




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

As our country grapples with the realities of the growing energy demand, global competition, affordability concerns, weather-driven catastrophes, and other pressing issues, an important common thread is the need for reliable, affordable power. Our electric grid is the backbone of modern society, powering our lives and communities and ensuring economic vitality and national security.

Yet underinvestment in the grid looms as the U.S. is facing a \$197 billion 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 utilities and their partners 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



From 2016 to 2020 average power outages in the U.S. doubled from 4 hours to 8 hours per customer.²




Key:

 Received Federal funding




¹ <https://infrastructurereportcard.org/cat-item/energy-infrastructure/>

² <https://www.eia.gov/todayinenergy/detail.php?id=54639>



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.

Optimized Operations to Improve Resiliency and Efficiency

- 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%.
 - 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 three 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.

Improving Energy Affordability to Benefit All 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.
 - An energy company based in **Virginia** with operations across the U.S. is using AI to improve maintenance operations, reducing costs by \$1 million and customer outages by 10%.
-  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.³



45 million
customer outage
minutes avoided.

Investing in the
grid now saves
lives, properties,
and communities
and creates jobs
and stability.
Upgrading the
grid today will be
far less expensive
than waiting for
future events to
force our hand.



\$2.3 billion
in customer
savings.

How Grid Modernization Funding Delivers 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.⁴ Numerous project benefits included:

Up to **50%**
improved distribution
system reliability

More than **30%**
reduced peak load

Up to **50%**
reduced operational
costs

Almost **3%**
improved efficiency of
distribution systems

Invest in the U.S. Electric Grid Now to Meet Evolving Challenges

Fast-moving events make clear the central importance of a robust energy system across our country. Major and often unprecedented weather events impact millions of citizens. At the same time, the demand for energy is rapidly growing, fueled by AI, electrification and global competition. 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** across the U.S. West—and even on the East coast—are destroying communities, taking lives, generating \$billions in damages, and disrupting the energy service needed to protect lives and recover and rebuild homes and businesses.
- **Security** is a serious and ongoing energy issue. For example, one pipeline cyber-attack disrupted economies and daily lives across the East coast. Across the nation, extremists are shooting at substations, damaging equipment and endangering lives.
- **Demand for power**, which had stayed essentially flat for decades, is now rising at alarming rates. The transformational opportunity from AI is propelling the need for massive data centers at the same time major domestic industries are growing and electrifying.

Current Programs Are Well Positioned for Significant Grid Investment

Recent legislation has introduced significant federal funding to help advance grid capabilities. These federal partnerships with industry will help improve critical grid functionality for the most effective outcomes in communities across the country. Grid Forward is excited to see the outcomes from these and other programs focused on advancing critical grid innovation projects:

- Over 100 DOE Grid Resilience and Innovation Partnerships (GRIP) projects across the country to expand grid resilience and flexibility.
- Regional transmission facilitation and critical corridor identification.
- Resources for rural communities to deploy critical energy infrastructure and grid hardening.
- Demonstrations for advanced grid assets such as long-duration energy storage, SMRs and enhanced geothermal.
- Resources for hydro asset improvement.
- Incentives for domestic manufacturing of critical grid components.



Grid Forward anticipates tangible reliability, security and affordability benefits from these exciting projects. It's important that we get them across the finish line."

– Bryce Yonker,
CEO and Executive
Director, Grid Forward

Grid Modernization is More Important Than Ever Before

A robust portfolio of advanced grid solutions is ready and able to meet the need. Deploying them quickly and efficiently is the best way to ensure our grid is:

- **Resilient** in the face of extreme and unpredictable weather events
- **Flexible** to meet changing consumer needs and governmental goals
- **Secure** against physical and cyber threats
- **Diversified** to meet societal goals and future standards of living
- **Affordable** for every community in our country

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

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