

***Greenearth  
Energy Ltd.***

***Quarterly Activities  
Report  
30 September 2013***

***Energy Security in a  
Carbon Constrained World***

# Corporate Directory

## Corporate Directory

### Directors

Robert J. Annells (Non-Executive Chairman)  
John T. Kopcheff (Non-Executive Director)  
Samuel Marks (Managing Director)

### Company Secretary

Robert Smith

### 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

### Legal Advisors

Baker & McKenzie

### Bankers

Westpac Banking Corporation

### Address for Correspondence

P.O. Box 24  
Collins Street West  
Victoria 8007

Email: [greeneearth@greeneearthenergy.com.au](mailto:greeneearth@greeneearthenergy.com.au)

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

### Share Registry

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



# *Greenearth Energy Ltd.*

## *Energy Security in a Carbon Constrained World*

### *Highlights*

- Energy Efficiency business continues to see positive signs resulting from the 2012/13 refocus;
- NewCO<sub>2</sub> Fuels (NCF) receive independent verification of technology; and
- NCF remain on track for completion of demonstration of the technology in 2013.





# Greenearth Energy Ltd.

## Energy Security in a Carbon Constrained World

### Introduction

The first quarter of the 2013/14 financial year was an exciting, yet challenging time for the team at Greenearth Energy Ltd ('Greenearth'). Although we faced the disappointing feedback on the Geelong Geothermal Power Project (GGPP), we began to see some very positive traction across both the Energy Efficiency unit in Australia and NCF business in Israel.

After executing the re-focus of Greenearth's activities in 2012/13, positioning Greenearth for the future, Greenearth's objective for 2013/14 is very much about revenue growth and execution of current businesses /projects within our portfolio. We continue to strive to build the Energy Efficiency business unit to a point where it can consistently underpin operating cash flow for the wider group.

In August 2013, Greenearth released a Business Update which had key messages of what has been achieved, and where this business is heading. I would like to re-iterate these salient points:

- The Greenearth Energy Efficiency business has established a platform for growth:
  - o Proven Technologies
  - o Established Team
  - o Growing Pipeline of sales opportunities
  - o A target sales market worth >\$2 billion
- NewCO2 Fuels Israel is on track for completion of Proof of Technology in 2013
- Future Greenearth geothermal activity is dependent on government funding.

In line with these objectives for 2013/14 and beyond, on the 7th October 2013, Greenearth completed a share placement to professional and sophisticated investors raising \$693,497. Funds will be used to support this growth of the Company's industrial energy efficiency business via its wholly-owned subsidiary, Greenearth Energy Efficiency Pty Ltd, and for general working capital. I would like to personally thank the current and new investors for their continued support of Greenearth.



# **Greenearth Energy Ltd.**

## *Energy Security in a Carbon Constrained World*

### ***Introduction cont.***

I am genuinely excited by what lies ahead for Greenearth. The team consists of some of the best in their field and we are beginning to see great results. Thank you to all our shareholders for your continued support, this financial year is going to be an exciting time for everyone associated with Greenearth and I look forward to updating you as we progress.

The following pages outline the progress achieved during the past quarter across the business units.

SIGNED ON BEHALF OF GREENEARTH ENERGY LTD



**Samuel Marks**  
**Managing Director**  
**Greenearth Energy Limited**  
**31 October 2013**



# Greenearth Energy Ltd.

## Energy Security in a Carbon Constrained World

### **NewCO<sub>2</sub> Fuels**

The first quarter of 2013/14 financial year continued to see significant progress in the NewCO<sub>2</sub> Fuels ("NCF's") business in the lead up to the final technology testing expected late this calendar year.

The highlights included:

- 1 - International focus on commercialisation & business development;
- 2 - WorleyParsons independent technical review completed with positive feedback;
- 3 - Proof of NCF Technology on schedule for completion in 2013.

In order to strengthen the collaboration between Greenearth Energy and NCF, and to increase synergies between the two companies, Samuel Redmond (Head of Business Development at Greenearth Energy Efficiency) began assisting the NCF team with business development for NCF in Australia and New Zealand. Mr. Redmond spent a week with NCF's team in Israel in August, visiting their facilities. Mr Redmond brings with him a wealth of technical and strategic business development experience. After beginning his career as an aerospace engineer in Australia & Europe, he returned to Australia in a Management Consulting role focused on sustainability policy and strategy which included writing the Green Leasing Policy with COAG (Council of Australian Government).

NCF's senior management team began to focus on pursuing potential partnerships and developing commercial opportunities. These included visits to China, the US and Europe to attend several meetings and conferences with key international players. During this process they presented at a CO<sub>2</sub> utilisation conference in Beijing and Brussels as well as a cleantech investment conference in London. The NCF team will present at additional international investment conferences in Europe during November 2013.

In September 2013, WorleyParsons (one of Australia's leading resource and energy consulting firms) performed an independent review of the technology. This involved conducting a Technology Evaluation in Israel over a four week period with a team out of their UK office. WorleyParsons provided a detailed report to NCF at the beginning of October. The review is a detailed report of NCF's current activities, its status, successes and recommendations. The engineers from WorleyParsons commented on the high standard of the design, engineering and technical accomplishments of the NCF team and technology. Specific mention was made to the well-structured programme of development work to progress from the current proof of technology due in 2013, to a scaled up pilot implementation. Overall, WorleyParsons produced a positive report that shows confidence in the technology and team.

# Greenearth Energy Ltd.

## Energy Security in a Carbon Constrained World

### ***NewCO<sub>2</sub> Fuels cont.***

The development of NCF's proof of technology is on schedule to be finalised and tested by the end of 2013. The reactor, where the core dissociation from CO<sub>2</sub> into CO and oxygen takes place, is currently being assembled in Israel. The high temperature heat source is currently obtained from solar energy and located in the testing facility of the Weizmann Institute in Israel. The assembly and testing bench is undergoing intense testing to ensure its proper operation prior to assembling the reactor itself. NCF's team has successfully obtained the high temperature heat stream necessary for the dissociation reaction.

We look forward to reporting continued updates during the coming quarter as the team closes in on the final testing of these extraordinary efforts to date.

Pictured below are some of the developments within the past three months:

**Successful testing of the heated air including Calorimetric testing completed this quarter**



**The 'near final' testing facility including air piping and hot segment insulation**





# *Greenearth Energy Ltd.*

## *Energy Security in a Carbon Constrained World*

### ***NewCO<sub>2</sub> Fuels Joint Venture***

In 2011 Greenearth Energy secured an exclusive worldwide Research and License Agreement for a revolutionary technology that has the ability to convert CO<sub>2</sub> emissions to fuel. The group's investment is represented by a 50% ownership in NewCO<sub>2</sub> Fuels Ltd (Israel). As described in the June 2012 annual report, an option deed has been entered into which grants Erdi Fuels Pty Ltd the right to acquire the group's 50% ownership of NewCO<sub>2</sub> Fuels Ltd. The group retains an ongoing royalty stream.

The CO<sub>2</sub> to fuel conversion technology concept, successfully developed in Israel by Professor Jacob Karni and his group at the Weizmann Institute of Science, and proven in subsequent extensive laboratory trials, involves a new method of using concentrated solar energy for the dissociation of carbon dioxide (CO<sub>2</sub>) to carbon monoxide (CO) and oxygen (O<sub>2</sub>).

The same system can also dissociate water (H<sub>2</sub>O) to hydrogen (H<sub>2</sub>) and oxygen (O<sub>2</sub>), at the same time it dissociates the CO<sub>2</sub>. The CO, or the mixture of CO and H<sub>2</sub> (called Syngas) can then be used as a gaseous fuel (e.g. in power plants), or converted to liquid fuel (e.g. methanol or other transportation fuels), which has the potential to be stored, transported and used in motor vehicles. The oxygen produced can be used in the combustion of the clean fuel, or elsewhere.

During 2012/13, Greenearth Energy Ltd acquired the outstanding 15% of the NewCO<sub>2</sub>Fuels Pty Ltd entity to now own 100% of this entity within the consolidated group.

<http://www.newco2fuels.co.il/>



# *Greenearth Energy Ltd.*

## *Energy Security in a Carbon Constrained World*

### **Greenearth Energy Efficiency**

As touched on in the introduction, 2013/14 started on a very positive note for Greenearth Energy Efficiency ('GEE') with a strong focus on sales and growth of opportunities via the industrial lighting sector.

The highlights included:

- 1 - Commissioning a new warehouse facility with our latest cloud based monitoring platform;
- 2 - Acceptance into a street light trial for an Australian State Department of Transport;
- 3 - A product suite well aligned with Federal Government policy on Climate Change;

The first quarter of 2013/14 saw the team achieve important sales along with commissioning a new warehouse in New South Wales, of approx 25,000m<sup>2</sup>, equipped with our latest cloud based monitoring tools. These tools enabled the client to reduce lighting to 50% and restricted operating hours during fit-out works, and adjust the system to operate at 100% with extended hours during their move-in. The installed lighting system required 25% fewer lights and presented an electrical load 50% less than equivalent conventional technology system. Live screen shot images (and descriptions) on the following page provide a high-level insight into the system's capabilities.

Included in these successes this quarter was the inclusion of Metrolight equipped streetlights in a long term comparative energy & maintenance trial run in an Australian state. It was a stringent selection process and we are pleased to have been selected as one of the final three products from around the world for this States trial. This trial will last for a minimum of 12 months prior to the department making a final decision on which product to roll-out in that State.

As mentioned in prior announcements, 'Direct Action' has become a key focus of the new federal Government in 2013/14. After meeting with Greg Hunt, now Minister for the Environment, during the last quarter, it is clear that our current and future product suite is well placed to assist businesses under this proposed initiative. Our smart lighting system will not only markedly reduce the CO<sub>2</sub> emissions for our customers, it will also have a direct impact on the bottom line by reducing costs and increasing profits and margins.

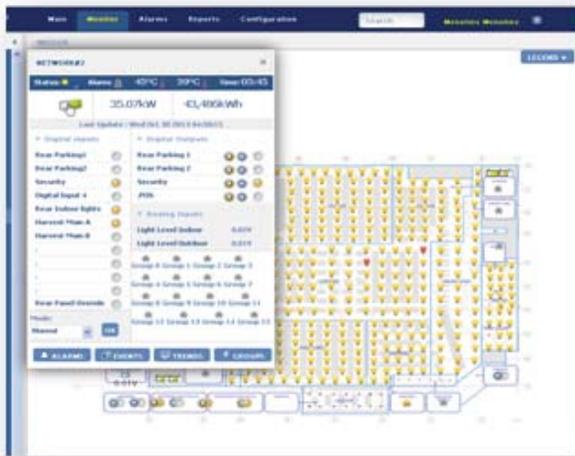
# Greenearth Energy Ltd.

## Energy Security in a Carbon Constrained World

### Greenearth Energy Efficiency cont.

The GEE team should be commended for the foundations that they have laid. The internal operational / process driven structure, and impressive product capabilities that they have all helped establish are beginning to pay dividends for our customer base. It is an exciting time to be involved in the energy efficiency business.

Pictured below are two screen shots as discussed on page 8:



As can be seen with the screen shot above, after installing our software, customers can see the energy consumption and individual light fitting operational status and results for an entire site, view the operational history, and as shown in the image below, easily detect when changes occur.



This image illustrates how our customers are able to monitor key operational status and energy use of each light fitting from anywhere in the world. This specific light fitting indicates that it is operating at a requested 80% (257W out of a possible 321W) – saving >20% energy by offsetting day light contributed into the space. It also shows the core temperature of the ballast to be 55C, well below the recommended maximum continuous operating temperature of 75C and thus promising a very long life. Furthermore it has operated for 267 cumulative hours, and consumed 34kWh of energy.



# *Greenearth Energy Ltd.*

## *Energy Security in a Carbon Constrained World*

### ***Greenearth Energy Efficiency cont.***

Greenearth Energy Efficiency ("GEE") is a business unit focused on the integration of energy efficiency technologies into the Industrial, Warehouse and Manufacturing sector across Asia. The core current product focus is on energy efficient lighting. The GEE strategy of developing relationships with the OEM industry for utilizing Metrolight technology in their products, whilst also creating a rapidly growing demand for Metrolight equipped products with end-users, continues to develop well. The product base continues to be received particularly keenly in sectors where facilities operate continuously and high standards are applied such as the food and beverage industries.



# *Greenearth Energy Ltd.*

## *Energy Security in a Carbon Constrained World*

### **Geothermal Energy**

As previously iterated in these quarterly reports, along with our other communications, the process to bring geothermal opportunities to fruition in this environment in Australia is a challenging task. The management of Greenearth have continued to push forwards with the intention of proving a viable renewable energy resource here in Victoria, even whilst there is an apparent lack of support from governing bodies to assist in moving this forwards. Our resolve was once again tested this first quarter of 2013/14 with an unsatisfactory result for the geothermal team at Greenearth Energy in relation to the Geelong Geothermal Power Project ('GGPP'). As announced on the 26th August 2013, Greenearth received formal notification from the Australian Renewable Energy Agency (ARENA) that our Expression of Interest (EOI) for funding, applied for in March 2013, was unsuccessful.

Subsequently, on 30 September 2013, Greenearth received formal notification from the Victorian Government that the \$25 million grant under the Energy Technology Innovation Strategy ('ETIS') funding agreement had been terminated. Management of Greenearth are disappointed with the outcome from the Victorian State Government and the previous Federal Government's Emerging Renewable's Program, particularly given our application was in line with ARENA's proposal and provided a very clear five stage path to commercialisation.

Greenearth Energy will seek to hold discussions with other key parties to the GGPP (including the Victorian Government, Melbourne University and others) in order to determine the best way forward for Greenearth Energy's Australian geothermal interests. Greenearth Energy maintains that the GGPP is a compelling geothermal prospect for Australia

On a more positive note, our Latrobe Valley Consortium (LVC) progressed its application and is looking to submit the proposal this calendar year. This application to ARENA for the LVC, is led by Monash University and is looking to develop an innovative geoscience program in the Latrobe Valley. Monash Universities Latrobe Valley campus, together with their Underworld Geodynamics Software modelling team and eResearch Centre at the Clayton Campus will be leading this process. The project will integrate advanced and emerging geological, geophysical and petrophysical technologies to understand the potential native productivity of the region and the potential to enhance this through stimulation.



# **Greenearth Energy Ltd.**

## *Energy Security in a Carbon Constrained World*

### **Geothermal Energy cont.**

As noted last quarter, we are continuing discussions with the Victorian Government, specifically the Department of Primary Industries, in relation to current legislated requirements of the Geothermal Energy Resources Act 2005 and the renewal process for Geothermal leases. As noted, Greenearth Energy submitted three renewal proposals of all our current exploration permits as follows:

- Geothermal Exploration Permit 10 - for a period of 5 years located in the greater Geelong / Anglesea region
- Geothermal Exploration Permit 12 - for a period of 5 years located in the Latrobe Valley region
- Geothermal Exploration Permit 13 - for a period of 5 years located in the Latrobe Valley region

The applications were received by the Victorian Government in March 2013. Greenearth responded with follow up queries as recently as September 2013 and at the time of this report, we continue to await a final response to confirm the renewal of these permits.



# **Greenearth Energy Ltd.**

## *Energy Security in a Carbon Constrained World*

### **Geelong Geothermal Power Project ('GGPP') (GEP 10)**

Background on the project:

As announced on the 26th August 2013, Greenearth Energy received formal notification from the Australian Renewable Energy Agency (ARENA) that our Expression of Interest (EOI) for funding, applied for in March 2013, was unsuccessful. Subsequently, on 1 October 2013, GER received formal notification from the Victorian Government that the \$25million grant under the Energy Technology Innovation Strategy ('ETIS') funding agreement had been terminated.

Greenearth Energy maintains that the GGPP is a worthwhile geothermal prospect for Australia. Further history on the GGPP is detailed below.

Greenearth had previously applied for funding towards the testing and development of a geothermal well in withing the GEP 10 permit zone under the Australian Government's \$126 million Emerging Renewables program, however this was unsuccessful due to various factors which we are looking to rectify in this new application to ARENA during the 3rd quarter of this year (February 2013).

In November 2011 Greenearth Energy successfully concluded negotiations with the Victorian State Government and executed the \$25 million funding agreement for the GGPP. The \$25 million Victorian Government grant funding was awarded in December 2009 under the government's Energy Technology Innovation Strategy (ETIS). The funding was awarded to assist two stages of the GGPP development, the first being \$5 million towards establishing Proof-of-Resource, with a further \$20 million awarded for Stage 2 being a grid connected 12MWe hot sedimentary aquifer (HSA) geothermal energy demonstration plant.

Subsequently, project partners have been developed including Alcoa of Australia, Leighton Contractors, Holcim Australia and Lakes Oil N.L.



# *Greenearth Energy Ltd.*

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### *Latrobe Valley Region (GEP 12 / GEP13)*

A consortium was formed in November 2012 to develop the funding application for submission to the \$3.2 billion Australian Renewable Energy Agency (ARENA) to utilise Victoria's / Australia's best geoscience bodies to assess the potential productivity of geothermal reservoirs prior to drilling expensive deep wells. It has the potential to, if successful, reduce exploration drilling risk and address one of the biggest challenges facing the geothermal industry.

The consortium is led by Monash University, along with a team including leading experts from University of Melbourne, Intrepid Geophysics, and supporting roles from the University of Adelaide, ANU and the Institute of Earth Science and Engineering (IESE) University of Auckland New Zealand. Greenearth Energy (exploration permit holder), has taken a more minor role in this project however will continue to work with the consortium through-out the life of the project.

This updated consortium has the opportunity to combine some of the top academics and newest technologies across the geothermal industry with the intent being to develop long term benefits not only for Greenearth Energy, but also the geothermal industry across Australia.

The Project will focus on Victoria's Latrobe Valley where work by Greenearth Energy and the University of Melbourne has previously suggested a significant new geothermal province close to transmission infrastructure is present.

The Latrobe Valley is an exciting geothermal prospect as thick insulating coals overly the hot sediments. An innovative geoscience program will integrate advanced and emerging geological, geophysical and petrophysical technologies to understand the potential native geothermal productivity and the potential to enhance this through stimulation. Matrix, fracture and fault permeability will be differentiated. An advanced uncertainty analysis, will be developed to quantify uncertainties.

Success will lead to greater exploration success for the Australian geothermal industry and a decision regarding a deep well in the Latrobe Valley.

# Greenearth Energy Ltd.

## Energy Security in a Carbon Constrained World

### Other

Greenearth Energy continues to receive monthly installments from Erdi Fuels Pty Ltd, as detailed in the Annual Report. These cash inflows, identified as financing cashflows at item 1.12 in the quarterly cashflow report, together with operating receipts collected by Greenearth Energy Efficiency, will enable the business to continue to execute our strategy.

On the 7th October 2013, Greenearth Energy announced a share placement to professional and sophisticated investors raising \$693,497 via an issue of 27,739,910 shares at an issue price of 2.5 cents. Funds were received in October 2013 and will be used to support the continued growth of the Company's industrial energy efficiency business via its wholly-owned subsidiary, Greenearth Energy Efficiency Pty Ltd, and for general working capital.

### Significant Changes in the State of Affairs

There were no significant changes during the relevant period that have not been previously disclosed.



At the date of this report, Greenearth Energy has approximately 1,146 shareholders, with a issued capital structure of:

Total Listed Ordinary Shares	146,541,508
Total Unlisted Options	13,000,000

SIGNED ON BEHALF OF GREENEARTH ENERGY LTD.

A handwritten signature in blue ink, appearing to read 'Samuel Marks'.

Samuel Marks  
Managing Director  
Greenearth Energy Limited  
31 October 2013

*The images contained in this document are of a generic nature and are not intended to be representative of specific locations.*