

Intelligent Sustainable Profitable Solutions



#### **Directors**

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

#### **Company Secretary**

**Robert Smith** 

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## **Highlights**

#### **Vivid Industrial**

- Rebrand from Greenearth Energy Efficiency to Vivid Industrial more appropriately reflecting our offering to customers
- Supplied intelligent LED lighting systems to multiple new customers for interstate construction projects, saving customers over 60% of lighting energy costs compared to competitors designs
- Supplied a SmartHID lighting solution to a logistics facility, another project for Australia's largest Industrial developer and owner
- Project pipeline strengthening for 2015, with potential large scale opportunities across retail, logistic, infrastructure and intermodal operations in both Australia and internationally

#### NewCO2Fuels

- Technology received important validation from USA, Israeli and Australian governments through grants funding arrangements and high-level acknowledgement
- Awarded the 2014 World Technology Network Energy award (previously won by Tesla Motors)
- Independent review by global engineering firm Technip, who verified and complimented NCF's technology, operations and personnel



### Introduction

The December Quarter of 2014 Calender delivered outstanding progress for both Vivid Industrial and NewCO2Fuels (NCF). The period delivered outstanding growth & development for both businesses and it was a real pleasure to see the hard work of both companies coming to fruition.

In November 2014, our energy efficient lighting business was rebranded as "Vivid Industrial" (vividindustrial.com) to better reflect our long term vision for the business and the customer base. Feedback on this rebrand from customers and suppliers alike has been positive.

Throughout the quarter, Vivid Industrial continued to grow the sales pipeline and convert these opportunities into revenue-generating projects. Included in this quarter's sales are additional large industrial customers across multiple sites, who have now installed and upgraded to Vivid Industrials latest LED technology range.

The Directors are excited by the growth in sales in the December quarter and if this trend continues, we can be confident of substantial growth in the second half of FY15.

NCF continued to progress towards the commercialisation of its award winning technology. Importantly, NCF received external validation from US, Israeli and Australian governments, an independent technical review by global engineering firm Technip and the B.I.R.D (Bi-national Industrial Research & Development) Foundation.

Further independent recognition of the validity of NCF's technology was received in November 2014, when NCF won the World Technology Network award for Energy. Tesla Motors won the same award last year, and this year's field was competitive with finalists that included General Electric and Bright Source Energy. Winning the 2014 award was an extremely proud moment for the NCF team, and provided additional independent confirmation of the team's technology.

The following pages outline further details of 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** 

30 January 2015





## **Industrial lighting solutions**

for your business

## **Vivid Industrial**

The second quarter of the FY14 saw good traction for key aspects of the business growth strategy, the successful rebranding to Vivid Industrial has attracted excellent feedback including from key customers who are excited to see that the rebranding reflects the future of our business, its core strengths and undertakings.

Recent appointments to the sales team have resulted in a tangible uplift to the project opportunity pipeline including new business in NSW and QLD, along with international interest.

One particular project during the quarter that demonstrated the continued attractiveness of Vivid Industrial's propriety SmartFLECTOR® technology, was the implementation of this system at a site owned by a large Australian property developer but leased to a premier national logistics company, which subsequently also inquired about a further 17 sites across the region - an example of the key vertical market for our core technologies, demonstrating the soundness of our product positioning strategy and the unique benefits of our technology.







Recently installed Warehouse and Office lighting at a medical supplier in Sydney

Vivid Industrial also saw success this quarter with multiple warehousing and commercial office projects at prominent organisations in NSW. The projects were secured on the basis of quality engineered designs completed by Vivid Industrial, development of advanced system controls, and our oversight of the complete installation to the customers' satisfaction, against immovable fast-tracked customer deadlines. All products installed are the latest LED technology, demonstrating Vivid Industrial's ability to operate and succeed in this prominent growth market for our company.



During 2014, one of Australia's most prominent and successful freight and logistics Companies established a formal engineered trial which ran over a period of months. This trial contained four shortlisted LED technology manufacturers from around the globe. Vivid Industrial's LED system was selected in this shortlist. The trail was established to determine the most suitable LED system on the basis of performance, technical service support and "Total Cost of Ownership" parameters. Final selection would enable the company to standardise on a lighting product platform for multiple sites rollout in Australia and Asia Pacific. We are pleased to report that Vivid industrial's LED system outperformed all trial participants and has been selected. This was a fantastic achievement for all involved and, in due course, we look forward to disclosing more about the customer and opportunity across Asia.

With a growing pipeline and a range of proven technologies, Vivid Industrial continue to look at ongoing growth potential, including further establishing pre-selected Victorian and NSW based Channel partners with a view to further extending our market reach and visibility. As part of a strategic initiative, Vivid Industrial see great advantage in having high quality, prequalified and trained distribution partners in key Australian vertical and geographic markets. We have also begun the process of evaluating export market opportunities in South East Asia and the sub-continent with specific partner evaluation already underway.





## **Industrial lighting solutions**

for your business

## **About Vivid Industrial**

Vivid Industrial is a lighting solutions business which is wholly owned by Greenearth Energy Ltd. This business provides customised, intelligent and energy efficient luminaire and lighting control solutions. We work with industrial and infrastructure businesses to craft a complete lighting solution that reduces costs and energy usage, now and longer term. We are a forerunner in the region for the development of the "Internet of Lights" model, closely aligned to the ever growing "Internet of Things".

The Vivid Industrial team has a wealth of experience across technology design, engineering and project management. We partner with businesses to first understand their needs and operations. Then, we provide the right solutions.

The business delivers industrial lighting and technology solutions that, put simply, make sense and meet an organisation's true needs.





### NewCO2Fuels

#### **Pilot Projects & Commercialisation**

The development of a Europe-based pilot project with the world's largest steel manufacturer is progressing well. During the Quarter, NCF and the partner teams visited the pilot project site and NCF's research facilities in Israel.

Throughout the quarter, NCF also hosted various site visits to its research facilities with potential pilot project collaborator groups from Europe, Australia and China. There are ongoing discussions with parties in Europe, Asia and the Middle-East, which are focused on: hosting pilot projects; how NCF technologies can be applied to various global industry sectors; relevant equipment provision; suitable potential funding arrangements; and roll-out opportunities. Notably, considerable progress has been made with large scale companies in assessing the suitability of NCF technology to their operations and energy efficiency strategies.

NCF technology is now starting to attract external validation and verification from a range of reputable organisations, governments and corporations, which during the quarter included:

- Inclusion in Australian Liquid Fuels Technology Assessment by the Australian Federal Government
- Winning the 2014 World Technology Network award for Energy
- Winning the B.I.R.D foundation grant in partnership with the US based Acumentrics
- Awarded United States Department of Energy Grant: Alstom / NCF / Clean Coal Illinois collaboration
- Technip Technology Review of NewCO2Fuels
- Awarded a grant by the Israeli Department of Energy

# Inclusion in Australian Liquid Fuels Technology Assessment by the Australian Federal Government <a href="http://www.bree.gov.au/publications/australian-liquid-fuels-technology-assessment">http://www.bree.gov.au/publications/australian-liquid-fuels-technology-assessment</a>

In October, the Australian Federal Government's Bureau of Resources and Energy Economics (BREE) announced it had included NewCO2Fuels as part of its analysis of liquid transport fuels. NCF was the only technology in the report converting solar energy into fuel and, importantly, NCF Technology was the chosen technology to assess solar-to-DME (dimethyl ether) and solar-to-MTG ("Methanol to Gasoline") as replacements for current liquid transport fuels.

#### Winning the 2014 World Technology Network Award for Energy

http://www.wtn.net/summit-2014/2014-world-technology-awards-winners

At an awards ceremony in New York City in November, NCF was presented with the 2014 World Technology Network's (WTN) category award for Energy-Corporate. There are both individual and corporate award categories. The awards are held in association with TIME Magazine and FORTUNE. In winning this award, NCF joins a prestigious list of past winners including 3M, Amazon, Apple, Dow Chemical Company, Facebook, Google, Honda, IBM, Qualcomm, Skype, Tesla Motors, Toyota, The Weizmann Institute of Science and YouTube.



#### **Grant Award from B.I.R.D foundation**

#### http://www.birdf.com/?CategoryID=395&ArticleID=410

NCF was awarded a funding grant for its innovative CO<sub>2</sub>-to-fuel conversion technology from the (Bi-national Industrial Research & Development) Foundation (BIRD) Foundation. The US\$1m grant, awarded to NCF and one of its USA-based component suppliers (Acumentrics), will support continued technology development aimed at driving major enhancements to the NCF system's performance, cost reduction and reliability – all fundamental elements that underpin commerciality.

The BIRD Foundation is a joint program of the USA and Israel, funded by the US Department of Energy (DOE) and Israel's Ministry of National Infrastructure, Energy and Water Resources

# Grant Award by United States Department of Energy; Alstom / NCF / Clean Coal Illinois collaboration <a href="http://energy.gov/articles/energy-department-announces-new-investments-gasification-research">http://energy.gov/articles/energy-department-announces-new-investments-gasification-research</a>

In November, the USA Governments DOE announced the selection of Alstom Power Inc as one of four projects to receive significant funding with the aim of progressing technologies to reduce greenhouse gas emissions. As part of this arrangement, NCF will receive direct funding towards the development of its technology (with the amount yet to be finalised between the parties). Alstom, NCF and the Illinois Clean Coal Institute are working in close collaboration to develop a concept for the conversion of coal to high-hydrogen syngas for power generation and/or liquid fuel production.

#### **Grant Award by the Israeli Department of Energy**

#### http://www.tashtiot.co.il/2014/09/22/%D7%90%D7%A0%D7%A8%D7%92%D7%99%D7%94-18/

NCF has also recently received recognition from the Israeli government via two grants totalling over (AUD \$900k) from the Israeli Government's Economic Ministry and Ministry of Energy to assist in the development of NCF's core technology. These grants are a further validation of the innovation and commercial viability of NCF's product. These grants are part of an Israeli national long term programme to develop alternative fuels to fossil fuel sources.



NCF CEO David Banitt after accepting the 2014 World Technology Award for Energy in New York in November



Entertaining a delegation at the solar technology demonstration unit in Israel



NCF CEO David Banitt speaking at the 2014 Gasification Technologies Conference in Washington in October



#### **Independent Technology Review by Technip**

Technip (technip.com/en) has completed an independent evaluation of NewCO2Fuels Ltd (NCF) and its technology. The evaluation has revealed positive progress, a strong technology platform and performance capability likely to yield compelling internal rates of return (IRR) for customers. The report highlights the uniqueness and efficiency benefits of NCF's technology when compared to other competing technologies that are developing CO<sub>2</sub>-to-fuel conversion solutions, stating that "Competing processes exist for concentrated growing of biomass from sunlight (such as those based on algae), but will not match NCF's efficiency".

Furthermore, the report verified NCF's internal economic analysis, indicating that the product that the company is developing could achieve favourable internal rates of return (IRR) for NCF customers under a wide range of different economic scenarios.

The report also confirmed the likelihood of NCF achieving commercial readiness by 2017.

## NewCO2Fuels in the media

ISRAEL NEWTECH-MINISTRY OF ECONOMY: NCF Wins Technology Award, and Envisions the Efficient Future of Alternative Energy Dec. 17, 2014

http://israelnewtech.com/2014/12/ncf-wins-technology-award-envisions-efficient-future-alternative-energy/

PR Newswire - a UBM plc Company: BIRD Energy to Invest \$4 Million in Cooperative Israeli-U.S. Clean Energy Projects, Dec. 8, 2014

 $\frac{http://www.prnewswire.com/news-releases/bird-energy-to-invest-4-million-in-cooperative-israeli-us-clean-energy-projects-285074931.html}{}$ 

HeraldSun, John Beveridge: In the Black, Nov. 18, 2014

http://www.heraldsun.com.au/business/in-the-black/unique-m2-still-picking-up-speed/story-fni0d787-1227126314984

ABN Newswire: Greenearth Energy Ltd (ASX:GER) Boosted by International and Australian Recognition, Nov. 17, 2014

http://www.abnnewswire.net/press/en/78683/Greenearth\_Energy\_Ltd\_%28ASX:GER%29\_Boosted\_by\_International\_and\_Australian\_Recognition.html

THE AUSTRALIAN, Damon Kitney - Solar guru wants to heat up the gas industry Sep. 22, 2014 <a href="http://www.theaustralian.com.au/business/mining-energy/solar-guru-jacob-karni-wants-to-heat-up-the-gas-industry/story-e6frg9df-1227065750166">http://www.theaustralian.com.au/business/mining-energy/solar-guru-jacob-karni-wants-to-heat-up-the-gas-industry/story-e6frg9df-1227065750166</a>

## About NewCO2Fuels

In June 2014, Greenearth Energy Ltd (Greenearth) advised that the Group had further negotiated details of its investment in NewCo2Fuels Israel (NCF) to acquire up to 33.33 percent. Under this agreement, Greenearth commenced payments to NCF, with the first instalment in June 2014 and the remainder of the USD\$3m investment due by the end of 30 June 2015. The investment is subject to partial claw-back by NCF should less than USD\$3m be ultimately invested by Greenearth, or unless otherwise negotiated.

On completion of the investment, Erdi Fuels Pty Ltd (Erdi Fuels) and Greenearth will be equal shareholders in NCF at 33.33 percent each and the remaining percentage of NCF Shares will continue to be held by founders, current staff and Yeda Research & Development Co. Ltd. (Yeda), based at the Weizmann Institute in Israel.

In 2011 Greenearth Energy secured an exclusive worldwide Research and License Agreement for a revolutionary technology that had the ability to convert CO2 emissions to fuel. Greenearth and Erdi Fuels' previous arrangements with NCF (as described in the 2013 annual report), including the royalty stream previously available to Greenearth, have been renegotiated and replaced by this new structure outlined in the above paragraph. Erdi Fuels and its associates have invested US\$9m into NCF to reach its current milestones.

The CO<sub>2</sub> to fuel conversion technology concept, successfully developed and proven in laboratory trials in Israel by Professor Jacob Karni and his group at the Weizmann Institute of Science, 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). The same system can also dissociate water (H<sub>2</sub>O) to Hydrogen (H<sub>2</sub>) and Oxygen (O), at the same time it dissociates the CO<sub>2</sub>. 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. Oxygen produced can be used in the combustion of the clean fuel or elsewhere.

#### Review video at the attached link for further information on the NCF business:

http://www.youtube.com/watch?v=vH-YZdqB\_SE

#### **NewCO2 Fuels Website:**

http://newco2fuels.co.il/







**Bureau of Resources** and Energy Economics







# Greenearth Energy Geothermal



## **Geothermal Energy**

In March 2014 Greenearth Energy received Victorian Government relief from the work permit requirements for our three Australian Geothermal leases (identified below). The relief extends until May 2015, at which point Greenearth is entitled to apply to extend it into the future.

In the last weeks of 2014, Greenearth received notification from Melbourne University that the grant application to ARENA (Australian Renewable Energy Agency) for our Latrobe Valley permits had been unsuccessful. The application was to request funding to assist in de-risking the geothermal drilling in an insulated hot sedimentary basin, such as the Latrobe Valley. Unfortunately, ARENA did not believe this was worthy of supporting Melbourne University, Monash University or Greenearth Energy, due to the concern the information was too specific to the Latrobe Valley and not beneficial to the Geothermal Industry as a whole.

Greenearth Energy is subsequently discussing the next steps for the industry with other Geothermal parties, profit and not-for-profit sectors, with the intention of approaching the new Victorian Government in 2015.

The prolonged discussions with the Victorian Government, specifically the Department of Primary Industries (DPI), led to Greenearth submitting three requests for suspension and extension for all our current exploration permits as follows:

#### • Geothermal Exploration Permit 10;

Located in the greater Geelong / Anglesea region;

Suspended through May'15

#### Geothermal Exploration Permit 12;

Located in the Latrobe Valley region;

Suspended through May'15

#### Geothermal Exploration Permit 13;

Located in the Latrobe Valley region;

Suspended through May'15

Greenearth's decision to apply for suspension and extension of its permit conditions was influenced by the lack of geothermal funding by Government (following withdrawal of funding for Greenearth's flagship geothermal project by the Victorian Government in 2013), and by current government policy relating to a moratorium on "fraccing" (hydraulic stimulation) and well activity.

On the 27th of January 2015, the Victorian Government stated a further review on the moratorium would take place. The Minister for Energy noted the moratorium would likely be in place until mid-2016. Upon receipt of formal notification to Greenearth, the Company will consider the impact on our current projects.

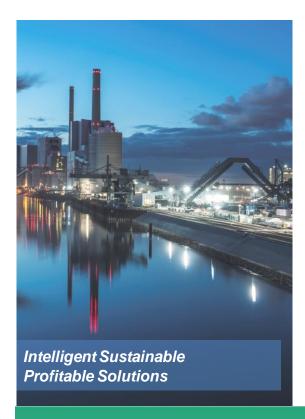


## Other

In January 2015, Greenearth Energy Ltd and NCF negotiated an extended deadline for Greenearth to complete its 33.33% investment in NCF from 31 January 2015 to 30 June 2015.

## 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 1,307 shareholders, with an issued capital structure of:

Total Listed Ordinary Shares 197,580,003 Total Unlisted Options 27,950,000

Samuel Marks
Managing Director
Greenearth Energy Limited
30 January 2015

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