



Two GE-led consortiums in agreement with TenneT for award of contracts totaling approx. 10 Bln Euros to build state-of-the-art HVDC systems for TenneT's 2GW program

- *Dutch-German Transmission Systems Operator (TSO) TenneT awards GE Grid Solutions consortium with Sembcorp Marine three projects in the Netherlands, while TenneT has entered into an agreement with GE-led consortium with McDermott to award two projects in Germany*
- *TenneT's innovative High-Voltage Direct Current (HVDC) 2GW Program in the Dutch and German North Sea is one of the most important infrastructure projects of the century*
- *The program will play a critical role in strengthening Europe's energy security, while putting Europe on track to become the world's first climate-neutral continent by 2050*

Paris, FRANCE - March 30, 2023 - GE Renewable Energy's [Grid Solutions](#) business (NYSE: GE) announced today that it has been awarded three [High-Voltage Direct Current \(HVDC\)](#) contracts for a total of approximately 6 billion euros as part of a specially formed consortium with [Sembcorp Marine](#) for [TenneT](#)'s innovative [2GW Program](#) in the Netherlands. The contracts have been awarded as part of a five-year Framework Cooperation Agreement with the possibility to extend for another three years.

Furthermore, TenneT and a consortium formed by GE and [McDermott](#) have entered into an agreement based on which TenneT plans to award two further HVDC contracts in Germany for a total of approximately 4 billion euros to this consortium in April 2023.

The five contracts for the GE consortia are among 11 two-gigawatt (GW) contracts awarded to HVDC suppliers by the Dutch-German Transmission Systems Operator (TSO) as part of its goal to connect 40 GW of offshore wind farms to the high voltage grids in the Netherlands and Germany. TenneT's large-scale project resulted from the [Esbjerg Declaration](#) in May 2022 at the North Sea Energy Summit, where Germany, the Netherlands, Denmark, and Belgium agreed to jointly install at least 65 GW of offshore wind energy by 2030 - up from 20 GW today - to accelerate Europe's energy security following recent geopolitical developments. TenneT plans to install 20 GW each in the Dutch and German North Sea.

The GE consortia projects cover the offshore converter platforms and the onshore converter stations for the two-way conversion between alternating and direct current. The converter stations are based on bipolar [Voltage-Sourced Converter \(VSC\) technology](#) – the most advanced HVDC technology – and will have double the capacity compared to previous monopole grid connection systems, resulting in fewer cables and platforms.

[Tim Meyerjürgens](#), TenneT COO, said: “We are delighted to be working with GE and their consortium partners as part of our task to connect 40 GW offshore wind in the North Sea, one of the most important infrastructure projects of the century. TenneT has the technical know-how, scale, and geographical position to connect wind energy from the North Sea, while GE and its consortium partners have the HVDC expertise. Together, with the GE consortia and other HVDC partners we will accelerate the



development of the offshore grid, thereby strengthening Europe's energy security and putting Europe on track to become the world's first climate-neutral continent by 2050."

[Philippe Piron](#), CEO of GE Grid Solutions, said: "Together with our consortium partners Sembcorp Marine and McDermott, we are honored and pleased to play a key role in this critical infrastructure project for European energy security and decarbonization. These awards confirm that GE's Voltage-Sourced Converter HVDC technology is now recognized as one of the most advanced in the world."

[Johan Bindele](#), Senior Executive Director of the Grid Solutions Grid Systems Integration Business Line, added: "Our new and exciting partnership with TenneT will allow GE Grid Solutions to demonstrate its ability to deliver on this critical HVDC infrastructure and confirms our ambition to be a leading systems provider in the fast-growing HVDC market."

GE consortium projects

The three Dutch GE/Sembcorp Marine consortium projects are: IJmuiden Ver Beta, IJmuiden Ver Gamma and Nederwiek 2. The IJmuiden Ver projects will be located about 62-km off the coast of the Netherlands, while the Nederwiek project will be located 95-km off the coast. The HVDC transmission will connect in Maasvlakte, Rotterdam. The contracts for the two IJmuiden projects come into effect immediately. The contract for Nederwiek 2 will come into effect in 2024. The two German GE/McDermott consortium 2 GW projects are: BalWin4 and LanWin1. They will be located about 160-km off the coast of Germany and will connect in Unterweser. Both contracts are expected to come into effect in April 2023.

The GE consortia will start preparatory work for the realization of all five projects with immediate effect to ensure that all projects can be delivered between 2029 and 2031.

As leader of these consortia, GE Grid Solutions will be responsible for the engineering, procurement, construction, installation, and commissioning (EPCI) of the 2 GW bipolar HVDC converter stations for all the projects. The bipoles will be capable of transmitting 2 GW at 525 kV. GE's VSC technology utilizes its second-generation Voltage-Sourced Converter valve and its state-of-the-art eLumina™ control system, the industry's first to use a digital measurement system fully based on International Electrotechnical Commission (IEC) 61850, an important international standard defining communication protocols for intelligent electronic devices at electrical substations.

GE Grid Solutions' Stafford facility in the West Midlands, UK, will manufacture all the primary HVDC sub-systems and equipment, while its facility in Berlin, Germany, will lead overall project management. GE expects the contracts to result in the creation of more than 200 new positions in the UK, France, and Germany, including in its supply chain.

GE's consortium partner Sembcorp Marine, a Singapore-based global marine and offshore engineering group, will design, build, install and commission the offshore platforms, which will host the GE converter systems and equipment for the three Dutch projects. Located within each wind farm, the



platforms will comprise a 25,500-tonne topside, and a 9,500-tonne jacket foundation structure piled into the seabed.

[Chris Ong](#), CEO of Sembcorp Marine, said: “We are delighted together with our partner GE, to be selected by TenneT for three of their eleven two-gigawatt offshore converter platforms in the Netherlands. These are our largest and most advanced state-of-the-art offshore renewable energy projects to date. We thank GE and TenneT for their trust and confidence in our offshore construction capabilities. We look forward to contributing to TenneT’s vision and decarbonization objectives.”

McDermott of the US, a global provider of engineering and construction solutions to the energy industry, will design, fabricate, install, and commission the offshore converter substation platforms for the two German 2 GW HVDC grid connection systems. Each offshore converter substation platform will comprise a topside, weighing approximately 26,000 tonnes, which will be supported by a jacket substructure, weighing approximately 11,000 tonnes.

“Our integrated EPCIC delivery model, combined with nearly a century of executing some of the most challenging offshore projects in the world, make us ideally suited to support TenneT on this important offshore grid connection systems project,” said [Vaseem Khan](#), McDermott’s Senior Vice President for Onshore.

TenneT’s 2GW Program – the new global offshore standard

With its 2GW offshore program, TenneT has developed the global offshore standard in cooperation with leading global suppliers. This new standard combines TenneT’s extensive expertise in offshore grid connections with a unique transnational approach to accelerate Europe’s energy transition. Due to its new innovative design, which results in a higher transmission capacity, the 2GW Program will reduce the impact on the environment, while saving on costs and resources.

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Notes to the Editor:

Caution Concerning Forward-Looking Statements

This press release contains forward-looking statements – that is, statements related to future events that by their nature address matters that are, to different degrees, uncertain. For details on the uncertainties that may cause our actual future results to be materially different than those expressed in our forward-looking statements, see <https://www.ge.com/investor-relations/important-forward-looking-statement-information>, as well as our annual report on Form 10-K and our most recent quarterly report on Form 10-Q. We do not undertake to update our forward-looking statements.

About GE Grid Solutions

Grid Solutions, a GE Renewable Energy business, serves customers globally with over 12,000 employees. We provide 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



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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 Grid Solutions, visit www.gegridsolutions.com.

About Sembcorp Marine Ltd.

Sembcorp Marine Ltd provides innovative engineering solutions to the global offshore, marine and energy industries. Headquartered in Singapore, the Group has close to 60 years of track record in the design and construction of rigs, floaters, offshore platforms and specialized vessels, as well as in the repair, upgrading and conversion of different ship types. Sembcorp Marine's diversified portfolio of products and solutions cover Renewables, Process, Gas, Ocean Living and Advanced Drilling Rigs with a growing focus on sustainable solutions that advance the global energy transition and maritime decarbonisation.

As a premier global player offering offshore renewables, new energy, and cleaner offshore & marine solutions, Sembcorp Marine is committed to delivering high standards of safety, quality, and performance to its customers who include major energy companies, owners of floating production units, shipping companies and cruise and ferry operators. The Group's businesses are supported by four commercial units: Rigs & Floaters; Repairs & Upgrades; Offshore Platforms and Specialized Shipbuilding.

Sembcorp Marine operates shipyards and other facilities in Singapore, Brazil, China, Indonesia, Japan, Philippines, Norway, the United Kingdom and the United States.

Discover more at www.sembmarine.com.

About McDermott

McDermott is a premier, fully-integrated provider of engineering and construction solutions to the energy industry. Our customers trust our technology-driven approach engineered to responsibly harness and transform global energy resources into the products the world needs. From concept to commissioning, McDermott's innovative expertise and capabilities advance the next generation of global energy infrastructure—empowering a brighter, more sustainable future for us all. Operating in over 54 countries, McDermott's locally-focused and globally-integrated resources include more than 30,000 employees, a diversified fleet of specialty marine construction vessels and fabrication facilities around the world. To learn more, visit www.mcdermott.com.

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