🕑 join

**MEMBERS** 

**Grid Professionals Group** The Grid Professionals Group covers electric current from its transmission step down to each customer's home.

HOME

POSTS Q&A

CALENDAR

**EXPERTS** 

**SPONSORS** 

limited.

energycentral. LISTEN NOW

POST

### Preparing for the Inevitable: How Utilities Can Keep the Power on **Despite Strengthening Storms**



image credit: © Stnazkul I Dreamstime.com PHIL SCHADE, P.E. 4223 Senior Vice President H2M architects + engineers Member since 2020 Ø 3 items added with 1,511 views

Contact

↓ Follow

2 Profile

As temperatures and sea levels rise, storms strengthen. This leads to dangerous storm surges, increased rainfall rates, and greater wind speeds, which can result in more infrastructure damage. For electric utilities, the strengthening of storms makes it difficult to anticipate the level of response that will be needed to bring power back to impacted areas. But there are ways for utilities and electric system operators to mitigate the amount of damage caused by storms and, as a result, potentially lessen the number of customers who lose power. There is additional motivation for utilities to do so due to recently passed legislation that provides significant federal funding for exactly these purposes. By proactively hardening their distribution system and investing in additional reliability methods to keep the power on, even when distribution is impacted, utilities can decrease their outage frequency and allow for power restoration to occur more efficiently.

when ocean levels rise due to the low pressure and winds that a storm brings, water can come rushing inland at higher levels than a typical high tide would produce. If utility companies' equipment isn't above this flood line, there can be significant damage and impact to customer service. Though storm surge has always been a concern in areas prone to hurricanes, this threat has worsened in many coastal areas as sea levels continue to rise and the rate of significant storm events increases. Even if utility companies had originally planned for this threat when installing their equipment, it most likely needs to be reevaluated to prepare for future flooding.

One of the most destructive and dangerous threats posed by hurricanes is storm surge. In coastal areas,

Another concern regarding flooding is increased rainfall, which impacts inland areas in addition to coastal areas. Storms are shattering state records for rainfall and areas that previously were not prone to flooding, due to their distance from a large body of water, are now facing this threat. This may mean that substations and related systems may need to be raised to a greater elevation.

But flooding isn't the only threat that needs to be addressed by utility companies. Greater impacts are often caused by downed trees, lines, and poles. This is caused by greater wind speeds and falling trees and branches, which have a major impact on utility infrastructure. Techniques for hardening the system against high wind events exist. These include replacing overhead systems with underground construction, replacement of aging poles, installing taller poles, replacing aging electric lines, reducing cross-arm width, and aggressively trimming nearby trees.

These methods are effective in preventing outages, but outages cannot be avoided entirely. That's why adding sectionalizing switches into utility companies' storm hardening plans is also advisable. When utility companies use sectionalizing switches, they limit the number of customers impacted by an outage. These switches isolate sections on an electric circuit when a fault occurs, allowing utility companies to direct their efforts to where the failure is located. This saves time and prevents additional customers from losing power, resulting in improved restoration time.

Another power delivery method that can help with system reliability is the application of battery energy storage. Though many have heard of generators which restore power temporarily, battery systems can be used in a similar way, without the need for fossil fuel. Batteries are a short-term solution, as they have a limited output duration before requiring recharge. However, as the nation further shifts to clean energy technologies like wind and solar, both of which are intermittent power generation sources, the need for energy storage will be critical to support continuous power delivery. Battery energy storage systems will need to be part of the local infrastructure and be available to supply electricity when intermittent systems are not actively generating power.

Strengthening storms is a reality for many areas of the country. In response, many local utilities and electric system operators have already implemented some of these storm hardening and reliability methods and the results have been significant. By focusing on vulnerable circuits, major improvements in reliability have been realized.

Given the potential for system reliability improvement, and with federal support for these types of infrastructure projects, many utilities and system operators have begun implementing related programs. Whether funded by federal dollars, or by the rate payer, working with a firm experienced with storm hardening programs and energy storage systems can help to reduce implementation costs. The end result will be a more efficient electric delivery system and a better customer experience.

🧷 grid

## **Discussions**

Sign in to Participate

No discussions yet. Start a discussion below.

Thank Phil for the Post!

Energy Central contributors share their experience and insights for the benefit of other Members (like you). Please show them your appreciation by leaving a comment, 'liking' this post, or following this Member. 2 Profile **△** Follow Like this post

MORE POSTS FROM THIS MEMBER

 Preparing for the Inevitable: How Utilities Can Keep the Power on Despite Strengthening Storms Battery Energy Storage Systems Provide Utility Scale Solutions

# MORE POSTS

PREPARING FOR THE INEVITABLE: HOW UTILITIES

CAN KEEP THE POWER ON DESPITE

STRENGTHENING STORMS

**NOVEMBER 24, 2022** 

Start a Post »

As temperatures and sea levels rise, storms strengthen. This leads to dangerous storm surges, increased rainfall rates, and greater wind speeds, which can result in more infrastructure damage.

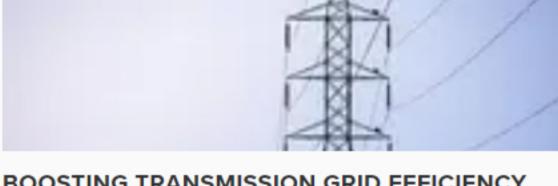
NO GRIDLOCK HERE: MONTHLY DIGEST OF

INSIGHTS SHARED BY YOUR PEERS IN THE

**ENERGY CENTRAL GRID NETWORK GROUP -**

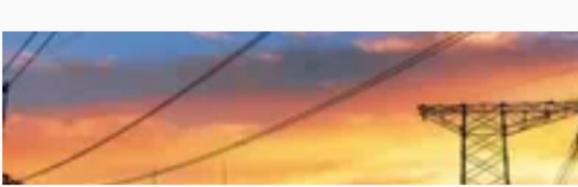
Welcome to Energy Central's digest concerning different developments concerning people working on the grid. It covers stories throughout the month concerning grid professionals and transmission professionals. This goes through a few key articles..

industry resource that you think would be helpful.



#### BOOSTING TRANSMISSION GRID EFFICIENCY WITH ADVANCED CONDUCTORS AND DRONES

In Bangladesh, the Asian Development Bank (ADB) is supporting a project to expand transmission lines in Greater Dhaka and the western zone using ACCC® Conductors to increase power delivery and improve grid efficiency and reduce carbo



RESEARCHERS AIM TO UNDERSTAND A POWER GRID PHENOMENON | OILPRICE.COM Grid expansion projects aim to include a sustainable energy

supply but researchers are facing a different dilemma. The Braess paradox, named after the German mathematician Dietrich Braes, revealed that by upgrading existing lines and adding news..

## Get Published - Build a Following The Energy Central Power Industry Network is based on one core idea - power industry professionals helping each

other and advancing the industry by sharing and learning from each other. If you have an experience or insight to share or have learned something from a conference or seminar, your peers and colleagues on Energy Central want to hear about it. It's also easy to share a link to an article you've liked or an

Learn more about posting on Energy Central »

Apply for membership START A POST

Your access to Member Features is

Sign In

**POWER**ful **Environmental Solutions** POWER ENGINEERS ENVIRONMENTAL environmental insights and regulatory updates?

**GROUP SPONSORS** 



BECOME A SPONSOR

#### RELATED CONTENT Boosting Transmission Grid

Efficiency with Advanced

- **Conductors and Drones** No Gridlock Here: Monthly Digest of Insights Shared by Your Peers in the Energy Central Grid Network Group - November 24, 2022
- Offshore Wind technical potential Greece
- Bavaria | Hydrogen

RECENT COMMENTS Dan commented on ...

A Simple ROI Comparison of

ACCC and ACSR Conductors

<sup>66</sup> Hi Dave,

OilPrice.com

OilPrice.com

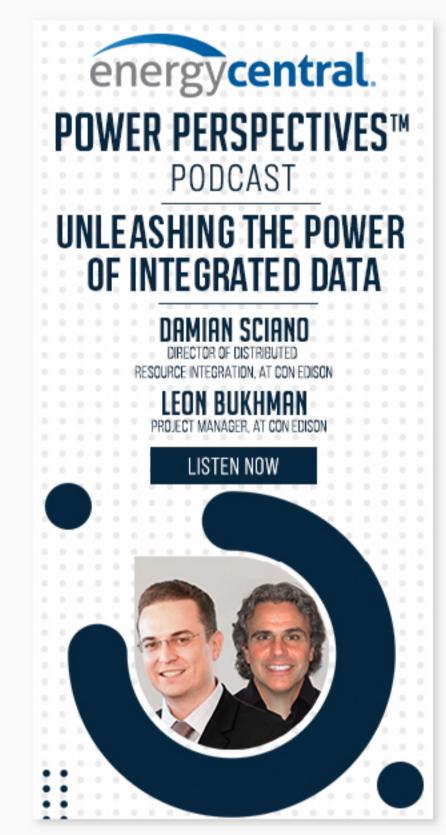
Elie commented on ... Researchers Aim To Understand A Power Grid Phenomenon |

Interesting Post! Sometimes, Less is More. Julian commented on ... Researchers Aim To Understand

A Power Grid Phenomenon |

56 Thank you for this post. Audra commented on ... Con Edison Wins ReliabilityOne® Awards

Congratulations - always great to hear about how your team is doing! Thanks for sharing with the community.







FEATURED JOBS

- Regulatory Analyst IV Chesapeake Utilities Corporation Dover, Deleware
- T&D Engineer
- Columbia, Missouri • Project Lead - Renewable Energy Central Electric Power Cooperative

Missouri Public Utility Alliance

- Inc. Columbia, South Carolina
- Forecasting Advisor Regulatory Affairs
- SoCalGas
- Los Angeles, California Energy and Environmental
- Advisor City of Rochester Rochester, Minnesota
- Civil Engineer Substation Design Brazos Electric Cooperative, Inc.
- Waco, Texas • Engineer - Transmission System
- Planning Brazos Electric Cooperative, Inc. Waco, Texas
- Electrical Design Engineer Brazos Electric Cooperative, Inc.
- Waco, Texas
- Journeyman Meterman UniSource Energy Electric Kingman, Arizona
- Director of Power Supply Portfolio Management
- Long Island Power Authority Uniondale, New York Manager of Power Supply
- Operations Long Island Power Authority
- Uniondale, New York System Protection Control Director
- Southern Maryland Electric Cooperative, Inc. Hughesville, Maryland
- Power System Communications Director
- Cooperative, Inc. Hughesville, Maryland National Sustainable Power Sales

American PowerNet

Southern Maryland Electric

Wyomissing, Pennsylvania Electrical Engineer (Substation) I, II, III or IV

Arizona G&T Cooperatives

Benson, Arizona Controls Engineer I, II, III or IV Arizona G&T Cooperatives

MORE JOBS

Electric Portfolio Manager

Pacific Energy Advisors, Inc.

Cochise, Arizona

Folsom, California

**Sponsors & Partners** 













**Our Mission** 

Our mission at Energy Central is to help global power industry professionals work better. Our **Power Industry Network™** platform is built to help our members connect with each other, share their knowledge & experience and advance their careers in the industry. **Membership** is open to professionals working at utilities and organizations supporting the industry.

energy central.

About Us

**Energy Central** 

Advertise with Us Participate! Membership FAQs

EC Professional News

Privacy Policy

Policies

Community Standards Terms of Service

Twitter LinkedIn

Facebook

Get Social Stay Connected Subscribe

Follow via RSS Contact Us