

MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA

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ATTENTION: Chiefs of Staff, News Directors



Just a spoon full of diesel...

WORLD'S FIRST DIESEL-HYDROGEN ENGINE

In a breakthrough for renewable energy research, UTAS engineers have created a way for diesel engines to have hydrogen running through their veins.

The Hydrogen and Allied Renewable Technology research group, based at the University of Tasmania's School of Engineering, has discovered that running a compression engine with a combination of diesel and hydrogen increases power output, drastically cuts emissions and massively reduces diesel consumption.

The discovery, at the specially-designed Hydrogen Laboratory the building of which was sponsored by Hydro Tasmania, has the potential to be used for both domestic and commercial purposes.

Associate Professor Vishy Karri, of the Intelligent Car Program at UTAS, said the prototype was a gigantic step forward towards a hydrogen economy.

"This research positions Tasmania in a prominent place in the research community. Hopefully we can ultimately establish Tasmania as a centre for Hydrogen energy research," he said.

Dr Karri said that adding just a just a "spoon full" of diesel and running the generator with hydrogen resulted in a 20 per cent increase in power output.

"We can reduce diesel consumption by 80 per cent without any loss of power. In fact, there is such an *increase* in power output that it is usually only restricted by the generator itself!"

"The mixing of both hydrogen and diesel in the same combustion chamber is a revolutionary world-first. Other conversion kits on the market are designed to be 'all or nothing' – either 100 per cent diesel or 100 per cent hydrogen. There is nothing available for diesel engines that is specifically for diesel-hydrogen gas mixtures."

Dr Karri said one of the most exciting aspects of the system is that it is retro-fittable.

"Instead of creating a whole new engine we have designed a conversion procedure that can be fitted to any existing diesel infrastructure.

"The system will give any diesel engine the ability to generate 20 per cent more power, and can also reduce ongoing diesel consumption by up to 80 per cent. This is particularly relevant when there is a shortage of other renewable energy and fossil fuel sources in the world," Dr Karri said.

An innovative Mechatronic Controlled Injection Unit, developed by the UTAS team, controls the flow of hydrogen into the engine.

Research scholar and program leader Dr Hafez A Hafez said the diesel-hydrogen conversion kit would not just help the environment by reducing diesel use.

"It will also have a huge environmental influence by reducing exhaust gas emissions. The modular aspect of this system means that remote areas with a large established diesel infrastructure will be able to conform to current and future emissions regulations," said Dr Hafez.

CEO of Hydro Tasmania, Mr Geoff Willis, said that Hydro Tasmania was delighted to be supporting such ground-breaking work in the area of renewable energy.

“Hydro Tasmania already plays a leading role in the sustainable development and operation of renewable energy domestically and internationally and we see this program considerably enhancing our commitment.”

“We are proud to be associated with this important program which has the potential to fast-track the practical application of hydrogen technology.

“Hydrogen when paired with wind energy has potential to act as a storage medium and therefore significantly extend the value of wind energy developments.

“Its application in remote area power supplies will directly benefit the sustainability of these communities by reducing harmful greenhouse gas emissions and their reliance on importing fossil fuels.

“One of our key values is our commitment to creating a sustainable future, and we believe a part of this future will be developing hydrogen as a viable renewable energy alternative.”

Hydro Tasmania has contributed \$350,000 to the university’s hydrogen program, through funding equipment for the laboratory and sponsoring a research fellow for three years.

The engine was launched today by the Hon Lara Giddings, Tasmanian Minister for Economic Development, the Vice-Chancellor of the University of Tasmania Professor Daryl Le Grew, and the CEO of Hydro Tasmania, Mr Geoff Willis.

For more information/interviews:

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