



# NewCO<sub>2</sub>Fuels

## Turning CO<sub>2</sub> from Liability into Opportunity

November 2015



**Australian Government**  
**Bureau of Resources  
and Energy Economics**

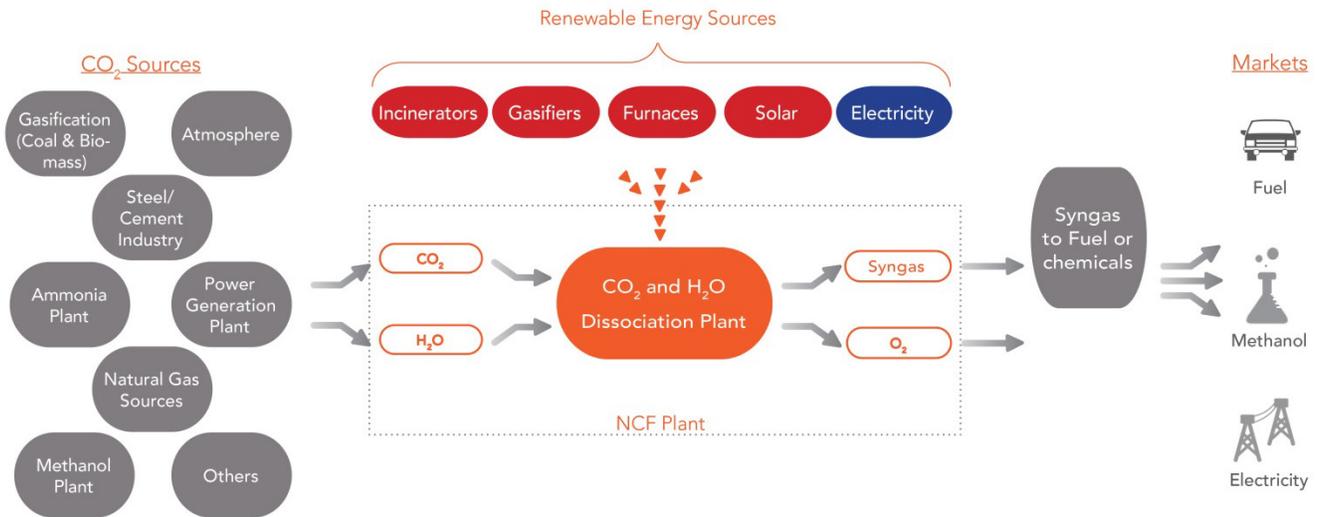


## Producing Fuel/Chemicals from CO<sub>2</sub> Using Renewable Energy Sources

NewCO<sub>2</sub>Fuels' (NCF) revolutionary product provides a solution to today's climate change by directly addressing its main cause, namely CO<sub>2</sub> emissions.

NCF's innovative product enables large industrial plants to comply with environmental constraints and regulatory objectives and reduce their CO<sub>2</sub> emission by providing them with an efficient, revenue generating and clean solution to convert these emissions into valuable fuels and chemicals.

The system uses renewable electricity or recovered high temperature heat from industrial plants to drive its process, hence creating a 100% self-sufficient, revenues bearing and environmental friendly system.

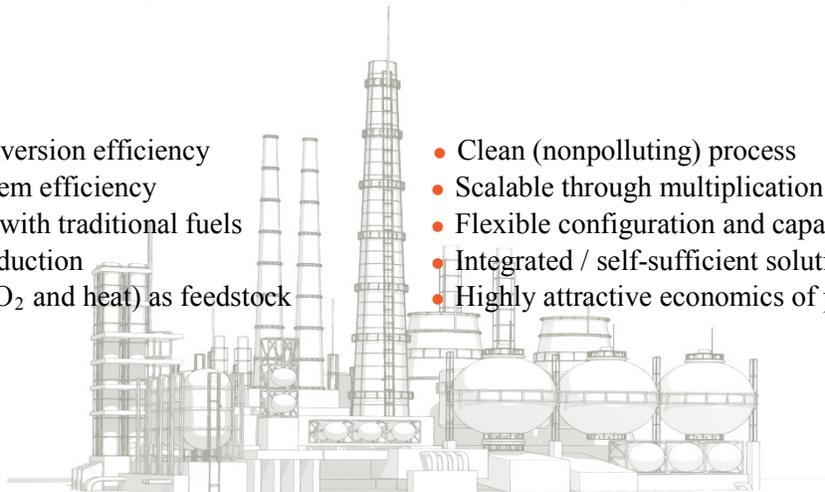


## Attractive Profitable Solution to a Sizable Market

NCF's product provides an incentives-free profitable solution. Energy intensive industries, such as the steel, gasification and glass industries, can transform their CO<sub>2</sub> waste streams into feedstock and their surplus heat into a valuable energy source, to produce valuable fuel and chemicals and generate additional revenues.

## NCF Uniqueness

- ~90% process conversion efficiency
- ~40% overall system efficiency
- Price competitive with traditional fuels
- Synthetic fuel production
- Waste streams (CO<sub>2</sub> and heat) as feedstock
- Clean (nonpolluting) process
- Scalable through multiplication
- Flexible configuration and capacity
- Integrated / self-sufficient solution
- Highly attractive economics of product and company





## **Technology Demonstration**

NCF successfully completed prototype testing of the system for high-temperature dissociation of carbon dioxide (CO<sub>2</sub>) into carbon monoxide (CO) and oxygen during 2014.

The technology and product are based on innovative concepts originally developed at the Weizmann Institute of Science in Israel with continued development of technology and know-how by NCF's multidisciplinary team of engineers and scientists. The technology is protected by 6 patent applications, of which two have already been granted in several countries around the world.

## **Partners**

NCF has a signed MOU with one of the world's largest steel making companies together with an international engineering firm to set up a pilot in Europe to demonstrate NCF's system integration with the steel industry.

A second collaboration is established with a Europe-based global conglomerate to partner on product development for the integration of the NCF product in the gasification industry.

NCF is collaborating closely with the Weizmann Institute of Science in Israel to further research and develop the next generation of the core technology.

Discussions and evaluations are conducted with additional potential partners; engineering companies, product suppliers and customers towards collaboration and equipment integration.

## **Recognition and External Review**

NCF received the World Technology Network Awards under the Corporate Energy category.

The Australian Government has selected NCF technology as one of 18 sources for future fuels in a study conducted by the Australian Government's Bureau of Resources and Energy Economics (BREE). The study is concluded in an Australian Liquid Fuel Technology Assessment (ALFTA) report.

Worley Parsons and Technip, global leaders in project management, engineering and construction for the energy industry, performed two independent technological evaluation of NCF during Q3 2013 and Q3 2014. Both reports clearly confirm the viability of the technology and recognize the competence and capability of the NCF team to carry out the commercialization of the product.

## **Funding**

NCF has raised US\$12M since its inception in 2011 from two Australian Companies, the Erdi Group and Greenerth Energy Ltd. The company seeks further funding of US\$10M to accomplish its next level of product development, which will then be followed by another round of ~US\$6M.

NCF has been awarded by grants from the U.S. department of Energy (DOE) in collaboration with Alstom Power as well as grants from the Israeli Ministry of Energy and the Israeli Ministry of Economy and the BIRD foundation.



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

NewCO<sub>2</sub>Fuels Ltd., founded in 2011 is developing and commercializing an innovative system to profitably produce fuels from waste CO<sub>2</sub> and water. The product uses high temperature heat from solar or recovered waste heat from industry as well as electricity from renewable sources. The system is based on a technology developed at the Weizmann Institute of Science and exclusively licensed to NCF.

NewCO<sub>2</sub>Fuels is managed by experienced executives in the high technology and Clean Tech industries and employs talented engineers working in collaboration with Professor Karni's team from the Weizmann Institute.

## **ErdiFuels**

ErdiFuels is a subsidiary of Erdi Group of Melbourne, Australia.

The Erdi group owns and operates 8 hotels in Australia and several other successful businesses. Founded by Eva & Les Erdi, the group is also very active in supporting a number of community and goodwill projects.

For more information please visit: [www.erdigroup.com.au](http://www.erdigroup.com.au).

## **Greenearth Energy**

Greenearth Energy Limited (ASX:GER) is a diversified Australian-based renewable energy company with interests in technology-focused solutions in the industrial energy efficiency and CO<sub>2</sub>-to-fuel conversion markets.

For more information please visit: [www.greenearthenergy.com.au](http://www.greenearthenergy.com.au)

## **Weizmann Institute of Science**

The Weizmann Institute of Science, in Rehovot, Israel, from which NewCO<sub>2</sub>Fuels licensed the technology, is one of the world's leading multidisciplinary research institutions. Hundreds of scientists, laboratory technicians and research students working on its lushly landscaped campus embark daily on fascinating journeys into the unknown, seeking to improve our understanding of nature and our place within it.

For more information please visit: [www.weizmann.ac.il](http://www.weizmann.ac.il)

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