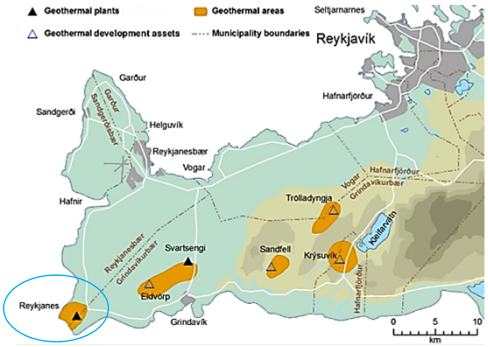
Reykjanes Power Plant - Iceland

REYKJANES: GEOTHERMAL POWER PLANT

- **410 hectares**
- **Nameplate electrical generation capacity of 100 MW**
- **17 production wells in the field**
- **45 MW of steam behind pipe from 3 wells and outflow canal**
- **80 MW of expansions planned**
- **50 MW turbine unit delivered May 2010**



The Reykjanes geothermal power plant is located at the southwest tip of the Reykjanes peninsula, 20 km south of Keflavik airport and 55 km southwest of Reykjavík. The property is comprised of 410 hectares of private, federal and municipally owned land. The municipal land is currently under a 65 year lease, that began in 2009.

The Reykjanes power plant is accessible by paved roads and all production and injection wells are also accessible on all-season gravel and dirt roads. The power plant is connected to the Icelandic electrical transmission grid with a 220 kV transmission line.

Reykjanes has a capacity of 100 MW and started commercial operation in May 2006. Net electrical output to the grid is 96.5 MW. It consists of two Fuji Electric 50 MW double flow condensing units. The inlet steam pressure is 18 bar which is very high for geothermal power plants. The reason for such a high steam pressure is to prevent silica scaling in the turbine and steam system. The salinity of the geothermal brine is similar to seawater. An innovative feature of this plant is that it is seawater cooled.

Alterra Power plans to expand the Reykjanes plant to at least 180 MW. The expansion will be in two phases; a 50 MW double flow condensing unit; and a 30 MW low pressure turbine. The first phase of work is expected to be completed by 2012 and the 30 MW phase by 2013.

Systematic exploration in the Reykjanes field started in the late 1950's. However, drilling for power production commenced in 1998. Today a total of 17 production wells have been drilled in the Reykjanes geothermal field, which has a reservoir temperature of 290°C. The power plant is currently utilizing steam from 14 wells and additional steam behind pipe is available from 3 wells which will be diverted towards the 80 MW expansion. Further drilling in the field is needed for the expansion. A new well, RN-29, was drilled in March 2010.

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