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October 4, 2019

Ms. Kavita Kale,
Executive Secretary
Michigan Public Service Commission
7109 West Saginaw Highway
Lansing, Michigan 48917

Re: Distribution System Planning stakeholder meeting on September 18, 2019

Dear Commissioners and Staff,

The Michigan Energy Innovation Business Council (Michigan EIBC) and the Advanced Energy Economy Institute (AEE Institute) respectfully submit these additional comments in Case No. U-20147. AEE Institute and Michigan EIBC (also referred to here as "we" or "our") appreciate the Commission's continued attention to distribution system planning and grid modernization. We offer the following comments regarding discussions and presentations from the distribution system planning stakeholder meeting that was held on September 18, 2019.

If there are any questions or concerns related to these comments, feel free to contact us directly.

Regards,

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I. Developing a Use Case for Hosting Capacity Analysis (HCA)

Hosting capacity analysis (HCA) is one way to help bridge the information gap between developers, customers, and utilities. As proposed by Yochi Zakai[1] from the Interstate Renewable Energy Council (IREC), it is critically important to define the use cases for HCA prior to determining the criteria for implementation, crafting a methodology, and gathering and updating data. Clearly defined use cases allow all stakeholders to get the most value out of HCAs and achieve their strategic objectives. HCAs are primarily used to: 1) streamline the interconnection process for DERs; and 2) inform and enhance the distribution planning process.[2] To the extent that HCAs also help identify locations where DERs can provide greater value to the grid, this will help increase the benefits derived from conducting HCAs.

We recommend that the Commission should focus on process improvements and benefits for *interconnection customers* as the initial use case for HCAs. The energy landscape in Michigan and across the United States is changing rapidly. Ongoing technological innovations and cost reductions for advanced energy options, including solar panels, wind turbines, demand management software and energy storage are driving increased market adoption. However, a drawn-out interconnection process and lack of information about grid properties and hosting capacity can be a barrier to interconnection customers. HCAs can streamline the interconnection process and accelerate DER deployment by:

- **Saving developers and utilities time and money** – HCAs can become a tool for DER developers in identifying appropriate locations to site their projects. By directing their investments where interconnection costs are low, HCAs allow market participants to make informed decisions. Utilities also benefit from a more efficient interconnection process with fewer speculative applications. As interconnection applications inevitably increase in Michigan, additional utility resources and staff will be required to screen applications. The availability of HCAs will lighten this burden. By providing customers

[1] Interstate Renewable Energy Council (2019). Hosting Capacity Analyses (HCA). https://www.michigan.gov/documents/mpsc/Full_Slide_Deck-FINAL_v3-09182019_666600_7.pdf accessed 09/30/2019.
[2] id.

with more information upfront, ill-suited projects will be filtered, giving utilities the ability to make decisions more quickly and accurately.[3]

- **Giving local communities more choice** – Many communities in Michigan want to welcome renewable development given the many benefits it can provide (e.g., jobs, tax revenue, environmental concerns, reliability/resilience). These communities have limited access to information about the grid to help them designate appropriate sites for projects. HCA results and downloadable files can "help customers understand what project sizes and technologies can be most easily accommodated in a particular location, which can help them better predict the cost and timeline of the interconnection process."[4] For example, a community that desires a community solar project can easily determine if their area of the grid is able to accommodate such a project without undertaking a lengthy study.
- **Empower commercial & industrial customers to meet their demand for renewable energy** – Many C&I customers in Michigan want to access more renewable energy. These corporations want to site behind-the-meter projects, but do not have the information to make their siting and application decisions. For example, they do not know if they could afford distribution upgrades, or even if these upgrades are necessary. An HCA could help with that assessment and allow these parties to determine the best facility to use as a site (e.g., closest to substation with capacity).

II. Response to DTE and Consumer's Comments on the Value of HCAs in Michigan

At the September 18, 2019 stakeholder session, Consumers Energy and DTE maintained that HCA projects would not deliver many benefits in Michigan because DER penetration is at an early stage in the state. We maintain that establishing an interconnection use case would help identify the benefits of HCA and define the scope and detail of the HCA that would be consistent with the expected benefits. As proposed above, we believe that the focus for HCA in Michigan should be on benefits for interconnection customers.

[3] T&D World (2018). How Much DER Fits? https://www.tdworld.com/generation-and-renewables/how-much-der-fits accessed 09/30/2019.
[4] Interstate Renewable Energy Council (2017). Optimizing the Grid – A Regulator's Guide to Hosting Capacity Analyses for Distributed Energy Resources. https://irecusa.org/publications/optimizing-the-grid-regulators-guide-to-hosting-capacity-analyses-for-distributed-energy-resources/ accessed 09/30/2019.

From the lens of this use case, the fact that DER penetration is currently low in Michigan does not change the need for HCA. In fact, we believe that low DER penetration may actually increase the need for HCA. AEE Institute and Michigan EIBC also note that the low DER penetration in Michigan is partly due to the lack of accessible information. The interconnection process impacts the ability of DERs to connect quickly or affordably. This difficulty is, in part, driven by the lack of HCAs. Contrary to the utilities' comments, the low penetrations of DER point to a greater need for information sharing and transparency.

III. Phased Implementation of HCA as Needs Evolve

We acknowledge that full implementation of HCAs can be time consuming and resource intensive. Nevertheless, we maintain that this does not justify inaction or the need for an extended pilot phase. Instead, HCA can be implemented in a phased manner:

Phase 1: At this stage utilities can publish publicly available maps that include the location of feeder lines and basic system data in a pop-up box. This gives each utility the time to develop and clean up their GIS data to be accurate enough for use in an analysis that corresponds with the chosen interconnection use case.[5] Given a focus on interconnection customers, we suggest that information on each feeder and substation including the data listed in Table 1 should be readily available on the map and available for download in a spreadsheet format.

Table 1: Data Fields for a First Phase Map and Spreadsheet

Substation	**Feeder**
Name	Name of substation line connects to
Voltages	Line voltage
Existing Generation	Number of phases
Queued Generation	Existing Generation
Total Generation	Queued Generation
Load profile	Total Generation
Percentage of residential, commercial, industrial customers	Load profile
Currently scheduled upgrades	Percentage of residential, commercial, industrial customers

[5] Interstate Renewable Energy Council (2019). Hosting Capacity Analyses (HCA). https://www.michigan.gov/documents/mpsc/Full_Slide_Deck-FINAL_v3-09182019_666600_7.pdf accessed 09/30/2019.

Notes (include any other relevant information to help guide interconnection applicants, including electrical restrictions, known constraints, etc.)	Currently scheduled upgrades
	Notes (include any other relevant information to help guide interconnection applicants, including electrical restrictions, known constraints, etc.)

While it is important to weigh cybersecurity risks, these basic data should not pose a risk, as they are similar to the information provided in an interconnection pre-application report. Creation of these publicly available maps is a process that utilities can undertake immediately and will be useful to both utilities and DER developers.

Phase 2: Full implementation involves performing an analysis of the available hosting capacity (for new generation and new load) at each node on the distribution system, and publishing the results in map and spreadsheet format. The maps and downloadable spreadsheets will include all the information published in Phase 1, plus the hosting capacity results. In order to be useful to customers, the analysis should result in a single hosting capacity value for each node, not a range of values. The downloadable spreadsheet should provide additional details, including the criteria that imposed the hosting capacity limitation (*e.g.*, thermal, steady state voltage, voltage fluctuation, protection). For example, if a node had a thermal violation at 4.5 MW, a voltage violation at 1 MW, and a protection violation at 4.3 MW, the map would show a hosting capacity of 1 MW at that node. The downloadable spreadsheet should show each criteria's hosting capacity, so a customer would know that voltage is the limiting criteria at that node. The customer could then design a 4 MW system with a smart inverter that is able to address the voltage issues and expect that its proposed system will be approved for interconnection.

The timing of phasing can be driven by the overall evolution of the distribution system planning process and the associated capabilities of the distribution system. From an initial use case focused on facilitating interconnection, over time, the emphasis would evolve to *integration*, i.e., finding ways to derive greater value from DERs, which in turn would support the investment in additional HCA capabilities.

It is also important to note that the data used in the HCA will require regular updates to stay relevant and useful. However, it is not necessary for information about the entire system to be updated every month. Instead, the analysis can be updated more frequently (e.g., monthly) for feeders where system conditions change (e.g., significant load/projects are added, or utility assets modified) and less frequently for the rest of the system (e.g., annually).

IV. Conclusion

AEE Institute and Michigan EIBC applaud the Commission for taking steps towards ensuring greater transparency and value for ratepayers in utility distribution planning and we appreciate the opportunity to provide these comments on the distribution system planning workshops. We look forward to continuing to work with the Commission and stakeholders on these important issues.