Grid Forward

Grid Forward Briefing

Advanced Grid Projects Benefit Citizens, Businesses and the Nation as a Whole

As our country grapples with the realities of the continued pandemic, climate change impacts, societal pressures, a fragile economy and other pressing issues, an important common thread is the need for reliable, affordable power. Our electric grid is a vital resource for maintaining supply chains, rescue services, community investment and meeting national goals.

Yet underinvestment in the grid looms as the U.S. is facing a $208 billion (in 2019 dollars) grid investment shortfall by 2029, causing direct threats way of life and our future prosperity.[1]

The benefits from investment in the grid are undeniable and industry actors have been busy deploying advanced grid applications and demonstrating the value they bring. Grid Forward has collected a wide range of examples from our community and partners.

Improving Grid Resiliency to Decrease Outages

- A **New York** utility deployed monitoring and controlling capabilities for distributed assets that helped decrease customer outages by 10%.
- A **Washington** State utility is deploying a community microgrid that will power community assets for 22 hours in islanded mode and have about 1/3 capability when solar resources are available.
- A remote **Alaska** community has ungrounded its transmission and distribution power lines, has a battery functioning as a grid resource and has nearly eliminated all outages and reduced diesel use by about 70,000 gallons annually.
- A **Montana** utility is deploying a microgrid to provide rural customers power in the case of an outage. the solution also provides grid support under normal conditions and is a test for implementing further projects.
- An **Arizona** utility has partnered with military facilities to reduce single grid points of failure and ensure critical load continuity with enhanced grid infrastructure.
- A **Washington** State utility is deploying advanced analytics and machine learning for vegetation management and wildfire risks anticipated to reduce customer outages up to 10%.
- A **California** utility has deployed 13,000+ fast acting fuses, 1100+ weather stations, 160+ cameras, along with 150,000 annual tree assessments with other advanced control solutions in high risk areas to mitigate wildfire threats.

Eliminating outages in a remote Alaska town.

Key:

Received Federal funding

1. https://infrastructurereportcard.org/the-impact/failure-to-act-report/

Faster Response After Extreme Weather Events

- A **Texas** grid operator avoided an estimated 45 million outage minutes in storm recovery after a single event with advanced grid solutions.
- Using advanced grid capabilities, a **Florida** utility restored power to more than two million customers in less than a day after a major storm.
- To improve event management and lower outages, a **Southwest** utility is deploying a resiliency management system in its control center to process, integrate, prioritize, and understand data better.
- An **Oregon** utility leveraged its demand side capabilities, distributed resources, market access and other advanced capabilities to minimize customer impact during a record breaking heat event.
- Automation on a **Washington** State utility grid restored power during a storm to 860 residents in 40 seconds, which previously would have taken at least 12 hours.

45 million
customer outage minutes avoided.

Investing in the grid now saves lives, properties, and communities and creates jobs and stability. We must pass the Infrastructure and Reconciliation Packages and get to work.

Optimized Operations to Ensure Affordable Service for All

- An **Ohio** utility integrated data from advanced metering into a real-time optimization platform, which increased energy savings from 3% to 4%, all without requiring customers to take any action.
- At one **Illinois** utility, smart grid programs have created $1.4 billion in societal benefits, saved customers $2.3 billion, and reduced outages 44%.
- An eastern **Canadian** utility is using machine learning and weather, environmental and other data in an advanced model that is 7x more effective than previous processes at selecting the assets for priority replacement.
- A **California** utility added automation on 17% more of its substations that reduced customer outage time by 37%.
- An **Oregon** utility has 67% of all customers in 3 separate communities participating with flexible loads to serve the grid in greatest times of need.
- An **Idaho** utility has saved $120M from its advanced metering deployment.

$2.3 billion in customer savings.

Improving Energy Equity to Lift Up Underserved Communities

- A **Nevada** utility deployed distribution automation (which quickly identifies equipment or system issues) across its territory saving $1.75 million each year that helps keep customer rates down.
- A **Washington** State utility is supporting transportation electrification, including mass transit, and expanded options to vulnerable communities.
- A small utility in **Montana** has deployed updated customer portals to offer individuals near real time data and assist in making better energy related decisions.
- A small, rural **Alaska** community has developed solar and storage resources that allowed diesel generators to stop running and provide educational opportunities.[2]

Transportation electrification
to serve vulnerable communities.

2. Sources for all examples can be found at https://gridforward.org/resources/advanced-grid-impacts/

ARRA grid modernization funds delivered diverse benefits

The 2009 American Recovery and Reinvestment Act included provisions for the electrical energy sector that shortened key electric grid modernization milestones, achieving many five years earlier and accelerating grid operator priorities by up to ten years. Numerous project benefits included:

- Improved distribution system reliability by up to **50%**
- Reduced peak load of more than **30%**
- Reduced operational costs of up to **50%**
- Improved efficiency of distribution systems by almost **3%**[3]

Making Critical Investment in the U.S. Electric Grid Now

The last 12 months made clear the central importance of a robust energy system across our country. During an unprecedented global pandemic, major and often unprecedented weather events lay bare how grid modernization is far behind schedule, and is becoming more important than ever before.

- **Winter storms** in the Northwest and Southeast caused widespread outages during frigid weather, costing billions in damages and a loss of hundreds of lives.
- **Heat events** in the Western U.S. caused hundreds of avoidable deaths and unprecedented need for air conditioning and energy demand.
- **Wildfires** in the U.S. West disrupted transmission lines, destroyed communities and displaced thousands—once again costing billions in damages and loss of many lives.
- A pipeline **cyber-attack** disrupted economies and daily lives across the East coast.
- **Storms** in Gulf States that tracked into the Northeast cost many lives, destroyed infrastructure—and will only get more devastating.

Grid Modernization is More Important Than Ever Before

A robust portfolio of advanced grid solutions is ready and able to meet the need. We must increase the capabilities on our grid to ensure our grid is:

- **Resilient** in the face of climate change and other disasters
- **Flexible** to meet changing consumer needs and government regulations
- **Secure** against natural and man-made threats
- **Decarbonized** to meet societal goals and future livability
- **Equitable** to all aspects of society

3. https://www.energy.gov/sites/default/files/2015/10/f27/OE%20ARRA%20Grid%20Modernization%20Highlights%20october2015_0.pdf

Grid Forward is an industry association promoting and accelerating grid modernization across the U.S. west via advanced technology, policy progress and business innovation.

Need more information? Contact **Bryce Yonker**, Executive Director, Grid Forward or visit GridForward.org.