GE's g3 technology accelerates Denmark's decarbonization efforts

- *GE has been awarded a contract from Energinet for two F35g 145 kV SF_6-free g^3 gas-insulated substations (GIS)*
- *g^3 substations will be installed at the Amagerværket (AMV) and Vigerslev Koblingsstation (VIK) substations, both in Copenhagen*
- *Upon completion, AMV will have 22 bays making it the largest gas-insulated substation installation using GE's g^3 gas at the 145 kV level worldwide*

Paris, FRANCE - July 12, 2022 – GE Renewable Energy's Grid Solutions business (NYSE-GE) has been awarded a contract from Energinet, owner, operator, and developer of transmission systems for electricity and natural gas in Denmark, for 31 SF_6-free gas-insulated substation (GIS) bays. These bays, to be installed at the Amagerværket (AMV) and Vigerslev Koblingsstation (VIK) substations in Copenhagen, will reinforce this city's electrical grid to support its steadily increasing population growth and electrification agenda.

Based on its mission to ensure that the Danish energy system and grids are "prepared for a future with 100% renewable energy", Energinet selected GE's industry-leading g^3 (pronounced "g"- cubed) gas as a game-changing alternative to SF_6—a potent greenhouse gas. GE's g^3 gas has a global warming potential (GWP) of about 99% less compared to SF_6. Moreover, g^3 products have a significantly improved life cycle assessment (LCA) compared with SF_6 products and other alternatives.

The project scope includes the delivery of two ready-to-operate 145 kV F35g double busbar gas-insulated substations using GE's g^3 alternative insulating and switching gas. With 22 bays, AMV will be the largest substation installation using g^3 GIS at the 145 kV level to date. The VIK substation will consist of 9 bays.

To date, a total of three Danish utilities - Energinet, Cerius, and Radius Elnet - have installed GE's g^3 products on their electrical grids. It's a further step forward in

Denmark's plans to reduce its greenhouse gas emissions by 70% in 2030[1] and become a resource-efficient economy entirely independent of fossil fuels by 2050[2]. To support its greenhouse gas policy, Denmark has imposed a high tax of €577 per kg on SF_6[3], making GE's g^3 products even more attractive to its transmission and distribution system operators (TSOs).

"Utility operators in Denmark are very aware of their environmental footprint and the impact it has on their communities and the world around them," said Eric Chaussin, Senior Executive High Voltage Products Division Leader at GE's Grid Solutions. "And they aren't alone. Today, more than 30 leading electrical utilities from 13 European countries and South Korea have already adopted GE's g^3 products for their high voltage networks, avoiding the addition of more than a million tons of CO_2 equivalent to the grid. That's the equivalent of removing about half a million petrol cars from the road for one year."

A report from the EU Commission concluded that fluoronitrile-based gas mixtures—such as g^3 gas may be the only insulating and switching gas alternative to SF_6 when space is a constraint, such as in urban areas. That's because fluoronitrile-based gas products feature the same compactness and performance as traditional SF_6 equipment, unlike other SF_6-free solutions.

GE's g^3 gas-insulated products are currently available for live-tank circuit-breakers and GIS up to 145 kV, as well as dual gas-insulated lines (GIL) up to 420 kV. Additionally, in March 2022, GE unveiled the world's first 420 kV, 63 kA g^3 GIS circuit-breaker prototype. For more information on GE's high-voltage g^3 substation equipment and product roadmap, visit our website.

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Notes to the Editor:

1. https://stateofgreen.com/en/partners/state-of-green/news/during-cop25-denmark-passes-climate-act-with-a-70-per-cent-reduction-target/
2. https://denmark.dk/innovation-and-design/clean-energy
3. https://www.retsinformation.dk/Forms/R0710.aspx?id=184796

About GE's Grid Solutions

Grid Solutions, a GE Renewable Energy business, serves customers globally with over 12,000 employees. Grid Solutions provides power utilities and industries worldwide with equipment, systems and services to bring power reliably and efficiently from the point of generation to end power consumers. Grid Solutions is focused on addressing the challenges of the energy transition by enabling the safe and reliable connection of renewable and distributed energy resources to the grid. We electrify the world with advanced grid technologies and accelerate the energy transition. For more about GE's Grid Solutions, visit https://www.gegridsolutions.com.

About GE's g^3 gas

SF_6 is estimated to contribute 23,500 times more emissions than CO_2 when leaked and can remain in the atmosphere for up to 3,200 years.

GE's alternative to SF_6 is g^3 insulating and switching gas representing the culmination of a decade of research and development by its teams in France, Germany and Switzerland in collaboration with 3M Company. The g^3 gas mixture is based on carbon dioxide, oxygen, and 3M™ Novec™ 4710 Dielectric Fluid from the 3M fluoronitrile family. Fluoronitrile was identified by R&D experts as the most suitable additive to CO_2 and O_2 to reach the targeted environmental benefit of an alternative to SF_6, without compromising the equipment's technical performance and footprint. As a result, the global warming potential (GWP) of GE's g^3 gas is some 99% lower as compared to SF_6. In terms of technical performance, g^3 high-voltage equipment offers not only the same performance as SF_6 products, but it also features the same dimensional footprint as compared to SF_6 equipment and operates in the same ambient conditions (down to -30°C).

More about g^3 - SF_6 Free Solutions (gegridsolutions.com)

More about g^3 development, GE's fluoronitrile based gas mixture: In search of an SF_6 replacement | Think Grid (think-grid.org)

https://www.gevernova.com/

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