Greenearth Energy (ASX: GER) has announced the results of a comparative study in relation to the company's flagship Geelong Geothermal power project (GGPP) in Geelong and established Hydrothermal systems developed around the world.

Sinclair Knight Merz undertook a study of existing Hydrothermal Geothermal Power Plants which have developed either Hot Sedimentary Aquifer (HSA) or Basin and Range Geothermal systems worldwide.

The landmark study found that Hydrothermal geothermal systems including Hot Sedimentary Aquifer (HSA) systems are proven and established worldwide.

Greenearth's Geelong Geothermal Power Project aims to develop a targeted HSA with a reservoir depth of only 4000m and a predicted surface fluid temperature of 170°C.

Greenearth is focused on shallower HSA systems from which electricity has been commercially generated for more than 20 years in the US.

Most publicized geothermal exploration in Australia to date has largely focussed on deeper Enhanced Geothermal Systems (EGS) or Hot Dry Rock (HDR) or Hot Fractured Rocks or Hot Rocks, where the technology required to create and produce circulating reservoirs is experimental and yet to be proven on a commercial scale.

In Europe, HSA plants have been operating commercially, generating electricity for more than nine years. HSA geothermal plants operating are generating between 120 kWe and 72.0 MWe capacity.

Even in Australia, a small HSA plant has been operational and generating electricity in Birdsville, Queensland since 1992.

The hot sedimentary aquifers are found mainly in Australia and Germany where favourable temperatures are found at from 1 km to 3.4 km and at fluid temperatures from 97°C to 160°C, with warm fluids generally trapped within aquifers at depth overlying and insulating sedimentary cover.

Greenearth Energy managing director Mark Miller said the company's prospects in the Gippsland and Otway Basins were typical of Australian HSA settings.

"The study demonstrates the proven ability of the HSA geothermal systems for long-term, sustainable generation of electricity, akin to that being targeted by Greenearth Energy at its Geelong Geothermal Power Project," Mr Miller said.

"Our target and temperatures ranging compare with a number of systems in Europe and the United States where geothermal resources have been successfully exploited over a sustained period using well proven Organic Rankine Cycle."

Greenearth's GGPP aims to develop a targeted Hot Sedimentary Aquifer (HSA) with a reservoir depth of 4,000m and a predicted surface fluid temperature of 170°C.
The company has defined an inferred geothermal resource at GGPP of 17,000PJ. And proposes the development of a 140MWe geothermal power plant on this prospect.

Subject to successful Federal Government grant application for Proof-of-Concept (POC) drilling and project capital raising, the company plans to commence their Geelong Geothermal Power Project (GGPP) by mid 2010 by drilling a POC well couplet.

To that end, the company has identified the location of its initial two wells (a couplet consisting one production and one injection well) of the GGPP and has secured the 2,000 HP Drilling Rig from Weatherford Drilling International.

The proposed project location, approximately 11 km from Anglesea brown coal fired Power Station, has been selected on the basis that it targets the hottest and thickest section of a hot sedimentary aquifer (HSA) reservoir formation.

Greenearth Energy has demonstrated its bona fides and intention, by the payment of a non-refundable deposit to secure the rig slots and expects to spud its Geelong Geothermal Well No.1 by mid 2010 immediately followed by Geelong Geothermal Well No.2 upon successful completion of the first well.
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