

Indar

Ingeteam Group



INDARCOM™

THE GRID REINFORCER

THE SYNCHRONOUS CONDENSER SOLUTION THAT IMPROVES AND STRENGTHENS GRID STABILITY

- Find out about all the features and benefits of INDARCOM, the solution based on synchronous condensers that safely integrates renewable energies into the electrical grid, maintaining and optimising the quality and availability of the power supply.
- The solution is designed to meet the challenges of the emergence of renewable energies and the transition to the new zero-emission energy mix.

The grid is changing. The commitment to renewable energy, the global context of energy transition and decarbonisation targets, as well as the fight against climate change and global regulatory changes are causing many countries to alter their mix of power generation. We are moving from a closed market, based on fossil energy and with a centralised system, towards a liberalised electricity market, based on renewable energy and that customers also play an important role in, who are no longer just passive consumers and are now prosumers of a high-quality supply system with low energy prices.

This whole process of change and integration of renewable energies has a major impact on the management of the electricity grid and involves major challenges, especially related to the stability, maintenance and security of the grid, as renewables are an asynchronous type of generation and a major cause of instability.

We at Indar, Ingeteam Group, are getting ahead of these challenges of the “grid of the future” with the aim of responding to the different case studies in this new energy transition and decarbonisation phase, with the design of our INDARCOM synchronous condenser, a solution that changes the way power generation is integrated into the system. INDARCOM has the capacity to offer greater stability to the grid, integrate renewable energies and adapt to the specific needs of each client.

INDARCOM synchronous condenser solution offers robustness to the grid by providing short-circuit power, inertia and reactive power, in other words, supporting the voltage and frequency and controlling the voltage through adding or absorbing reactive power of the grid.

The purpose was, therefore, clear when designing the INDARCOM condenser: to offer the greatest possible flexibility, reliability and availability with minimal losses. The main benefit of INDARCOM could be summed up in these five points:

- ▶ 1. **Design is tailored to** each client’s needs. The syncon will be defined and designed with the short circuit rate, inertia and reactive power required at the point of connection, and the solution will be adapted to the available space, minimising construction work.
- ▶ 2. **Robustness.** Ensures low operational downtime and high availability.
- ▶ 3. **Reliability.** INDARCOM is based on generators that have been installed in more than 100 applications and on Indar’s accumulated experience spanning 80 years manufacturing rotary electric machines.
- ▶ 4. **Compliance with the Grid Code** Based on INDARGRID™, the proven technology of Ingeteam’s INGECON WIND & SUN with more than 63 GW of grid connected generators fulfilling worldwide Grid Codes, and a track experience of more than 200 Hydropower plants using it.
- ▶ 5. **Extended scope in a limited space.** Modular arrangement for extended scope including control units in containers and easy operability.

Contact us to find out more about the benefits and features of our INDARCOM synchronous condensers!

INDARCOM’s application segments

This flexibility offered by INDARCOM is also reflected in the application of the solution to different sectors and segments of the market with a range of features and requirements. Below are four of the main applications of our INDARCOM synchronous condensers:

- Transmission system operators.
- Developers and manufacturers of renewable energy plants (wind and solar).
- Retrofitting or upgrading of old power plants.
- Industry, mainly in mining and high electricity consumers.

The image below shows the key benefits offered by INDARCOM to each of the segments it applies to:



TRANSMISSION SYSTEM OPERATOR

- Provides Short Circuit Strength
- Dynamic Reactive Power Support (Voltage Regulation).
- Provides Inertia to Improve the RoCoF.



RENEWABLES (WIND/SOLAR)

- Increases Short Circuit Ratio.
- Dynamic Voltage Support.



RETROFIT OLD POWER STATION

- Modern Controls and Excitation (Improved Response Time)
- Support Dynamic Voltage Regulation and Inertia as New Systems.



INDUSTRIES

- Reduced Dip Impact.
- Stronger Industry Network.
- Improved Power Factor.



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Indar's technology goes further in responding to current challenges in power generation and grid stability with the inclusion of INDARGRID, a patented proprietary system based on Ingecon Wind & Sun's proven technology from Ingeteam.

INDARGRID is an advanced synchronous generator control system designed to improve its operation under new Grid Code requirements worldwide, directing the entry of renewable energies into the system and making each generation centre provide value services to the electricity grid.

This innovative Voltage Regulator (AVR) enables a very rapid grid change (Ultra Fast-UF) responsiveness thanks to the Power System Stabilizer (PSS) system and rotor monitoring (RM) to better prevent changes and optimise maintenance.

On going project: NOA Stability Pathfinder in the UK

NOA Stability Pathfinder is a collaborative programme between NGEESO (electric transmission system operator), and developers/integrators of technology solutions that address and respond to stability problems in the transmission system. The challenge consists of increasing inertia and improving the short-circuit rate (SCL) on certain nodes of the grid.

The expected results are achieved with the implementation of a synchronous condenser, thanks to how the fault event is immediately rectified and the grid is reinforced, preventing voltage drops and blackouts that can leave

businesses and consumers without electricity. Our solution also allows renewable plants to continue generating electricity and drive the transition to the new Net Zero (zero net emissions) energy mix.



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"We want to support you and be your trusted partner in delivering SYNCON solutions that provide flexibility, reliability, customisation, agility and competitive pricing. Tell us more about your project"