

## Success Story

# Successful combination of generator excitation with UNITROL® 6000 protection and synchronization with SYNCHROTECT® 5 Meets the challenge for the Norwegian oil & gas sector

As what has been a cooperation between ABB in Switzerland and Norway, have successfully delivered and implemented more than 20 generator control panel (GCP) system solutions for Norway's offshore oil and gas platforms.

The GCP system solution is a completely integrated system consisting of market-leading ABB products in the areas of excitation systems with UNITROL® 6000, synchronization with SYNCHROTECT® 5 and protection.

Together with one of ABB's biggest end customer in Norway, a standardization has been developed to give the customer value add beyond regular system replacements. This is a standard, developed for optimizing everyday operation, integration and low risk installation and commissioning. The system includes up-to-date technology to ensure improved operating efficiency, plant reliability, improved existing operator philosophy, remote monitoring and control, resulting in an extended plant lifetime.



Front view of GCP System solution with integrated UNITROL® 6080 excitation system, synchronization and generator protection units

Having reached the end of their life, the existing GCP system were replaced as part of ABB's life cycle campaign, which draws attention to the fact, that earlier product generations



Front view of an ABB GCP solution

are now entering the obsolete phase of their life cycle. In this phase, the system cannot be supported, as service engineers are not familiar with obsolete equipment and spare parts are no longer available.

This is creating a higher risk for customers to operate their old systems. Oil & gas platforms built during the 1970's throughout the 1990's were all designed and engineered individually. ABB in Switzerland and Norway had worked closely together with the end user to create a flexible standard fulfilling existing interface, today's technical requirements and state of the art functionality. Following up this upgrade, the oil & gas platforms now have a life cycle that is destined for another 20 years.

ABB's scope of supply consists of dual channel excitation systems UNITROL® 6080 D1 Converter, SYNCHROTECT® 5201-0277 and Generator Protection® REG 670, installed in a system, and including a customized mimic and instruments on the front door. A technical highlight is the Electrical Network Monitoring and Control (ENMC), which makes troubleshooting and diagnose fault locations easier, without making more alarms/events in the plant's process control system. The two most significant advantages is monitoring of electrical equipment and the possibility for remote connection.

The first GCP system solution unit, was delivered and commissioned in 2011 for the „Heidrun“ platform. It is the first completed pilot project from ABB for end customer Statoil. Following this success, other projects followed:

Year	Project Name	Owner/ operator	GCP System Retrofit <sup>1</sup>	GCP System Design <sup>2</sup>	UNITROL® 6080	SYNCHROTECT® 5	Relion Protection Relay	Network Technical Addon <sup>3</sup>	Main Electrical Vendor	Commissioning Scope	Installation Scope
2016	Troll B	Statoil	√		√	√	√	√		√	√
2015	Asgard A – Essential Generators	Statoil		√	√	√	√	√		√	√
2015	Asgard A – Main Generators	Statoil		√	√	√	√	√		√	√
2015	Snorre A	Statoil	√		√	√				√	
2014	Oseberg Sor	Statoil	√		√	√	√	√	√	√	√
2014	Kristin	Statoil	√		√	√			√	√	√
2014	Brage	Wintershall		√	√	√	√			√	
2013	Sleipner A	Statoil		√	√	√	√			√	
2013	Oseberg A	Statoil	√		√	√	√			√	√
2011	Heidrun	Statoil	√		√	√	√			√	√

<sup>1</sup> Replacement of the GCP cabinet based on existing system, including new excitation - UNITROL® 6000, synchronization – SYNCHROTECT® 5, and protection system.

<sup>2</sup> Design a new operating philosophy of the system, where all signals to the power control system can be re-defined.

<sup>3</sup> For the use of local and remote monitoring and diagnostics.

After executing all of these projects, there are more than 20 GCP systems successfully installed on oil & gas platforms in Norway, and UNITROL® 6080 can demonstrate once more its reliability and flexibility for different applications.



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Heidrun platform

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