



**QUARTERLY ACTIVITIES REPORT  
FOR THE THREE MONTHS ENDED  
30 SEPTEMBER 2009**

*Harnessing the heat  
beneath our feet*

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## CORPORATE DIRECTORY

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### **Directors**

Simon R. Molesworth AM, QC (Chairman)  
Robert J. Annells (Non-executive Director)  
John T. Kopcheff (Non-executive Director)  
Robert L. King (Executive Director)

### **Managing Director**

Mark Miller (Managing Director)

### **Company Secretary**

Vicki M. Kahanoff BBus CPA

### **Registered Office**

Level 14  
500 Collins Street  
Melbourne Victoria 3000

**Telephone:** (03) 9620 7299

**Facsimile:** (03) 9629 1624

### **Securities Exchange**

Australian Securities Exchange Limited  
Level 45, South Tower, Rialto  
525 Collins Street  
Melbourne Victoria 3000  
ASX code: GER

### **Auditors**

Pitcher Partners

### **Bankers**

Westpac Banking Corporation

### **Address for Correspondence**

P.O. Box 24  
Collins Street West  
Victoria 8007

**Email:** [greenearth@greenearthenergy.com.au](mailto:greenearth@greenearthenergy.com.au)

**Web site:** [www.greenearthenergy.com.au](http://www.greenearthenergy.com.au)

### **Share Registry**

Computershare Investor Services Pty. Ltd.  
Yarra Falls 452 Johnston Street  
Abbotsford Victoria 3067  
(03) 9415 5000

### **Legal Advisors**

Baker & McKenzie

## HIGHLIGHTS

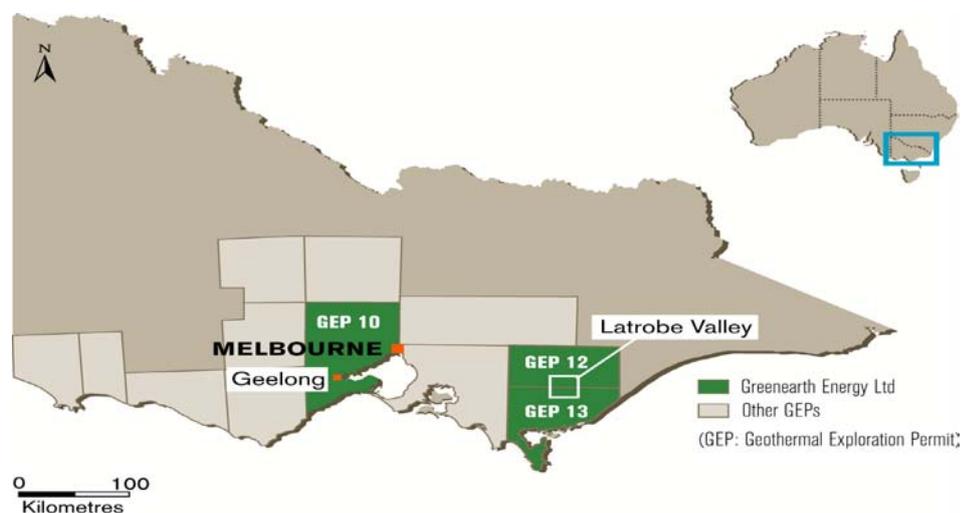
- ❖ **Announces Key Strategic Appointments Announced**
- ❖ **Drilling Rig for Geelong Geothermal Power Project Secured**
- ❖ **\$7M Grant Application for the Geelong Geothermal Power Project**
- ❖ **Inferred Resource estimate for the Geelong Geothermal Power Project Announced**
- ❖ **Stage 1 of the Geelong Geothermal Power Project Detailed**
- ❖ **\$20M Grant Application for Geelong Geothermal Power Project**
- ❖ **Phased Development for the Geelong Geothermal Power Project Planned**
- ❖ **Substantial CO<sub>2</sub> Displacement from the Geelong Geothermal Power Project Predicted**

### ABOUT GREENEARTH ENERGY LIMITED

Greenearth Energy Limited (Greenearth Energy) listed on the Australian Securities Exchange (ASX:GER) on 4 February 2008.

The company holds permits in Victoria where the major energy companies are situated and any potential geothermal resource found will be close to existing infrastructure. Initial geological work is indicating that the company's acreage has the ability to contain hot sedimentary aquifer (HSA) systems as well as Enhanced Geothermal Systems (EGS).

Greenearth Energy is also interested in other areas in particular Indonesia, New Zealand and the wider Pacific Rim.



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## REVIEW OF OPERATIONS

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### CORPORATE DEVELOPMENTS

During the quarter Greenearth Energy confirmed the strategic appointments of Sinclair Knight Merz (SKM) and KPMG Corporate Finance (Aust) Pty Ltd (KPMG) as technical and corporate/commercial advisors to assist the company successfully develop its prime Victorian geothermal permit areas; the Greater Geelong region, onshore Gippsland and the Latrobe Valley.

Most work has focussed on the region south-west of the City of Geelong in GEP 10. Work conducted by Greenearth Energy and consultants SKM on further understanding a specific area of our Inferred Resource resulted in the development of the company's Geelong Geothermal Power Project (GGPP) strategy underpinned by an updated inferred resource estimate for the GGPP and the securing of the 2,000 HP Geothermal Drilling Rig 828 from Weatherford Drilling International (WDI).

This work enhanced previous information and was incorporated in Greenearth Energy's application, in early August, to the Federal Government's second round Geothermal Drilling Program (GDP) for \$7M for proof-of-concept (POC) drilling north of the township of Anglesea, Victoria. This POC drilling represents Stage 1 of the Geelong Geothermal Power Project.

Greenearth Energy was subsequently notified by the Federal Government that its second round application to the GDP has met all required initial assessment criteria and will undergo a full assessment. A comprehensive update on further progress was given in early October and GDP grants are expected to be announced mid November 2009.

In late August Greenearth Energy announced further details relating to its planned drilling of stage 1 of the GGPP and an application was made for \$20M to the Victorian Government's Energy Technology Innovation Strategy (ETIS) program for a 12 MW<sub>e</sub> Geothermal demonstration power plant utilising the Hot Sedimentary Aquifer (HSA) resource in the area. The demonstration plant development represents Stage 2 of the Geelong Geothermal Power Project.

Greenearth Energy has received notification from the Victorian Government's Department of Primary Industry that the company's ETIS 2 application has been checked for completeness and eligibility against the eligibility criteria and as such will undergo a full merit assessment. It is anticipated that an announcement will be made regarding ETIS grants late 2009/early 2010.

The GGPP is planned to be fully commercialised using a phased development approach by means of deployment of modular Organic Rankine Cycle (ORC) plant technology, with successful commercialisation being able to produce up to 140MW<sub>e</sub> and have the potential to provide substantial CO<sub>2</sub> displacement. This proposed commercialisation phase represents Stage 3 of the Geelong Geothermal Power Project.

Although particular emphasis is being placed on the GGPP, Greenearth Energy believes the Latrobe Valley has the potential to generate emissions free base-load renewable electricity as well as heat for industrial processes such as coal drying. The company is also of the opinion that while it develops its commercial geothermal prospects for the Latrobe Valley there exists the opportunity to, by way of a collaborative effort, investigate the potential for onshore CO<sub>2</sub> geo-sequestration at the point of generation. Greenearth Energy has delivered to the State Government a high level outline proposal and is awaiting a response.

## **OPERATIONAL ACTIVITIES**

### **Gippsland Basin (GEP 12 and 13) - 100% Equity**

#### **Magnetotelluric (MT) Resistivity Survey.**

During the quarter, planning commenced for a magnetotelluric (MT) geophysical survey in the Latrobe Valley area. The magnetotelluric method involves the measurement of naturally occurring magnetic and electric fields that propagate through the earth. Measurement of such fields allows for the resistivity structure (in 3D) of the earth to be deduced. Variations in resistivity may allow for the mapping of more resistive basement rocks beneath a thick, less resistive sedimentary pile as occurs in the Latrobe Valley/Gippsland Basin. MT surveys may also identify zones of reduced resistivity consistent with enhanced temperatures and water saturated aquifers associated with geothermal systems. The company proposes conducting the MT survey in the first half of 2010.

#### **Basement Modelling Study**

The Company, jointly with Lakes Oil N.L, commenced a basement modelling study of the Gippsland area utilising existing data sources. This work undertaken by consultants 3D-GEO Pty. Ltd., aims to reinterpret existing seismic data throughout the onshore Gippsland basin, using key onshore and offshore wells that penetrate basement and basement outcrops to constrain the depth interpretation. Further constraint is provided through the inversion of potential field data (magnetic / gravity). A correlation with structural trends observed offshore will be undertaken, and a basement interpretation map produced.

#### **Micro Earthquake (MEQ) Monitoring – Pilot Trial**

Greenearth Energy contracted Auckland Uniservices Ltd. to place a geophone (sonde) at 1,350 m in the Loy Yang-2 well in November 2008. Another geophone has been placed at the surface.

The sondes are continuously monitoring the occurrence of natural sub-surface seismic activity which will be collated and interpreted. Data collected at the start of the quarter is currently being analysed. During the current quarter sufficient data will have been collected to fully review and assess the ability of this technique to accurately map the subsurface.

### **Otway Basin- Geelong Area (GEP 10) - 100% Equity**

#### **Geelong Geothermal Power Project**

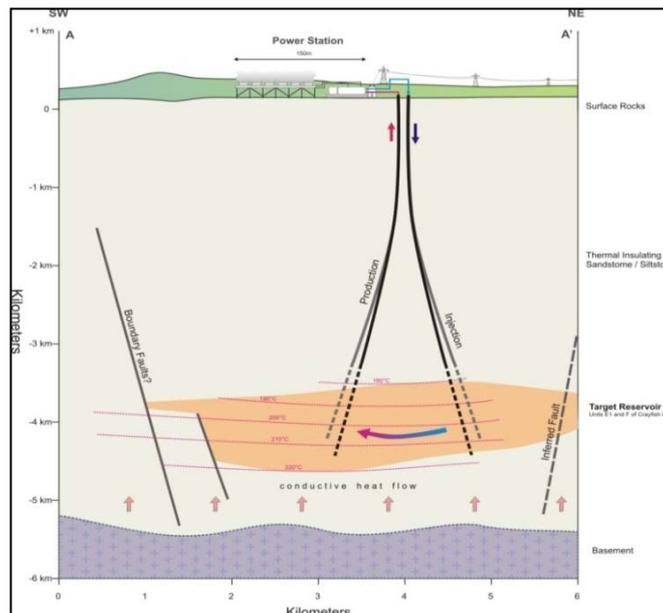
Work has focussed on the Company's flagship project – the Geelong Geothermal Power Project, which is located about 9 km northwest of Anglesea. An estimation of an Inferred Geothermal Resource in the project area was completed for Greenearth Energy by consultants Sinclair Knight Merz (SKM). They have produced an estimation of a Hot Sedimentary Aquifer (HSA) inferred geothermal resource of approximately 17,000 petajoules (PJ) in a target geothermal reservoir. SKM commented in its analysis of the reservoir geology and temperature that "The projected temperature and flow for the [planned] productive wells would make the reservoir suitable for generation using [proven] Organic Rankine Cycle power plant technology". The Inferred Resource Estimate complies with the Australian Code for Reporting Exploration Results, Geothermal Resources and Geothermal Reserves (2008 Edition). The Statement of Estimated Geothermal Resources for the Geelong Geothermal Power Project was released to the ASX on 17 August 2009.

The company has identified where two wells (a well couplet - one production and one injection well) will be drilled and has secured the 2,000 HP Drilling Rig 828 from Weatherford Drilling International Australia Pty Ltd (see ASX releases of 04 August 2009). The proposed project location allows for targeting of the hottest and thickest part of the target reservoir formation (>1,000 m thick). The production and injection reservoir horizon is assumed to be between 3,500 m and 4,000 m vertical depth. Within the reservoir, it is intended to gain as much separation as practically possible between wells drilled from multi-well pads. With the use of directional drilling it is possible to have horizontal separation between wells in the reservoir of 1,500 m at the target depth, while minimising on ground impact and associated cost of having a drilling pad for individual wells.

The drilling of the Proof-of-Concept couplet is to demonstrate the capability of producing geothermal fluid from a single production well at a temperature and flow rate suitable for geothermal power production, and reinjection of the fluid via an injection well into the same hot sedimentary geothermal reservoir. Having two wells will enable long term flow testing to fully characterise the resource (further detail is in ASX release of 24 August 2009).



**Figure 1: Aerial up view of proposed production and injection wells and ORC 12 MW<sub>e</sub> power plant**



**Figure 2: GGPP deviated well concept intersecting aquifer**

The first stage of drilling the well couplet will enable long term flow testing to fully characterise the resource.

Present indications of permeability imply that such a couplet may deliver sufficient fluid to achieve production of 4 to 6 MW<sub>e</sub> Nett (depending on the temperature and permeability actually achieved), and hence may be practical for power generation as a single modular unit.

Upon successful Proof-of-Concept a further two wells (one production and one injection well) will be drilled from the same drilling pad. If the reservoir has sufficient permeability to provide gross power generation of 5 MW<sub>e</sub> or more per production well (as analysis of the available data suggests), then this concentrated location of production and injection wells would suit supplying typical binary plant modules that are now available in the 10 to 15 MW<sub>e</sub> range.

This modular development approach lends itself to replication across the geothermal resource as an alternative to a larger centralised power plant. A pre-feasibility study of the intended GGPP has been undertaken by SKM which has developed the concept of 12 modular 12 MW<sub>e</sub> plants being developed across the reservoir to deliver a total of 140 MW<sub>e</sub> geothermal power (see ASX release of 02 September 2009).

**SIGNED ON BEHALF OF GREENEARTH ENERGY LTD.**



Mark Miller  
Managing Director  
Greenearth Energy Limited

***Geelong Geothermal Power Project***

*The information in this report that relates to Geothermal Resource estimation for the Geelong Geothermal Power Project (GGPP) is based upon a report compiled by James Vincent Lawless, an employee and Principal of Sinclair Knight Merz Limited (SKM). He is a Fellow of the Australasian Institute of Mining and Metallurgy and holds Chartered Geologist status with that body. SKM has been engaged as Consultant by Greenearth Energy but holds no financial interest in the project or in Greenearth Energy.*

*Mr Lawless is a Competent Person as defined by the Australian Code for Reporting of Exploration Results, Geothermal Resources and Geothermal Reserves (2008 Edition), and consents to the public release of this report in the form and context in which it appears.*

# Appendix 5B

## Mining exploration entity quarterly report

Introduced 1/7/96. Origin: Appendix 8. Amended 1/7/97, 1/7/98, 30/9/2001.

Name of entity

**GREENEARTH ENERGY LIMITED**

ABN

**60 120 710 625**

Quarter ended ("current quarter")

**30 SEPTEMBER 2009**

### Consolidated statement of cash flows

	Current quarter \$A '000	Year to date (3 months) \$A '000
<b>Cash flows related to operating activities</b>		
1.1 Receipts from product sales and related debtors	-	-
1.2 Payments for: (a) exploration and evaluation	<b>(482)</b>	<b>(482)</b>
(b) development	-	-
(c) production	-	-
(d) administration	<b>(304)</b>	<b>(304)</b>
(e) capital raising costs	-	-
1.3 Dividends received	-	-
1.4 Interest and other items of a similar nature received	<b>15</b>	<b>15</b>
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 (a) Net movement in GST suspense account	<b>(33)</b>	<b>(33)</b>
<b>Net operating cash flows</b>	<b>(804)</b>	<b>(804)</b>
<b>Cash flows related to investing activities</b>		
1.8 Payment for purchases of: (a) prospects	-	-
(b) equity investments	<b>(12)</b>	<b>(12)</b>
(c) other fixed assets	-	-
1.9 Proceeds from sale of: (a) prospects	-	-
(b) equity investments	-	-
(c) other fixed assets	-	-
1.10 Loans to other entities	-	-
1.11 Loans repaid by other entities	-	-
1.12 Debtors	-	-
<b>Net investing cash flows</b>	<b>(12)</b>	<b>(12)</b>
1.13 Total operating & investing cash flows (carried forward)	<b>(816)</b>	<b>(816)</b>

**Appendix 5B – Greenearth Energy Limited (GER)**  
**Mining exploration entity quarterly report – 30 SEPTEMBER 2009**

	Current quarter \$A'000	Year to date (3 months) \$A'000
1.13 Total operating & investing cash flows (brought forward)	<b>(816)</b>	<b>(816)</b>
<b>Cash flows related to financing activities</b>		
1.14 Proceeds from issues of shares options, etc.	-	-
1.15 Proceeds from sale of forfeited shares	-	-
1.16 Proceeds from borrowings	-	-
1.17 Repayment of borrowings	-	-
1.18 Dividends paid	-	-
1.19 Farm-in/Joint Venture contributions	-	-
<b>Net financing cash flows</b>	-	-
<b>Net increase (decrease) in cash held</b>	<b>(816)</b>	<b>(816)</b>
1.20 Cash at beginning of quarter/year to date	<b>5,469</b>	<b>5,469</b>
1.21 Exchange rate adjustments to item 1.20	-	-
1.22 Cash at end of quarter	<b>4,653</b>	<b>4,653</b>

**Payments to Directors of the entity and associates of the Directors;  
Payments to related entities and associates of the related entities.**

	Current quarter \$A'000
1.23 Aggregate amount of payments to the parties included in item 1.2	<b>11</b>
1.24 Aggregate amount of loans to the parties included in item 1.10	-

1.25 Explanation necessary for an understanding of the transactions

Consulting and professional fees paid to Director-related entities: \$11,000

**Non-cash financing and investing activities**

2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

None

2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest

None

**Appendix 5B – Greenearth Energy Limited (GER)**  
**Mining exploration entity quarterly report – 30 SEPTEMBER 2009**

### Financing facilities available

*Add notes as necessary for an understanding of the position.*

	Amount available \$A'000	Amount used \$A'000
3.1 Loan facilities	-	-
3.2 Credit standby arrangements – Bank overdraft	-	-

### Estimated cash outflows for next quarter

	\$ A'000
4.1 Exploration and evaluation	<b>100</b>
4.2 Development	-
<b>Total</b>	<b>100</b>

### Reconciliation of cash

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.

	Current quarter \$A'000	Previous quarter \$ A'000
5.1 Cash on hand and at bank (item 1.22)	<b>4,653</b>	<b>5,469</b>
5.2 Deposits at call	<b>48</b>	<b>48</b>
5.3 Bank overdraft	-	-
5.4 Investments in listed companies (market value)	<b>118</b>	<b>79</b>
<b>Total: cash at end of quarter</b>	<b>4,819</b>	<b>5,596</b>

### Changes in interests in mining tenements

	Tenement reference	Nature of interest (note (2))	Interest at beginning of quarter	Interest at end of quarter
6.1	Interests in mining tenements relinquished, reduced or lapsed			
6.2	Interests in mining tenements acquired or increased			

**Appendix 5B – Greenerth Energy Limited (GER)**  
**Mining exploration entity quarterly report – 30 SEPTEMBER 2009**

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**Issued and quoted securities at end of current quarter**

*Description includes rate of interest and any redemption or conversion rights together with prices and dates.*

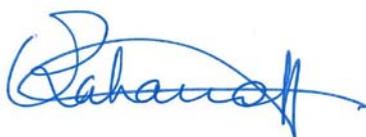
	Number issued	Number quoted	Issue price per security (see note 3) (cents)	Amount paid up per security (see note 3) (cents)
7.1 <b>Preference securities</b> <i>(description)</i>	-	-		
7.2 Changes during quarter	-	-		
(a) Increases through issues				
(b) Decreases through returns of capital, buy-backs, redemptions				
7.3 <b>+Ordinary securities</b>	67,516,344	50,393,010		
7.4 Changes during quarter				
(a) Increases through issues	-	-		
(b) Decrease through returns of capital, buy-backs	-	-		
7.5 <b>+Convertible debt securities</b> <i>(description)</i>	-	-		
7.6 Changes during quarter				
(a) Increases through issues	-	-		
(b) Decreases through securities matured, converted	-	-		

**Appendix 5B – Greenearth Energy Limited (GER)**  
**Mining exploration entity quarterly report – 30 JUNE 2009**

7.7	<b>Options</b>			<i>Exercise price</i>	<i>Expiry date</i>
	<i>Directors</i>	4,500,000	-	45 cents	30 September 2012
	<i>Staff</i>	1,500,000	-	45 cents	30 September 2012
	<i>Man. Director</i>	1,000,000	-	20 cents	30 September 2010
	<i>Man. Director</i>	2,000,000	-	20 cents	30 September 2012
	<i>Third parties</i>	33,333,333	-	45 cents	30 September 2012
	<i>Third parties</i>	2,000,000	-	45 cents	30 September 2012
	<b>TOTAL</b>	44,333,333	-		
7.8	Issued during the quarter	-			
7.9	Exercised during the quarter	-			
7.10	Expired during the quarter	-	-	-	-
7.11	<b>Debentures</b> <i>(totals only)</i>	-	-		
7.12	<b>Unsecured notes</b> <i>(totals only)</i>	-	-		

## Compliance statement

- 1 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Law or other standards acceptable to ASX (see note 4).
- 2 This statement does give a true and fair view of the matters disclosed.



Sign here: ..... Date: 30 October 2009  
*Company Secretary*

Print name: **Vicki Kahanoff**

## Notes

- 1 The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.

**Appendix 5B – Greenerth Energy Limited (GER)**  
**Mining exploration entity quarterly report – 30 SEPTEMBER 2009**

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- 2 The “Nature of interest” (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3 **Issued and quoted securities** The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4 The definitions in, and provisions of, AASB 1022; *Accounting for Extractive Industries* and AASB 1026: *Statement of Cash Flows* apply to this report.
- 5 **Accounting Standards** ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complies with.

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