BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

Comments in response to the Commission's request regarding the use of historical weather data in utility planning processes.	Case No. U-21122

Introduction

Advanced Energy Economy and the Michigan Energy Innovation Business Council (AEE/Michigan EIBC) appreciate the opportunity to comment on the use of historical weather data to inform investments and upgrades to the distribution system necessary to prepare for future extreme weather events. Given that the two largest storms in DTE Electric's 135-year history have occurred within the past four years, we share the Commission's concern that there is a need to examine utility planning processes and improve upon existing methods to prepare for a future that may look very different than the past, which includes increasingly frequent and severe weather events.[1] We applaud the Commission for opening this Docket and look forward to engaging in it further, including the October 22 technical conference.

Argonne National Lab Regional Climate Model

As the Commission rightly notes in Docket U-21122, the extreme weather conditions and related events in Michigan and across the country over the past 18 months, ranging from record floods, extreme heat, drought, and wildfires, have put an unprecedented strain on the nation's energy system.[2] With this in mind, AEE/Michigan EIBC encourage the Commission to direct utilities to consider using an updated climate model as an input to create a more robust planning process that accurately assesses future climate trends. The Department of Energy's Argonne National Lab (ANL) has developed a Regional Climate Model that could serve this purpose.[3] ANL's Regional Climate Model can provide a spatial resolution down to the neighborhood level to estimate future weather in a region. The model can also combine topographical data to estimate

[1] MPSC Order in Case No. U-21122, August 21, 2021, p.11
[2] *Ibid*
[3] Argonne National Lab Regional Climate Model: https://www.anl.gov/climate/research-capabilities

the risk of flooding in a region at the neighborhood level and assess the likelihood of extreme weather events for a timeline out to 2050.[4] With these data and estimates, utilities can better understand long-term weather threats to their existing distribution grids. These data also allow utilities to make informed decisions regarding future grid investments and hardening measures. These data would support or potentially replace the use of historical weather data in both distribution and transmission planning processes.

Utilities in New York and California have already incorporated this model in their planning processes. Pacific Gas and Electric (PG&E) in California uses the ANL regional climate model to determine changes in fine-scale meteorological data to better understand how conditions will change in California through 2050, with a specific focus on conditions that produce wildfires.[5] As PG&E hardens nearly one-third of its distribution and 18,466 miles of interconnected transmission lines in designated High Fire-Threat Districts, the company is using the model's data to support this effort and better understand where the greatest fire threats will be in the future. Similarly, the New York Power Authority (NYPA) has partnered with ANL to better understand how precipitation, ice, and droughts could affect the utility's transmission system and hydropower resources as the climate changes.[6] The utility also uses these data to create a granular view of how a changing climate will affect existing generation assets and individual substations on its distribution network.[7]

AEE/Michigan EIBC encourage the Commission to consider how Michigan utilities can incorporate this powerful tool into distribution and integrated resource planning processes. We believe that a tool such as the ANL Regional Climate Model could be a viable solution to

[4] PG&E partners with Argonne National Laboratory to Make Power Delivery More Resilient and Reliable: https://www.power-grid.com/executive-insight/pge-partners-with-argonne-national-laboratory-to-make-power-delivery-more-resilient-and-reliable/

[5] Argonne climate model helps Pacific Gas and Electric Company combat climate change impacts, including wildfires: https://www.anl.gov/article/argonne-climate-model-helps-pacific-gas-and-electric-company-combat-climate-change-impacts-including

[6] New York, Argonne model climate-change impact on power grid: https://gcn.com/articles/2021/08/13/argonne-ny-grid-predictions.aspx

[7] New York, Argonne model climate-change impact on power grid: https://gcn.com/articles/2021/08/13/argonne-ny-grid-predictions.aspx

developing a more robust planning process that better accounts for the changing climate in Michigan.[8]

Emergency Load Management

In addition to improvements in modeling, given that extreme weather is becoming more frequent, AEE/Michigan EIBC encourage the Commission to continue pursuing improvements to utility use of demand response as a tool to mitigate the impacts of such extreme weather events whenever they occur. The Commission's October 29, 2020 order in Case No. U-20628 identified important steps that Michigan utilities can take to foster the development of flexible demand resources, including using automatic controls and partnerships with third-party vendors to facilitate customer response.[9] Such efforts can be implemented in conjunction with improved forecasting and planning to ensure that better information leads to specific utility action. Energy waste reduction coupled with load management during extreme weather emergencies offers significant potential to realize flexible load resources that can help maintain a reliable, resilient distribution system.

[8] If the Commission has any questions about the model, please contact Dr. Mark Petri at petri@anl.gov for more information.
[9] MPSC Order in Case No. U-20628, Oct. 29, 2020, pp. 8-9