

Static Synchronous Compensator (STATCOM) system for a wind farm



Proven Voltage Source
Inverter-based
technology
for Balance of Plant
Tafila, Jordan

About the project



Power Conversion equipment
on site at the Mass Energy
Wind Farm

In 2018, GE Power Conversion was awarded a contract by Elecnor Spain to supply the Static Synchronous Compensator (STATCOM) solution for the Electrical Balance of Plant (EBoP) of a wind farm developed in Jordan by Mass Energy Group Holding, a subsidiary of Mass Global.

This 100 MW wind facility, located in Al-Tafila Governorate, about 130 km south of the capital Amman, entered successfully into operation at the beginning of 2020.

It is the first renewable energy project by Mass Energy Group Holding.

This development fell within the Jordan 2025 Vision and Strategy, a plan which aims at increasing the share of renewable energy in the total energy mix to 11% and boost domestic energy production. The Mass Energy wind farm has been developed to power around 150,000 homes and reduce carbon emissions by 233,800 metric tons annually.

The Grid Stability Challenge

Maintaining grid stability and voltage control is necessary especially in today's world where the evolving power generation scene has become even more challenging for Transmission System Operators – a larger share of renewables, retirement of base-load plants, increased environmental regulation and greater cross-border trading are all making grid stability more complex.

To maintain reliability and quality of power supply in this environment, economical and efficient solutions are needed to provide dynamic voltage support and fast reactive power compensation. By selecting GE Power Conversion's STATCOM systems to equip the EBoP, Mass Energy and Elecnor made the choice of a proven technology.

Our Solution

The STATCOMs are power electronics-based power quality devices which ensure dynamic voltage control and increased power transfer capability. They are based on our proven range of Voltage Source Inverters with demonstrated proficiency in energy and industrial applications.

A STATCOM offers a strong dynamic performance, especially a fast response time as well as the ability to generate or absorb reactive power during Fault Ride Through. It therefore helps increase reliability and availability of grid operation.

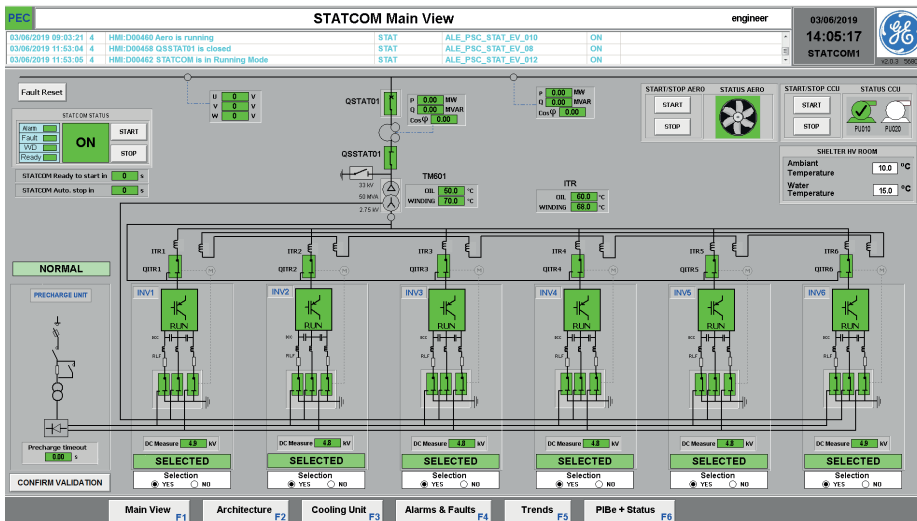
For the Mass wind farm in Tafila, GE Power Conversion's scope of work included the development, supply, supervision of erection & commissioning of two **19 MVAR STATCOM systems** based on **GE's MV7000 inverter technology**.

This solution allows an overload capacity of 300% during 500 milliseconds during the Low Voltage Ride Through.

It enables to solve the quality issues on the grid during operations and can then help improve grid reliability and avoid significant upgrade costs for grid connections.

STATCOM Key Features

- Valve based on IGBT press-pack technology
- Heavy duty solution to allow installation in very harsh remote areas
- Current range up to 300%/500 ms
- Very high availability with N-1 redundancy
- Stepless adjustable cos phi
- Transformer to connect to high voltage grid
- Water cooled through Air/Water exchanger
- Air-conditioned
- Controls based on industry standard components
- Containerized solution to allow very fast installation
- Reduced footprint



MV7000 inverter



Inside the shelter



Arrival of the shelter on site



About GE Power Conversion

GE's Power Conversion business applies the science and systems of power conversion to help drive the electrification of the world's energy infrastructure by designing and delivering advanced motor, drive and control technologies that evolve today's industrial processes for a cleaner, more productive future. Serving specialized sectors such as energy, marine, oil and gas, renewable and industry, through customized solutions and advanced technologies, GE Power Conversion partners with customers to maximize efficiency.

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