INSTITUTE FOR ENERGY INNOVATION

Solar Energy in Michigan: The Economic Impact of Distributed Generation on Non-Solar Customers

Executive Summary

On April 20, 2017, Michigan's new Clean and Renewable Energy and Energy Waste Reduction Act and revisions to Michigan's general public utilities act (Public Acts 341 and 342 of 2016) took effect. Among other things, the new laws require the Michigan Public Service Commission ("MPSC" or "Commission") to "conduct a study on an appropriate tariff reflecting the equitable cost of service for utility revenue requirements for customers who participate in a net metering program or distributed generation program" within one year. MCL 360.6a(14).

This new statutory provision reflects the rapid growth in the installation of solar distributed generation (herein referred to as "solar DG"[1]) systems, and concerns regarding the impact of net energy metering (NEM) policies on ratepayers and utilities. Opponents of NEM argue that giving net metering customers full retail credit for the surplus energy they generate overvalues both the capacity and energy that solar DG systems provide. As a result of this pricing structure, opponents assert that net metering customers are able to avoid paying for the grid support services on which they rely and are, therefore, being subsidized by non-solar customers. Establishing a new tariff that reflects the equitable cost-of-service is a means to ensure fairness for both for those ratepayers who have installed solar DG systems and those who have not.

Rather than endorsing additional costs on non-solar ratepayers, however, a majority of studies conducted to date have concluded that the utilization of NEM for solar DG offers net benefits to the electric system as a whole, including non-solar customers. Rather than shifting costs to other ratepayers, the growth of solar DG systems in most cases helps to reduce overall costs and represents a net benefit to all utility customers.

This report by the Institute for Energy Innovation (IEI) is intended to (1) summarize the national data related to evaluating the "value of solar" (VOS) to the overall grid; and (2) to outline "best practices" for compensating net metering customers. Through this report, IEI seeks to inform

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[1] There are a variety of terms used to describe small-scale energy resources. Distributed energy resources (DER) or distributed generation (DG) is often used to refer to a broad set of technologies located on the distribution grid, often close to a customer's premises. DER can include solar, small-scale wind, geothermal, combined heat and power, battery storage, demand response, electric vehicles, and energy efficiency, among other technologies. In this report, we specifically focus on solar distributed generation and use the more narrow term "solar DG" herein.

discussions regarding net energy metering (NEM) across Michigan, and ensure that the aforementioned study being conducted by the MPSC accurately reflects the true costs and benefits of solar DG in Michigan.

Part I of this report considers the growth of solar DG across the country, as well as the increasing controversy over NEM policies that is driven, in large part, by concerns that non-solar ratepayers are effectively subsidizing those who install solar DG systems.

Part II reviews the dozens of recent studies comparing the value of solar and NEM policies. While there is substantial variability between studies in terms of the assumptions and methodologies employed, a majority of these studies conclude that NEM represents a net benefit to ratepayers – even those that are not enrolled and who have not installed solar DG systems. It also outlines a standard comprehensive methodology developed by the Interstate Renewable Energy Council (IREC) to address the variability between studies in order to enable "apples-to-apples" comparisons between value of solar calculations.

Part III offers a series of recommendations for the MPSC to consider in crafting the study on an appropriate distributed generation tariff as required under MCL 460.6a.

IEI's Key Findings:

- The majority of studies conducted to date find that customers participating in net metering programs represent a net benefit to the grid.

- While NEM customers receive credits that reduce or eliminate their monthly utility bills, solar DG provides measurable and monetizable benefits to the power system that should be considered when evaluating the true impact of solar DG and NEM on all ratepayers.

- Solar DG both reduces demand for power from the utility and provides power to the grid when the systems generate more power than is used at a residential or commercial site. This surplus power is generated at or near peak times when the cost to the utility of procuring additional power is most expensive.

- Net energy metering represents an attempt to balance the true costs and benefits of the energy being produced and that which is consumed in a way that is simple, fair, and convenient for both the utility and its customers. Therefore, any tariff should fully compensate solar DG customers for the value their systems provide.

- Adopting a transparent, comprehensive standard valuation methodology such as the IREC model can help ensure full accounting of both the costs and benefits of solar DG. While the calculations necessary to develop a value of solar differ from those needed to assess the cost to serve solar DG customers, IEI specifically endorses the Commission's

intent to include a VOS study as part of its examination of the costs and benefits associated with distributed generation and net metering.[2]

- Because locational factors can affect solar valuations, access to location-specific utility data should be made available to stakeholders as part of the development of new tariff mechanisms.

[2] Indeed, in its May 31, 2017 Order involving the method and avoided cost calculation for Consumers Energy Company to comply with the Public Utility Regulatory Policies Act in Case No. U-18090, the Commission noted that a VOS analysis as part of the PURPA review would be "potentially duplicative, given the directive under the new energy legislation, which requires the Commission to create a distributed generation program and examine costs associated with distributed generation and net metering MCL 460.1173 and MCL 460.6a(14). Accordingly, the Commission anticipates that VOS issues, as well as other avoided costs associated with distributed generation generally, will be examined as part of these proceedings." *See* Michigan Public Service Commission, May 31, 2017 Opinion and Order in Case No. U-18090, pg. 29.