

## INQUIRY INTO DEVELOPMENT OF A HYDROGEN INDUSTRY IN NEW SOUTH WALES

**Organisation:** Globo Hydrogen Power Australia Pty Ltd TA Hydrogen2Power  
**Date Received:** 26 February 2021

---

**Hydrogen Hybrid Engine Upgrade**  
**of**  
**NSW Heavy Vehicle Transportation Vehicles**

**Introduction...**

Hydrogen2Power (H2P) is the exclusive Australian distributor for the Globo Hydro Power™ technology.

With a \$15,000,000 injection from government funding 2,500 heavy vehicles could be upgraded through the **Globo Hydro Power™ Heavy Vehicle Upgrade Project.**

What does this mean for NSW over a 5 year period?

- **\$127,927,000 injection back into the economy from operators**
- **Saving of 561,500 tonnes of CO2**
- **Generation of 1,250 work days**

In NSW there is approximately > 179,000 registered older styled buses and trucks. With this volume of older styled engines in operation a technology that upgrades existing / in-use engines to a hydrogen hybrid is essential.

**The Globo Hydro Power™ Technology...**

Our technology is an Australian innovation with patent protection globally.

The technology permits hydrogen gas to be added into the air / fuel mix pre-combustion at a stoichiometric volume relevant to engine type, size, and capacity. The stoichiometric calculation is the patented IP and essential to enhancement of an engine's efficiency and avoidance of engine embrittlement.

It is a commercial product is a mechanical kit added to existing / in-use engines that involves no design change or functional change to an engine.

The hydrogen power technology installation kits, are Australian Standards Association (ASA) and the International Organisation for Standards (ISO) compliant. This has ensured not only the products are of the highest quality, but has the necessary systems to maintain this standard. Our gas parts are additionally safety-certified by (BAM) (Bundesanstalt für Materialforschung und -prüfung) who are a senior scientific and technical Federal institute with responsibility to the Federal Ministry for Economic Affairs and Energy in Germany. Globo Hydrogen Power™ is fully insured with Lloyds of London for additional peace of mind.

## Hydrogen2Power (H2P)...

H2P's plan for the technology is to rollout 2,500 engine upgrades in NSW over a 1 year plan. The 1<sup>st</sup> product installations will be focused on the heaviest polluters, engines of Euro 2 and below and moving onto Euro 3 classification.

H2P as a product distributor identifies the Euro 2 and below customer market to be primarily owner / operator contractors within the heavy transport industry. As such this customer market requires incentives to implement emissions abatement and our technology is the opportunity.

The technology achieves fuel \$ savings as well as emissions reduction and H2P as the product distributor of the technology plans customer uptake to be via product 'giveaway' conditional against on-going hydrogen gas purchasing over 5 years. The 'giveaway' model has been requested and project partnered by the United Nations Energy and Environment Division to meet emission reduction targets to improve the environment for all humanity!

## Program Aims...

It is aimed to rollout 2,500 installs in a 12 month period. These installs will be targeted at the heaviest polluters using diesel engines that are Euro 2 compliant or older. This includes vehicles that are older than 2002.

In discussions with current potential clients, a model of vehicle use including type of transportation, number of km travelled per year and fuel consumption has become apparent. Modelling based on the following table forms the basis of the target vehicles.

Number of Vehicles to be installed	Type of Vehicles	Number of km travelled per year	Fuel Use in litres per 100km
100	Euro 2 Busses – Metropolitan	50 000	46
600	Euro 2 trucks Metropolitan	75 000	35
1000	Euro 2 Trucks Inter Regional	100 000	35
800	Euro 2 Trucks Interstate	200 000	45

### Model for roll out...

Essentially our model is based on the United Nations request to encourage early take up of the product and give away the first 2,500 kits and installations to the heavy polluters!

Installation costs per vehicle \$6000 +GST

Request from Government Funding...

2,500 vehicles x \$6000 = \$15,000,000 to install to target market in a 12 month period.

The structure and type of funding is to be investigated and discussions held so mutually and beneficial outcomes can be achieved for all parties.

### NSW Government CO2 Emission Reduction...

Based on Australian Government modelling on emissions generated per litre of diesel used, the use of this technology would see a **reduction in CO2 emissions in 1 year of 112,300 tonnes** and over 5 years **561,500 tonnes in CO2 savings**.

Number of Vehicles to be installed	Type of Vehicles	Number of km travelled per year	CO2 reduction in tonnes in 1 year	CO2 reduction in tonnes in 5 years
100	Euro 2 Busses – Metropolitan	50 000	2 100	10 500
600	Euro 2 trucks Metropolitan	75 000	14 400	72 000
1000	Euro 2 Trucks Inter Regional	100 000	31 000	155 000
800	Euro 2 Trucks Interstate	200 000	64 800	324 000
		<b>Total savings CO2</b>	<b>112 300</b>	<b>561 500</b>

### Financial Stimulus to the economy...

Savings to vehicle operators translate to cash flow available to be injected back into the economy. It also increases the margin for maintaining viability in the transport industry for some smaller operators especially since margins are being squeezed by multinational businesses.

Number of Vehicles to be installed	Type of Vehicles	Number of km travelled per year	Fuel Savings @\$1.12 per litre of diesel per year per vehicle	Fuel Savings @\$1.12 per litre of diesel per year	Fuel Savings at \$1.50
100	Euro 2 Busses Metropolitan	50 000	\$4 706	\$470 600	\$759 000
600	Euro 2 trucks Metropolitan	75 000	\$5 371	\$3 222 600	\$5 197 200
1000	Euro 2 Trucks Inter-Regional	100 000	\$7 161	\$7 161 000	\$11 500 000
800	Euro 2 Trucks Interstate	200 000	\$18 414	\$14 731 200	\$15 058 400
		Total saving in fuel costs		<b>\$25 585 400</b>	<b>\$32 514 600</b>

It is important to note that due to Covid there has been a downward pressure on diesel prices. It is likely that diesel costs will return to pre Covid levels of \$1.50 in the foreseeable future. Savings at \$1.50 per litre have been included.

Extrapolating this data over 5 years there would be an increase of **\$127,927,000** available for operators to return to the economy.

### Job creation...

Work days created in this program

Installation of the Hybrid Hydrogen System in a Euro 2 or older vehicle takes approximately 4 hours for 2 worker. These 2,500 units would generate **1,250 work days** with income of approx. \$600 per vehicle.

This is income of **\$ 1,500,000 in a 12 month period.**

The model is being negotiated with the Australian Institute of Mechanical Engineers (IAME) for a trained gas mechanics and apprentices to be used. This will see possible job creation in the youth sector and for many unskilled workers.

The project will also increase additional work for the mechanics as the customers would be informed of other work or services that were needed on their vehicles at the point of installation.

### **Benefits for NSW Government...**

The NSW Government is advancing the hydrogen industry and our technology uptake is proposed as part of Government planning.

The NSW Government is requested to financially sponsor 2,500 older engine upgrades to benefit:

- Activity within the hydrogen industry and commencement of consumer acceptance of hydrogen technologies.
- Commencement of new hydrogen industry related training – Upskilling of engine mechanics.
- Directly, create 1,250 working days for product installation teams that incorporate unemployed or business downsized LPG technicians; unemployed and under skilled mechanical assistants of whom can be indigenous, women or persons over 50 years of age.
- Indirectly, business growth and creation of new jobs within hydrogen manufacturing companies and associated delivery companies as GHP™ hydrogen is Australian manufactured.
- Indirectly, business growth and creation of new Jobs within mechanical componentry companies as GHP™ kits are Australian manufactured.
- Stimulus of the economy through users of the technology attaining fuel \$ savings resulting surplus cash flow.
- Immediate and reportable reductions in emissions as well as national and global recognition for NSW government in reductions of carbon and NOx emissions following product installations.
- Effective immediately would result in the upgrading of NSW transportation fleet.
- Creation of jobs for the indigenous to become cylinder technicians and also by installing the product onto the generators in remote regions that will result in savings on both diesel and emissions.

## **United Nations...**

The United Nations Energy and Environment Division has project partnered with our technology pre Covid with demonstrations held in many countries. Due to Covid the rollout in China and other countries has been postponed.

There is an opportunity now for NSW (Australia) to take the lead in this technological rollout on a global scale. This could also increase revenue as we have the capacity to export the technology to the world!

## **Summary...**

This new technology is a transitional link between fossil fueled engines and hydrogen fuel cell engines.

It is a government opportunity to progress their environmental plan via emissions abatement from the >\$127,000 older styled heavy transport vehicles in operation in NSW to inject \$127,927,000 back into the economy by the operators, save 561,500 tonnes of CO2 therefore reduce the NSW's carbon footprint and generate approximately 1,250 work days.

The Globo Hydro Power™ technology is in market-ready format awaiting government support.

### **Special Notations**

H2P the Australian Product Distributor for the Globo Hydro Power™ Technology are seeking NSW Government financial support for User Take-Up of the Technology.

Commercial Terms to be negotiated and may be inclusive of Carbon Credit Ownership