Submission No 33

INQUIRY INTO DEVELOPMENT OF A HYDROGEN INDUSTRY IN NEW SOUTH WALES

Organisation: Institute of Automotive Mechanical Engineers

Date Received: 26 February 2021

INSTITUTE OF AUTOMOTIVE MECHANICAL ENGINEERS (INC).
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26th February 2021

Parliament of New South Wales
Legislative Council
6 Macquarie Street
SYDNEY NSW 2000

Attention: Standing Committee on State Development

Subject: Development of a Hydrogen Industry in New South Wales

Introduction:
The Institute of Automotive Mechanical Engineers (IAME) has formed a business joint venture with the company "Globo Hydro Power Limited" and the Sydney-based Indigenous business entrepreneur, Paul Newman, known for the first national online indigenous business and community enterprise directory, "Black Pages".

Each business joint venture participant will be contributing to specified requirements around the GHPL product compliance, standards and quality assurance processes that need to be established; provision of nationally accredited new Hydrogen Industry Skills training and capacity building for NSW automotive businesses; and pathways to vocational training and employment opportunities in the new emerging NSW Hydrogen Industry economy of the future.

Globo Hydro Power Limited:
As the inventor and owner of the patented commercialised GHPL emissions reduction technology product, GHPLL has responsibility for all relevant government and industry compliance and regulations, GHPL product insurance; GHPL product hydrogen gas supply; and GHPL product installation skills training standards for licenced motor mechanics, Trades Assistant GHPL Product Installers; and GHPL Product, Inspector roles to oversee GHPL technology product quality assurance.

Black Pages:
A Sydney based specialised and experienced Indigenous owned vocational training and employment provider since 1999, Black Pages will facilitate the creation of new Hydrogen Industry Jobs in NSW, through development of associated workplace vocational training and employment opportunities.

This will include targeting marginalised or disadvantaged job seekers for available vocational training and employment opportunities in the new emerging hydrogen economy in NSW.

Institute of Automotive Mechanical Engineers (IAME):
The IAME is the premier organisation for automotive practitioners in Australia and New Zealand, first established 1932 and Incorporated in 1936 to create a joint network of communication and training for all people, in all aspects of the Automotive Industry.

The IAME is governed by a National Council who serve on various industry bodies and committees, the Institute of Automotive Mechanical Engineers remains relevant, dedicated and passionate towards their members and the Automotive industry.

Our dedicated staff hale from a variety of different backgrounds, helping bring diversity and knowledge to the organisation.

Holding branches located throughout Australia, we are on hand to support, assist and recognise all IAME members day in and day out. The IAME achieve this by providing Industry Training, Trade Nights, Local Information Sessions and Seminars, as well as Auditing, Assessing and Consulting Services.

Members also benefit from industry updates, events and technical advice via our website and Facebook page including an 'IAME Members Forum'.
https://www.iame.com.au/
https://www.facebook.com/iame.online/

The IAME also offers Business Services Membership and Mentoring where we provide dedicated guidance, training and mentoring of individual members to enhance their business operating, policies, procedures, processes, profitability and human resources etc.

The IAME is dedicated to assisting the automotive industry in recruiting, retaining, progressing and recognising and supporting gender equality. We earnestly seek new industry leaders and actively engage to ensure underpinning knowledge and history is not lost on the leaders of tomorrow.

One of the most crucial challenges facing the automotive industry is the inclusiveness of the workforce. It has long been a male dominated sector, but to be sustainable and reach its full potential in the future, it is essential the industry becomes more diverse and embrace all workers.

Ultimately, an inclusive and diverse automotive workforce is one that will be responsive and able to withstand other industry challenges in the future. Some of these changes are here today as for the first time in history, technology is outpacing education, our new workforce will have to be more computer literate and have a high understanding of diagnostics that ever before. Future power plants, fuels and autonomous drive will test some of smartest students entering the automotive workforce.

Training Plan:
The IAME with its in-house, Registered Training Organization (RTO), automotive business, technical expertise and excellent resources is the clear choice when considering the appointment of a Hydrogen Preferred RTO. Our industry is at a very infant stage but the IAME has been following the cause of hydrogen enrichment since the very first concept days and we will continue to seek knowledge and standards from around the globe so that Australia is not only relevant by a driving force when it comes to hydrogen enrichment.

RTO Code: 90409
Legal name: Institute of Automotive Mechanical Engineers Inc
Business name(s): Institute of Automotive Mechanical Engineers Inc
Status: Current
ABN: 57 000 033 992
ACN: 000 033 992
RTO type: Industry Association
https://training.gov.au/Organisation/Details/90409

The IAME together with our business joint venture participants, 'Globo Hydro Power Limited' and the Sydney based Indigenous business, 'Black Pages' will work with both the hydrogen industry manufacturers and the automotive industry resellers and installers to develop a training plan that meets the objectives of both NSW and the National Hydrogen Strategy.

The IAME has the RTO experience and expertise, relevant industry contacts and technical resources to develop a clear and effective training plan including the rollout, implementation and continuous improvement.

The IAME can develop and deliver accredited GHPL kit installation training for licenced Motor Mechanics; and the new Hydrogen Gas, Trades Assistant Installers positions (where state licensing awards allow) and the new Inspector roles for the GHPL hydrogen gas product kit. With the available hydrogen gas installation training capacity available, it will also support GHPL sales going forward, along with provision of associated industry and community education events on advancing the emerging new Hydrogen Economy in NSW.

To support this, the IAME will target automotive industry business members in key urban, regional and rural/remote areas across NSW, regarding the delivery of training and the placement of job seekers into available industry jobs across the Automotive, Heavy Vehicle Transport, Agricultural, Mining & Construction Industries in particular. The range of jobs will include:

- Automotive Mechanics, with an added GHPL Hydrogen Gas installation certification qualification; and new hydrogen industry jobs and employment in new roles of:
- Mechanical Trades Assistant (where state licensing awards allow), GHPL Installation; and
- Product Inspector GHPL Compliance roles.

International or CRICOS Students:
It should be noted that a key component of the training program especially for candidates / students that participate from certain underprivileged parts of the world or local lower socioeconomic groups is that they will not only receive the technical parts of the training, they will also receive training on how to set up and run a successful and sustainable small business.

The proposed small business training will include interacting with customers and complying with the relevant industry standards etc.

Not only assisting candidates / students in their ability to install hydrogen systems into vehicles and onto existing engines, the candidates / students will subsequently return to their homes and workplaces with new skills that will be benefit them, their families, their businesses and the wider community.

The hydrogen training will ultimately benefit not only people and communities, but also provide an alternative source of fuel for transport, Earthmoving, Agriculture, Rail, Marine, Electricity Generation, Industrial & Mining; reducing the strain on the world's increasingly scarce resources and minimising our reliance on fossil fuels.

Hydrogen Industry Centre of Excellence:
The IAME together with our business joint venture participant 'Globo Hydro Power Limited' and the Sydney based Indigenous business, 'Black Pages' will work with the hydrogen industry and key technology stakeholders to set up a Hydrogen Industry Centre of Excellence where industry training can be conducted both face-to-face and via an online Learning Management System.

We plan to enroll candidates / students locally and from all over the world to participate in the proposed innovative hydrogen industry training program.

The candidates / students will be able to participate in the relevant theory training and also have access to the proposed high-tech workshops to participate in practical training including the installation of hydrogen systems into vehicles and onto engines of varying sizes.

Aside from being the *Hydrogen Industry Centre of Excellence*, the proposed facility will also be a home for the Hydrogen Industry in Australia and we plan to invite key stakeholders to base their management offices including possibly their design and engineering facilities on site.

These key stakeholders will, in turn, interact with and promote the hydrogen industry both in Australia and globally.

The *Hydrogen Industry Centre of Excellence* initiative will directly and indirectly create a number of local jobs and also bring a significant number of visitors to the state of NSW and Australia, promoting our local technology and intellectual talents.

It is estimated that over the next 3 years, as sales increase of the GHPL emissions reduction technology product, and formal accredited GHPL hydrogen gas training programs are delivered across NSW through the IAME, there could potentially be an additional 500 to 1000 or more direct and indirect new jobs created in NSW in the new hydrogen economy, as a result of the commercialisation of the GHPL product into the NSW economy.

The availability of significant numbers of new jobs and associated employment opportunities related to the GHPL product roll-out into the marketplace, will also provide an opportunity for targeting employment opportunities for a range of jobseekers, including for people with a Disability, Women in Trades, Indigenous Jobseekers, and Mature Age Women & Men over 50 years of age.

NSW has a significant number of Mature Age Men & Women with comprehensive industry skills and knowledge, that would be quite suitable for Trades Assistant (where state licensing awards allow), GHPL Installation jobs, and the new Inspector GHPL Compliance roles. Nationally, these new jobs creation figures could reach up to 5,000 or more new positions in the emerging national hydrogen economy as a result of the Australian invented GHPL product.

The *Hydrogen Industry Centre of Excellen*ce will be a key player in the rapidly developing field of automotive technology, and will be involved in new research and application of improved fuels, engines and automotive technology.

The automotive industry is going through a period of rapid change and in the coming 5 to 10 years you will see a paradigm shift in the technology available in motor vehicles, other vehicles and related engines. Not only with various types of fuel sources but technology integration and the introduction of autonomous vehicles.

Training Budget:
Hydrogen Industry Centre of Excellence Proposed Features:

- The Headquarters for the IAME who are the *Hydrogen Preferred RTO*
- Offices for Hydrogen Industry Stakeholders
- Conference and meeting rooms
- Kitchen, lunchroom and BBQ area
- Laboratories including engine & chassis dynamometer testing facilities
- Training rooms and interactive online training studios
- Workshop mechanical fitting and repair bays fitted out with comprehensive equipment and tools, for example, light & heavy vehicle hoists, hand & power tool kits and diagnostic scan tools etc.

The Training Budget below is an estimate at this initial stage.
Once we are provided with more details than simply the *'Terms of Reference'* we will be able to provide an updated Training Budget.

Expense Categories:	Initial Estimate:
Administration Expenses:	$225,000
Staffing Expenses – Project Manager:	$180,000
Staffing Expenses – Project Support:	$110,000
Staffing Expenses – Other:	$120,000
Operating Expenses:	$150,000
Equipment Expenses:	$450,000
Material & Supplies Expenses:	$50,000
Catering Expenses:	$70,000
Hire of Facilities per annum:	$640,000
Joint Venture Costs:	$70,000
Travel Associated Expenses:	$80,000
Total Budget:	$2,145,000.00

Conclusion:
Transport is a key target market in the development of the hydrogen industry especially if there is a zero emissions target with the applicability of hydrogen to all forms of transport. The sector is a significant source of greenhouse gas emissions in Australia and these emissions have been steadily rising as population growth increases the number of cars, motorcycles, buses and trucks on our roads and highways. The Australian transport fuel supply chain is heavily reliant on overseas suppliers as it imports the vast majority of its liquid petrol and diesel fuel.

The development of the hydrogen industry in the state of NSW would be an exciting project to be part of and the proposed *Hydrogen Industry Centre of Excellence* is a key initiative for the state of NSW to be the leader in the roll out and implementation of hydrogen fuel across Australia.

Hydrogen as a fuel can enhance and assist many earlier diesel fuelled engines whilst it can also fuel engines on its own. This fuel can be a supplementary power source for electric hybrid vehicles. It is also environmentally friendly when used in conjunction with earlier diesel fuelled engines by reducing their fuel consumption and reducing visible emissions. In turn a more comprehensively burning diesel engine can extend the life by not allowing such high contamination when running and high load and low RPN.

We would be happy to meet with representatives of the *Standing Committee on State Development* to provide them with an overview of the Training Plan and answer any questions.

If you require clarification and/or additional details please don't hesitate to contact us.

Contact details including our business joint venture participants:

Institute of Automotive Mechanical Engineers (IAME)
Chief Executive Officer
Peter Blanshard

Black Pages
Managing Director
Paul Newman

Globo Hydro Power Ltd
Managing Director
Elaine Johns

References Australia:

Australia's National Hydrogen Strategy:
https://www.industry.gov.au/sites/default/files/2019-11/australias-national-hydrogen-strategy.pdf

National Hydrogen Roadmap:
https://www.csiro.au/~/media/Do-Business/Files/Futures/18-00314_EN_NationalHydrogenRoadmap_WEB_180823.pdf

Embracing Clean Hydrogen for Australia:
https://www.pwc.com.au/infrastructure/embracing-clean-hydrogen-for-australia-270320.pdf

Hydrogen for Transport Prospective Australian Use Cases:
http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/nhs-hydrogen-for-transport-report-2019.pdf

Hydrogen Buses for Victoria's Transport:
https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/2415/8822/1307/183989_Development_of_Hydrogen_Buses_for_Victoria_Transport.pdf

South Australia's Hydrogen Action Plan:
http://www.renewablessa.sa.gov.au/content/uploads/2019/09/south-australias-hydrogen-action-plan.pdf

References Overseas:

Training Technicians in the Field of Hydrogen & Fuel Cells:
https://www.fch.europa.eu/sites/default/files/S5_P6_Pres5_ARAVIND_KNOWHY.pdf

Hydrogen Fuel Cell Vehicle Study:
https://www.aps.org/policy/reports/occasional/upload/fuelcell.pdf

Fuelling the Future of Mobility Hydrogen and Fuel Cell Solutions for Transportation:
https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/finance/deloitte-cn-fueling-the-future-of-mobility-en-200101.pdf

Path to Hydrogen Competitiveness:
https://hydrogencouncil.com/wp-content/uploads/2020/01/Path-to-Hydrogen-Competitiveness_Full-Study-1.pdf