MOVING PUBLIC POWER FORWARD

COMMUNITY-DRIVEN SOLUTIONS FOR INDUSTRY TRANSFORMATION

EXECUTIVE SUMMARY

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Powering Strong Communities

Whether from advancements in technology, changes in costs, interest from the community and large customers, or pressure from state and local government, the electric sector has been making major changes to reduce carbon dioxide and other greenhouse gas emissions. Between 2005 and 2019, total electric sector CO_2 emissions declined 33%, despite a 2% increase in generation.

Decarbonizing the electric sector allows for decarbonizing other sectors.

Although the electric sector is not the largest source of CO2 emissions across our economy, decarbonizing the electric sector is seen by many as a critical first step in paving the way for decarbonization of other sectors, such as transportation and home heating.

As the backbone of many industries and daily life for all Americans, electric utilities are critical players in not only how the electric industry will shift, but how other sectors can move forward as well.

Public power utilities, which are not-for-profit and locally owned, have already been laying the groundwork for this transition. From working with their communities to shift their generating mix, to supporting economy-wide decarbonization through transportation electrification and smart city efforts, and redesigning rates that support this transformation, public power has many notable examples of how the electric sector is embracing change.

Public power utilities are working with their communities to reduce carbon emissions.

While often exempted from complying with state renewable portfolio standards, public power utilities are still setting clean energy goals that align with the interests of their communities and the attributes of their area. Utilities including Orlando Utilities Commission in Florida, the Sacramento Utility District in California, and Austin Energy in Texas have robust integrated resource plans that look to shift to carbon-free emissions within the next few decades.

Looking at overall capacity ownership figures, one would notice that public power utilities do not own a significant portion of renewable capacity. This is due in large part to public power's inability to directly take advantage of the investment tax credit for these resources, as non-profit entities.

Instead, they have engaged in power purchase agreements with third parties to ensure these resources are part of their portfolios. While exact figures are not collected, a pair of APPA surveys found at least 22,000 megawatts in contracted or planned solar and wind capacity PPAs in 2020 and 2021. This figure, which is likely substantially lower than reality, would suggest that public power has a stake in at least 16% of the total utility-scale wind and solar capacity in the United States.

Apart from shifting their resource mix, public power utilities are also working to explore the next generation of advanced energy technologies. Some examples include:

- The City of Healdsburg, California has developed the largest **floating solar** array in the U.S.

- Salt River Project in Arizona is developing projects to bring its total solar capacity above 2,000 MW by 2035, with many new projects getting paired with **energy storage.** One project features a battery energy storage system capable of dispatching 1 gigawatt-hour of power.

- The Northern California Power Agency is exploring configuring a natural gas plant to incorporate a **hydrogen** fuel mix.

- City Water, Light and Power in Springfield, Illinois is part of a study testing **carbon capture** at a coal plant.

- Idaho Falls Power is working with Idaho National Laboratory to develop **black start** capability with small hydropower plants.

- Grant County Public Utility District in Washington is investigating **advanced nuclear reactor technology** at two locations.

- The Virgin Islands Water and Power Authority is deploying a series of **microgrids** across the islands.

Public power utilities forge community partnerships to accelerate this energy transition.

A shift to a decarbonized economy and increased electrification presents both opportunities and challenges for electric utilities. Challenges can include burdens on the grid from load that is tougher to manage or predict, which can lead to decreased reliability or increased price volatility.

Among potential challenges is the need to ensure that certain communities are not left out of the transition. Without inclusion from all customer segments, especially those in historically underserved communities, such programs could further widen disparities in access to, and benefits from, clean energy initiatives.

While utilities play a central role in the transformation, they are not alone in making changes. Utilities are exploring many aspects of this industry transformation, including how to engage with and partner with others from across the community.

Examples include:

- Glendale Water and Power in California provides credits to residential and commercial customers for enrolling in a demand response program. The program allows the utility to automatically adjust participants' smart thermostats during peak events, reducing the utility's overall peak demand.

- Seattle City Light in Washington developed a clean transportation electrification plan with the city of Seattle that aims to increase use of zero emissions vehicles across the city. The plan emphasizes engagement with environmental justice communities to support an equitable implementation.

- SMUD in California incents home builders to construct all-electric homes, with added incentives for building homes with induction cooking appliances.

- CPS Energy in San Antonio, Texas has a partnership with the city of San Antonio, AT&T, and Itron on a smart streetlight program.

- Imperial Irrigation District in California partnered with Citizens Energy Corporation on a community solar project for customers with low-to-moderate incomes.

Designing rates and building an advanced grid are critical to the foundation of becoming a utility of the future.

Rate design is one of the most important aspects of building the utility of the future. Changing from a traditional rate structure, which customers have become familiar with for over a century, to a dynamic design cannot be too abrupt. Utilities should be laying out a long-term strategy that takes into account future changes to the grid, costs associated with those changes, and customer needs and expectations.

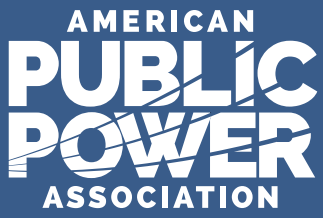
Several utilities are moving to more dynamic, time-varying rates. One example is Fort Collins Utilities in Colorado, which now has time-of-use rates for all residential customers. In addition to reducing customers' bills, the rates have helped the utility to decrease wholesale electricity expenditures and lower carbon emissions. Other utilities have leveraged TOU rates and other pricing structures to manage electric vehicle charging.

Some utilities are taking advantage of the data analytics from advanced metering infrastructure to predict and target opportunities for increased savings. For example, Algona Municipal Utilities in Iowa used its AMI to develop a customer clustering tool to better analyze customer load shapes and attributes.

Lastly, updates including to control centers and transmission lines will help the electric sector to manage the more complex future grid and keep it secure.

The attributes that define public power position these utilities for success in managing the future grid.

As locally owned and governed entities, public power utilities have strong ties to their communities. That makes tackling some of the challenges in transformation easier. In addition, the regulatory regime under which public power operates — governed by local boards and/or city councils rather than under the jurisdiction of state commissions — allows them to make changes more quickly and change that are more suitable for the needs and desires of their customers. While public power utilities will take different paths to the future, they will continue to demonstrate their value to the local community.



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