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ADD ON

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ADD ON

Why choose an Add On?

With power systems still relying to a large extent on conventional power generation for stability, reliability, and security of supply, gas-fired power plants are likely to come under increasing pressure to guarantee the system's balance, and to do it flexibly and efficiently. Renewable generation is being expanded on a massive scale and in some Countries or areas renewables are even expected to dominate the energy mix in the near future. Simple cycle power plants, often built as a fast-track solution with lower investment costs, provided a reliable and flexible generation solution in the past.

That's where Ansaldo Energia add on solutions come into play, enabling a cost-effective, fast switch to combined cycle operation, proven to deliver better performance and offering an attractive option to meet high-demand needs and increasingly stringent environmental requirements. How you can benefit.

Simple cycle power plants may prove unable to meet current and future efficiency and environmental compliance needs

How you can benefit

Combined cycle power plants are in demand worldwide. Our Add on solutions are designed to give simple cycle plant owners the opportunity to reap the benefits of combined cycle technology in a number of areas: Efficiency, power and environmental impact.

Combined cycle plants offer nearly 50% more power for approximately the same fuel costs and can reach impressive efficiency rates of 60% and more. Moreover, non-renewables in the energy mix are just as important as renewables to achieve emission reduction goals: switching from simple to combined cycle means significantly reducing the plant's environmental impact.

Operation. Today's combined cycle technology is more flexible as compared to the past: the startup time can be reduced down to 30 minutes (hot conditions), slightly more than the 15 minutes needed to start an open cycle power plant.

Computer-controlled plant start-up and shut-down sequences, plant coordinated control systems, etc. allow for fully automated plant management and guarantee maximum performance. Moreover, the steam supplied by the boiler can also be used to feed other applications (e.g. district heating, industrial applications and so on).

Financing & Business. In the past, conversion of an existing simple cycle power plant to a combined cycle power plant usually made economic sense only with a change from peaking to a base-load or load-following operation mode. On the contrary, today's combined cycle power plants feature unprecedented flexibility, which can help secure the financing necessary to support conversion from simple to a combined cycle.

The current flexibility of combined cycle technology strongly contributes to the financial viability of the add on project

Our solutions

We manufacture, install and commission steam turbines from 40 up to 1,000 MW as add ons for any type of simple cycle power plant that works with this range. They can be used in combination with gas turbines from any gas turbine producer.
The resulting combined cycle power plant is designed in cooperation with the Customer, tailored to its needs, and in different configurations: 1+1 unit or multiple configurations such as 2+1, 3+1, 4+1, 3+2, etc.
Ansaldo Energia's offering can encompass different scopes of work: from equipment to BOP, up to condenser and HRSG supply, including installation and commissioning.

Landmark projects

In recent years several simple cycle power plants were built in Egypt as fast-track projects. Plans for a conversion to combined cycle were made already upon construction. Since 2015, at least 5 to 6 existing simple cycle plants have been financed for conversion to combined cycle.
Ansaldo Energia has been awarded contracts for three of these projects.
The first two - Al Shabab and West Damietta projects - involved third-party gas turbine technologies, respectively in 2x (4+1) and 1x(4+1) configuration, with Ansaldo Energia as the main contractor for steam turbines and generators, air cooled condensers and electrical systems. They were put into commercial operation in 2018.
The third project - 6th October add on project - involves our OEM technology gas turbines in 1x(4+1) configuration and features Ansaldo Energia as turnkey EPC contractor for the conversion to combined cycle of the simple cycle plant in operation since 2015 (4 AE94.2 GTs).

Landmark project

6TH OCTOBER
(Egypt)

Add On project

The project - starting in October 2016 with a 24-month schedule - has currently entered the commissioning phase and the plant is forecasted to enter into commercial operation within the first months of 2019.
The project is financed through a Loan Agreement among Egyptian Electricity Holding Company, SACE and HSBC.
The project consists in the conversion of one power block module from simple to combined cycle. The 4+1 module includes four existing 170 MW (nominal ISO) AE94.2 gas turbines, installed and commissioned by Ansaldo Energia, with each gas turbine feeding exhaust gases into its HRSG manufactured by AC Boilers, two pressure level type.
Steam from the four HRSGs feeds one 340 MW (nominal) steam turbine connected to one air cooled generator and equipped with an Air Cooled Condenser (ACC) manufactured by SPIG.

Project main milestones and achievements:

16 NOVEMBER 2015	Contract signature
From November 2015 to NTP	Set up of Customer Loan Agreement (SACE-HSBC) Pre-engineering Preparation activity at site Purchase of long lead time components for Steam Turbine and Generator
5 OCTOBER 2016	**Notice to Proceed (NTP)**
April 2017 to June 2017	Completion of main foundations for HRSGs, ACC and Steam Turbine pedestal
April 2017	Start delivery at site of ACC
June 2017	Delivery at site of Generator, start delivery of HRSGs
OCTOBER 2017	**Delivery at site of Steam Turbine**
December 2017	Automation Factory Acceptance Tests
March 2018	Start commissioning
June 2018	Complete installation of HRSGs
July 2018	Air Cooled Condenser complete mounting
August 2018	Steam Turbine on Turning Gear
OCTOBER 2018	**First Steam to Steam Turbine and 1st Synchronization**
November 2018	Construction Completion Certificate
March 2019	Combined Cycle in Commercial Operation

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