AEIC 2024 Achievement Award Winners

Solutions to Some of Today's Challenging Operational Issues

By AEIC CEO Steve Hauser

The Association of Edison Illuminating Companies (AEIC) recently announced the winners of its 2024 Annual Achievement Awards at the organization's 140th Annual Meeting in Colorado Springs. AEIC's Achievement Awards are presented each year to member companies who have clearly demonstrated significant contributions to advancing operational excellence in the electric utility industry.

This year, AEIC selected ten award recipients from seventy-six submissions received from member companies. These ten award winners earned recognition for developing innovative and transformational solutions to some of today's most challenging operational issues that have achieved success by demonstrating measurable results. Two of the winning companies received the AEIC President's Award, the association's highest honor.

Avangrid

Sparky - the Avangrid Robot

Avangrid was recognized for its collaboration with Boston Dynamics and Levatas to evaluate the effectiveness of robotics and artificial intelligence at substation facilities. Over the past year, Avangrid has used Sparky, an agile mobile robot developed by Boston Dynamics, to inspect equipment through thermal imaging, analog gauge readings, and damaged insulator detection.

Sparky's infrared camera can capture thermal images to analyze temperature information and compare the phases of frequently used equipment: Power Transformers, Breakers, Switches, Connections, et cetera. It can also read analog gauges and monitor for anomalies that fall outside a specified range. The images and readings are both transformed into digital models that are used to notify operations if an anomaly is detected.

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Dominion Energy

Automatic Misgrid Corrections

Dominion Energy's award recognizes its development of an advanced system to automatically detect and correct "misgrids," where meters are associated with incorrect service transformers in electronic systems. These errors can lead to increased truck rolls, longer outage investigations, and customer frustration due to inaccurate restoration updates. Using a machine learning algorithm that correlates smart meter data by transformer, the system identifies misgrids and employs robotic process automation (RPA) to reassign the meter to the correct transformer in the customer information platform.

So far, the system has successfully

President's Award Winners

Eversource Energy

Digital Transformation for T&D Inspections

Eversource received AEIC's President's Award for its Digital Transformation for T&D Inspections initiative, which deploys advanced artificial intelligence (AI) models for analyzing vast amounts of data collected from their extensive transmission and distribution networks. By integrating these AI-driven solutions with a cloud-enabled platform, Eversource can not only revolutionize its inspection workflows but also empower decision makers with actionable insights. This initiative has garnered industry-wide recognition, with Eversource being invited to present at prominent forums such as AEIC, EEI, and IEEE.

Southern California Edison Co.

AWARE (Advanced Waveform Anomaly REcognition)

SCE received AEIC's President's Award for developing AWARE (Advanced Waveform Anomaly REcognition), an in-house suite of advanced fault modeling, signal processing algorithms, and machine learning models. AWARE is designed to utilize high-fidelity waveform recordings at the substation, advanced metering infrastructure (AMI) information, grid models, and SCADA (Supervisory Control and Data Acquisition) data in real-time to detect signs of equipment failure and estimate their locations to aid fast, proactive, and safe field investigations.

AWARE has been implemented within the Grid Operations organization since the first quarter of 2023. Receiving real-time data from nine substations, it has detected and located over two hundred fifty-five failures in the field, including many incipient faults, underground faults, and capacitor issues on distribution circuits.

Using WiNGS, San Diego Gas and Electric protects communities from wildfires.

corrected over six thousand misgrids, leading to more efficient outage restoration, improved customer experience, more accurate grid models, and better asset management. Dominion Energy plans to further enhance this system with additional features to ensure even greater accuracy and support Integrated Distribution Planning.

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Eversource

Revolutionizing Reliability Via AI-Driven Outage Predictions

Eversource's award-winning project, Revolutionizing Reliability through AI-Driven Outage Predictions, represents a groundbreaking approach to proactive outage management. Developed in just eight weeks, this patent-pending model utilizes historical momentary outage data to predict potential sustained outages with remarkable accuracy. By forecasting outages before they occur and identifying their probable causes, Eversource has been able to take preemptive measures, significantly reducing downtime and enhancing customer satisfaction. Early testing of the model has already prevented over one hundred fifty sustained outages, which would have impacted more than seventy-five thousand customers.

Exelon Corporation

(Two awards)

Integrating AI Models and Synthetic Image Data for Enhanced Asset Inspection and Defect Identification

Exelon received its first award for revolutionizing asset inspection by using a combination of real-world drone images and synthetic models of asset defects. This combined data set was used to train an artificial intelligence (AI) solution that could automatically detect assets and their defects, eliminating the need for manual image labeling. By automating the defect detection process, Exelon has reduced the reliance on manual inspections, minimizing hazards to field crews and significantly cutting down on inspection times.

Virtual Instructor for CSR Training and Optimized Responses (VICTOR)

Exelon's second award recognizes the development of an AI-powered chatbot, VICTOR (Virtual Instructor for CSR Training and Optimized Responses). VICTOR was developed to address the challenges of traditional CSR (customer service representative) training, including inconsistent standards and low engagement.

Steve Hauser is CEO of Association of Edison Illuminating Companies.

Using a language learning model, VICTOR not only simulates realistic customer scenarios and queries, but evaluates the responses of the CSRs and suggests ways to improve their accuracy, professionalism, and empathy. VICTOR leverages existing Exelon training materials and other data sources to ground its questions and answers in factual, relevant information.

Oncor Electric Delivery

Grid Echo

Oncor's Grid Echo project represents a major advancement in how electric utilities analyze and respond to outage events. This innovative spatiotemporal data analytic platform brings together data from Oncor's Outage Management System, meters, SCADA, switching operations, and connectivity models, allowing for the replay of outage events.

What once took days of manual analysis can now be completed in minutes, enabling faster and more accurate post-event reviews. The platform's ability to visualize events in both geospatial and schematic views provides operators with a comprehensive understanding of the sequence of events, helping to improve future responses and enhance overall grid reliability.

Sparky the Avangrid Robot inspects facilities using AI.

San Diego Gas & Electric

(Two awards)

Climate Intelligence Platform

SDG&E received its first award for developing a Climate Intelligence Platform using its Digital Twin visualization software. The platform can generate detailed climate scenarios for SDG&E's service area, providing access to key insights on how climate change will impact customers and the grid, particularly in San Diego's most vulnerable communities. Using the Climate Intelligence Platform, SDG&E can also identify what assets are most vulnerable to failure due to climate scenarios.

Wildfire Next Generation System (WiNGS)

SDG&E's second award recognizes the development of WiNGS (Wildfire Next Generation System), a risk intelligence platform used to protect communities from wildfire threats by optimizing operational planning and prioritizing wildfire prevention efforts. This state-of-the-art system combines visual representations of SDG&E infrastructure with real-time weather data, wildfire modeling, tree-strike analysis, and other critical information. WiNGS models climate scenarios and recommends grid-hardening initiatives, like ungrounding power lines in high-risk areas, to help prevent utility-related wildfires and mitigate the impacts of climate change. PUF

Waiting for Transmission?

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larger transmission when generation has become more localized?

How can we use current storage technology to stave off building more lines?

To be clear, I am not suggesting we do not need or want more transmission. Having run one of the largest transmission networks in the U.S., I appreciate and value big iron. But can we afford to wait and hope?

Many of us between the transmission grid and the end member/customer do not have the time to wait for big-bang solutions. We need action now at the local level to help meet the demand, dreams of a lower carbon future, and continued reliability.

Therefore, we must ask, as Napolean Hill did, "Are you waiting for success to arrive or are you going to find out where it is hiding?" I believe it is hiding in plain sight. PUF

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