studied considering the impact of potential transmission system outages. For all of the various power system transfers and wind generation location and dispatch scenarios the line was shown to be able to support wind generation capacity up to both the minimum and maximum levels as identified by the Board.

1 In this way, the many factors utilized in transmission planning studies (such as
2 the ability of the transmission system to withstand potential outages, the
3 predicted distribution of flows across various facilities and the existing usage of
4 transmission capacity) were considered.

5 **Q28. HAVE YOU HAD A CHANCE TO REVIEW MR. THORNHILL'S TESTIMONY?**

6 **A28.** Yes, I have.

7 **Q29. DO YOUR CONCLUSIONS REGARDING THE LINE'S POTENTIAL TO**
8 **ENABLE AND FACILITATE REGION NO. 4'S WIND POTENTIAL APPLY TO**
9 **BOTH THE PROPOSED ROUTE AND THE ALTERNATE ROUTE, AS**
10 **DESCRIBED IN MR. THORNHILL'S TESTIMONY?**

11 **A29.** Yes, they do. Regardless of whether the proposed line uses the Proposed Route
12 or the Alternate Route, the line will facilitate and enable Region No. 4's wind
13 potential for the reasons stated in response to Questions 22, 25, and 27 above.

14 **Q30. WHAT IS THE CURRENT PROJECTED COST FOR THE PROPOSED LINE?**

15 **A30.** \$510,000,000.

16 **Q31. ARE YOU FAMILIAR WITH THE MIDWEST INDEPENDENT SYSTEM**
17 **OPERATOR (MIDWEST ISO)?**

18 **A31.** Yes. As mentioned in my qualifications, I participate in the Midwest ISO Planning
19 Advisory Committee. Further, *ITCTransmission*, METC and ITCM transmission
20 plans are vetted through Midwest ISO's FERC Order 890 compliant planning
21 process. Since these operating companies provide a great deal of input into the
22 Midwest ISO planning process, such as information on potential issues on the
23 transmission system and projects intended to address those issues, the
24 *ITCTransmission* planning department has significant interaction with Midwest
25 ISO and is very familiar with the planning processes used by Midwest ISO.

Q32. WHAT IS MIDWEST ISO?

A32. Midwest ISO is the nation's first FERC approved Regional Transmission Organization (RTO). It encompasses 1.1 million square miles of member transmission systems from Manitoba, Canada to Kentucky and from western Pennsylvania to eastern Nebraska.

Q33. HOW IS MIDWEST ISO INVOLVED IN TRANSMISSION PLANNING?

A33. Midwest ISO is the NERC Planning Authority and performs regional planning of the transmission systems of its member Transmission Owners in accordance with FERC Planning Principles delineated in Order 890. Midwest ISO performs planning functions collaboratively with its Transmission Owners, with stakeholder input throughout, while also providing an independent assessment and perspective of the needs of the transmission system overall. Midwest ISO develops the Midwest Transmission Expansion Plan (MTEP), which is a regional plan to ensure the reliability of the regional transmission system and identifies transmission expansion necessary to support the competitive supply of electric power. The Midwest ISO MTEP process incorporates the views of the many transmission stakeholders, and also assures that the transmission projects developed by individual Transmission Owners such as ITC *Transmission* will be properly integrated with each other and with the region and subjected to scrutiny by and through the Midwest ISO stakeholder processes.

1 **Q34. HAS MIDWEST ISO BEEN INFORMED OF THE PROPOSED TRANSMISSION**
2 **LINE?**

3 **A34.** Yes. On April 14, 2010, ITC*Transmission* submitted an "Out-of-Cycle Project
4 Review Request" to Midwest ISO for the proposed transmission line. I was
5 responsible for this submission.

6 **Q35. WHAT NOTIFICATION DID ITC*TRANSMISSION* PROVIDE TO THE**
7 **COMMISSION THAT ITC*TRANSMISSION* WOULD REQUEST THAT**
8 **MIDWEST ISO PERFORM AN EVALUATION OF THE PROPOSED**
9 **TRANSMISSION LINE?**

10 **A35.** ITC*Transmission* provided the letter attached as Exhibit TWV-4 as notification to
11 the Commission that it intended to request that Midwest ISO evaluate the
12 proposed line.

13 **Q36. WHAT INFORMATION DID ITC*TRANSMISSION* PROVIDE MIDWEST ISO**
14 **WHEN ITC*TRANSMISSION* REQUESTED EVALUATION OF THE PROPOSED**
15 **TRANSMISSION LINE?**

16 **A36.** ITC*Transmission* provided the "Out-of-Cycle Project Review Request," which is
17 attached as Exhibit TWV-5, the Joint Report which is attached as Exhibit TWV-3,
18 and provided Midwest ISO with technical information about the proposed line,
19 such as the electrical characteristics of the line and how the line was intended to
20 be interconnected with the existing transmission system.

21 **Q37. PLEASE EXPLAIN THE OUT-OF-CYCLE REVIEW PROCESS.**

22 **A37.** The out-of-cycle review process at Midwest ISO is intended to allow for the full
23 evaluation of projects using the same process used within the Midwest ISO
24 Transmission Expansion Plan (MTEP) development process with the exception
25 that out-of-cycle reviews are done on an expedited timeline.

Q38. WHY DID ITC TRANSMISSION ASK FOR THE EXPEDITED TIMELINE OF THE OUT-OF-CYCLE PROCESS?

A38. The out-of-cycle review and request for approval is imperative to allow the Michigan stakeholders to meet timing directives to achieve transmission capacity to support development of wind energy in the state and a renewable portfolio standard that begins in 2013 and ramps up in 2015. It is my opinion that if Midwest ISO approval had been received within the normal MTEP timeline, it would not have left sufficient time to provide the transmission necessary for utilities and developers to meet the state law requirements.

Q39. PLEASE BRIEFLY DESCRIBE THE EVENTS THAT OCCURRED AT MIDWEST ISO RELATING TO THE PROPOSED TRANSMISSION LINE IN THE OUT-OF-CYCLE REVIEW PROCESS.

A39. This project was first introduced at the East MTEP10 Subregional Planning Meeting (SPM) on December 8, 2009. It was formally submitted to Midwest ISO for out of cycle review on April 14, 2010. It was subsequently discussed in at least 10 other Midwest ISO meetings, including additional SPMs, Planning Advisory Committee Meetings, Planning Sub Committee Meetings, and Michigan Technical Task Force Meetings. Participating stakeholders raised a number of questions about the project including timing, cost, and alternatives to meet the state requirements. Those items were each thoroughly vetted by the Midwest ISO staff and reviewed throughout the process. In between these public meetings to discuss the project, Midwest ISO developed models of the area, including wind associated with Region No. 4 minimum and maximum potentials and performed technical evaluations of the impact on the transmission system and potential transmission system upgrades. After this process, Midwest ISO

1 staff recommended the Midwest ISO Board approve the proposed transmission
2 line. The System Planning Committee of the Midwest ISO Board of Directors
3 discussed the proposed transmission line on August 3, 2010. Both "Briefing on
4 Michigan Thumb Project Out of Cycle Review Request" dated July 28, 2010,
5 which is attached as Exhibit TWV-6, and "ITC Michigan Thumb Loop Project Out
6 of Cycle Approval Recommendation" dated August 2010, which is attached as
7 Exhibit TWV-7, were included in the information posting relating to the System
8 Planning Committee of the Midwest ISO Board of Directors August 3, 2010
9 meeting. The full Midwest ISO Board of Directors discussed the proposed
10 transmission line on August 19, 2010.

11 **Q40. DID MIDWEST ISO APPROVE THE PROPOSED TRANSMISSION LINE?**

12 **A40.** Yes. A letter from Midwest ISO indicating approval is attached as Exhibit TWV-8.

13 **Q41. DID YOU PROVIDE INFORMATION REGARDING THE PROPOSED LINE TO**
14 **AN EXPERT WITNESS IN THIS CASE?**

15 **A41.** Yes, I provided the anticipated future line loads, consisting of currents in all of the
16 proposed circuits for this project under certain conditions to Mr. Michael Silva for
17 the purpose of calculations and opinions on the electric and magnetic fields of
18 the proposed facilities. The conditions considered were "No Wind" "Minimum
19 Wind" and "Max Wind" for the system in normal configuration.

20 **Q42. DOES THIS CONCLUDE YOUR TESTIMONY?**

21 **A42.** Yes, it does.
22

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a *ITCTransmission*, for
an expedited siting certificate for a transmission line,
pursuant to 2008 PA 295, Part 4, for Region No. 4
(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

PREFILED REBUTTAL TESTIMONY

OF

THOMAS W. VITEZ

ON BEHALF OF ITCTRANSMISSION

November 12, 2010

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of International
Transmission Company d/b/a ITC*Transmission*, for
an expedited siting certificate for a transmission line,
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(Thumb Region), as designated by the Michigan Wind
Energy Resource Zone Board and the Commission's
Order in Case No. U-15899.

Case No. U-16200

REBUTTAL TESTIMONY OF THOMAS W. VITEZ
ON BEHALF OF ITC*TRANSMISSION*

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

A1. My name is Thomas W. Vitez. My business address is 27175 Energy Way, Novi,
Michigan 48377.

**Q2. ARE YOU THE SAME THOMAS W. VITEZ WHO PREVIOUSLY FILED
TESTIMONY IN THIS CASE?**

A2. Yes.

Q3. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A3. I am submitting testimony in rebuttal to MMPA and MMEA witness David Walters
and ABATE witness James Dauphinais, as filed in this docket on October 29,
2010.

REBUTTAL OF MMPA AND MMEA

**Q4. HAVE YOU REVIEWED THE TESTIMONY OF MR. DAVID WALTERS FILED
IN THIS CASE?**

A4. Yes.

Q5. TO WHAT PORTION OF MR. WALTERS'S TESTIMONY IS YOUR REBUTTAL SUBMITTED?

A5. My testimony focuses on Mr. Walters's suggestion that the Wind Energy Resource Zone Board ("WERZB") considered Michigan's Renewable Portfolio ("RPS") standard when determining the Wind Zone's minimum and maximum wind potential. I also address Mr. Walters's testimony that ITC's proposed transmission line being able to interconnect 5,000 MW of wind energy.

Q6. IN RESPONSE TO QUESTION 17 IN HIS TESTIMONY, MR. WALTERS STATES "THE ASSUMPTION WAS THE 10% MANDATE ESTABLISHED IN ACT 295 FOR IN-STATE RENEWABLE RESOURCES CREATED A NEED FOR WIND." DID THE WERZB CONSIDER THE RPS NOTED BY MR. WALTERS WHEN DETERMINING THE MINIMUM AND MAXIMUM WIND POTENTIAL OF THE WIND ZONE?

A6. No. While the WERZB recognized that the RPS existed, and held several discussions focusing on the relationship between the RPS and the Wind Zone's potential, the WERZB eventually determined that it was not statutorily charged with connecting the minimum and maximum wind zone potential (or any other aspects of the wind zones identified by the WERZB) to the RPS.

Q7. MR. WALTERS STATES THAT ITC'S PROPOSED DESIGN OF TWO DOUBLE CIRCUIT 345 KV LINES HAS A "WIND INTERCONNECTION CAPABILITY OF 5,000 MEGAWATTS." DO YOU AGREE WITH THIS STATEMENT?

A7. Yes, the interconnection capability of the proposed configuration is approximately 5,000 MW.

Q8. WAS THE OBJECTIVE IN DESIGNING THE PROPOSED TRANSMISSION LINE TO ACHIEVE 5,000 MW?

A8. No, the objective was to achieve the appropriate transmission capability to enable the minimum and maximum wind potential of the region IV, primary wind zone (the "Wind Zone") to be realized.

Q9. WHY DOES THE PROPOSED TRANSMISSION LINE HAVE A CAPABILITY OF APPROXIMATELY 5,000 MEGAWATTS?

A9. Although the maximum wind potential identified by the WERZB for the Wind Zone was 4,236 MW, transmission upgrades are typically "lumpy" in nature. It is not typically possible to provide exactly the target amount of transmission capability. As such, transmission upgrades typically must be made in "lump" amounts that exceed the objective.

REBUTTAL OF ABATE

Q10. HAVE YOU REVIEWED THE TESTIMONY OF MR. DAUPHINAIS FILED IN THIS CASE?

A10. Yes, I have.

Q11. TO WHAT PORTION OF MR. DAUPHINAIS'S TESTIMONY IS YOUR REBUTTAL SUBMITTED?

A11. My testimony focuses on (i) Mr. Dauphinais's assertion that the proposed transmission line does not provide the appropriate capability to enable the wind potential of the Wind Zone to be realized, (ii) Mr. Dauphinais's contentions that the Midwest ISO was under a "misguided" presumption, (iii) Mr. Dauphinais's statement that ITC has stated that the Midwest ISO studied whether a single-circuit line could support the minimum potential wind capacity established by the

1 WERZB, (iv) Mr. Dauphinais's assertions that a single circuit 345 kV line will be
2 of the appropriate capability to satisfy the minimum potential identified by the
3 WERZB, (v) Mr. Dauphinais's contentions that increasing a line's ampacity will
4 increase transmission capability, and, (vi) Mr. Dauphinais's assertion that the
5 proposed transmission line could be "very easily modified."

6
7 **Q12. HOW DO YOU RESPOND TO MR. DAUPHINAIS'S STATEMENT ON PAGE 5,**
8 **LINES 5 THROUGH 7 OF HIS TESTIMONY, THAT "THE PROPOSED**
9 **PROJECT DOES NOT PROVIDE THE APPROPRIATE CAPABILITY TO**
10 **ENABLE THE WIND POTENTIAL OF THE THUMB AREA TO BE REALIZED"?**

11 **A12.** I believe that Mr. Dauphinais is incorrect. As was determined through the
12 Midwest ISO's FERC Order 890 open and transparent stakeholder process, the
13 double circuit 345 kV transmission line proposed by ITC in this case achieves the
14 appropriate capability to enable the minimum **and** maximum wind potential of the
15 Wind Zone to be realized.

16 **Q13. HOW DO YOU RESPOND TO MR. DAUPHINAIS'S ASSERTION THAT THE**
17 **MIDWEST ISO OPERATED UNDER A "MISGUIDED PRESUMPTION"**
18 **DURING ITS VETTING OF THE PROPOSED TRANSMISSION LINE?**

19 **A13.** I do not agree with Mr. Dauphinais's characterization of the Midwest ISO's
20 consideration of the proposed transmission line. The Midwest ISO's FERC Order
21 890 open and transparent stakeholder process considered whether the proposed
22 transmission line should be planned for the minimum and maximum potential
23 identified by the WERZB. I personally took part in that process, which allowed
24 for public comments from any interested party. In other words, interested parties

could raise concerns with the Midwest ISO if they believed that the Midwest ISO was operating under an incorrect or "misguided" presumption. The open and transparent stakeholder process resulted in the Midwest ISO targeting enabling the minimum **and** maximum wind potential of the Wind Zone as the appropriate capability for the proposed transmission line. As noted on page 2 of Exhibit TWV-6, which was attached to my direct testimony in this case, the Midwest ISO System Planning Committee stated that the proposed transmission line was developed "to deliver a minimum (2,367 MW) and maximum (4,236 MW) wind production potential from wind resources in the Thumb."

a letter from the Midwest ISO staff to

Q14. TO THE BEST OF YOUR KNOWLEDGE, DID MR. DAUPHINAIS EVER PARTICIPATE IN ANY OF THE MIDWEST ISO FERC ORDER 890 OPEN AND TRANSPARENT STAKEHOLDER DISCUSSIONS REGARDING THE PROPOSED TRANSMISSION LINE?

A14. No. In fact, in response to discovery request ITC-ABATE-2-9, Mr. Dauphinais admitted that he did not participate in any such meeting.

Q15. ON PAGE 12, LINES 17 AND 18 OF HIS TESTIMONY, MR. DAUPHINAIS STATES THAT A SINGLE-CIRCUIT, DOUBLE-CIRCUIT CAPABLE TRANSMISSION LINE WOULD INITIALLY PROVIDE HALF THE TRANSMISSION CAPABILITY OF THE PROPOSED PROJECT OR NOMINALLY ABOUT 2,500 MW. DO YOU HAVE AN OPINION ON MR. DAUPHINAIS'S ANALYSIS?

A15. Yes—I believe his analysis is flawed. Mr. Dauphinais appears to have used simple math in making this assertion. In other words, he divided 5,000 MW by 2.

1 But simple math is not sufficient to determine the transmission system capacity
2 amount that would result from such a change. It is not a simple matter of doing a
3 ratio. Instead, to determine the capacity of such a proposal, transmission
4 planning studies are required that consider the impacts of impedance changes,
5 impacts on neighboring or underlying systems, and other potential impacts under
6 the wide range of scenarios that might apply.

7 When asked about his calculations in discovery, Mr. Dauphinais stated that he at
8 least partially relied upon the document now attached as Exhibit TWV-9 to this
9 rebuttal testimony . On page 7 of that document, ITC discusses the theoretical
10 maximum amount of generation that could be connected by analyzing the ability
11 of the wire in service to carry power. The number represents the simple sum of
12 the individual capacities of the wires in service and represents the theoretical
13 upper limit on how much power could be transported for a give scenario. As was
14 previously discussed, the actual ability of the transmission system to transmit
15 power is determined through planning studies. The ability to move power out of
16 the Thumb for the "4-345 kV" on page 7 of Exhibit TWV-9, which is
17 representative of the double circuit line proposed by ITC, has been determined
18 by planning analysis to be 5,000 MWs. From that table, the theoretical "N-2"
19 ability of the "4-345 kV system is also found to be 5000 MWs. Importantly,
20 however, the theoretical "N-2" capability of the "2-345 kV" transmission system in
21 the Thumb, which corresponds to Mr. Dauphinais's single circuit 345 kV line, is
22 **zero MWs.**

1 **Q16. ON PAGE 12, LINES 7 THROUGH 12 OF HIS TESTIMONY, MR. DAUPHINAIS**
2 **STATES THAT HIS 2,500 MW CAPABILITY FIGURE FOR A SINGLE-**
3 **CIRCUIT, DOUBLE-CIRCUIT CAPABLE 345 KV TRANSMISSION LINE IS**
4 **BASED ON THE WORST CASE NORTH AMERICAN ELECTRIC RELIABILITY**
5 **CORPORATION (“NERC”) CATEGORY B OR C CONTINGENCY**
6 **APPLICABLE TO THE PROPOSED PROJECT BUILT AS A SINGLE-CIRCUIT**
7 **LINE. IF THE PROPOSED LINE WERE CONSTRUCTED AS A SINGLE-**
8 **CIRCUIT, DOUBLE-CIRCUIT CAPABLE 345 KV TRANSMISSION LINE, ARE**
9 **THERE ANY NERC CONTINGENCY TYPES THAT ITC WOULD HAVE TO**
10 **CONSIDER THAT MR. DAUPHINAIS DOES NOT DISCUSS IN HIS DIRECT**
11 **TESTIMONY?**

12 **A16. Yes.**

13 **Q17. PLEASE DESCRIBE ANY CONTINGENCY TYPES NOT DISCUSSED BY MR.**
14 **DAUPHINAIS THAT CONCERN YOU AS THEY WOULD RELATE TO A**
15 **SINGLE-CIRCUIT, DOUBLE-CIRCUIT CAPABLE 345 KV TRANSMISSION**
16 **LINE AS PROPOSED BY MR. DAUPHINAIS.**

17 **A17. There are at least two contingency types not discussed by Mr. Dauphinais that**
18 **would concern me if a single-circuit, double-circuit capable line was constructed**
19 **as proposed by Mr. Dauphinais.**

20 The first contingency type of concern not discussed by Mr. Dauphinais arises
21 from the March 13, 2008 NERC Planning Committee development of an
22 interpretation of TPL-002-0 and TPL-003-0 Requirement R1.3.12 that included
23 the following language “TPL-002-0 and TPL-003-0 explicitly provide that the

1 inclusion of planned (including maintenance) outages of any bulk electric
2 equipment at demand levels for which the planned outages are required.” (See
3 Exhibit TWV-10).

4 The second contingency type of concern not discussed by Mr. Dauphinais arises
5 from the NERC category C.3 contingency type that includes the outage of a
6 transmission circuit, followed by manual system adjustments, followed by another
7 transmission circuit outage. (See Exhibit TWV-11).

8 **Q18. WHAT ARE THE PRACTICAL IMPLICATIONS OF THESE CONTINGENCY**
9 **TYPES IF THEY OCCUR?**

10 **A18.** Both of those contingency types include the possibility that two transmission
11 circuits not on a common tower could be simultaneously unavailable. With a
12 single circuit 345 kV loop as proposed by Mr. Dauphinais, there are some
13 contingencies that would need to be considered where neither end of such a
14 single circuit configuration would be connected to the transmission system
15 outside the Thumb. (See Exhibit TWV-12). Under such a scenario, no power
16 from wind generation connected to the backbone transmission system in the
17 Wind Zone could be delivered out of the Wind Zone through the transmission
18 system. In other words, most, if not all, of the wind generation in the Wind Zone
19 would be forced to go off-line.

1 **Q19. DOES THE NERC PLANNING COMMITTEE'S INTERPRETATION OF TPL-**
2 **002-0 AND TPL-003-0 REQUIREMENT R1.3.12 RAISE ANY OTHER**
3 **CONCERNS WITH USING A SINGLE-CIRCUIT, DOUBLE-CIRCUIT CAPABLE**
4 **LINE AS SUGGESTED BY MR. DAUPHINAIS?**

5 **A19.** Yes, in addition to those issues already discussed, it is important to note that the
6 interpretation of TPL-002-0 and TPL-003-0 Requirement R1.3.12 also provides
7 that, "[f]or studies that include planned outages, compliance with the contingency
8 assessment for TPL-002-0 and TPL-003-0 as outlined in Table 1 would include
9 any necessary system adjustments which might be required to accommodate
10 planned outages since a planned outage is not a "contingency" as defined in the
11 *NERC Glossary of Terms Used in Standards.*"

12 This has serious implications to the generation behind a single circuit 345 kV line
13 in the Thumb to deliver wind energy out of the Wind Zone. For a planned outage
14 that might be necessary to perform transmission maintenance or interconnect
15 new wind generation, a necessary system adjustment would need to be made to
16 accommodate that outage. In order to accommodate an outage with the planned
17 shutdown, the system would need to be in a secure state SHOULD an outage
18 occur. These accommodations are made in anticipation of the next outage. As
19 was previously discussed, for some scenarios, the planned outage plus next
20 contingency would mean no power from wind generation connected to the
21 backbone transmission system in the Wind Zone could be delivered out of the
22 Wind Zone through the transmission system. The only route to deliver power
23 from wind generation connected to the backbone transmission system in the

Wind Zone out of the thumb would be through the distribution system. System planning studies would need to be conducted to determine the exact amount of generation that could be injected into the thumb transmission system for that condition. However, the amount of generation that could be dispatched on-line in the Wind Zone would be less than or equal to the energy consumption in that area plus the capability of any connections between the transmission and distribution system.

As a point of reference, the summer transmission models show a combined 34 MWs of load feed directly from the transmission system at Cosmo, Bad Axe and Seaside and the total of the summer emergency ratings for the transformers connected to the networked distribution system at Bad Axe and Seaside is 138 MWs. In other words, for some planned outages the amount of generation (both wind and otherwise) that could be connected to the transmission in the Wind Zone would be significantly less than 2500 MWs in preparation for the next, worst contingency

Q20. IN YOUR OPINION, WHAT OTHER CONCERNS EXIST RELATED TO USING A SINGLE-CIRCUIT, DOUBLE-CIRCUIT CAPABLE LINE AS SUGGESTED BY MR. DAUPHINAIS?

A20. A reduction in the number of circuits installed would mean that there would be a material increase to the impedance apparent when moving power out of the Wind Zone. Transmission planning studies would be required to determine the system implications of such a change. However, installing a single circuit as proposed by Mr. Dauphinais would result in higher resistance as compared to that of the

double circuit, which would mean that more energy losses would be incurred in moving a given amount of wind generation out of the Wind Zone. Over time, the result of these higher losses would be that more MWhrs of energy produced would be lost in the transmission system and therefore, fewer MWhrs of energy would be delivered to end-users.

Q21. ARE THERE ANY OTHER IMPACTS THAT WOULD BE CAUSED BY A HIGHER IMPEDANCE?

A21. Yes—for the system configuration in the Thumb, a byproduct of a transmission system with higher impedance would be that more power would flow through the distribution system in the Thumb region. This could create overloads on the distribution system. Planning studies would need to be performed to determine the extent to which power would be diverted to the distribution system with this single circuit configuration.

Q22. ON PAGE 17, LINES 7 THROUGH 10 OF HIS TESTIMONY, MR. DAUPHINAIS STATES “USING A CONDUCTOR WITH A LARGER AMPACITY FOR THE TRANSMISSION LINE WOULD INCREASE THE TRANSMISSION CAPABILITY THAT COULD BE PROVIDED BY THE PROPOSED PROJECT.” DO YOU HAVE AN OPINION ABOUT THIS STATEMENT?

A22. It is not universally true that adding a larger ampacity line would increase the transmission capability. Individual lines comprise a system. The determination of the capacity of such a proposal requires transmission planning studies of the system.

1 **Q23. DID ITC PROVIDE A DISCOVERY RESPONSE TO ABATE STATING THAT**
2 **MISO STUDIED WHETHER A SINGLE-CIRCUIT CONFIGURATION WOULD**
3 **SUPPORT THE MINIMUM WIND POTENTIAL IDENTIFIED THE WERZB?**

4 **A23.** To the best of my knowledge, no. ITC, through discovery responses, indicated
5 that MISO studied whether a single circuit configuration would support the
6 minimum **and** maximum wind potential adopted by the WERZB for the Wind
7 Zone, not just the minimum wind potential adopted by the WERZB for the Wind
8 Zone.

9 **Q24. ON PAGE 11, LINE 13 OF HIS TESTIMONY, MR. DAUPHINAIS STATES**
10 **THAT THE PROPOSED PROJECT CAN “VERY EASILY BE MODIFIED.”**
11 **WHAT IS YOUR OPINION ABOUT THIS STATEMENT FROM A PLANNING**
12 **PERSPECTIVE?**

13 **A24.** I do not agree with Mr. Dauphinais’s statement. Changing from a double circuit
14 to single circuit double circuit capable design would result in a material change to
15 the electrical properties for the proposed transmission line. Such a change
16 would very likely result in the Midwest ISO having to restudy the project through
17 its FERC Order 890 open and transparent stakeholder process. As I have
18 previously discussed, the out-of-cycle review conducted by the Midwest ISO
19 supporting the proposed transmission line in this case took four months and
20 included several meetings that allowed for numerous stakeholder comments. It
21 seems unreasonable to characterize this process as “very easy.” Further, these
22 Midwest ISO meetings proceeded under the clear direction that the proposed

1 transmission line should enable the minimum **and** maximum wind potential
2 identified by the WERZB for the Wind Zone.

3 **Q25. WAS THE PROPOSED TRANSMISSION LINE DESIGNED TO MEET THE**
4 **RENEWABLE PORTFOLIO STANDARDS IDENTIFIED IN BOTH MR.**
5 **WALTERS'S AND MR. DAUPHINAIS'S TESTIMONY?**

6 **A25.** No, it was designed to meet the minimum **and** maximum wind capacity potential
7 that was identified by the WERZB for the Wind Zone.
8

9 **Q26. SO DID ITC CONSIDER THE RENEWABLE PORTFOLIO STANDARDS WHEN**
10 **DETERMINING THE APPROPRIATE CAPABILITY OF THE LINE?**
11

12 **A26.** No.

13 **Q27. DOES THIS CONCLUDE YOUR TESTIMONY?**

14 **A27.** Yes, it does.
15
16

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1 JUDGE NICKERSON: Any objection to
2 proposed Exhibits A-1 through A-12? They are admitted.

3 All right. Cross-examination? Mr.
4 Strong.

5 MR. STRONG: Thank you.

6 CROSS-EXAMINATION

7 BY MR. STRONG:

8 Q Good morning, Mr. Vitez. I have a couple questions
9 regarding the position of ITC in terms of building a line
10 to meet the maximum capability or potential that was
11 identified by the Wind Board. First of all, is it ITC's
12 position that the line should be sized so that it would
13 be able to carry the maximum potential wind energy
14 production identified by the Wind Board?

15 A It's ITC's position that the line should be sized to meet
16 the minimum and maximum potential.

17 Q O.K. Now are you generally familiar with Act 295 and
18 specifically Sections 145 through 153?

19 A I'm generally familiar with the Act.

20 Q And ITC's application was filed under the provisions of
21 Sections 145 through 153, was it not?

22 A That's my understanding.

23 Q Now, are you generally familiar with what was required of
24 the Wind Board pursuant to Act 295?

25 A Yes.

1 Q Now, is it true that the Act requires the Wind Board to
2 identify and estimate the minimum and maximum potential
3 for generating capacity in a particular region?

4 MR. GORDON: I'm going to object on the
5 basis that I moved to strike the earlier testimony of the
6 other expert to the extent that we're asking the
7 witnesses for their legal opinions. The Act speaks for
8 itself. If Mr.-- If counsel would like to refer to the
9 Act and ask the witness what it says, that would be fine.

10 JUDGE NICKERSON: Overruled.

11 A Can you restate the question, please.

12 Q (By Mr. Strong): Is it true that one of the requirements
13 is that the Wind Board is to develop an estimate of the
14 minimum and maximum potential for a generating capacity
15 in a particular region which it identifies?

16 A I'm not sure that that's an exact requirement that's
17 worded in the Act.

18 Q But it did identify Region 4 as one of the principle
19 regions for wind energy development, correct?

20 MR. GORDON: I'm sorry, Mr. Strong. I'm
21 going to have to object. I don't think the Act
22 identified regions specifically, and asserted that they
23 were to be approved. Maybe it would help if would show
24 Mr. Vitez the provisions of the statute that you're
25 directly referring to.

1 MR. STRONG: Your Honor, I'll rephrase
2 the question.

3 Q (By Mr. Strong): I meant to say, did the Wind Board
4 identify the Thumb as Region 4?

5 MR. GORDON: Thank you.

6 A Yes.

7 Q And did the Wind Board develop an estimate of the minimum
8 and maximum potential for energy production in Region 4?

9 A Yes.

10 Q And you testified to that in your testimony as to what
11 both the minimum and maximum was, correct?

12 A Yes.

13 Q Did the Wind Board also develop an estimate of the
14 maximum existing generating capacity in Region 4?

15 A The Wind Zone reported on wind capacity existing in
16 Region 4.

17 Q Did it report on the maximum existing wind capacity in
18 Region 4?

19 A It reported on the existing capacity in Region 4.

20 Q Now, you indicated that it is ITC's position that it
21 needs to build a line that would cover both minimum and
22 maximum capability or potential identified by the Wind
23 Board. Can you point to any particular provision in Act
24 295 that states that requirement?

25 A No.

1 Q Is there anything in the Wind Board's report which you
2 have included in your testimony as an exhibit that
3 requires ITC to build a transmission line in Region 4
4 that would cover both minimum and maximum potential?

5 A Can you restate the question, please.

6 Q Well, is there anything in the Wind Board's report, which
7 you supplied as an exhibit, that requires ITC to build a
8 transmission line in Region 4 that would be able to
9 handle both the minimum and the maximum potential wind
10 energy generation identified by the Wind Board?

11 A I'm not sure the Wind Zone Board had authority to require
12 ITC to do anything.

13 Q Is there anything in the Commission's order in Case No.
14 15899 that either directs or requires ITC to build a
15 transmission line in Region 4 that would cover or be able
16 to handle both a minimum and maximum wind generation
17 potential identified by the Wind Board?

18 MR. GORDON: Your Honor, I'm going to
19 object to this line, asking the witness to give legal
20 interpretations in an order of the Commission. He did
21 not do so in his testimony. The order speaks for itself.
22 That's something for argument on brief. If counsel's
23 argument is the order does not contain that, then he can
24 argue that rather than have a witness interpret the
25 Commission's order for the Commission.

1 MR. STRONG: Well, first of all, this
2 witness submitted the Order as an exhibit in this
3 particular proceeding. And if he can't speak to the
4 exhibit that he is sponsoring, then I think the exhibit
5 ought to be eliminated.

6 Also, I believe I'm well within my rights
7 to be able to query this witness regarding the specifics
8 or where he believes the directive to build a
9 transmission line to cover both minimum and maximum, and
10 if he says it's in or not in the Commission's order, I
11 believe I'm entitled to ask him that.

12 MR. GORDON: Your Honor, he hasn't
13 testified what the Commission order requires. The
14 Commission order speaks for itself. To request that it
15 be stricken is kind of ridiculous since it's a public
16 document, it's an order of this Commission. It was
17 submitted just to show that the Wind Board report had
18 been approved by the Commission.

19 Again, asking for interpretation of a lay
20 witness or by a lay witness of a legal document is really
21 a waste of time and an inappropriate question. There may
22 be legal arguments he desires to make, but that's not
23 fact evidence.

24 JUDGE NICKERSON: Overruled. I think he
25 was still probing this witness's expertise and opinion as

1 it relates to the parameters set forth. You may answer.

2 A Where do we stand? Can you restate it, please.

3 Q (By Mr. Strong): Sure. Is there anything that you can
4 point to in the Commission's order in Case No. U-15899
5 that either authorizes or directs ITC to build a
6 transmission line that is capable of transporting both a
7 minimum and the maximum wind potential identified by the
8 Wind Board?

9 A Sitting here today, I'm not able to point at anything.

10 Q Is there any other Commission order that you can point
11 to?

12 A Not that I'm aware of.

13 Q Is there any finding made by MISO that would direct or
14 authorize ITC to build a line that would be capable of
15 carrying both minimum and maximum wind energy potential
16 in Region 4?

17 MR. GORDON: Well, if you could not make
18 a compound question. Counsel appears to be asking
19 whether MISO has directed this or whether MISO has
20 authorized the construction of a transmission line at
21 this capacity. I think there's a big difference. I'd
22 appreciate it, your Honor, if you could request that the
23 question be asked separately and not as a compound.

24 MR. STRONG: Your Honor, I'll be glad to
25 restate.

1 JUDGE NICKERSON: Thank you, Mr. Strong.

2 Q (By Mr. Strong): Mr. Vitez, can you point to any
3 authorization issued by MISO to ITC to build a
4 transmission line that is capable of meeting both a
5 minimum and maximum potential wind generation capacity in
6 the Region 4?

7 A It was -- the appropriate capacity for the line was a
8 point of discussion at the Midwest ISO. They had asked
9 the stakeholders at forums on a number of occasions what
10 their thoughts were with respect to the capacity for the
11 line. The discussions resulted in MISO believing that
12 the line should be built for the minimum and maximum, and
13 that is the line that MISO ultimately approved, is a line
14 that would support the minimum and the maximum.

15 Q In your rebuttal testimony you make reference to
16 Mr. Proudfoot, do you not?

17 A Is there a specific page in my rebuttal you would direct
18 me to?

19 Q We'll have to come back to that. I'll find the reference
20 later on.

21 Now Mr. Vitez, in your direct testimony
22 you identify the costs of building a double circuit line
23 as \$510 million. Is that correct?

24 A Yes.

25 Q Have you or anyone else at ITC or its contractors

1 estimated the cost of building a transmission line that
2 was only capable of meeting the minimum potential
3 identified by the Wind Board?

4 A Yes.

5 Q And who identified that cost?

6 A That was done in the planning department.

7 Q Now, the \$510 million dollars estimate that you included
8 in your testimony, that won't be the final cost, will it?

9 A The \$510 million is an estimate.

10 Q But there are other elements that have to be also
11 completed in order to connect the backbone transmission
12 system as proposed by ITC to the wind generators,
13 correct?

14 A The \$510 million is the estimated cost for the project in
15 this case.

16 Q In a presentation that was made by you, did you identify
17 certain areas that were identified as connectors as being
18 something that was not included within the \$510 million
19 cost, but would be something that is necessary for the
20 completion of the transmission line?

21 A No.

22 Q Mr. Vitez, are you generally familiar how the rates for
23 transmission charges are determined?

24 A Yes.

25 Q And they're determined by FERC; is that correct?

1 A Yes.

2 Q Would you agree that the rates charged for transmission
3 service are mostly a function of the amount of the
4 investment in the facilities to provide transmission
5 service to the public?

6 A I'm not an expert in rate making so I can't make a
7 determination whether it's mostly or not.

8 Q O.K. But that is an element in the cost that is
9 ultimately approved by FERC, that is the investment made
10 in the transmission assets?

11 A Yes.

12 Q Are you aware whether ITC earns a return on its
13 investment?

14 MR. GORDON: Your Honor, I'm going to
15 object to the relevance of this as to whether this line
16 should be sited through the Thumb. It's got no relevance
17 to the issues that are set forth in Act 295 for
18 consideration by the Commission. Rate of return
19 investment before FERC is absolutely irrelevant to this.

20 MR. STRONG: Your Honor, it goes to the
21 motive behind the design proposal that is being submitted
22 by ITC. And the point that I would make is that as more
23 investment is put into the ground, the higher the rate of
24 return that the utility will earn, and that is one of the
25 reasons why they have proposed a double circuit and not a

1 single circuit line.

2 MR. GORDON: Your Honor, there is
3 absolutely -- that's offensive. There is no evidence
4 whatsoever in the record to support the statement Mr.
5 Strong just made. The testimony is clear. If he wants
6 to cross-examine with regard to why the decision was
7 made, that's fair game. But implying that Mr. Vitez
8 somehow has manipulated this based upon an investment
9 rate of return is offensive. There is nothing in the
10 record to support that, and I would object to this
11 continuing line.

12 JUDGE NICKERSON: I'll sustain the
13 objection.

14 Q (By Mr. Strong): Mr. Vitez, I'd now like to ask you some
15 basic questions regarding transmission lines. Does a
16 transmission line consist of a number of structures in a
17 line?

18 A Yes.

19 Q And those structures would be the towers, the wires, or
20 the conductors between the towers, plus an arrestor line,
21 is that generally true?

22 A No.

23 Q O.K. Could you describe the structures associated with a
24 transmission line?

25 A The structures would be the towers or the poles.

1 Q Would you agree that the conductors are another component
2 to a transmission line?

3 A Yes.

4 Q And the conductors would be the actual wires between the
5 towers; is that correct?

6 A Yes.

7 Q And are there also substations?

8 A Yes.

9 Q Now, is that another component of a transmission line?

10 A No.

11 Q Now, looking at a single circuit transmission line, would
12 that have three conductors and either -- plus a wire to
13 protect against lightning strikes? I'm just trying to
14 understand the basic structure of the line.

15 A It could.

16 Q Well, are three conductors required because alternating
17 current is sent over each of the separate conductors out
18 of phase by 120 degrees?

19 A Yes.

20 Q Now, is ITC proposing a double circuit transmission line
21 in this proceeding?

22 A Yes.

23 Q And it's not a four circuit transmission line but a
24 double circuit, correct?

25 A Double circuit transmission line that results in four

1 circuits coming out of the Thumb.

2 Q What would be the four circuits then?

3 A Two coming from the tip of the Thumb going towards the
4 west, on that tower, and two coming from the northern
5 part of the Thumb going pretty much straight south.

6 Q But the actual physical configuration would be on a
7 double circuit transmission line, three conductors on
8 each side that would go throughout the entire loop. And
9 by each side I mean the towers.

10 A Yes.

11 Q So even though you're saying it's a four circuit line,
12 the actual configuration would be three conductors on one
13 side of the monopole towers and three conductors on the
14 other side, correct?

15 A Yes.

16 Q Now, how long is the transmission line that ITC is
17 proposing in this case?

18 A Approximately 140 miles.

19 Q That would be from basically the lower part of the Thumb
20 to the western part of the Thumb as it would connect with
21 Consumers Energy; is that correct?

22 A No.

23 Q Could you describe how it would be connected?

24 A Yes. It's from the lower part of the Thumb to the
25 western part of the Thumb where it connects with the METC

1 transmission system.

2 Q O.K. Now, assuming that ITC does build a double circuit
3 line, could you tell us how long you would expect that
4 line to be out of service on an annual basis, once in
5 operation?

6 A No, I can't.

7 Q Would you have an estimate of the annual outages related
8 to maintenance?

9 A No.

10 Q Would you have an estimates of the annual outages related
11 to forced outages?

12 A No.

13 Q Would there be outages of the transmission line as it is
14 being connected with the wind generators?

15 A There could be.

16 Q But most likely the substation that they are going to
17 interconnect with would be the point of interconnection
18 with the wind generator; is that correct?

19 A Correct.

20 Q And that substation could be isolated from the
21 transmission line so that the transmission line stays in
22 service, correct?

23 A No.

24 Q So you couldn't open the breakers on the high side of the
25 transformers and isolate that substation from the

1 transmission line?

2 A At some point the transmission line will have to be
3 connected to that substation. In order to make that
4 connection, the transmission line would have to be taken
5 out of service.

6 Q So on a double circuit you would have to take out one
7 circuit; is that correct, in order to connect with
8 generators?

9 A Yes.

10 Q Now, if a transmission line is taken out of service, is
11 that really just between the downstream substation and
12 the upstream substation, the next substation up?

13 A Generally, yes.

14 Q If I ask you the same questions regarding the amount of
15 time on an annual basis a single circuit transmission
16 line would be out of service due to forced outages,
17 maintenance, you would not have an estimate; is that
18 correct?

19 A That is correct.

20 Q Is it true that ITC's transmission system must meet the
21 NERC Transmission Planning Standards?

22 A Yes.

23 Q And does that include the NERC Category C5 contingency of
24 simultaneous faults on both circuits of a double circuit
25 transmission line?

1 A Yes.

2 Q Would a Category C5 contingency lead to the simultaneous
3 loss of both transmission circuits of the affected double
4 circuit line?

5 A It could, yes.

6 Q Now, the transmission line that is being proposed by ITC
7 is designed to export wind-generated power out of the
8 Thumb; is that correct?

9 A Correct.

10 Q And is the export limited by thermal considerations?

11 A We did a whole litany of planning tests looking at
12 thermal, which is one consideration, and looking at
13 voltage. MISO also did a look at stability analysis as
14 well. Any one of those could potentially limit how much
15 power could be carried.

16 Q So the limiting factors would be thermal, voltage, and
17 stability; is that correct?

18 A Yes.

19 Q Now, is the stability limitation designed to make sure
20 that the generators connected to the transmission line
21 remain in synchronous operation with other generators
22 also connected to the transmission line?

23 A That question didn't make any sense to me.

24 Q O.K. Just generally then explain what a stability limit
25 is for a transmission line.

1 A A stability, what a stability limitation looks at, if
2 you're in a steady-state operating part of the system and
3 you have a perdivation (phonetic) to the system, an
4 outage or something happens, as you're moving from one
5 steady-state to another steady-state, can that be done in
6 a reliable manner? Does the system remain stable is the
7 commonly used phrase.

8 Q And the system, in order to remain stable, that means
9 that the generators have to be in synchronous operation;
10 is that correct?

11 A Yes.

12 Q And if they get out of synchronous operation they'll have
13 to be isolated from the transmission; line is that
14 correct?

15 A Action would need to be taken.

16 Q Are thermal and voltage limits typically determined
17 through power flow studies?

18 A Yes.

19 Q And stability limits are determined through transient
20 stability studies; is that correct?

21 A Yes.

22 Q Does ITC have any transient stability studies showing the
23 amount of power that could be exported from the Thumb if
24 a Category C5 contingency occurred on the proposed double
25 circuit transmission line?

1 A No.

2 Q Is it true that there are no transient stability studies
3 that have been performed to determine the transient
4 stability limit for exports from the Thumb region
5 assuming the double circuit transmission line is in fact
6 constructed?

7 A No, I don't believe that's true.

8 Q Who has performed such a stability study?

9 A MISO performed a stability study. Their analysis of the
10 double circuit tower, 345 transmission line.

11 Q In the context of a C5 contingency?

12 A No.

13 Q Can you state whether the transient stability limits for
14 exports out of the Thumb will be large enough to support
15 the maximum wind capacity potential identified by the
16 Wind Board?

17 A I can't make the determination in that regard.

18 Q Are you familiar with the NERC Planning Committee's
19 March 13, 2008 interpretation of NERC Planning
20 Requirement R1.3.12?

21 A Yes.

22 Q That interpretation requires the study of all applicable
23 types of NERC Category B and C contingencies with a
24 pre-existing planned outage of another bulk power system
25 element such as another transmission circuit; is that

1 correct?

2 A That is part of the NERC TPL standards. Those standards,
3 I would refer you to Exhibit A-10. Under number 3 of
4 A-3, it states the purpose of those standards. Those
5 system simulations and associated assessments are needed
6 to periodically ensure that reliable systems are
7 developed that meet specific performance requirements
8 with sufficient lead time and continue to be modified or
9 upgraded as necessary to meet present and future needs.

10 Couple things I would point out with
11 respect to the purpose of this. Number one, it talks
12 about system simulations, it doesn't talk about
13 simulations with respect to an individual project.
14 Number two, it talks about an assessment. It doesn't
15 necessarily talk about performing a study. You can make
16 an assessment without performing a study. And number
17 three, it talks about that these are needed on a periodic
18 basis.

19 Further on in this standard, on the
20 requirement R1.1, it states that these types of
21 assessments shall be made on an annual basis. We perform
22 annual assessments in accordance with the TPL standards
23 for our entire system.

24 Q O.K. Turn to page 4 of Exhibit 10, A-10. Are you there?

25 A I am.

1 Q Under Category C it says: Event or events resulting in
2 the loss of two or more (multiple) elements. Do you see
3 that?

4 A Yes.

5 Q And under the No. 3 in the next contingency column, that
6 allows for Manual System Adjustments; is that correct?

7 A I'm sorry, I didn't catch where you directed me.

8 Q Take a look at the column labeled Contingencies.

9 A Yes.

10 Q And under C look at 3.

11 A C 3, yes.

12 Q And that says that there could be manual system
13 adjustments; is that correct?

14 A That whole paragraph says: Single line to ground or
15 three phase fault with Normal Clearing, Manual System
16 Adjustments, followed by another single line to ground or
17 three phase fault with Normal Clearing. It goes on to
18 clarify that that's a Category B(B1, B2, B3, or B4)
19 contingency, manual system adjustments followed by
20 another Category B, again parenthetically B-1, B-2, B-3,
21 B-4 contingency.

22 Q O.K. Would a manual system adjustment refer to basically
23 a directive to generators to separate or isolate
24 themselves from the system?

25 A It could.

1 Q That would be the most likely, manual adjustment,
2 correct?

3 A No.

4 Q What would be the most likely manual adjustment?

5 A Whatever makes sense in the operating realm to effectuate
6 the necessary changes.

7 Q Mr. Vitez, would you agree that a double circuit
8 transmission line as proposed by ITC will not support the
9 export of the maximum wind capacity potential identified
10 by the Wind Board during a planned outage from one of the
11 two transmission circuits?

12 A That question doesn't make any sense to me.

13 Q O.K. Assume that you have a planned outage.

14 A O.K.

15 Q On one of the circuits. Are you with me so far?

16 A I am.

17 Q And assume that the system is trying to export the
18 maximum wind potential identified by the Wind Board.
19 Could that be exported during an outage of one of the
20 transmission circuits?

21 A There would have to be operational studies at that point
22 to determine the configuration of the system, what outage
23 is taking place, whether generators are on, whether they
24 aren't on, a whole litany of things would have to be done
25 in the operating realm as it would pertain to the

1 duration of that outage. I can't make a determination
2 here, sitting here, as to what the conditions might be
3 for that particular outage scenario.

4 Q Have any studies been done to determine whether or not
5 the maximum could be exported during a planned outage of
6 one of the two circuits?

7 A You're saying one of the two circuits. That confuses me.

8 Q Again hypothetically, if we have the transmission line in
9 operation as proposed by ITC, which is a double circuit
10 transmission line, correct?

11 A Correct.

12 Q And if one of those two circuits was taken out of service
13 as a result of a planned outage, would the remaining
14 circuit be able to export the 4,236 megawatts identified
15 as the maximum wind potential in the Thumb?

16 A I thank you for clarifying what you meant by the two
17 circuits. I thought you were talking about the circuits
18 coming out of the Thumb, in which case we are proposing
19 four circuits, so that was my source of confusion.

20 Yes, there have been studies.

21 Q O.K. And can you, under the proposed configuration,
22 export the maximum potential identified by the Wind
23 Board?

24 A In the studies that have been performed, yes.

25 Q So would those studies have identified a portion of the

1 line that was taken out of service and recognized that,
2 let's say, wind generators connected to the other
3 portion, either going to the south or to the west, would
4 still be in service?

5 A Yes.

6 Q Just so I understand, you have a line and you would take
7 it out of service between two substations; is that
8 correct?

9 A It could be that way yes.

10 Q Then the line could be active in the other direction, in
11 other words downstream towards either the other ITC or
12 the METC transmission point of terminance if you will?

13 A It would be -- maybe the simplest way to explain it would
14 be like a four-lane highway where you close off one lane
15 for a mile. Leading up to that you have four lanes, past
16 that closure you have four lanes, but in that space of
17 the mile closure you would have three lanes.

18 Q O.K. Thank you. Are you familiar with what is meant by
19 special protection system?

20 A Yes.

21 Q And could you tell us what you understand that term to
22 mean?

23 A There is a NERC definition for a special protection
24 system and I don't recall the definition verbatim. But
25 in essence it's an automatic scheme that would take

1 action on the transmission system pursuant to some other
2 event occurring.

3 Q Now, would one of the schemes be to, in essence, isolate
4 certain generators?

5 A Could be.

6 Q Would a special protection system allow for the remote
7 trip of a generator in order to keep the transmission
8 line from overloading or to prevent system instability?

9 A There's -- a special protection system could do that. It
10 would depend on how effective it was doing that and what
11 the implications of doing that were.

12 Q Now, I believe in discovery ITC responded that it does
13 not allow the installation of special protection systems;
14 is that correct?

15 A Yes.

16 Q That's a voluntary action on behalf of ITC; is that
17 correct?

18 A Yes.

19 Q Would you generally agree with the proposition that a
20 special protection system could allow for a reduction in
21 the amount of any curtailment?

22 A No.

23 Q Why is that?

24 A I believe before you were talking about curtailing
25 generation, with the special protection system, so I'm

1 not sure how a special protection system designed to
2 curtail generation is going to reduce generation that
3 it's curtailed. Doesn't seem logical to me.

4 Q O.K. But would such a system allow, say, like an
5 individual generator be curtailed while the other
6 generators remain in operation in order to protect system
7 stability?

8 A It could.

9 Q And if such a system was not there, that could result in
10 more curtailment of generation; is that correct?

11 A No.

12 Q Why is that?

13 A It's a matter of -- The generation that would be
14 curtailed would be without a special protection system,
15 it would be curtailed to make sure the system remained
16 within its reliability limits.

17 Q Well, let me ask it this way. If special protection
18 systems were not allowed, would you agree that would
19 generally lead to the need to increase transmission
20 capacity, all other things being equal?

21 A Special protection systems aren't allowed on our system.

22 Q Well, just hypothetically if they were allowed.

23 A If they were allowed, I thought you said if they were not
24 allowed.

25 Q I'm sorry. Is there a correlation between the

1 installation of a special protection system and the
2 amount of needed transmission capacity?

3 A Not necessarily, no.

4 JUDGE NICKERSON: Excuse me, Mr. Strong.
5 This might be a good place to break for lunch. So why
6 don't we break here and we'll come back at 1:30.

7 (At 11:45 a.m, the hearing recessed for lunch.)

8 - - -

Lansing, Michigan

Wednesday, December 1, 2010

At 1:30 p.m.

- - -

(Hearing resumed following the luncheon recess.)

JUDGE NICKERSON: All right. On the record. Continuing your cross, Mr. Strong.

MR. STRONG: Thank you, your Honor.

T H O M A S W. V I T E Z

resumed the stand, and having been previously sworn, testified further as follows:

CROSS-EXAMINATION (Continuing)

BY MR. STRONG:

Q Mr. Vitez, do special protection systems meet NERC criteria?

A Special protection can be used to meet their criteria.

Q Have you ever heard of an organization called Reliability First?

A Yes.

Q What is that?

A It's what they call a regional reliability organization; it's the regional organization that's under NERC that's responsible for the midwest area in essence.

Q Including ITC and METC?

A Yes.

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1 Q Do special protection systems meet Reliability First
2 criteria?

3 A I don't believe there's any prohibition in Reliability
4 First criteria for special protection systems.

5 Q And together these two organizations establish the
6 reliability criteria for MISO, correct?

7 A That's correct.

8 Q Are you aware of any transmission owners in the United
9 States besides ITC and its affiliates that prohibit the
10 use of new special protection systems?

11 A Not specifically, no.

12 Q Now, looking at the wind power that supposedly is going
13 to be generated in the Thumb region and served by the ITC
14 transmission line, is that really an energy resource?

15 A I'm not sure what you mean by the term energy resource.

16 Q Well, have you heard the term energy versus capacity?

17 A Yes.

18 Q And wind is not a capacity resource, is it?

19 A I believe wind has elements of capacity associated with
20 it.

21 Q O.K. I'm sorry. Were you finished?

22 A Yes. There are capacity elements or assignments to wind.

23 Q Is wind dispatchable?

24 A Can be.

25 Q Could you explain how that might happen?

1 A If the wind were blowing, MISO could, or whomever the
2 market, is running the market, could order the wind to
3 come offline or if it's offline, they can order it to
4 come online.

5 Q That's assuming the wind is blowing at that time?

6 A Yes.

7 Q Now, is there certain minimum wind speeds that have to be
8 present before any electrical generation can be created?

9 A I don't know.

10 Q O.K. And maybe you've answered this previously, but is
11 there any relationship between the existence of special
12 protection systems and the need to increase or decrease
13 transmission resources?

14 A I am -- no. No.

15 Q Now, Mr. Dauphinais proposed on behalf of ABATE a single-
16 circuit/double-circuit capable transmission line, did he
17 not?

18 A I believe so, yes.

19 Q Now, do you agree that, assuming his single-circuit line
20 did not share any structures with any other transmission
21 line, a NERC Category C5 contingency could not occur on
22 this proposed transmission line?

23 A Category C5 contingencies that would be applicable to
24 that design could occur, they would not be classified as
25 Category C5.

1 Q So a Category C5 could not occur?

2 A Category C5 could not occur.

3 Q Now, in connection with his proposed design, is it your
4 testimony that the line would be subject to a NERC
5 Category C3 contingency of loss of a single-circuit line
6 on one side of the Thumb followed by manual system
7 adjustments followed by the loss of the line on the other
8 side of the Thumb?

9 A Category C3 is one of the categories of contingencies
10 that would have to be looked at, yes.

11 Q But my question was, is your testimony that if there was
12 a C3 contingency on a single-circuit line, that it would
13 be followed by manual adjustments and then potentially
14 the loss of the line on the other side of the Thumb?

15 A That's an accurate description of NERC Category C3, and
16 that is a contingency that would need to be considered
17 for that design.

18 Q Now, if you would, turn to page 9 of your rebuttal
19 testimony. I'd like to ask you some questions about your
20 answer A19, which is on page 9 and flows over to page 10
21 of your rebuttal testimony. O.K. Now, you state here,
22 beginning on line 19, that "... the planned outage plus
23 next contingency would mean no power from wind generation
24 connected to the backbone transmission system in the Wind
25 Zone could be delivered out of the Wind Zone through the

1 transmission system." Do you see that?

2 MR. GORDON: This is an objection, and if
3 you're going to read the sentence, please read the entire
4 sentence rather than just an excerpt. I think it changes
5 the meaning.

6 Q (By Mr. Strong): O.K. Do you see the sentence there,
7 Mr. Vitez. I want to ask you some questions about that.

8 A I see the sentence, the excerpt that you included, yes.

9 Q O.K. Now, can you explain the circumstances or the
10 assumptions that you have made regarding why no power for
11 wind generation could be delivered out of the wind zone?

12 A Yes. I would refer you to my Exhibit A-12. What is
13 outlined in my answer that you referred to earlier is
14 illustrated on this exhibit. Suppose, for example, the
15 line marked as A had the Baker end of that line open for
16 maintenance. No power could flow through line A to the
17 rest of the transmission system. And in addition, you
18 would have to subsequently be prepared in advance for the
19 contingency loss of line B, for line B, no power, for the
20 loss of line B, no power to flow down through the
21 Greenwood station. So in essence, neither A nor B would
22 be connected to the rest of the transmission system, and
23 no power could flow through the transmission system out
24 of the Thumb to the rest of the grid.

25 Q O.K. So you're assuming that there is an outage of the

1 line where those two X's are; is that correct?

2 A The line A represents, the X on line A represents that
3 that line is out for some kind of planned maintenance or
4 other planned outage.

5 Q Now, would that -- I mean the X is not dispositive of
6 where the outage is; is that correct?

7 A That's correct.

8 Q O.K. Now, let's assume that it was up near Bad Axe,
9 there was a, the outage was there. Now, you had
10 indicated in earlier answers that the line would be out
11 from a substation to the next substation; is that
12 correct?

13 A Not definitively, no.

14 Q O.K. But generally, you could isolate the outage with a
15 substation; is that correct?

16 A Are you talking about a planned outage or a contingency
17 outage?

18 Q A planned outage.

19 A A planned outage wouldn't necessarily have to be isolated
20 between two substations. You could have one end of a
21 line open and have the other end of a line closed.

22 Q O.K. So in other words, you could have, let's say, the
23 part of line A that is, let's say, near Rapson, that
24 could be out of service, but the power could still flow
25 over to METC; is that correct?

1 A Yes, correct.

2 Q O.K. Now, you indicated that if there is an outage, you
3 have to plan for the next contingency; is that correct?

4 A Correct.

5 Q So if there's an outage on line A on this exhibit, what
6 kind of planning do you have to do in connection with
7 maintaining the flow on line B?

8 A Well, it's really done in the operating realm, but what's
9 done in the operating realm is they, even before the
10 contingency on line B occurs, they will model the system
11 as if that contingency occurs and predict the flows on
12 the balance of the system, including what may happen to
13 the underlying distribution system for that outage, and
14 then the amount of generation or other adjustments might
15 need to be made in order to allow that outage to occur
16 without reliability impacts.

17 Q Now, you said generation in some instances would have to
18 be curtailed; is that correct?

19 A Perhaps.

20 Q And so in other words, the operator under those
21 circumstances would make manual adjustments, if you will,
22 by calling the generators and saying, please, get off the
23 system for a shutdown?

24 A Yes. The system would be prepared so that if that next
25 contingency happened, there wouldn't be any negative

1 reliability implications from that that may entail, among
2 other things, what you laid out as a potential.

3 Q Now, your testimony again, the same answer on pages 9 and
4 10, that deals with the application of the NERC planning
5 committee's interpretation of the requirements of R1.3.12
6 to Mr. Dauphinais' proposed single-circuit line; is that
7 correct?

8 A That's correct.

9 Q Now, is it your testimony that even when a planned outage
10 is not occurring, electric power exports from the Thumb
11 region must be limited as if that planned outage is
12 occurring?

13 A No.

14 Q So the electric power exports would only be limited for
15 the planned outage when it was actually occurring; is
16 that correct?

17 A In the operational realm, yes, that's correct.

18 Q Now, assuming that a single-circuit line was built, would
19 exports out of the Thumb have to be curtailed to zero for
20 a planned outage?

21 A Specifically zero, or are you asking about a low amount?

22 Q Zero.

23 A To zero, we would have to do operating studies to
24 determine whether they would have to be curtailed to zero
25 or whether it would just be some low amount.

1 Q And would it depend upon where the planned outage was,
2 again with reference to your Exhibit 12?

3 A Yes.

4 Q So if a planned outage, that could occur anywhere on
5 lines A or B on your Exhibit 12, and depending upon where
6 it occurred, that could affect exports of electricity
7 from the Thumb region; is that correct?

8 A That's correct.

9 Q And until you did operational studies, you wouldn't know
10 what the curtailment amount would be; is that correct?

11 A That's correct.

12 Q Would you agree that if ITC permitted the introduction of
13 special protection systems on its transmission system,
14 that those systems could potentially reduce the level of
15 curtailment that is needed for a planned outage?

16 A It's a potential, but not a given.

17 Q Now, in the configuration of the double-circuit 345 kV
18 line, is that going to be interconnected with a 120 kV
19 lines or system?

20 A Yes.

21 Q And where are those interconnections going to be?

22 A There would be interconnections at the Rapson station,
23 there would be interconnections at Sandusky or near
24 Sandusky, interconnection at Greenwood.

25 Q Now, is it true that the 120 kV line can be isolated from

1 the 345 system?

2 A I'm not sure what you mean by that.

3 Q Well, you mentioned the Greenwood, Rapson and so forth.

4 Would they have the ability to isolate the 120 system
5 from the 345 by opening breakers or taking some other
6 action?

7 A Yes.

8 Q Now, is it true that MISO has not studied a
9 single-circuit transmission line with a voltage of 345 kV
10 in connection with its review of the Thumb Loop?

11 A No.

12 Q So they have looked at a 345 single-circuit line; is that
13 correct?

14 A Yes.

15 Q And where did they publish that?

16 A It's in the report that they issued on this project.

17 Q Can you direct me to where it is?

18 A I don't have that report in front of me.

19 Q So there's nothing in the record that would show that?

20 A Not in my testimony or my exhibits.

21 MR. STRONG: Thank you. I have nothing
22 further.

23 JUDGE NICKERSON: Thank you, Mr. Strong.
24 Mr. Kershner.

25 MR. KERSHNER: Thank you, your Honor.

CROSS-EXAMINATION

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BY MR. KERSHNER:

Q Good afternoon, Mr. Vitez.

A Good afternoon.

Q You were a member of the Wind Energy Resource Zone Board,
were you not?

A Yes.

Q And as a member of that board and in essence a co-author
of this report, you're familiar with the methodology that
the board used and recorded in its report to determine
what the wind generating capacity in Zone 4 was, I
assume?

A Yes.

Q Or is. And that methodology involves, correct me if I'm
wrong in any aspect of this, a determination of the total
available land area, a reduction of that total available
land area by the size of certain exclusion zones, the
application of a rule of thumb that wind turbines could
be installed every 450 meters, and then a categorical
further reduction in generating capacity based on a
variety of factors, such as, for example, local zoning
restrictions, land fragmentation, land leases and
easements, competing land uses and the like. Is that a
good, concise summary of the methodology?

A That seems like a fair summary of the methodology, yes.

1 Q O.K. Now, the exclusion areas, sort of the second step
2 in that methodology, according to the report, were areas
3 along the shore of the Great Lakes, areas not defined by
4 the board as open space, areas around airports, wetlands,
5 the shores of lakes and rivers, and areas near houses,
6 roads, state lands, land with a, greater than a 20-degree
7 slope, and urban areas. Now, I'm reading out of the
8 report. Does there sound like there's anything I left
9 off from there?

10 A That's a pretty long list, I can't be certain that
11 everything is there. It sounds like the type of thing
12 that was included, though, yes.

13 Q And then once the 450-meter spacing was applied, there
14 was a sort of generalized discount where the report
15 assumes that only from a low of 66 percent to a high
16 of -- I'm sorry -- that the total available generating
17 capacity computed to that point in the methodology would
18 be reduced by 66 to 81 percent, representing the high and
19 low of generating capacity; does that sound right?

20 MR. GORDON: Excuse me, Mr. Kershner.
21 Your Honor, perhaps it would be more efficient to direct
22 the witness's attention to the page of the report to
23 which counsel is referring so that we can be more certain
24 of the answers.

25 MR. KERSHNER: Good suggestion.

1 Q (By Mr. Kershner): Actually, I'm looking at the detailed
2 methodology contained at pages 76 through 78 of your
3 first exhibit, 76 through 78 of 99 in the Wind Energy
4 Resource Zone Board Report. And the first list that I
5 read you of exclusions are, was the list contained in
6 Exhibit B1, summary of exclusion criteria. That's on
7 page 76.

8 Now, beginning on the middle of page 78,
9 the report explains that there are a lot of factors that
10 might further reduce the ability to install wind
11 generating capacity within a zone, and those criteria
12 would be lumped together, and their effect was, would be
13 reflected in this discount of from 66 to 81 percent of
14 the generating, of the total conceivable generating
15 capacity, correct?

16 A Correct.

17 Q Okay. And the 66- to 81-percent discount represented,
18 according to the report, those factors listed as bullets
19 beginning in the middle of page 78 and continuing on to
20 page 79, land leases for easements, land fragmentation,
21 local zoning restrictions, competing land uses, sensitive
22 areas and residential zoning. O.K. So now my question
23 to you is this: Between the excluded areas and these
24 factors that I just read to you, were those the Wind
25 Energy Resource Zone Board's only contemplation of

1 involuntary reductions in land area to be used for wind
2 generation? In other words, is there anything of a
3 similar nature that you know of that is not included in
4 this, in those two lists of reductions in available land
5 area?

6 A I would refer you to Exhibit A-1, page 78, the last
7 sentence before the bullet items that you were referring
8 to earlier.

9 Q Yes.

10 A The sentence begins, "The National Renewable Energy
11 Laboratory", and goes on to say, "and others have also
12 reduced estimates for wind energy potential for various
13 states using an aggregate percentage to account for these
14 types of factors." So the list was not meant to be an
15 exclusive list, it was meant to be a list of the types of
16 factors that might have resulted in the reductions that
17 you've previously discussed.

18 Q I assume that you, members of the board and you tried to
19 be as comprehensive in listing those things that you
20 could think of as possible. Is that a fair assumption?

21 A I think that's a fair assumption, but again, the board
22 was not confident enough to say that these are the only
23 factors. The texts specifically say that this is the
24 types of factors to be considered.

25 Q O.K. Now, is it also fair to assume that ITC would not

1 like wind generating turbines and towers to be installed
2 within a proximity of your lines that would permit one of
3 those turbines and towers to fall over on your line?

4 A Would we like that?

5 Q Yeah. You wouldn't like that, would you?

6 A We wouldn't like that, no.

7 Q And in fact, you might insist that that not occur?

8 A Insist that we don't like it?

9 Q Yeah. You would insist that nothing be installed close
10 enough to your lines that it could fall on your line,
11 right?

12 A That's a potential consideration, yes.

13 Q O.K. And I think it's fair to assume that the people
14 that own and operate the wind turbines wouldn't want that
15 either.

16 Mr. Oliver, Dr. Oliver in his testimony
17 testified as to the potential size of wind turbines and
18 towers that might be installed in Michigan, and in his
19 testimony he gives ranges, but at the top of the range,
20 Dr. Oliver testified, if you'd like to confirm this, on
21 page 7 of the prefiled testimony --

22 MR. GORDON: Excuse me, Counsel.

23 Mr. Vitez isn't here to be cross-examined -- I'm sorry,
24 your Honor. Mr. Vitez is not here to be cross-examined
25 regarding Mr. Oliver's testimony, and he certainly

1 doesn't have copies of it with him on the witness stand.

2 MR. KERSHNER: I'm not intending to
3 cross-examine him on Dr. Oliver's testimony; I'm
4 providing some support for a supposition that I'm asking
5 him to make in the course of this question.

6 JUDGE NICKERSON: Overruled.

7 Q (By Mr. Kershner): If a wind generating turbine and
8 tower of a maximum height of 330 feet from the ground to
9 the hub were installed with a rotor of a 370-degree
10 diameter, the total height of that structure with the
11 rotor at the maximum height would be what, in your
12 estimation?

13 A I believe it would be 330 plus a half of 370.

14 Q Right. And I think a half of 370 is 185, and the sum of
15 those would be 515; does that sound correct?

16 A Sounds about right. I don't have a calculator with me.

17 Q All right. So if you didn't want to install a structure
18 of that size in a place that it could fall on your, one
19 of your lines conceivably, you would therefor have to
20 keep clear a corridor around your line of 1,030 feet of
21 total width; would you agree?

22 A No.

23 Q O.K. How wide would the corridor have to be, in your
24 opinion?

25 A I don't know. That's not in my purview.

1 Q All right. Why do you disagree with the 1,030-foot
2 figure?

3 A Your question began, if you wanted to install; we don't
4 want to install wind turbines.

5 Q O.K. I understand. The State of Michigan would like to
6 have wind turbines installed.

7 A O.K.

8 Q In order for one of those wind turbines not to fall on
9 your lines, how far would a turbine of the size that I
10 just described have to be from your line?

11 A I don't know.

12 Q O.K. How far would something have to be to make it
13 impossible for it to fall on your line from your line if
14 it was 515 feet tall?

15 A I believe it depends on the method in which it falls
16 over. Does it fall straight over, does it --

17 Q I'd say to make it impossible. O.K. It falls straight
18 toward your line.

19 A Pardon?

20 Q If it were to fall straight toward your transmission line
21 and it was 515 feet tall, how far would it have to be
22 placed from your line to avoid that possibility?

23 MR. GORDON: I'm going to object to this,
24 your Honor. He's testified several times that this is
25 not within his purview, that's not within the scope of

1 his direct testimony, and he said he doesn't know.
2 There's very many variables. He's not offered as an
3 expert on things falling on top of transmission lines.

4 JUDGE NICKERSON: Overruled.

5 MR. KERSHNER: I'm not asking for an
6 opinion --

7 JUDGE NICKERSON: Overruled.

8 A Can you restate the question on the floor, please?

9 Q (By Mr. Kershner): I can try. How far would a structure
10 515 feet tall have to be placed from your transmission
11 line to make it impossible for it to hit your line if it
12 fell in the direction of your line?

13 A I think it depends on the mode in which it falls and how
14 it falls over.

15 Q How it falls over?

16 A Yes.

17 Q What are the possibilities? What are the different ways
18 something can fall? You mean what causes it to fall
19 over?

20 A I don't know the mode of failures that would cause a wind
21 turbine to collapse, but I think your supposition is that
22 it would fall straight over like that, I don't know
23 whether that would be true or not, or whether some pieces
24 or parts might be thrown from the turbine as it was
25 falling over or, you know, any of those other types of

1 things that could happen, and perhaps the wind is blowing
2 and it makes it not fall directly over. I, you know,
3 again, it's not in my expertise.

4 Q O.K. I'll ask a different question. If a 515-foot
5 structure were built less than 515 feet from your line,
6 could it possibly fall on your line?

7 A Yes.

8 Q O.K. But if all structures were kept at least 515 feet,
9 all those structures were kept at least 515 feet from
10 your line, it wouldn't be a certainty that it would hit
11 your line if it fell in that direction?

12 A It wouldn't be a certainty if it was less than 515 feet
13 either.

14 Q Right. How long is the proposed Thumb Loop?

15 A 140 miles, approximately.

16 Q And if you isolated a corridor 515 feet in either
17 direction from the center line of your line, and that
18 corridor was 140 miles long, do you have any idea what
19 the size of the area consumed by that or occupied by that
20 corridor would be?

21 A Not off the top of my head. I can do a calculation.

22 Q Well, tell me what think about my calculation.

23 A O.K.

24 Q 515 feet times 2 is 1,030 feet. Roughly speaking, that's
25 a fifth of a mile. One-fifth of 140 miles is

1 approximately 28 square miles. Is that more or less
2 correct?

3 A Sounds about right, yeah.

4 Q O.K. So if you put your corridor through prime wind
5 generating country, and if we want to avoid any
6 possibility of having a wind turbine and tower fall on
7 your line, would we not be excluding from consideration
8 for the placement of turbines and towers approximately 28
9 square miles of area?

10 A No.

11 Q O.K. Why not?

12 A Not all the wind zone line traverses through the, what
13 you call -- I forget the terms that you used -- something
14 about the high-quality wind areas.

15 Q How much of it do you think does?

16 A I don't know exactly.

17 Q Half?

18 A I don't know.

19 Q What's the least it might be?

20 A I don't know.

21 Q O.K. Did the Wind Energy Resource Zone Board consider
22 the possibility that a placement of transmission lines
23 through Wind Zone 4 might further reduce the land area
24 available to install wind turbines and towers?

25 A I don't believe the Wind Zone Board explicitly looked at

1 that, but that might have been the type of thing, if we
2 had a full listing of all the types of things we
3 previously mentioned, that might have been on the list if
4 we'd have thought about it.

5 Q So you're thinking that, you're saying that the wind
6 zone, it was not discussed or considered, as far as you
7 know, by the board?

8 A It's not specifically on that list, but it's not, also
9 specifically, not specifically excluded from the list.

10 Q Is one possible explanation that the members of the board
11 assumed that the transmission would not be built through
12 the middle of the windiest available territory?

13 A Are you asking me to suppose what the other members of
14 the board --

15 Q You were supposing a minute ago.

16 JUDGE NICKERSON: Hold on. You got two
17 people talking at once. She's good, but not that good.
18 So let's slow down.

19 A I believe I was answering, but I'm not sure where we are
20 in the process.

21 JUDGE NICKERSON: Why don't you restate
22 the question, and we'll start from there.

23 Q (By Mr. Kershner): Is it possible that the reason the
24 Wind Energy Resource Zone Board didn't consider that
25 possibility is that the members assumed that the

1 transmission corridor would not be run through the best
2 wind land?

3 MR. GORDON: This is getting ridiculous.
4 I'm going to object, your Honor. He's asking him to
5 assume several facts that aren't in evidence. He's
6 already testified that he doesn't know whether the Wind
7 Zone did include that as a factor. He's testified that
8 he doesn't know what other factors may have been
9 included. Counsel is requesting him to assume that they
10 assumed that they didn't include this into the question.
11 There are like four assumptions built on no facts in the
12 record; that's an objectionable question even for an
13 expert witness.

14 MR. KERSHNER: I'll withdraw the
15 question, your Honor.

16 Q (By Mr. Kershner): Will you concede that the amount of
17 land that the transmission line would take out of
18 legitimate consideration for turbine tower siting,
19 turbine and tower siting, is at least in the order of
20 magnitude of square miles?

21 A That seems possible, yes.

22 Q Do you think that an exclusion of that magnitude is
23 reflected in the 66- to 81-percent discount on total
24 usable area contained in your Wind Area Resource Zone
25 Board Report on page 78?

1 A While that's not specifically listed, certainly the Wind
2 Zone Board knew that there would be a transmission that
3 needed to be built. I was aware as a member of the Wind
4 Zone Board that there would be some right-of-way
5 associated with it. Further, there's no guarantee that
6 all of the right-of-way or whatever width you want you
7 were talking about associated with the transmission line
8 would not have been otherwise unusable by the wind zone.
9 In other words, some of that may overlap with some of the
10 exclusion areas around wetlands or around roadways or
11 other types of things like that.

12 Q But isn't it true that those are the very same areas that
13 you've already planned around with your transmission
14 line, you've already tried to avoid all those things,
15 haven't you?

16 A No.

17 Q No?

18 A No.

19 Q Now, as a member of the Wind Energy Resource Zone Board,
20 did you become fairly familiar with the quantity and
21 quality of wind available to power wind turbines around
22 the state in various geographic areas of the state?

23 A Yes.

24 Q And as a member of the board, you, I assume you concurred
25 that Zone 4 had generally better wind than most of the

1 rest of the state?

2 A Yes.

3 Q And within Zone 4, is it true that the -- and in fact,
4 the location of Zone 4 -- let me withdraw that.

5 Wind Zone 4 seems to have been drawn so
6 as to maximize its proximity to Saginaw Bay and Lake
7 Huron, in other words, it seems as if by its shape and
8 location, the board determined that the wind was better
9 toward the water; is that correct?

10 A No.

11 Q No. Why is Wind Zone 4 where it is, then?

12 A The board determined that was the best on-land source of
13 wind in the State of Michigan. It happens it's by water,
14 but --

15 Q Within Wind Zone 4, can you say anything about the
16 quality of the wind; is it better to the north or to the
17 south or to the east or west?

18 A It's not uniform throughout the zone. I'm not -- off the
19 top of my head, I can't remember exactly where the better
20 wind is in relationship to some of the lesser wind, but
21 that was some of the information we looked at in the Wind
22 Zone Board.

23 Q Now, what information at this point do you have about the
24 development activity that has occurred so far in Wind
25 Zone 4? Where is the -- where is most of the development

1 activity occurring, in the north, south, east or west,
2 can you tell us?

3 A I would reference you to my testimony where I discuss the
4 additional generation interconnection requests that we
5 received.

6 Q Right. Is that the only information you have about wind
7 development is the generator interconnection requests?

8 A Well, we're generally aware that, you know, there are
9 land leases and other types of things going on as well,
10 and we have some information related to that as well.

11 Q What efforts did you make to determine where wind was
12 being, wind projects were being developed in Wind Zone 4?

13 A We relied on the generation interconnection requests. We
14 also looked at some of the wind maps that were available
15 and determined where some of the better wind areas were.

16 Q And where were those better wind areas?

17 A I don't recall specifically where they are on the map.

18 Q And now, sometime within the last two or three years, the
19 process with MISO for making a generator interconnection
20 request was modified, was it not?

21 A Yes.

22 Q In a way that requires developers to incur significantly
23 more expense or risk now when a generator interconnection
24 request is filed; is that right?

25 A I'm not a generation developer, but that's my general

1 understanding, yes.

2 Q So it's reasonable to assume that filing a generator
3 interconnection request with MISO would not necessarily
4 be one of the first things that a generator -- that a
5 developer does in connection with generating a new wind
6 project?

7 A I'm not a generation developer, I do not know the process
8 that a generation developer would go through.

9 Q Will ITC condemn property rights that it can't obtain by
10 negotiation if it gets the approval of the Public Service
11 Commission in this proceeding?

12 A I think that's a potential, yes.

13 Q And if some of those property rights are property rights
14 acquired by wind developers by negotiation with
15 landowners and you can't acquire those by negotiation
16 from the wind developers, will you condemn those?

17 A I don't know how the process would work in that case.
18 You asked me generally before whether we might condemn,
19 and I think we might condemn; but how it works in the
20 specific example you laid out, I don't know.

21 Q And if you condemned the prior easements obtained by wind
22 developers sufficient to site your transmission system,
23 and if in doing so you effect a legal separation between
24 parcels of land controlled by the developer on one side
25 of your transmission system and the parcels controlled by

1 the developer on the other side, would you be willing to
2 make accommodation to a developer that wanted to
3 interconnect the two sides of his project?

4 MR. GORDON: Objection, your Honor. He's
5 just testified he doesn't know how it would work to
6 condemn a lease or an interest in property that's held by
7 a wind developer. That's on the record. He's assuming
8 that somehow Mr. Vitez has gained legal knowledge with
9 regard to the process of separating and accommodating and
10 compensating, accommodating people who may or may not
11 have a wind lease easement as opposed to a lease on land.
12 We're talking about very complex legal issues here. He's
13 also -- he's already testified he's not aware of that.
14 This question is inappropriate for this witness.

15 MR. KERSHNER: I can make it simpler,
16 your Honor. I'll rephrase the question.

17 JUDGE NICKERSON: Very well.

18 Q (By Mr. Kershner): If it should happen that a wind
19 project developer would have land that it acquired to
20 develop to construct a wind farm on divided by your
21 corridor, would you be willing to allow that wind
22 developer to connect the parts of his wind development by
23 running wires across, under or aboveground across your
24 right-of-way?

25 A Assuming we can make appropriate negotiations and

1 agreements to allow that to happen, yes.

2 Q O.K. And what would be an appropriate agreement in
3 negotiation?

4 A I don't know what the legal terms would need to be in
5 order to make that happen, but physically we could,
6 assuming the lawyers came to the right legal agreement,
7 it could physically happen.

8 Q Would you require monetary compensation for that?

9 A That's not something in my area of expertise. I don't
10 negotiate land rights or anything to do with transmission
11 line crossings or anything of that ilk.

12 Q So you are unable to tell me that you would not do that?

13 A I'm unable to tell you what we would or would not do in
14 that hypothetical.

15 Q Would ITC be willing to allow that process to be overseen
16 or managed or arbitrated by the Public Service
17 Commission?

18 MR. GORDON: Objection. That's totally
19 beyond the scope of this witness's testimony. He's
20 delving into legal issues, matters of arbitration,
21 negotiation, mediation. This is not the proper witness
22 for this testimony. He's asking for legal conclusions,
23 also.

24 MR. KERSHNER: Well, your Honor, I think
25 this goes to the question of whether the placement of a
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1 proposed transmission line, either along the proposed run
2 or the alternate route, is reasonable, which is a
3 statutory criterion for the Commission to consider; and
4 Mr. Vitez is an officer of ITC, and I think it's
5 appropriate to ask him what steps ITC is willing to take
6 in order to make their project more, their siting of
7 their project more reasonable, particularly considering
8 the original objectives, the primary objectives of Act
9 295, which is to foster renewable energy production.

10 JUDGE NICKERSON: Sustain the objection.
11 I think we're getting a little bit far afield. He's
12 already laid a foundation for what they're willing to do,
13 and to keep presenting different scenarios I think is
14 getting a little bit far afield.

15 MR. KERSHNER: Well, your Honor, I think
16 his answer about what he is willing to do is really not
17 an answer at all. He said we're willing to do something,
18 but I won't tell you what.

19 JUDGE NICKERSON: Sustain the objection.
20 Q (By Mr. Kershner): You have laid out in your testimony
21 and in other testimonies sponsored by ITC a proposed and
22 an alternative route. With some specificity, to what
23 degree can we rely on the fact that the transmission line
24 will actually be built on the proposed or alternate route
25 as described in the prefiled testimony?

1 A We would -- we're going to stay within the context of
2 whatever order comes out in this matter. So whatever
3 stipulations are put in within that on the routing,
4 that's what we would stay within, those boundaries, so
5 that we would make sure that we, that every line we built
6 was in the spirit and the letter of the order that came
7 out of the Commission in regards to this matter.

8 Q If when you actually get in the field and start building
9 you come across an unanticipated something out there in
10 the field, a graveyard or a wetland or something, will
11 you have to depart from -- are you asking for permission
12 to depart from the routes described in the prefiled
13 testimony?

14 A I'm not sure. You kind of had two questions there and
15 one, I'm not sure which one you're asking me.

16 Q I got the sense in the testimony that there was some
17 fluidity in the description of the route, and it could
18 move this way or that way, kind of depending on what you
19 see when you actually get out there and start building
20 it. Was that a correct impression?

21 A Yeah. I mean there's potential we may have to move
22 structures, yes.

23 Q What are the causes -- would the things that would cause
24 you to depart from a true path down the center line of
25 the corridor described include accommodating or

1 maximizing wind production?

2 A To the extent that was allowed within whatever order we
3 got, we would certainly work with wind developers in
4 order to route the line within the context of whatever
5 order we got and allow them to maximize their wind
6 potential as they view it.

7 MR. KERSHNER: I'll pass the witness,
8 your Honor. Thank you, Mr. Vitez.

9 JUDGE NICKERSON: Thank you,
10 Mr. Kershner.

11 Mr. Beach.

12 MR. BEACH: We have no questions, your
13 Honor.

14 JUDGE NICKERSON: Mr. Christinidis.

15 MR. CHRISTINIDIS: Thank you, your Honor.

16 CROSS-EXAMINATION

17 BY MR. CHRISTINIDIS:

18 Q Mr. Vitez, could I have you turn to page 10 of your
19 prefiled direct testimony. Are you there?

20 A Yes.

21 Q Do you see there in question 12, I believe you indicate
22 that additional transmission may be needed to bridge the
23 gap between new wind generation and the backbone
24 transmission system?

25 A Yes.

1 Q And when you say the backbone transmission system, you're
2 referring to the ITCTransmission Thumb Loop Project we
3 were discussing here today, correct?

4 A Correct.

5 Q And it's correct, is it not, that the Thumb Loop Project
6 has been designated as a multi-value project by MISO?

7 A MISO has designated it as a multi-value project, but that
8 process hasn't been approved by FERC yet, so it's
9 somewhat -- and it's contingent on FERC accepting that
10 classification of projects.

11 Q Thanks for that clarification.

12 This additional transmission you discuss
13 in your testimony on page 10, assuming this multi-value
14 project or concept is approved, would this additional
15 transmission also be considered a multi-value project?

16 A That would be up to MISO to decide whether it would be
17 classified as a multi-value project.

18 Q Let me ask you this: Who would you anticipate would
19 develop that additional transmission?

20 A It will depend on the nature of the interconnections.
21 Some of that may be developed by ITCTransmission, some of
22 those lines may be developed by wind developers.

23 Q To the extent those additional transmissions developed by
24 ITCTransmission, would you anticipate ITC would request
25 that that additional transmission be designated as a

1 multi-value project?

2 A Under your supposition, I believe those lines would be
3 part of a generation interconnection most likely would be
4 the way they would come about, and they would probably
5 not end up being multi-value projects.

6 Q So it would be, assuming the scenario you just discussed,
7 it would be up to the project developer to pay for the
8 cost of that additional transmission; is that correct to
9 understand?

10 A There's a mechanism for a project developer, but they can
11 also potentially get reimbursed for those, depending on
12 whether they pass certain hurdles with respect to some of
13 the requirements that we have for those types of
14 projects.

15 Q Can you kind of explain how that would work exactly,
16 because I'm not entirely familiar with that?

17 A This is not my area of expertise, but my general
18 understanding is a developer would come and request an
19 interconnection, we would develop a transmission project
20 that would allow that to happen. Sometimes those are
21 referred to as -- portions of those are referred to as
22 network upgrades. To the extent that the network
23 upgrades were associated with generation interconnections
24 that met certain hurdles, and I'm not explicitly sure
25 what those hurdles are, those developers may pay for

1 those network transmission upgrades in advance, but then
2 be reimbursed for those costs later on.

3 Q Would it be your understanding then at some point those
4 costs for this additional transmission would flow through
5 to the retail electric customers?

6 MR. GORDON: I'm going to object at this
7 point, your Honor. I believe you've already ruled upon
8 issues relating to how the retail rates would be set and
9 how this would be paid for and so on. This is a matter
10 of FERC jurisdiction. We discussed this early on in this
11 proceeding, Attachment O, and the process before FERC is
12 exclusive on not within the purview of the Public Service
13 Commission, so that's completely irrelevant to this
14 issue.

15 MR. CHRISTINIDIS: Well, your Honor,
16 Detroit Edison is a FERC jurisdictional customer of
17 transmission services provided by ITC, and we also have
18 obviously retail customers that pay for this cost. I
19 think it would be determined actually that this is a
20 relevant area of inquiry as to the cost here.
21 Mr. Vitez's testimony addresses total cost of this, and
22 we're just trying to understand how that cost, first,
23 whether or not this is the total cost. Mr. Vitez has
24 indicated that there will be additional transmission
25 necessary, and I think it's a fair explan -- a fair area

1 of inquiry to figure out where exactly those costs, what
2 they're going to be, and where they're going to flow as a
3 result of the project that we're discussing here today.
4 I also, as I indicated early on in this proceeding, have
5 a strong belief that the cost is a legitimate
6 consideration, any type of cost, with respect to this
7 case.

8 JUDGE NICKERSON: Sustained.

9 Q (By Mr. Christinidis): What voltage would you expect
10 this additional transmission to be?

11 A The appropriate voltage given the size of the wind farm.

12 Q I'm sorry, I didn't hear the rest of that.

13 A That would be appropriate given the size of the wind
14 farm.

15 Q Do you have any idea what that would be?

16 A That would depend on the wind farm.

17 Q Do you have a range of potential likely voltages that
18 would be involved in this additional transmission?

19 A The transmission in the ITC footprint ranges from 120 kV
20 to 345 kV; likely that the new transmission would be
21 within that range.

22 Q Is there a range for the additional cost in total for
23 what that additional transmission might be?

24 A No.

25 Q This additional transmission is not included within the

1 510 million project cost that you discussed in your
2 testimony, correct?

3 A Correct.

4 Q Will any of the Thumb Loop Project be built within the
5 Michigan Electric Transmission Company zone?

6 A No.

7 Q Will portions of the Thumb Loop Project be capitalized on
8 Michigan Electric Transmission Company's books, to your
9 knowledge?

10 MR. GORDON: Objection, your Honor.
11 That's the same objection we've had before dealing with
12 the cost allocation and internal bookkeeping of ITC.
13 It's not relevant to where this transmission line should
14 go.

15 MR. CHRISTINIDIS: Your Honor, I simply
16 asked whether, to his knowledge, where the costs of the
17 project would go. If they're all in ITC, he can explain
18 that, and it's a perfectly legitimate question in terms
19 of how much this project is going to cost. If some of
20 that cost is going to flow into a different company,
21 fine; if he knows, he can answer that, there's nothing
22 inappropriate about this.

23 JUDGE NICKERSON: How is it relevant?

24 MR. CHRISTINIDIS: It's relevant, your
25 Honor, in terms of what the total cost of the project is
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1 going to be. He's estimated it to be \$510 million in his
2 testimony. And I'm simply asking, is part of that 510
3 million going to be moved over to a different subsidiary
4 of ITC Holdings Company, or can we expect the entire \$510
5 million to flow through the ITCTransmission subsidiary,
6 because that matters in terms of where the costs will
7 flow?

8 MR. GORDON: This is directly on point
9 with what you've already ruled on, your Honor. Looking
10 back to the Act, let's keep the big picture available
11 here, it's 295, the factors under 295. And even
12 stretching the reasonable and feasible language there, in
13 no way is it a consideration for this Commission of
14 whether ITC internally allocates the money between
15 subsidiaries or not. That has nothing to do with whether
16 this Commission should approve the line. It's completely
17 irrelevant.

18 JUDGE NICKERSON: I tend to agree with
19 Mr. Gordon here. Sustained.

20 MR. GORDON: Thank you, your Honor.

21 Q (By Mr. Christinidis): Is it conceivable that portions
22 of the additional transmission that you discuss on page
23 10 of your testimony will be built in the METC
24 transmission system zone?

25 A It's possible.

1 Q Do you have any estimate or range that you might be able
2 to share with us with regard to how much that might be?

3 A I have no such estimate.

4 Q Would it be fair to say that the bulk of the additional
5 transmission that you're discussing on page 10 would be
6 built in the ITC service area, ITCTransmission that is?

7 A I think if you look at the wind zone and overlay that
8 with ITCTransmission zone, you would probably see a large
9 correlation between the wind zone being in the ITC
10 transmission zone, so from there, it might be a logical
11 conclusion to say that a lot of the addition transmission
12 would be in the ITCTransmission side.

13 Q Thank you. On page 20 of your prefiled testimony you
14 discuss the 510 million estimated project cost, correct?

15 A Correct.

16 Q And MISO has authorized the development of the Thumb Loop
17 Project, correct?

18 A Correct.

19 Q When MISO authorized the project, did it also authorize
20 the project costs?

21 A I'm not sure what you mean by authorizing the project
22 costs.

23 Q Were there any stipulations or requirements concerning
24 how much the project could or could not cost when MISO
25 approved development of the project?

1 A Not specifically for this project, but in general, MISO
2 has expectations about project costs.

3 Q What are those expectations?

4 A I believe that there's no hard and fast rule, but if the
5 project cost estimate were to change materially, then we
6 would go back to MISO and make sure that MISO was still
7 on board with moving forward with the project.

8 Q And what range of deviation from an estimated project
9 cost would you consider to be material and cause
10 ITCTransmission to revisit or go back for additional MISO
11 approvals?

12 A I don't have a specific number in my mind.

13 Q Can you give me a range or an estimate?

14 A I don't know. We'd have to view it when that, if that
15 were to be the case. If the project estimate would
16 change, we would have to take a look at it and then make
17 a determination on whether that was a material change,
18 and we could also check with MISO as far as their view on
19 whether that was a material change or not.

20 Q Would 5 million be a material change in project costs?

21 MR. GORDON: This question has been asked
22 and answered. The witness has said he doesn't know.
23 He's not going to speculate.

24 MR. CHRISTINIDIS: Your Honor, I thought
25 you ruled earlier today that cost was something that was

1 fair game in this proceeding. It's been raised by
2 Mr. Vitez, it's been discussed by numerous other
3 witnesses, Mr. Walters, just off the top of my head.
4 We're simply trying to understand what this project is
5 likely to cost, and I think that is a reasonable and fair
6 inquiry in a proceeding like this. And if Mr. Vitez
7 can't answer the question, then he can say I don't know,
8 I suppose. But asking him to get a range of potential
9 deviations and costs is perfectly legitimate and relevant
10 when he, in his very own testimony he says they're
11 estimating that it's going to be \$510 million.

12 MR. GORDON: The question doesn't go to
13 cost, your Honor, he's asking him to speculate with
14 regard to MISO.

15 JUDGE NICKERSON: Sustained.

16 MR. GORDON: Thank you.

17 Q (By Mr. Christinidis): How does MISO take into account
18 project costs when it considers approving a project, if
19 you know?

20 A It's one of the parameters that is, that we provide MISO
21 when we, if you looked at the out-of-cycle review
22 request, it was included in that request, and then it's
23 included in the information that we give MISO. What MISO
24 specifically does with that other than inform the
25 stakeholders that participate in the open and transparent

1 FERC 890 planning process, I'm not sure what MISO does
2 with it besides that.

3 Q If for some reason the project were to, and when I say
4 the project, I mean the Thumb Loop Project we're
5 discussing here today, were to begin to cost more than
6 the 510 million you've estimated, are you aware of any
7 requirement that ITCTransmission go back to either MISO,
8 FERC or the MPSC for permission to proceed?

9 A I'm not sure whether there's a requirement at MISO, but
10 certainly MISO has an expectation that if it were to
11 change by a material amount, which is undefined by MISO,
12 then we would need to go back and discuss it with them
13 further.

14 Q You may have answered this, forgive me if you have, but
15 is there a process by which MISO would, that's formal in
16 some way, would consider the materiality of any
17 deviation, or does it have to be brought to their
18 attention by a third party, if you know?

19 A We provide ongoing quarterly updates relative to our
20 projects to MISO; that would be one way that MISO could
21 find out.

22 Q And those updates would include expenditures to date or
23 some reasonable period just prior to that?

24 A MISO looks at estimates, so those updates would be any
25 updates relative to the estimated cost of the project.

1 Q So ITCTransmission wouldn't update MISO with respect to
2 actual expenditures, they just give MISO an idea of
3 where, what their current view of the total expenditures
4 for the total approved project would be at that point in
5 time, correct?

6 A But embedded in that estimate would be any actual
7 expenditures that have been made.

8 Q Would the information with respect to the updated
9 estimated cost of the project be available to all
10 stakeholders who have an interest in this Thumb Loop
11 Project?

12 A I believe MISO puts that information into what they call
13 their project database, and I further believe that that
14 project database is available for stakeholders to view.

15 Q Are there any additional incentives that you can explain
16 for us for ITCTransmission to control or reduce the cost
17 of this Thumb Loop Project that we're discussing today?

18 A Any additional incentives? In addition to what?

19 Q You've described the updating process at MISO, which I
20 guess appears to me to be an incentive to manage costs as
21 you're sharing it publicly as the project goes along.
22 Are there any others that you can share with us that
23 you're aware of that would sort of act as a control on
24 the cost of the project, if you know?

25 MR. GORDON: Your Honor, there's been
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1 testimony here that this whole process is subject to FERC
2 review and the Attachment O process. The cost issue I
3 think is going far afield of your earlier ruling. I'd
4 ask that this question be, this line of questioning be
5 halted at this point. We've gone far afield of your
6 earlier rulings.

7 JUDGE NICKERSON: One of the provisions
8 of the Act provides the proposed transmission line has
9 received federal approval, and so I think that's one of
10 the line of questioning Mr. Christinidis is pursuing is
11 the federal approval and the federal approval process, so
12 to that end, I'm going to overrule the objection.

13 Let's take a 15-minute recess and come
14 back. Off the record.

15 (At 2:45 p.m., there was a 15-minute recess.)

16 JUDGE NICKERSON: On the record.
17 Mr. Christinidis, please proceed.

18 MR. CHRISTINIDIS: Your Honor, I believe
19 we have a question pending. You overruled the objection.
20 If you'd like, I can restate it.

21 JUDGE NICKERSON: If you could, yes, sir.

22 THE WITNESS: That would be helpful.

23 Q (By Mr. Christinidis): I'd asked you earlier, Mr. Vitez,
24 if you would explain any other incentives for cost
25 control that you're aware of that would incentivize

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1 ITCTransmission to keep the cost to a minimum for the
2 Thumb Loop project we're talking about today?

3 A There are two other incentives that I can think of. One
4 would be the potential that customers could complain to
5 FERC about our rates, and so therefore we have an
6 incentive to avoid such a complaint. And that would also
7 put pressure on it. And the second is that there would
8 be of course the maintenance of our good name and
9 reputation, you know, our goal to be a good actor in the
10 community and to provide value to our customers.

11 Q Thank you. I wanted to clarify something I think I heard
12 earlier from your counsel. I believe he said that FERC
13 has approved this project. Is it more accurate to say
14 that MISO has approved this project?

15 MR. GORDON: If I said FERC, that was a
16 misstatement.

17 Q (By Mr. Christinidis): Would you agree that it's MISO
18 and not FERC that has approved this project?

19 A MISO has approved this project.

20 Q There will be no additional costs or upgrades required on
21 other parts of ITCTransmission's transmission system or
22 the METC transmission system, as a consequence of ITC's
23 proposed Thumb Loop project, correct?

24 A Correct.

25 Q Are you familiar with the testimony of Mr. Sutton filed
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1 and, I believe, admitted in this proceeding for ITC?

2 A I'm generally familiar with it, yes.

3 Q Do you have a copy with you?

4 A No.

5 MR. CHRISTINIDIS: Could I ask that
6 counsel provide the witness with a copy of Mr. Sutton's
7 testimony?

8 MR. GORDON: I'll object to questions
9 regarding Mr. Sutton's testimony. However, I'll provide
10 him a copy.

11 I'll withdraw the objection.

12 JUDGE NICKERSON: I didn't hear the last
13 part. I didn't understand if we have an objection and
14 withdrawal?

15 MR. GORDON: It was a withdrawal of the
16 objection, your Honor.

17 JUDGE NICKERSON: All right.

18 Q (By Mr. Christinidis): You may not require Mr. Sutton's
19 testimony for the initial questions. Just in general, do
20 you expect the Thumb Loop project will be energized in
21 phases?

22 A Yes.

23 Q Can you describe generally kind of how the project will
24 be phased in and energized?

25 A Yes. We view the Thumb Loop as a project in and of
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1 itself. But given the magnitude of the project, the fact
2 that it constitutes approximately 140 miles of
3 transmission line and the resources it would take to
4 construct that amount of transmission lines, it's not
5 possible to construct it all in one phase. So therefore,
6 the construction has been broken down into different
7 phases, primarily three phases.

8 One of the first -- The first phase would
9 be from the Baker station on the southwest side of the
10 loop to the Rapson station which is at the top of the
11 Thumb Loop. That would be the first construction phase.
12 Our intention is to aim for completion of that by 2013.

13 The second phase that we would start
14 would be the phase between Greenwood, encompassing the
15 Fitz station and then down towards the existing corridor
16 that we have. That would actually be started later than
17 the first phase but because it's a shorter distance and
18 because it contains all right of way that we currently
19 have, we anticipate that phase would actually be
20 completed before the Baker Thorasen phase. Then the
21 third phase would be the piece from Rapson down to
22 Greenwood, that we are targeting for completion in the
23 2015 timeframe.

24 Q And as these segments are constructed, once that segment
25 is complete will that segment then, do you anticipate it

1 would be energized?

2 A At the point that the segment was completed we would
3 perform operational assessments with the goal of
4 energizing the segment, but ensuring those operational
5 assessments would be ensuring there are no negative
6 reliability consequences from energizing the individual
7 segments. We don't anticipate such negative reliability
8 consequences, but they will be subject to operational
9 assessments when those individual phases are completed.

10 Q Thank you. You mentioned earlier that there will be a
11 number of substations involved with this Thumb Loop
12 project. I think, correct me if I missed one, Fitz,
13 Baker, and Rapson; is that right?

14 A There is an additional one which is -- I'm not sure of
15 the name. I don't recall the name, but it's near the
16 Sandusky station.

17 Q Just --

18 A And Greenwood is also -- although it's an existing
19 substation, the Greenwood substation is also involved in
20 this as well.

21 Q Would all of those substation costs then -- are they
22 covered within the \$510 million project cost estimate?

23 A Yes.

24 Q Could you turn to page 3 of Mr. Sutton's prefiled direct
25 testimony. If I could, I'd like to confirm your

1 understanding of a sentence that I believe he has
2 testified to in Answer 5, which is, "These lines and
3 substations will provide the needed transmission to bring
4 bulk power from the Region No. 4 Wind Zone to load
5 centers in Michigan and adjacent states." Do you see
6 that?

7 A Yes.

8 Q Do you expect that the interconnection capacity between
9 Michigan and any adjacent states will increase as a
10 result of ITC's Thumb Loop project we're discussing
11 today?

12 A No.

13 Q And the ITCTransmission Thumb Loop project is not part of
14 any larger longer term ITC Holdings or ITC Holdings
15 affiliated company plan for transmission in the State of
16 Michigan, correct?

17 A Correct. This is a stand-alone project aimed at getting
18 the minimum and the maximum out of the wind zone.

19 Q Throughout pages, I believe, 3 to 5 of Mr. Sutton's
20 testimony he describes sort of the land area that's
21 involved in Fitz, Rapson, and Baker substations. I'd
22 like to just ask you a couple of questions about that.

23 Are you generally familiar with the land
24 that is being acquired for those substations?

25 A Yes.

1 Q With respect to the Fitz substation, I think Mr. Sutton
2 indicates it'll be located on 25 acres of property with
3 sort of the substation proper itself being fenced in, in
4 the neighborhood of ten acres. Is there any -- What
5 happens outside of that ten fenced-in acres?

6 A You mean the difference between the 25 acres and the ten
7 acres?

8 Q Correct.

9 A My understanding is the process that we went through to
10 arrive at 25 acres is, we first determined the fenced-in
11 area that you referred to. All of these stations, Fitz
12 as well as the other ones, Baker and Rapson, have a
13 number of lines that come in and out of their station,
14 and part of what we need to do is make sure that we have
15 adequate room around the station to be able to
16 functionally bring those lines in and bring them out in a
17 manner that makes sense. So the first phase was to
18 identify the substation needed for the yard, then we put
19 a buffer around that substation that will allow the line
20 entrances and exits for the substation. And then that
21 determined the amount of acreage that we were going to go
22 after. But in some cases that didn't make sense where a
23 road might be or a boundary might be for another property
24 line. So we didn't want to, for lack of a better term,
25 strand some small parcel of land, maybe a hundred foot

1 wide strip that was useless for anything else. So we may
2 have expanded beyond what we needed for the buffer, for
3 the line entrances, to go to logical break points for the
4 acquisition of the property.

5 Q With respect to those same substations, Fitz, Baker, and
6 Rapson, I think Mr. Sutton indicates that the substations
7 will initially consist of equipment energized at 345 kV
8 and something to the effect that it'll allow for
9 additional equipment at some point in time. Can you
10 explain what the intention is there or your understanding
11 of what was meant by it'll be initially energized at 345
12 kV?

13 A Yes. The 345 kV initial energization is of course
14 related to the Thumb Loop project which -- so we can have
15 lines enter and exit from those stations at 345. The
16 other voltages to which he refers for, let me use Rapson
17 for example, that we anticipate having transformers from
18 the 345 down to the 120 kV in the Rapson area to support
19 the 120 kV in the northern part of the Thumb, that is
20 being opened as part of this project.

21 That also is a potential, although we
22 don't have a firm plan to do that, something along that
23 line is also a potential in the future at Baker station
24 and at Fitz station. And of course that currently exists
25 at Greenwood station. There is transformation from the

1 345 down to the 120 kV system.

2 Q There is no plan, however, to increase above 345 kV any
3 of the -- of the electrical voltage of any of those
4 substations, correct?

5 A Correct.

6 MR. CHRISTINIDIS: Your Honor, that
7 completes the Company's cross-examination. Thank you,
8 Mr. Vitez.

9 JUDGE NICKERSON: All right. Thank you.
10 Mr. Pattwell, cross?

11 MR. PATTWELL: No cross, your Honor.

12 JUDGE NICKERSON: All right. Very well.
13 Redirect, Mr. Gordon?

14 MR. GORDON: No redirect, your Honor. We
15 would ask that the witness be excused, and I believe the
16 exhibits have already been admitted. But if they
17 haven't, I would move for admission.

18 JUDGE NICKERSON: All right. Thank you
19 very much. Mr. Vitez, you may be excused.

20 THE WITNESS: Thank you.

21 (The witness was excused.)

22 JUDGE NICKERSON: All right. Nothing
23 else from the Company.

24 Mr. Pattwell.

25 MR. PATTWELL: Your Honor, it's recently
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1 come to my attention that back on November 9th a letter
2 of Senator Burkholz showed up on the docket. It's at No.
3 179. We would just like to clarify that this letter is
4 not in evidence, it's not in the record, and it cannot be
5 considered by the Commission.

6 JUDGE NICKERSON: All right. Well, it
7 certainly hasn't been offered in evidence in this
8 proceeding and it has not been admitted in evidence in
9 this proceeding. So it would however, as you indicate,
10 show up on the docket as being filed, as many other
11 documents are filed with the Commission, all of which
12 would be contained in the docket file but would not be
13 part of the official record going forward for the
14 Commission for its consideration.

15 MR. PATTWELL: To the extent that the
16 Commission does seek to -- which my understanding of what
17 you said is it will not be considered by the Commission
18 because it's not part of the formal record.

19 JUDGE NICKERSON: Well, I can't speak for
20 the Commission, obviously. All I'm saying, it is not
21 part of the record that has been established which is
22 going forward to the Commission. So I mean, if there is
23 an issue that is presented in the Commission's order, I
24 assume there are appropriate remedies available if need
25 be on that particular issue. But the only thing I can

1 say is, as I stated earlier, it's not part of the record
2 that was created in the contested case proceeding.

3 MR. PATTWELL: O.K. Just to make our
4 record then, to the extent that it for some reason, you
5 know, would be considered, we would object on the basis
6 that it's hearsay, that it's not authenticated. We don't
7 even know who wrote the letter. We've had no opportunity
8 to cross. We didn't receive any notice other than the
9 letter being posted on the E-docket. Neither
10 Mr. Ellsworth nor myself for MPPA nor MEA received any
11 notice of it, of its existence.

12 Moreover, we don't believe that it's of
13 any legal effect because it's not a contemporaneous
14 statement that was made at the time of the passage of Act
15 295.

16 JUDGE NICKERSON: All right. Well, your
17 objections are noted for the record.

18 There's been a schedule adopted which
19 provides for the filing of briefs and reply briefs. I
20 don't believe there's any need to address those dates.
21 All right. Very well.

22 Is there anything else for the record?

23 MS. SMITH: Yes, your Honor. When are we
24 going to get the transcript?

25 JUDGE NICKERSON: Off the record.

1 (Brief discussion was held off the record.)

2 JUDGE NICKERSON: Is there anything else
3 for the record? The record is closed. Thank you all.

4 (At 3:25 p.m., the record was closed.)

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C E R T I F I C A T E

We, the undersigned, do hereby certify that we reported stenographically the foregoing proceedings had in the within-entitled matter, being Case No. U-16200, before Daniel E. Nickerson, Jr., Administrative Law Judge with SOAHR, at 6545 Mercantile Way, Lansing, Michigan, on December 1, 2010, and that the foregoing transcript constitutes a full, true and correct transcript of our said stenographic notes.

Dated: December 1, 2010

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