

Generators for geothermal power plants

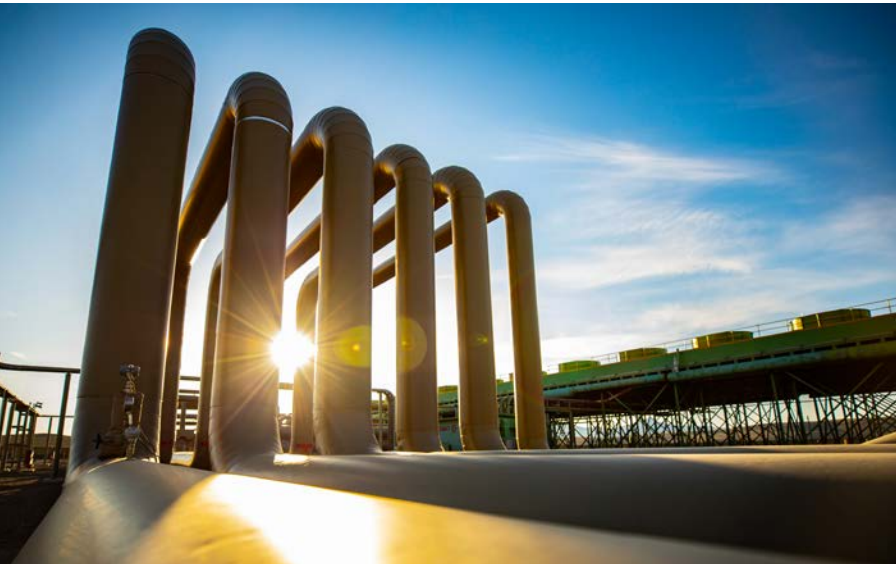


ABB has been working with Ormat Technologies for over ten years, supplying generators for a number of geothermal projects. (Image provided by Ormat).

Consistent and sustainable power

Geothermal power uses heat energy from deep within the Earth, and it will continue to be available for billions of years. It is a reliable and consistent power source that can produce baseload electricity, complementing intermittent renewables like solar and wind.

According to estimates, only about 7% of the total potential for geothermal power is currently being utilized, which means there is great scope for increased usage. By 2050 geothermal could potentially meet 1% of global demand for electricity.

Leader in power plant equipment

ABB is a leading supplier of power generation equipment, and has already shipped more than 50,000 MVA in turbine generators alone. ABB synchronous 4-pole steam turbine generators for geothermal plants are optimized for efficiency and reliability. High efficiency means lower operating costs and more output from the same resource. High reliability – enhanced by efficient cooling and low vibration – reduces unscheduled downtime and therefore increases productivity.

Geothermal energy is a clean, sustainable and renewable source of power that will play a valuable part in the world's low-carbon future. By selecting efficient and reliable equipment, geothermal power plants can maximize productivity and reduce operating costs. ABB is a well-established supplier of generators for geothermal power with an installed base totaling around 500 MVA.

'One-stop' source

ABB is a one-stop source for the entire generator package: in addition to the generator itself, ABB supplies the cooling system, main terminal box, maintenance tools, control equipment, and system monitoring and protection solutions. The overall package can be customized for the specific application. ABB also provides expert support to ensure grid code compliance.

Other ABB products for geothermal plants include high voltage motors for applications like pumps, cooling tower fans and gas rejection compressors, low voltage motors, and variable speed drives. ABB also supplies complete turnkey instrumentation, control, electrical and optimization solutions.

Global service network

Fast response is essential to minimize downtime in essential utilities like power plants. ABB meets this need with local support from 60 service centers and more than 150 authorized service providers around the world.



Main specifications

Power	2-85 MVA
Voltage	3-15 kV
Frequency	50 and 60 Hz
Standards	-IEC, NEMA, CSA
Ambient temp.	- 50°C to +60°C - 58°F to +140°F
Hazardous areas	Ex(ec), Ex(p), Class I Div 2/Zone 2
Protection	IP20 to IP56
Cooling	IC01, IC21, IC31, IC616, IC81W, IC86W

Technical information

ABB's generators are module based, which means that active parts can be adapted to each specific site in order to achieve high efficiency and reliable operation. Design flexibility includes pressurizing the enclosure, which helps realize a long lifetime in aggressive environments. ABB can also offer a dual shaft end design that enables two smaller turbines to be coupled to the same generator.

More than just the generator

The generator control system must be a perfect match with the turbine and ancillary equipment. ABB can offer a wide, flexible range of systems for collecting and transmitting information from the generator for protection and supervision purposes. The design can easily be fitted to the requirements of your installation.

Benefits



Optimize plant output.



Reliability in tough environments.



Different cooling options.



Reliable operation over a long lifetime.



Global support and service.



Low environmental impact.

Learn more from the
ABB Generators for steam and gas turbines website.



- Each generator is designed to optimize the output from the turbine at the specific site.
- ABB has extensive experience of installations in corrosive environments and hazardous areas.
- Many geothermal sites do not have cooling water available. ABB can provide air-cooled as well as water-cooled solutions.
- The generators are reliable and robust, and built for a long operating lifetime with minimal down time.
- Long-term profitable operation requires reliable performance from every component. To achieve this, ABB can offer services extending well beyond the warranty period.
- ABB generators are designed for high efficiency. Environmental product declarations are available providing information of manufacturing and decommissioning emissions and enabling calculation of total life-time emissions.

For more information please visit:
new.abb.com/motors-generators

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