



GEODYNAMICS  
LIMITED

QUARTERLY REPORT  
PERIOD ENDING 30 JUNE 2013

*power  
from the earth.*

# Review of the Quarter

## **HIGHLIGHTS**

***The major highlights of the quarter were the successful commissioning of the 1 MWe Habanero Pilot Plant and the successful completion of Stage One of the Earn-in Joint Venture agreement with Kentor Energy for the Savo Island Geothermal Power Project.***

FOLLOWING IS A SUMMARY OF HIGHLIGHTS FROM THE QUARTER:

- The 1 MWe Habanero Pilot Plant was successfully commissioned on 30 April 2013 with first EGS power being generated in Australia
- Power plant trial operations progressed successfully including turbine runs and brine reinjection loop reliability test
- A significant milestone was achieved on 24 June 2013 with the power plant operating in stand-alone mode generating net power without assistance from the Site diesel generator
- Step rate tests were completed to assess reservoir performance parameters
- Completion of an Initial Resource Assessment for Savo Island confirming the presence of a high quality geothermal exploration prospect

POST THE QUARTER:

- A tracer test was initiated at Habanero to measure reservoir size and characteristics
- Geodynamics hosted The Hon. Gary Gray AO, MP, Federal Minister for Resources and Energy at a site tour to observe the operation of the 1MWe Habanero Pilot Plant

***The Company's cash position at the end of the quarter stood at \$ 41.4 million.***





## Letter to Shareholders

Dear Shareholder

The June quarter has been a landmark quarter for Geodynamics, with the successful commissioning of the 1 MWe Habanero Pilot Plant and the generation of net power. The operation of the plant has met or exceeded all planned operational parameters, demonstrating stable and effective operation of the closed brine loop, and high reliability and availability of the steam generation and turbine system.

The commissioning of the pilot plant is the culmination of the last 12 months of activities which have included the successful drilling of Habanero 4, achieving our best ever open flow test results of ~40 kg/s at Habanero 4 and a successful major stimulation operation in December. All of this has been achieved with strong focus on cost and an excellent safety performance.

Our achievements and success over this time has been made possible by the support of our shareholders and the dedication of the Geodynamics team. I would like to thank all shareholders for their support and my team for their professional skill and dedication they have shown in implementing our program over the last 2 years.

I would like to acknowledge the role of the Commonwealth Government who have been significant contributors and supporters of the Project, in particular the teams at the Department of Resources and Energy and the Australian Renewable Energy Agency (ARENA). I would also like to acknowledge the support of the South Australian Government and the team at DMITRE who have worked closely and cooperatively with us in their role as regulator.

As the pilot plant trial continues, our understanding of our EGS geothermal resource expands. The completion of the step rate test and tracer tests will provide vital new data on the fracture systems in the granite and will build upon the data obtained during the stimulation and flow testing program.

Our reservoir and plant tests and studies are progressing well and will feed into the completion of a field development plan and feasibility study for an initial 5-10 MWe commercial power station targeting the Cooper Basin gas producers as our initial customers. Initial engagement with Cooper Basin operators has been positive and their interest in our progress with the pilot plant has been strong. We were pleased to host representatives of the major Cooper Basin operators as part of the Habanero site tour with Minister Gray and look forward to continuing our discussions with them regarding supplying power to their operations.

I am also pleased to be able to report that our Savo Island project continues to progress well. Engagement with the local Savo Island community has been excellent, and I was honoured to be welcomed onto the island to participate in a series of community consultations. The community events were extremely well attended and the local support for the project is strong.

Planning for exploration drilling activities are on track to begin in dry season 2014. In preparation for environmental and land access approvals, a customary land owner mapping and identification program is currently underway on the island, being run by the Solomon Islands Department of Mines and Department of Lands and an Environmental and Social Impact Assessment has been commenced. We are committed to working to the highest standard of health, safety and community engagement on Savo Island and this approach has been welcomed by the community. Negotiations with the Solomon Island Electricity Authority on key terms for a Power Purchase Agreement have commenced and we look forward to concluding these over the next 12 months. Initial discussions with potential members of a financing syndicate to support the project have also commenced and are progressing well. This strong interest from customers, government and multilateral agencies such as development banks and export finance institutions reflects the huge benefit our project could bring to the Solomon Islands.

As we move into a new financial year I look forward to building on the success of the last 12 months. If you have questions or require further information, I would be pleased to assist. Your questions may also be directed to our Investor Relations team via [info@geodynamics.com.au](mailto:info@geodynamics.com.au) or on +61 7 3721 7500.

Geoff Ward

Managing Director and Chief Executive Officer



# Operations Update

## Innamincka Deeps EGS Projects Update

### 1MWE HABANERO PILOT PLANT

A significant milestone was achieved on 24 June 2013 with the power plant operating in stand-alone mode generating net power without assistance from the diesel generator and without needing to release open flows of brine. The Plant is operating as predicted by our modelling software, providing validation of the design and demonstrating the capability to supply significant electrical loads meeting or exceeding its design criteria.

Initial steam generation and turbine runs have been successful. Following some minor adjustments, the Distributed Control System has been functioning well, integrating the brine loop and steam loop to establish stable plant operations. The brine reinjection loop has been performing reliably including the reinjection pump and seal, which have been key areas for monitoring. The system has exceeded the Design Basis targets for reliability and availability.

The closed loop performance over the first month has slightly surpassed modelled predictions. As part of this initial testing phase the plant has been operating at closed loop flows up to 17 kg/s with the wellhead temperature climbing to 207°C and continuing to increase.

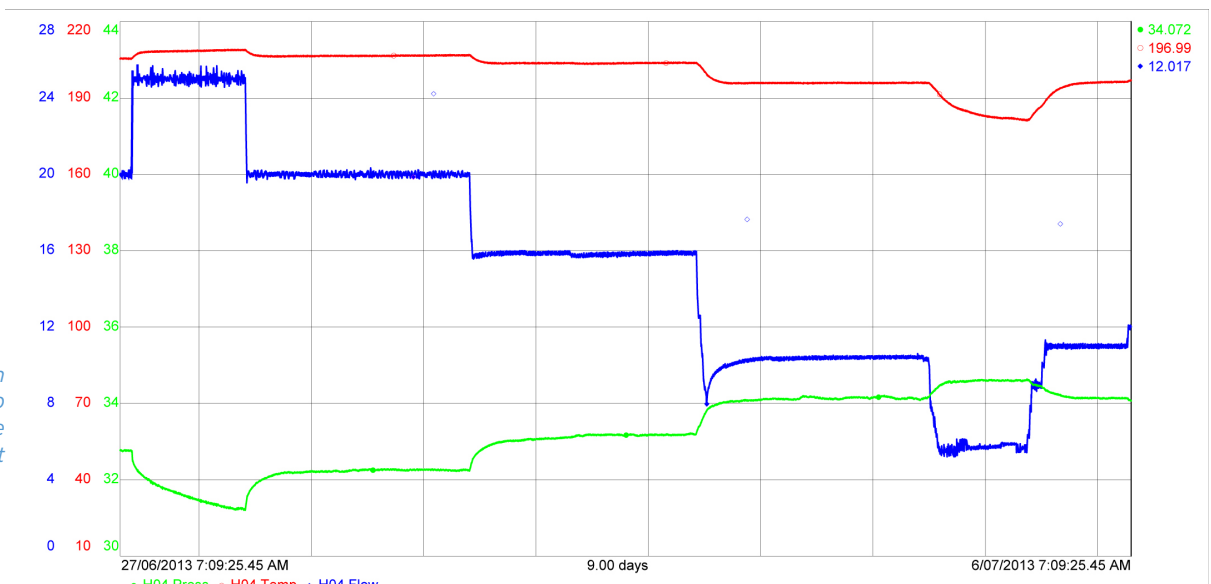
A series of geochemical samplings have been undertaken on the geothermal brine. Both high pressure brine at the Habanero 4 well head and low pressure brine downstream of the open flow control valve have been sampled. A main area of interest has been the performance of the caustic cleaning system in removing stibnite (antimony sulphide) scale from the brine heat exchanger and the brine cooler. The results of the sampling to date indicate the caustic cleaning system is performing well.

### RESERVOIR TESTING

Step rate performance tests were completed during the quarter. The step rate tests involve operating the plant at different flow rates for the purpose of assessing reservoir performance parameters. By operating the system at different flow rates the overall performance of the system can be investigated and the impact of turbulent flow through the system can be identified. These parameters are critical in understanding reservoir performance and the productivity of the EGS system.

A tracer test was initiated to measure reservoir size and other characteristics. The tracer test involves injecting a solution of Naphthalene Sulphonate into the reservoir. We are then able to measure the time it takes for this tracer to travel in the geothermal brine from the injection point, through the fracture systems in the granite and return to surface at the production well head. The reservoir size and other characteristics can be estimated based upon the time taken for the trace elements to return to surface. Results of the test are expected over the coming months as the brine passes through the reservoir.

Right: Graph illustrating the step rate performance test





# Exploration Projects

## *Savo Island Geothermal Power Project*

Progress with the Savo Island Geothermal Power Project remains pleasing. As reported in the March quarterly report, Geodynamics announced the results of an initial exploration study (the Savo Island Inferred Geothermal Resource Assessment) which confirmed a potential electrical generation capacity of 37 MWe for the Savo Island Project. The generation capacity could supply more than the total current energy requirement for Honiara and the Gold Ridge Mine, situated 25 km from Honiara.

In parallel to the completion of the initial resource assessment, a scoping study was completed to assess the viability of potential development schemes to extract and deliver the power from Savo Island. The study assessed the potential for the development of a power plant of up to 20 MWe in size and identified a viable potential project scheme that would bring significant benefits to all stakeholders.

Through the expenditure on preliminary exploration and completion of the Resource Assessment and Scoping Study, Geodynamics has fulfilled its commitments under Stage One of the Earn-In Joint Venture with Kentor Energy. Completion of Stage One means Geodynamics will now take a 25% interest in the Joint Venture along with operatorship of the Project.

### **COMMUNITY CONSULTATION**

In April 2013 Geodynamics undertook community consultation on Savo Island and in Honiara. The community consultations hosted by the Savo House of Chiefs were very successful with 800 people attending the 5 community meetings, which were held at 4 villages on Savo Island, the villages of Koela, Kaogele, Panueli, Monago and one in the capital Honiara. Given a population of approximately 3,000-4,000 people on Savo Island the level of attendance at the community meetings was very pleasing and confirms the local interest in the project.

The community on Savo Island expressed support for the project with questions focused on environment and safety, land access and community benefits. Geodynamics resolved to work with the community and the Savo House of Chiefs to ensure the communities concerns would be appropriately addressed as the project progresses.



*Right: Kaogele community consultation on Savo Island*

### **GOVERNMENT WORKSHOP**

In addition to the community consultation a government workshop was held with various government departments including the Department of Mines, Department of Energy, Department of Lands, Department of Environment and the Solomon Islands Electricity Authority.

The purpose of the workshop was to present the results of the initial exploration and the Inferred Geothermal Resource Assessment, as well as the scoping study. Engagement with the Solomon Islands government stakeholders is strong, with the outcomes of the workshop including the commencement of power purchase agreement discussions with the Electricity Authority, and the commencement of a land owner mapping and identification project on Savo Island, jointly conducted by the Department of Mines and the Department of Lands assisted by the Savo House of Chiefs.



## Investor and Public Relations

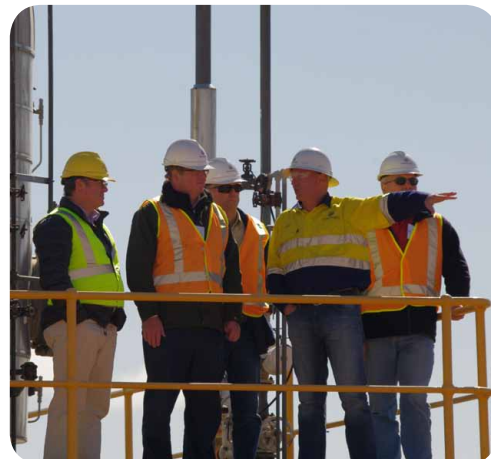
### MINISTERIAL SITE VISIT

Geodynamics hosted key stakeholders, including The Hon. Gary Gray AO, MP, Federal Minister for Resources, Trade and Energy at its 1 MWe Habanero Pilot Plant in South Australia on 22 July 2013.

Guests of the site tour included representatives from Commonwealth authorities, including the Australian Renewable Energy Agency (ARENA) and Clean Energy Finance Corporation (CEFC), the Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE), and the Department of Resources, Energy and Tourism (DRET).

Speaking about the 1MWe Habanero Pilot Plant, Minister Gary Gray said "This particular development is impressive because of its technical excellence; it's impressive because of its remote location; it's impressive because it's allowed the exploitation of a deep, hot resource that otherwise would simply have been unknown and unremarkable".

"Successive Australian governments have actively looked at ways of investing in renewable technologies, and investing in low carbon emission technologies. We don't know which technology will be the technology of the future, but we do know that we have to look broadly to find the ideas and the technologies that will help us satisfy our power generation needs for future generations" said Minister Gray.



Top Left: The Hon. Gary Gray AO, MP. Top Right: Geoff Ward, CEO and guests touring the facility. Right: Group photo of guests and GDY staff  
Images courtesy of Peter Edwards and Paris Lee





# *Investor and Public Relations*

## **SHAREHOLDER SITE TOURS**

Four shareholder site tours were held in May and June. The events were well attended and it was fantastic to be able to share the success of the 1 MWe Habanero Pilot Plant commissioning with our loyal shareholders.

Geodynamics also hosted a number of tours for the Trakmaster Caravan Club who held their annual gathering in Innamincka this May.



*Right: Shareholders attending a Habanero Site Tour*

## *Habanero Pilot Plant Virtual Tour*

### **TAKE A BEHIND THE SCENES LOOK AT HOW GEODYNAMICS' 1MWE HABANERO PILOT PLANT WORKS**

A virtual tour of the 1 MWe Habanero Pilot Plant can be accessed on the following page on the Geodynamics website <http://www.geodynamics.com.au/Resource-Centre/Our-Videos.aspx>.

The virtual tour takes viewers through the operations of the major components of the Habanero Pilot Plant and how the combined EGS system works.





# Investor and Public Relations

## **GEODYNAMICS RECEIVES CLEAN ENERGY COUNCIL INNOVATION AWARD**

Geodynamics was honoured to receive the Clean Energy Council (CEC) Innovation Award at the CEC Clean Energy Week Gala Event.

The award recognises the leading edge technology developed and deployed in producing Australia's first Enhanced Geothermal Systems (EGS) power with the commissioning of the 1MWe Habanero Pilot Plant.

The Clean Energy Council is the peak body representing Australia's clean energy sector. The CEC's members are involved in the development of clean energy technologies such as bioenergy, cogeneration, energy efficiency, geothermal, hydro, solar, solar hot water, marine and wind.

"It is a great honour for the Geodynamics team and our shareholders to be recognised by our peers in the clean energy industry with this award. The clean energy industry is evolving rapidly with many technologies, products and systems improving the delivery of clean energy and bringing real benefits to consumers," said Geoff Ward, CEO and Managing Director of Geodynamics.



*Left to Right: Geodynamics' Tony Mills, Kevin Coates, Geoff Ward, and CEC Chief Executive David Green*

## **HEAR MORE ABOUT OUR PROGRESS**

We invite you to listen to Managing Director and CEO, Geoff Ward as he discusses the key milestones and announcements with Boardroom Radio.



Recent interviews available are:

- Geodynamics - The future of sustainable energy – released Monday 22 July 2013 – <http://www.brrmedia.com/event/113165/>
- Habanero 1 MWe Pilot Plant Successfully Commissioned - released Friday 3 May 2013 - <http://www.brrmedia.com/event/111749/>
- Savo Island Inferred Geothermal Resource Assessment - released Thursday 11 April 2013 - <http://www.brrmedia.com/event/111138/>

Boardroom Radio Investor Updates are available from <http://www.geodynamics.com.au/Investor-Centre/Boardroom-Radio.aspx>





# Investor and Public Relations

## Geodynamics 2013 Annual General Meeting

The date and venue is now confirmed for the 2013 Annual General Meeting:

**Date:** Thursday, 28 November 2013

**Time:** 6:00pm – 8:00 pm

**Venue:** Room Three Sixty, Level 10, Y Block, Queensland University of Technology (QUT) 2 George Street, Brisbane 4000

**Getting there:** QUT has ample on site car parking facilities, public transport options and a taxi rank are also located close by

This year's AGM will be made available for shareholders post the event, as a webcast via our website.

An invitation to attend the meeting will be mailed to shareholders during October along with the Notice of Meeting.



*The information in this report to which this statement is attached that relates to Exploration Results, Geothermal Resources or Geothermal Reserves is based on information compiled by Dr Graeme Wheller and Robert Hogarth, who appear on the Register of Practicing Geothermal Professionals maintained by the Australian Geothermal Energy Group Incorporated at the time of the publication of this announcement.*

*Dr. Graeme Wheller is employed by Volcanex International. Robert Hogarth is a full-time employee of the Company. Dr. Graeme Wheller and Robert Hogarth have sufficient experience which is relevant to the style and type of geothermal play under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the Second Edition (2010) of the 'Australian Code for Reporting Exploration Results, Geothermal Resources and Geothermal Reserves'. Dr. Graeme Wheller and Robert Hogarth have consented in writing to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

# Corporate Directory

## **BOARD OF DIRECTORS**

Mr Keith Spence  
(Non-executive Chairman)

Mr Geoff Ward  
(Managing Director and CEO)

Mr Bob Davies  
(Non-executive Director)

Dr Jack Hamilton  
(Non-executive Director)

Mr Michel Marier  
(Non-executive Director)

Mr Andrew Stock  
(Non-executive Director)

## **COMPANY SECRETARY**

Mr Tim Pritchard CPA CSA (CERT)

## **PRINCIPAL AND REGISTERED OFFICE**

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## **ABN**

55 095 006 090

## **BANKER**

Westpac Banking Corporation

## **AUDITOR**

Ernst & Young

## **SOLICITOR**

Thomsons Lawyers

## **SHARE REGISTRY**

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GPO Box 523, BRISBANE QLD 4001  
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## **SECURITIES EXCHANGE LISTING**

Geodynamics Limited shares are listed on the  
Australian Securities Exchange,  
Ticker: GDY