

JANUARY 2020 EDITION

DEED *n*digest

American Public Power Association

Celebrate 40 years of R&D with us!



PowerWorld Load Simulation Software

Log into the DEED Project Database for details on this and nearly 800 other industry-changing projects DEED has funded.

SEE SOLUTIONS FOR: Industry Education

Simulator Our interactive power systems simulation package for high voltage power systems operation on a time frame ranging from several minutes to several days.	Retriever PowerWorld's system visualization tools combined with real-time data.	Trainer A new flexible multi-user operators training platform.
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IMPACTING THE INDUSTRY SINCE 1997

In celebration of the DEED program's 40th anniversary, the Digest will spotlight a special past project every month in 2020!

PowerWorld, a graphics-based software under development in the 1990s to model power system operations, is a DEED program '**golden oldie**.' Several utilities, supported by DEED grants and scholarships between 1997 and 2001, collaborated with the vendor to further develop and model the PowerWorld software for use by industry. Follow the DEED Project Database links below to learn more about the projects:

- City of Danville Department of Power and Light's scholarship, [Development of Power System Models for Transmission Dependent Utilities: A Case Study](#)
- Richmond Power & Light's grant, [Building a Real Time SCADA for PowerWorld Simulator](#)
- WPPI Energy's scholarship, [Development of Complete Visual Transmission Displays to Aid in Transmission System Analysis and Discussion in Wisconsin](#)
- City Water Light & Power's grant, [Development of a Real-time Power System Visualization Tool for use with Plant Information \(PI\) Systems](#)

DEED Awards: Your Utility Deserves Recognition!

A promotional graphic for the 2020 DEED Awards. The background features several glowing lightbulbs of various sizes, with small human figures standing on a reflective surface below them. The DEED Public Power logo is in the top left corner. The text '2020 DEED AWARDS' is prominently displayed in the center, with 'FOR EXCELLENCE IN RESEARCH' below it. At the bottom, a dark blue banner contains the text 'Nominate your utility today!' on the left and '#PublicPower' on the right.

2020 DEED AWARDS
FOR EXCELLENCE IN RESEARCH

Nominate your utility today! #PublicPower

Opportunities to show off your good DEEDs don't come along every day. Take advantage of these awards to trumpet your latest innovations and commitments to the DEED ideals of research, demonstration, efficiency & support of public power. Nominate your utility for an [Award of Continued Excellence](#) or [Energy Innovator Award](#). What have you got to lose?

Learn more about the awards and past winners on the [ACE and EIA information page](#). Applications for the [ACE](#) and [EIA](#) are due on January 31, 2020. Questions? Contact DEED at (202) 467-2911 or e-mail DEED@PublicPower.org.

Don't Miss Out on Up to \$125,000 in Funding

A graphic for DEED Members funding opportunities. The background is dark blue with various icons including a globe, gears, and a network diagram. The DEED Public Power logo is at the top center, with '40 Years of Innovation' below it. The text 'DEED Members' is in large white letters, followed by 'Apply by February 15 for innovative project grants and student intern funding' in smaller white text.

DEED PUBLIC POWER
RESEARCH & DEVELOPMENT
40 Years of Innovation

DEED Members
Apply by February 15
for **innovative project grants**
and **student intern funding**

DEED will help you achieve your New Year's Resolutions. Make 2020 the year you try that new project idea or innovative upgrade. Take advantage of DEED opportunities and **apply for up to \$125,000 in [utility grants](#) or \$4,000 for an [intern](#) by February 15th**. For more information, view [DEED's funding page](#).

Email DEED@PublicPower.org or call **202-467-2911** to start an application.

Energy Storage Grand Challenge

U.S. DOE announced the launch of the Energy Storage Grand Challenge, "a comprehensive program to accelerate the development, commercialization, and utilization of next-generation energy storage technologies and sustain American global leadership in energy storage." The Energy.gov article, "[U.S. Department of Energy Launches Energy Storage Grand Challenge](#)" describes how the initiative aims to create and support global leadership. The DOE will provide R&D funding opportunities by focusing on technology development and transfer, policy and valuation, manufacturing and supply chain, and workforce.

EPRI's Total Value Test

EPRI published the "[Total Value Test: A Framework for Evaluating the Cost-Effectiveness of Efficient Electrification](#)," a report that explains the Total Value Test's (TVT) use as a metric for determining the financial feasibility of energy efficiency measures and programs, including electrification. The TVT can compare different energy sources and includes environmental impact considerations. This report also provides case studies and reviews other energy efficiency standard tests.

Recently Completed Projects

One grant and four scholarships wrapped up in the month since our last newsletter. Visit the [DEED Project Database](#) for a repository of hundreds of outstanding research projects funded by DEED. Learn what other public power utilities like yours have done. Discover how you can replicate or improve on the success of projects completed by your peers. Get ideas for your own projects and apply for DEED co-funding with a DEED grant.

G-412 Surveying the Potential of Electrifying the Navajo Nation

The **Navajo Tribal Utility Authority (NTUA)** set out to explore how to use the public power mutual aid network to support the acceleration of electrification in remote areas of the Navajo Nation without electricity. Using the grant to fund preliminary meetings, explore project analysis, and engage in project development, the American Public Power Association and NTUA partnered to organize a 6-week pilot electrification effort. From April 6 to May 18, 2019, 126 volunteers from 25 public power organizations traveled to the Navajo Nation and connected 233 families to the grid for the first time. This pilot project, supported by a DEED grant, allowed NTUA to use lessons learned to improve electrification efforts going forward. Learn more about the project and read the final report here: [READ MORE](#)

S-261 Renewable Cost Calculator

Heartland Consumers Power District (HCPD), MN, hired an intern, Peter Choudek, a St. Cloud State University student, to help develop a renewable energy calculator. This calculator aims to assist residents, their local utility, and the wholesale power provider, in determining the costs and benefits of installing a renewable energy facility, particularly a solar array. Peter was given access to a monitoring system for a solar array currently in place in a HCPD community to determine production of different sized arrays. This data helped create production curves for different weather patterns. Learn more about the project, use the calculators, and read the final report here: [READ MORE](#)

S-263 Advanced Artificial Intelligence for Online Power System Stability Surveillance

S-262 Event Detection and Classification in Power Grid Using Machine Learning and Synchrophasor Technology

Municipal Electric Power Association of Virginia (MEPAV) sponsored a student research grant for Shiyuan Wang, Ph.D. student concentrating in Electrical Power Systems Engineering at George Washington University. Shiyuan's research proposed a more efficient mechanism for the well known phasor measurement unit (PMU) approach of using only one synchrophasor estimation algorithm (SEA); the student sought an adaptive selection process, a suite of multiple algorithms, to ensure the best-fit SEA is used depending on the operating state of the PMU. Learn more about the project and read the final report and abstract here: [READ MORE](#)

S-264 Economic Development Intern

ElectriCities of North Carolina hired an intern, Laquell

The **City of Manassas Dept. of Utilities, VA**, sponsored a student research grant for Bhavesh Shinde, Masters student in Electrical and Computer Engineering at George Washington University. The research focuses on developing advanced artificial intelligence tools for the continuous online surveillance of power system stability based on phasor measurement units (PMU) at generator buses. Bhavesh's work aims to predict the instability conditions in the power grid by continuously monitoring the system using an advanced framework of deep learning neural networks, namely the convolutional neural network (CNN). Learn more about the project and read the final report here: [READ MORE](#)

Harris, Shaw University student, to conduct research on the potential expansion of public power communities in North Carolina. Laquell was also tasked with analyzing economic development plans and web sites of public power cities and their constituent economic development organizations to determine what types of business and industrial investments were sought. This information was included in the ElectriCities industrial marketing schedule for FY 2020. Learn more about the project and read the final report and abstract here: [READ MORE](#)

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