



***Greenearth  
Energy Ltd.***

***Quarterly Activities  
Report  
30 June 2015***

***Intelligent Sustainable  
Profitable Solutions***



# **Greenearth Energy Ltd**

*Intelligent Sustainable Profitable Solutions*

## **Highlights**

### **Vivid Industrial**

- Successful winning of contracts and installations for landmark sites / brands
- Advanced discussions and site trials with major Australian and global companies
- New product introduction – Vivid Industrial Energy Insights program
- First industry showcase of leading Vivid Industrial intelligent lighting system

### **NewCO2Fuels**

- Ongoing design and engineering towards 2016 pilot project
- Growing business development focus across multiple industries and countries
- Pre-selected as a candidate for the World Economic Forum Technology Pioneers Programme



# **Greenearth Energy Ltd**

## *Intelligent Sustainable Profitable Solutions*

### **Introduction**

Historically, Greenearth Energy was a diversified company focused on assets in Australia and potential opportunities in nearby Indonesia and New Zealand. Over the past few years, we have streamlined the business and now focused on two opportunities with global scale; Vivid Industrial and NewCo2Fuels. Ongoing development and recognition of Vivid Industrials product range globally, along with international recognition of NCF, see the company positioned to deliver significant milestones and growth over the coming year.

The company achieved important steps towards addressing these global markets during the quarter with the first industry showcase of Vivid Industrials Matrixx™ intelligent lighting system. This was an exciting development for Vivid Industrial, leveraging unique intellectual property developed internally, we now have one of the most intelligent and effective industrial lighting technology systems available in the world. This lighting system is optimised to deliver significant value to property developers and owners, construction companies, installers and end users; and the system is designed, engineered and manufactured in Australia. The Matrixx™ is a fully integrated intelligent industrial lighting “system of systems” which comprises energy management, lighting control, solid-state luminaires and installation systems.

As part of this global perspective, during the Quarter I and other representatives of the Greenearth Energy team travelled to the United States, Middle-East and South East Asia to test the global opportunities for the Vivid Industrial range. Our investigations and discussions with potential customers (both current and future), along with potential distributors and local partners confirmed that the Matrixx™ is a world leading technology with global applications. The feedback from prospective customers and partners was overwhelmingly positive and is producing several developing opportunities which we look forward to updating shareholders on in due course.

The team at NewCO2Fuels continues to progress commercialisation activities, including the development of new opportunities with potential industry partners from Asia, Australia and the Middle-East. The management team are currently developing a full-scale pilot plant which is due for completion in 2016. Interest from external customers and international governments continues to grow, as does the very positive feedback on the technology and the development team.

Once again, it is a pleasure to successfully develop and grow both these businesses on behalf of shareholders and I look forward to providing an update to further exciting developments.

SIGNED ON BEHALF OF GREENEARTH ENERGY LTD



**Samuel Marks**  
Managing Director  
Greenearth Energy Limited  
**30 July 2015**





## Vivid Industrial

Vivid Industrial is targeting multi-site, large energy users across industrial and intermodal sectors. The Company continues to roll out our new product range through a combination of paid customer sites and trials for large Australian and global companies. During the Quarter and in-line with this strategy, a selection of Vivid Industrial's secured opportunities included:

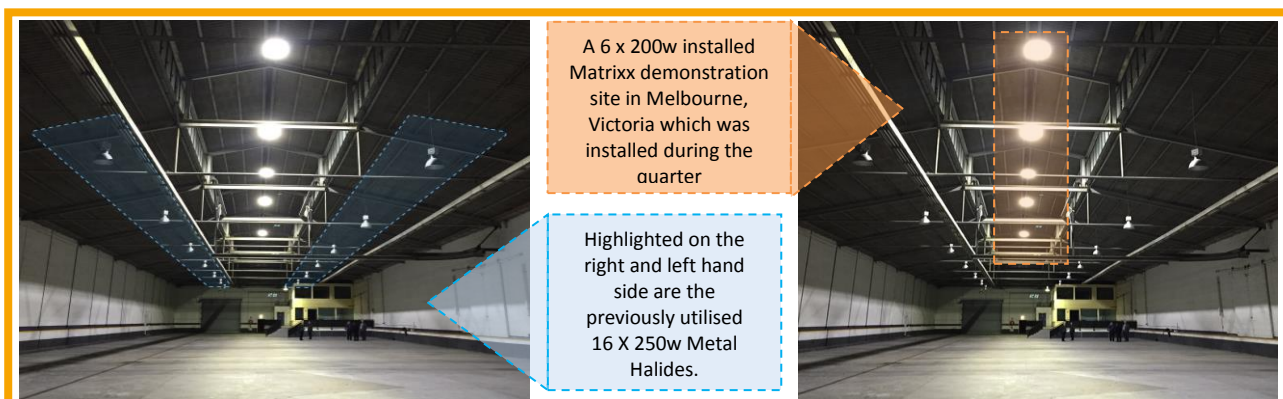
- Two landmark sites at the Port of Melbourne
- Two port sites in New Zealand
- Live trials for portfolio opportunities with several ASX top 50 companies, that commenced following Quarter end

During the Quarter, Vivid Industrial further developed its pipeline of revenue opportunities. The Company is in discussions with several major Australian and global corporations for the distribution and installation of our intelligent systems across multiple sites. We are confident of advancing these opportunities over coming months.

### The Matrixx™ System

The Matrixx™ system is the only fully comprehensive industrial lighting system in the global market; encompassing all installation hardware, communications equipment, infrastructure and core lighting equipment. The intellectual property has been developed internally by Vivid Industrial, leveraging over 30 years of global experience, along with technology partners across the world. The system has already been proven in customer field trials to deliver industry-best efficiency of energy (kilowatts) to light (lumens) requirements for customers while delivering equally impressive economic returns.

Matrixx™ is truly intelligent, with autonomous two way communication and control, cloud based monitoring and high level adaptability. In developing this system, we have built a "future proof" technology which is maintainable, serviceable and upgradeable over the life-time of our customer's assets. Further validation of the system's attractiveness, highlighted by several overseas component suppliers seeking to distribute this ground breaking system through their international markets. Multiple requests for system trials, both in Australia and overseas, demonstrates the positive response to this product on a global scale.





### “Energy Insights” Offering

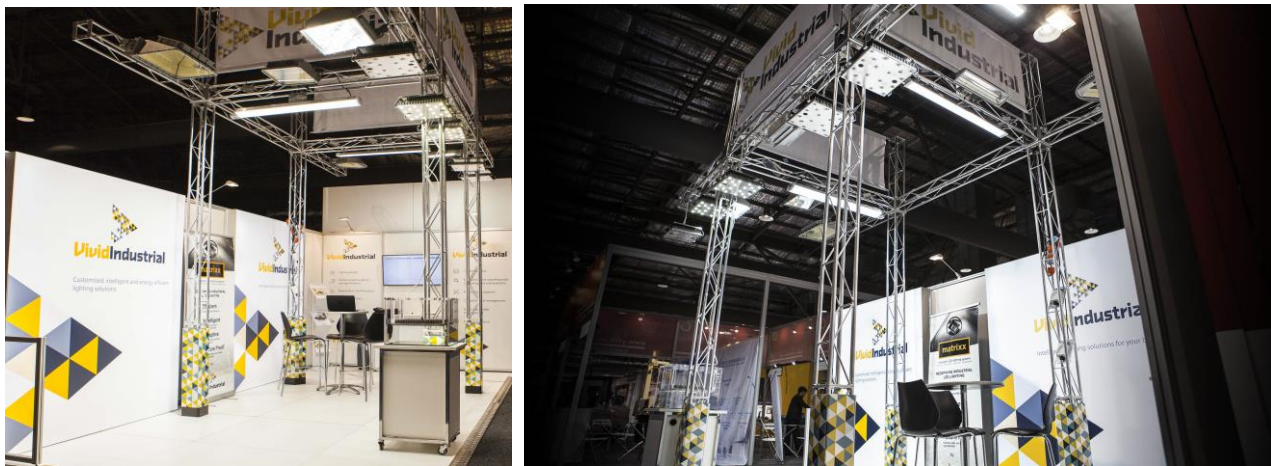
Vivid Industrial completed its first installation of an adjacent technology, a cloud-based electricity consumption monitoring tool. The results of this installation over the Quarter are compelling and this has led to the development of Vivid Industrial’s “Energy Insights” offering. This offering is complementary to Vivid Industrial’s current intelligent lighting technologies and gained further traction with two household brands using the offering during the Quarter.

Vivid Industrial intends to grow the revenue stream via blue-chip customers who currently have limited methods of monitoring, maintaining or correcting onsite energy consumption issues. The initial installation has already resulted in identifying energy efficiency opportunities that allow our customers to reduce their energy consumption by over \$25k per annum on this one site by aligning their energy use with their operational requirements. This customer maintains over 100 sites in Australia alone highlighting the compelling opportunity Energy Insights represents for Vivid Industrial and our customers.

### Trade Show Participation

In building the Vivid Industrial brand, the Company participated in our first industry showcase of our leading industrial intelligent lighting systems, at a trade show for one of our key target verticals / markets. The trade show was an industry event of leading innovation for supply chain management, logistics and warehouses of the future.

The trade show allowed Vivid Industrial to showcase our technologies, highlighting our own Australian designed, and manufactured Matrixx™ intelligent modular industrial lighting system.



Vivid Industrial’s exhibit at a recent trade show during the quarter in one of our target vertical markets



## Car City, Sydney NSW

A recent lighting project undertaken by Vivid Industrial was for a well-known car sales group in Sydney and Melbourne, Car City.

Vivid Industrial completed the installation of an intelligent LED system at one of the sites during the Quarter. At our customer's request, the installation was not only about energy saving, but also increasing light output for improved interaction with its customers on site.

The project greatly increased light output and provided a significant reduction in lighting energy consumption of 54%. Importantly, tenants and customers of the group provided overwhelmingly positive feedback which has created additional revenue opportunities for Vivid Industrial.

Through a Vivid Industrial approved financier, the customer was able to have the system financed and paid back over time as they realise energy savings from the system, rather than incurring a cash outflow upfront.

### Snapshot

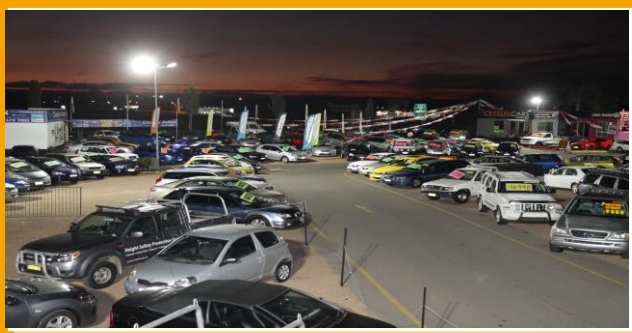
**>54%**  
Energy Savings

Significant increases in light levels (lux) whilst  
reducing the lighting energy costs by over 50%

28,000 kWh p.a  
energy saved



Car City - Car Yard at dusk  
before Vivid Industrial



Car City - Car Yard at dusk  
AFTER Vivid Industrial upgrade





## F Appleton Dock – International Shipping Facility located in the Port of Melbourne

### Snapshot

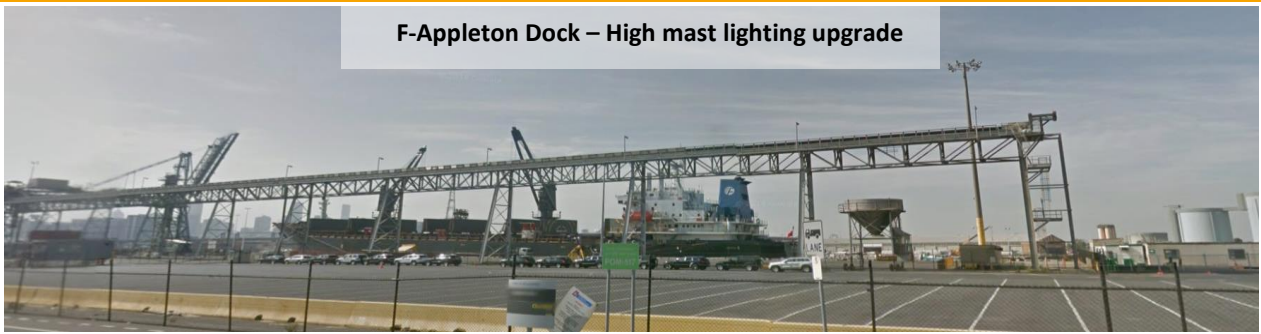
**>70%**  
Energy Savings

Time between maintenance extended by greater than five times

Minimised 'light spillage' for local residence

110,900 kWh p.a  
energy savings

### F-Appleton Dock – High mast lighting upgrade



## Station Pier – on Port Philip Bay in the Port of Melbourne

### Snapshot

**>70%**  
Energy Savings

Increased light (lux) levels by >150%

Expected maintenance interval extended by more than five times

20,300 kWh p.a  
energy savings

Station Pier – White lights on left hand side are Vivid Industrials. Right side are original (yellow) lighting.



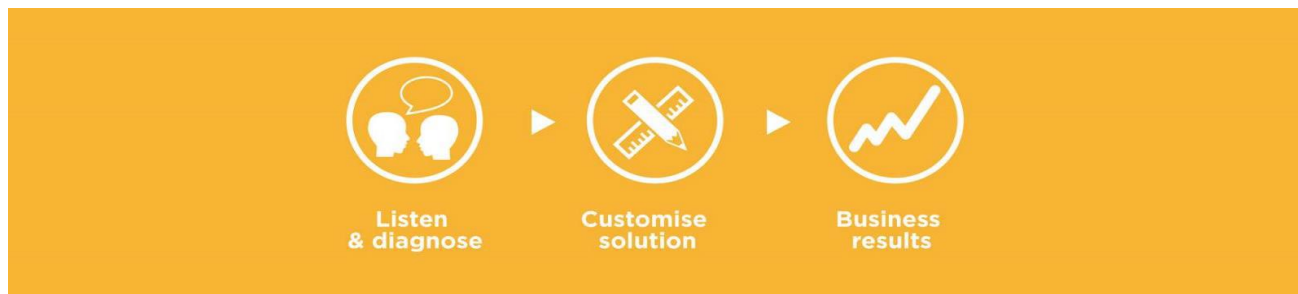


## About Vivid Industrial

Vivid Industrial is a market leading provider of innovative energy efficient industrial solutions which is wholly owned by Greenearth Energy Ltd. This business provides customised, intelligent and energy efficient luminaire and lighting control solutions, along with cloud-based monitoring platforms. We work with industrial and infrastructure businesses to create a complete solution that reduces costs and energy usage immediately and over the longer term. We are a leader in 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 and deliver them the right solutions.

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





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

During the Quarter NCF steadily progressed towards commercialisation of the Company's technology. Design and engineering development towards operating a full scale pilot to demonstrate performance at scale is progressing well as are broader commercial development activities, with establishment of collaborations and partnerships around the globe.

Excitingly, after ongoing success in winning the World Technology Network award in late 2014, NCF was pre-selected as a candidate for the World Economic Forum Technology Pioneers Programme.

Each year, the Forum recognizes innovative start-ups worldwide that design, develop and deploy new technologies with the potential to have a significant impact on business and society. With this goal in mind, the Forum makes every effort to identify and invite these diverse and transformational companies to apply for this program.

To be shortlisted is a fantastic honour and we look forward to hearing of possible success. **Further details can be found on prior years winners and selected companies:** <http://widgets.weforum.org/techpioneers-2015/#maincat>

### Product development towards a pilot

Simultaneous dissociation of CO<sub>2</sub> and H<sub>2</sub>O in a high temperature, single step and clean process is now a stable capability of NCF technology. This capability being advantageous by itself, gains even higher value when having control over the output composition, i.e. the ratio between the hydrogen (H<sub>2</sub>) and carbon dioxide (CO), as different end products require different H<sub>2</sub> to CO ratios.

Discussions with potential customers from a variety of industries and regions amplifies the importance of this capability. In some cases, plain CO is required (having higher CO<sub>2</sub> emission reduction impact) while in other cases plain H<sub>2</sub> is needed.

NCF has recently undertaken a joint project with a long term partner from the United States to further improve some of the core components of the system. This project is also partially funded by a grant awarded by the BIRDF – the bi-national R&D foundation supporting US and Israeli Joint development projects.

NCF reactors are the core component of the system, with additional peripheral systems also required. Proper interfaces and delicate performance adaptations are essential for optimizing the overall system performance, both technologically and to deliver improved economics. During the Quarter the NCF team fast tracked discussions with suppliers of those systems such as CO<sub>2</sub> capturing, gas conditioning, power blocks and high temperature heat exchangers.

## Ongoing Business Development

Business development activities are progressing well. Interactions during the Quarter with current and future partners / clients about their products and processes are ongoing activities with various system needs and characteristics being reviewed for the benefit of the integration with NCF systems. Additional features and their benefits are learned and being evaluated and improved continually.

The flexibility of the NCF system and its modularity is found to be attractive in more and more applications and industries. The proven scalability of the system also proves to be advantageous by lowering the entry level barriers to new customers enabling them expand the capacity at their own pace.

## NewCO<sub>2</sub>Fuels in the media

### THE GUARDIAN

#### **Can high-tech photosynthesis turn CO<sub>2</sub> into fuel for your car? - May. 22, 2015**

<http://www.theguardian.com/sustainable-business/2015/may/22/solar-fuel-carbon-dioxide-co2-climate-change-photosynthesis>

### Bio-Based News

#### **Top International Speakers at Europe's Largest Event on Carbon Capture and Utilization (CCU) in 2015 - Jun. 22, 2015**

<http://news.bio-based.eu/top-international-speakers-at-europes-largest-event-on-carbon-capture-and-utilization-ccu-in-2015/>

## NewCO<sub>2</sub>Fuels at Upcoming Conferences

### The World Science Conference

**Jerusalem, Israel. Aug. 15 - 20, 2015**

<http://www.wsci.org.il/>

### 4th Conference on Carbon Dioxide as Feedstock for Fuels, Chemistry and Polymers

**Essen, Germany. Sep. 28 - 29, 2015**

<http://co2-chemistry.eu>

### Brussels Sustainable Development Summit

**Brussels, Belgium. Oct. 19 -20, 2015**

<https://bsds2015.vito.be/>

### World Clean Coal Conference

**Seoul, Korea. Oct. 21 - 22, 2015**

<http://www.worldcleancoal.org/kr/index.asp>

### Fuel Choice Alternative

**Tel Aviv, Israel. Nov. 10 - 11, 2015**

<http://www.worldcleancoal.org/kr/index.asp>



## About NewCO2Fuels

In July 2015, 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 now due by October 2015. The investment is subject to partial claw-back by NCF should less than USD\$3m be ultimately invested by Greenearth.

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 CO<sub>2</sub> emissions to fuel.

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 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](http://www.youtube.com/watch?v=vH-YZdqB_SE)

**NewCO2 Fuels Website:**

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





## 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 prolonged discussions with the Victorian Government continue, specifically with the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). These ongoing discussions relate to Greenearth submitting requests for the consolidation, suspension and extension for our current exploration permits as follows:

- **Geothermal Exploration Permit 10;**  
Located in the greater Geelong / Anglesea region;
- **Geothermal Exploration Permit 12;**  
Located in the Latrobe Valley region;
- **Geothermal Exploration Permit 13;**  
Located in the Latrobe Valley region;

## ***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 1,343 shareholders, with an issued capital structure of:

Total Listed Ordinary Shares	246,975,003
Total Unlisted Options	27,850,000



Samuel Marks  
Managing Director  
Greenearth Energy Limited  
**30 July 2015**

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



# Corporate Directory

## 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

## 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)

Website: [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