Engineering Innovation Award Finalists

This award recognizes individuals or workgroups who have developed innovative processes or programs.

Judging Criteria	Potential Entries Might Include:
- Adaptability - Can it be adopted by other companies regardless of size? Geographic location? Public or Private? - Impact - Does it provide the opportunity for new revenue or customer growth? Reduced cost of operation? Greater efficiency/productivity? More safety? Lower rates? - Creativity - Is this a new concept or the adaption of an existing concept? - What was the purpose of implementation from conception to completion? - Presentation - How did the presenter communicate the concept within the time allotted?	- Innovation in an engineering or design process or procedure that results in improved time or cost efficiencies during construction or maintenance activities. - Innovation in a construction process or standard that allows an operator to serve a new customer or group of customers. - Innovative partnerships with your sales and marketing counterparts that result in increased customer growth or the retention of existing customers. - Innovative partnerships with your human resources department that result in an enhanced ability to recruit and retain engineering talent for your organization.

Submissions Overview

Engineering Innovation Award Finalists		
Company Name	**Program Name**	**ID Number**
Dual Drive Technologies	Reduction of Greenhouse Gas (GHG) emissions using Hybrid Gas Compression without straining the electric power grid.	EI-1
Duke Energy	PAR tool for Emission Control for Duke Energy Natural Gas Business Unit	EI-3
ONE Gas	Engineering Innovation	EI-10
Chesapeake Utilities Corporation	Hydrogen Blending Program	EI-13

Nomination EI-1	
SGA Member Company Name	Dual Drive Technologies
Program Name	*Reduction of Greenhouse Gas (GHG) emissions using Hybrid Gas Compression without straining the electric power grid.*
Program Description	We sought to reduce the Greenhouse Gases emissions and be operationally efficient with the gas plant's residue compression.
Results of/Response to the Program	Dual Drive Technologies is the only provider of this patented process and has reduced emissions for Energy Transfer's Permian Basin by 500,000 tons of carbon dioxide, 571 tons of carbon monoxide, 531 tons of nitrogen dioxide and 397 tons of VOCs.
Contribution to "Connecting People, Ideas & Information"	This technology shows results for our Permian Basin operation. The hazardous emissions stay out of the air and cannot be spread to other populated areas. Energy Transfer currently has multiple locations utilizing this technology with continuous results reducing Greenhouse Gases. Because the Dual Drive Compression system can smoothly transition from electricity to natural gas instantaneously, we participate in Demand Response and other available options from the utilities when a degradation of the grid is detected due to extremely high peaks or extreme weather events. This helps both the environment the grid, working to keep electricity prices low of all consumers.
SGA Membership Category	Associate Member

Nomination EI-3	
SGA Member Company Name	Duke Energy
Program Name	*PAR tool for Emission Control for Duke Energy Natural Gas Business Unit*
Program Description	The NGBU has started the process and development work to be the first Natural Gas LDC to achieve and prove Net Zero Methane Emissions using measurement rather than desktop calculations that is the current industry standard. The NGBU is utilizing satellite, among other advanced methane detection technologies, to detect methane emissions on the natural gas distribution system. The NGBU has partnered with Accenture and Microsoft to develop a product that will establish a platform that ingests and measures baseline emissions, prioritizes methane emissions detected via leak detection technology, and enables field response and data capture to identify and repair leaks to reduce fugitive emissions. The PAR Tool (pinpoint, assess, repair) is a work order management tool in which prioritized plumes identified by satellite are dispatched to field technicians for validation. If a leak is found, technicians are providing details to PAR as well as creating conditions in ARM, which is the leak system of record. The PAR tool will expand to provide alerts for a variety of emission-type events, such as, leaks on LNG facilities and regulator stations.
Results of/Response to the Program	Duke Energy NGBU team's efforts are helping the company achieve its overall environmental safety and net-zero emissions goals -- specifically by using satellite technology to identify, measure and mitigate natural gas leaks that occur within our overall system. This effort is groundbreaking – it's a first-in-the-industry leak detection program designed to "find it, fix it faster," clear existing leak inventories, and keep them at low- to near-zero levels to reduce our overall methane emissions.
Contribution to "Connecting People, Ideas & Information"	We successfully implemented new technology across multiple organizations that had not applied their technologies specifically to methane emission controls. This technology can improve the efforts across the worldwide industry reducing emissions and promoting Natural Gas as the safe and reliable asset it is to our energy future.
SGA Membership Category	Distribution

Nomination EI-10	
SGA Member Company Name	ONE Gas
Program Name	*Engineering Innovation*
Program Description	The problem: A frequent safety concern in natural gas distribution is excavation damage. Damage to pipeline facilities can impact the safe delivery of natural gas to customers and can cause delays in projects. Excavation damages are also a leading cause of emissions for gas distribution companies. Innovative solution: A team of Operations, Information Technology and Engineering employees formed a working group to better understand the factors contributing to pipeline damage and how to use data to mitigate these risks and make more efficient and informed decisions. The team spent more than a year of research, application development, and data analysis, ultimately developing Risk Assessment and Damage Reduction technology, also known as RADAR. This innovative technology pulls data from public and internal sources to identify the probability of damage occurring due to excavation activities near our pipelines. If these data sources indicate there is a heightened risk of potential excavation damage, a ticket is delivered to a team of field employees through a mobile application. ONE Gas technicians can proactively connect with the excavator onsite before the excavation begins to help align and foster safe practices. ONE Gas began using RADAR in major Oklahoma metro areas in 2021 with promising results. The company plans to expand the deployment company-wide over the next few years. Why RADAR Deserves to Win: RADAR demonstrates how Artificial Intelligence (AI) and data science – like machine learning – can solve problems. Machine learning is a branch of AI that uses data and algorithms to imitate the way humans learn. It plays a crucial role in evaluating complex data, identifying patterns, and predicting where things may occur – in this case, where the risk of excavation damage is heightened. Contributing factors such as prior excavator interactions, pipe data, and location are a few of the dozens of data points that drive the analysis.
Results of/Response to the Program	From September through December 31, 2021, ONE Gas used RADAR data to identify and conduct over 1000 proactive check-ins with excavators. The check-ins are in the form of a phone call, email, or a face-to-face meeting on-site before any excavation activity occurs.

Contribution to "Connecting People, Ideas & Information"	ONE Gas paired data with personal connections for optimum results. Data alone could not reduce instances of potential excavation damage. While machine learning can help quickly identify patterns of efficiency, inefficiency, or excavation risk in near real-time, it was the personal connection that allowed ONE Gas to continue to deliver positive results. When a line hit did occur, we scheduled an incident review with contractors. These meetings allowed us to identify the root cause and create remediation plans to address any deficiencies. Our increased communication and in-person touchpoints demonstrated to contactors that we were focused on this effort and measuring their performance. In turn, their performance improved, and contractor line hits went down. Supporting Material - 90-second video overview of RADAR
Supporting Documents	Click to view.
SGA Membership Category	Distribution

Nomination EI-13	
SGA Member Company Name	Chesapeake Utilities Corporation
Program Name	*Hydrogen Blending Program*
Program Description	With an increased demand for large-volume customers to evaluate and lower their carbon emissions, Chesapeake Utilities Corporation is actively working to develop lower-carbon energy sources. Beginning in January 2022, the Company tested a blend of hydrogen and natural gas to fuel its Eight Flags Combined Heat and Power Plant (CHP) gas turbine, located in Nassau County, Florida. This facility offers a unique opportunity to assess the feasibility, benefits and operating characteristics of blending hydrogen and natural gas in a contained and closely monitored industrial setting. The engineers and highly skilled technicians who operate Eight Flags 24 hours a day conduct the blended fuel tests. Prior to testing, Chesapeake Utilities received an updated air permit to operate with a blend of hydrogen. Minor modifications at the CHP plant were completed to enable the turbine to run on a 4% hydrogen blend. The existing turbine is scheduled for a routine change-out this year; the replacement turbine will have the capability to operate with a higher percentage of hydrogen. The test program was intended to refine the operational practices and requirements for safe transportation and injection of hydrogen into a distribution system. Hydrogen, along with RNG, conservation, carbon capture and other emerging technologies, will ultimately provide customers with increased sustainable energy choices. Our team is engaged at every level as the social, political and legislative environment around climate change develops and the renewable energy supply chain matures.
Results of/Response to the Program	The Eight Flags CHP hydrogen blend test project provides real-world operational data that will help demonstrate the practical use of hydrogen blended natural gas in an industrial application. Chesapeake Utilities' interest in hydrogen began with assisting our larger customers in lowering their carbon footprints. Providing hydrogen blended fuel; offering technical assistance and operational training; and investing in equipment at customer sites are several of the Company's goals focused on customer satisfaction and retention. The Company is currently validating the achieved emissions reduction at the CHP plant. A successful test will result in an increased hydrogen percentage. We anticipate switching to green hydrogen produced by renewable

	electricity electrolyzers.
Contribution to "Connecting People, Ideas & Information"	The development of this program required a wide range of collaboration both internally and externally. Internally, Chesapeake Utilities worked alongside one of its subsidiaries, Marlin Gas Services, to coordinate the transport of the hydrogen to the Chesapeake-owned distribution system at the CHP site using four recertified Marlin tankers. These tankers will initially support the hydrogen test project but will shortly thereafter be available to meet other customer transport needs. Externally, Solar Turbines, the manufacturer of the Eight Flags gas turbine, worked in conjunction with the Company to assess the use of the hydrogen blend on the operations of the turbine and other associated CHP equipment.
SGA Membership Category	Distribution