



The Energy Revolution of 2018: A look at Ohio's energy storage landscape

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2018 has already been heralded a landmark year for energy storage.¹ And for good reason. Both regulatory and economic trends indicate the rapid continued growth of energy storage deployment nationwide in 2018 and beyond. Ohio, too, is increasingly deploying storage projects and beginning the process of addressing the regulatory and ratemaking issues associated with storage.

In February 2018, the Federal Energy Regulatory Commission (FERC) unanimously approved Order 841, which directs operators of wholesale markets — including the PJM Interconnection (the regional transmission organization in which Ohio is located) — to develop market rules for energy storage to participate in wholesale markets in a manner that accounts for the physical and operational characteristics of storage resources. The purpose of the order is to “remove barriers to participation of electric resources,” which should lead to many more opportunities for market participation than currently afforded to storage resources. The markets to which the FERC order applies account for approximately three-fourths of the country's electricity supply.

In addition, battery storage system prices are expected to continue to experience declines. In 2015-2016, battery prices fell as much as 30 percent, and system prices are projected to continue to fall by an annual rate of 8 percent through 2022.² These continued cost decreases will likely propel more storage deployments in 2018. In 2017, a significant milestone was achieved when the sector reached one GWh of total deployment in the U.S. Some projections indicate that there may be that much deployment of storage in 2018 alone.³

Activity at the state level is also driving the growth of energy storage deployments. Increasingly, state utility commissions are examining proposals for energy storage projects and some states, like Massachusetts and Oregon, have issued energy storage targets.

Although Ohio does not have state-based energy storage incentives or mandated targets, Ohio is nonetheless experiencing the deployment of energy storage projects. Since 2013, AES Energy Storage has operated a 40 MW battery system in Dayton, Ohio. In 2015, the Village of Minster commenced operations of a combined 4.2 MW solar plant and 7 MW/3 MWh lithium-ion energy storage system installation, designed to serve its municipal utility and largest businesses.⁴

2018 may also be the biggest energy storage year Ohio has yet experienced. While not as headline-generating as the recent FERC order or a state-based energy storage mandate, there are a number of “under the radar” developments demonstrating storage’s rise in Ohio.

- **Battery storage pilots for microgrids; Kroger and Walmart:** On April 25, 2018, the Public Utilities Commission of Ohio (PUCO) approved a multi-party settlement as part of AEP Ohio’s request to extend its Electric Security Plan (ESP).⁵ Two of the settlement provisions approved by the PUCO involve the implementation of battery storage technology:
 1. The PUCO approved \$10.5 million in microgrid demonstration projects. The demonstration microgrids will target nonprofit, public-serving AEP Ohio customers, such as fire and police stations, municipal facilities, medical facilities, social service agencies, emergency shelters, and water and sewer infrastructure facilities. A public-serving customer may apply to host, own and maintain the microgrid generator/battery facility. Under the settlement, AEP Ohio agrees not to own the behind the meter systems.
 2. Under the approved settlement, AEP will assist Kroger and Walmart with a demand-side management program utilizing battery storage with funding to be provided under the utility’s energy efficiency and peak demand reduction plan.
- **Grid modernization initiative – PowerForward:** In March, the PUCO recently concluded its presentation series as part of its grid modernization effort, PowerForward.⁶ A number of the panels and speakers focused on the topic of storage as a grid component, part of the commission’s examination into regulation and ratemaking issues related to grid modernization.
- **Cuyahoga County microgrid project:** Ohio’s most populous county, Cuyahoga County, is examining the feasibility of a microgrid project in Cleveland, Ohio, which may include battery resources.
- **Pairing storage with utility scale solar:** In February 2018, the Ohio Power Siting Board (OPSB) approved the construction and operation of a 150 MW solar project by Hardin Solar Energy, LLC, an affiliate of Invenergy Solar Development North America LLC.⁷ The developer, in its OPSB application, indicated that the facility may also include a large-scale advanced battery system to complement the facility by regulating frequency, balancing variations in solar production, energy shifting, and digital peaking and/or transmission and distribution deferral.

In addition to these initiatives and projects, there will be a number of other opportunities for further energy storage deployment in Ohio. For example, upcoming rate cases and grid modernization filings by Ohio’s investor-owned utilities will likely include proposals for battery storage as a component of the electric grid, as well as opportunities for end-use customers to utilize on-site storage.

¹ For the purpose of this article, “energy storage” primarily refers to electric battery storage.

² “Not so fast: Battery prices will continue to decrease, but at a slower pace, GTM says,” *Utility Dive*, available at <https://www.utilitydive.com/news/not-so-fast-battery-prices-will-continue-to-decrease-but-at-a-slower-pace/518776/>.

³ “GTM: US could smash 1GWh deployment in 2018,” *Energy Storage News*, available at <https://www.energy-storage.news/news/gtm-us-could-smash-1gwh-deployment-in-2018-but-its-a-state-by-state-picture>.

⁴ “First-of-its-kind municipal solar and storage project under construction in Minster, Ohio,” Bricker & Eckler, available at <http://www.bricker.com/insights-resources/publications/first-of-its-kind-municipal-solar-and-storage-project-under-construction-in-minster-ohio>.

⁵ PUCO Case No. 16-1852-EL-SSO.

⁶ The PUCO's *PowerForward* initiative proceedings can be viewed at <https://www.puco.ohio.gov/industry-information/industry-topics/powerforward/>.

⁷ OPSB Case No. 17-0773-EL-BGN.

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