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Indiana Utility Regulatory Commission
101 W. Washington St., Ste. 1500E
Indianapolis, IN 46204
Attn: Ryan Heater

September 9, 2019

Re: Midwest Cogeneration Association
Indiana Utility Regulatory Commission HEA 1278 Energy Study
Response to Request for Input on "Strawman Scenario" Variables and Sensitivities

Dear Commissioners:

The Midwest Cogeneration Association ("MCA") appreciates the opportunity to provide input in this proceeding. MCA is a not-profit trade association dedicated to promoting clean and energy efficient cogeneration technologies -- Combined Heat and Power (CHP) and Waste Heat-to-Power (WHP) in eight Midwest states, including Indiana. MCA members include generation technology manufacturers, distributors, and project developers, as well as owners and operators, of CHP and WHP systems – a number of whom are located in and do business in Indiana. MCA members have expertise in CHP and WHP technologies, as well as project financing and development.

IURC's legislative charge in this proceeding is to conduct a comprehensive study of the statewide impacts that may occur as a result of the transition from traditional electrical generation fuels and resources, such as utility scale centralized power plants, to new and emerging electrical generation resources, which should include customer cogeneration and other distributed generation resources. HEA 1278 specifically seeks the impacts of this transition on "electric generation capacity, system reliability, system resilience, and the cost of electric utility service."

Building on the energy and capacity modeling that was presented at the August 22, 2019 Commission meeting, Commission staff requested stakeholder input on the "key scenario variables and sensitivities" to be considered in the development of various "strawman scenarios" that will be provided for further public review and comment. We understand the Commission staff to be seeking input on "key scenario variables and sensitivities" within the framework provided by Dale Thomas in his August 22, 2019 presentation.

KEY SCENARIO VARIABLES

A. System Demand Growth Rate

We expect that at least one, if not all, of the Commission's "strawman scenarios" will assume a strong economy in Indiana and continuing growth in energy demand in Indiana's industrial and commercial sectors. In 2017, the U.S. Energy Information Administration found that the industrial sector alone represented 46% of the energy demand in Indiana.[1] Thus, we posit that the Commission's study of these issues must have a substantial focus on both new generation and energy efficiency to meet growth in demand in these vital sectors.

Beyond demand response and the installation of energy savings measures, the Commission's study should consider the potential for industrial and commercial customers to take load off the grid with distributed self-generation, including combined heat and power (CHP), waste heat to power (WHP), and other self-generation resources. We note that Indiana currently has 2,300 MW of CHP and WHP self-generation.[2] Indeed, as a result of its large industrial base, Indiana is a leader in the production of electricity from WHP.[3] But Indiana has the technical potential to deploy far more CHP and WHP. The U.S. Department of Energy found that Indiana's industrial and commercial sectors have the potential to take another 4,600 MW of load off the grid with CHP and WHP.[4]

The key attributes of self-generation resources to be considered should include:

1. Load shape;
2. Availability and reliability;
3. Ability to provide baseload equivalent power;
4. Ability to reduce peak loads;

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[1] U.S. Energy Information Administration. "Indiana Consumption by End-Use Sector." 2017. https://www.eia.gov/state/?sid=IN

[2] U.S. Department of Energy. "Combined Heat and Power (CHP) Installation Database: Indiana." Installations as of December 31, 2018. https://energy.gov/chp-installs

[3] Indiana currently has a combined 185 MW in installed WHP capacity – nearly one-quarter of the total U.S. installed capacity and the largest of any state. These projects are located at steel plants, helping the energy-intensive steel industry cut operating costs. Indiana's remaining WHP technical potential is mostly concentrated in the chemicals, primary metals, food, transportation, and paper sectors. Based on Indiana's share of the total U.S. WHP potential, harnessing this waste heat could result in 5,300+ new highly skilled jobs and save enough energy to power nearly 380,000 homes.

[4] U.S. Department of Energy. "Combined Heat and Power (CHP) Technical Potential in the United States." March 2016. https://www.energy.gov/sites/prod/files/2016/04/f30/CHP Technical Potential Study 3-31-2016 Final.pdf

5. Fuel efficiency;
6. Emission reductions; and
7. Resiliency in the face of natural and manmade disasters.

In subsequent comments, MCA will be happy to provide studies and data which demonstrate that CHP and WHP perform well on all of these bases.

B. Transition Timing

We believe market trends and the price of natural gas and renewables are driving the timing for the closure of coal plants across the country and that the forces that have contributed to these trends will continue. Further, the trend in closure of coal plants has not abated in the face of reduced regulatory requirements. We respectfully suggest that the Commission's "strawman scenarios" must assume that this trend will continue.

Given the fact that Indiana obtains 69% of its electric power from coal-fired power plants[5], it must be assumed that there is high sensitivity to both the coal retirements variable and the timing of those retirements.

C. New Resource Portfolio Mix

The "strawman scenarios" should be designed to compare the attributes of a mix of resources, varying in fuel source, type and size. Among the resources in the mix, the Commission's scenarios should include both utility scale and smaller scale generation resources.

CHP and WHP are well-established technologies that have proven capable of generating reliable baseload power on a distributed basis at utility scale.[6] CHP and WHP are uniquely capable of providing highly reliable, baseload distributed generation at this scale with today's technology.[7] Indiana with it large industrial base provides an excellent opportunity for both CHP and WHP at utility scale. For example, Duke Energy has included base load CHP plants in their 2015 and 2016 integrated resource plans for the Carolinas and Indiana, demonstrating that distributed CHP can be a least cost base load resource when compared to gas fired combined cycle and other central station technologies.[8] We urge the Commission to include a "strawman scenario" which utilizes

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[5] https://www.eia.gov/state/?sid=IN

[6] Indeed, the 82 GW of CHP capacity operating in the US represents 12 percent of the nation's electricity production and 8 percent of its power generation capacity, more than most other types of DG. https://www.power-eng.com/2018/04/01/the-new-era-of-chp/#gref

[7] https://www.icf.com/resources/white-papers/2017/utility-chp-ownership

[8] https://www.energy-energy-utility-chp-ownership_web.pdf

large scale natural gas-fired CHP or WHP operated in conjunction with one of Indiana's many large industrial facilities and serving the power needs of the facility and neighboring facilities and/or communities.

In addition to utility scale scenarios, other Commission scenarios should be designed to depict the attributes of smaller scale distributed generation, including baseload CHP and WHP generation, whether designed just to provide power to a single host facility or to a microgrid of interconnected facilities. We suggest that one of the Commission's scenarios be a **microgrid**, utilizing CHP or WHP systems together with renewable resources (e.g. solar, geothermal), where the CHP or WHP system provides the baseload power, allowing the microgrid as a whole to take substantial load off the grid 24/7. Microgrids provide a **locational benefit** that should be a variable in the Commission's modeling. The microgrid scenario would demonstrate how a local mix of resources can be cost-effective and add resiliency for Indiana's industrial parks, university and hospital campuses, municipal and research centers, and other critical infrastructure.[9]

KEY SENSITIVITIES

A. Fuel Prices

Certainly, fuel prices are key. But fuel prices should not be considered in a vacuum. The study should reflect the varying sensitivity of different generation resources to fuel prices. Certainly, the study should model not only "fuel free" resources, such as solar, wind and WHP generation; but it should also model the **more efficient use of natural gas and other fuels** utilizing CHP systems**.** Traditional centralized power plants operate at approximately 30% efficiency while CHP generation units operate at 65 - 80% efficiency. Further, distributed generation reduces power lost over the lines by 5 - 7%. As fuel costs trend up, modeling should reflect that Indiana utilities and companies have the option to turn to resources – including baseload resources such as CHP and WHP -- that achieve greater output per quantum of fuel.

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[9] **"**Compared to stand-alone DER installations, utilities and their customers can receive the most benefits from resilient microgrids with combined heat and power (CHP) systems generating baseload power while photovoltaics (PV) and energy storage fill out the peak loads. There are many benefits that microgrids with diverse generation resources can provide, including reduced grid congestion, increased resiliency to extreme weather events and power outages for customers, and improved utility reliability scores (such as System Average Interruption Frequency Index (SAIFI) and Customer Average Interruption Duration Index (CAIDI)), reduced power interruptions and deferred T&D investments for utilities." https://www.power-eng.com/2018/04/01/the-new-era-of-chp/#gref

B. Environmental Costs

Sensitivities to environmental costs should also reflect the fact that **more efficient use of fuel** reduces emissions. It has long been recognized by U.S.EPA that because CHP technologies generate useful thermal energy and electricity from the same quantum of fuel, they reduce emissions. Further, WHP is an emission free resource because it captures waste heat energy from industrial and commercial processes and systems that would otherwise be lost to the atmosphere and uses that energy to generate electricity.

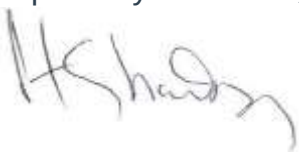
C. New Resource Investment Curves

The beauty of increasing CHP and WHP generation at industrial, commercial and institutional facilities and in microgrid configurations is that it leverages private investment to generate electricity that would otherwise have to be funded by ratepayers. The sensitivity of private and public sector investment in self-generation should be reflected in new source investment modeling.

Because CHP and WHP are proven technologies, private sector investment in CHP and WHP occurs readily when the payback period on capital is commensurate with other capital investment opportunities, while the payback periods for utility, government and institutional investments can be substantially longer. Modeling should consider the sensitivity of private and public sector investment to market forces and state policies, incentives and financing mechanisms, such as Commercial Property Assessed Clean Energy (C-PACE), that reduce the payback period.

MCA appreciates this opportunity to provide input on these important questions. We look forward to continuing to engage with the Commission and other stakeholders in this proceeding.

Respectfully submitted,



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