

# evol/ving

## Introducing EVOL LNG

**Our growing LNG business has been given a new brand identity which marks a significant milestone and reflects our expansion, vision and progression with LNG as a viable and economic alternative to diesel.**

After consulting with our customers and staff, EVOL LNG was created for our LNG product.

LNG Manager, Brad Lowson said "that the EVOL LNG brand reflects our desire to be evolutionary in the market, and represents change, progress and movement."

"The new generation EVOL LNG refuellers are fully operational and EVOL LNG tankers are now on the road and transporting LNG around the country," said Brad.



## LNG now flowing from the 175 tpd LNG Facility.

LNG from the new 175 tonne per day plant commenced in September 2008 with the first delivery made to one of our foundation HDV customers, Sands Fridge Lines in Forrestfield soon thereafter. This marks a significant milestone for Kleenheat Gas and involved an enormous effort and collaboration across many business teams.

A persistent and tireless effort from the production team at Kwinana coupled with Kleenheat Gas' Projects team kept the usual commissioning issues to a minimum. Minor obstacles were successfully overcome, making it possible to sell our first load to the heavy duty vehicle market. In WA, over 120 vehicles operate on EVOL LNG and the number of vehicles is expected to climb as additional refuellers are commissioned.

## EVOL LNG welcomes Simon Humphries

**We're pleased to welcome Simon Humphries to the EVOL LNG team. After working at Isuzu for 10 years Simon joins us as LNG Business Manager, East Coast.**

Simon joined Isuzu Australia in 1998. His most recent role was Manager, Product Planning & Engineering Support and says that the highlight of his career was the research, development and introduction of the 2008 New Generation range of Isuzu trucks for the Australian market.



While at Isuzu, Simon actively pursued alternative fuel and low emission technologies for the Australian market. A Compressed Natural Gas (CNG) light duty truck was imported for evaluation in 2000 and was made commercially available in 2004. Simon led this project, including successful negotiations with the federal government to modify the Australian Design Rules so that it would recognise the emissions standard met by the CNG trucks. These trucks performed extremely well, with reliability and operator acceptance levels matching or exceeding the equivalent diesel variants.

Simon is passionate about reducing Australia's dependence on imported diesel as a transport fuel and is excited about introducing the benefits of LNG to his industry colleagues.

**Simon will be based at Kleenheat Gas' Niddrie office and can be contacted on (03) 9375 8854 or 0427554775.**



## LNG refuellers performing beyond expectations

**Following the commissioning of the new and fully automated LNG refueller at the Peak Truck Stop in Kewdale, Wesfarmers LNG (WLNG) has now established LNG refuellers at:**

- Sands Fridge Lines Forrestfield
- Mitchell Corp Kewdale
- Mitchell Corp Geraldton
- WLNG Kalgoorlie.

Work is in progress to expand the WA network of refuellers to include Picton, Mt Magnet and Newman. Options are also being explored for a refueller at Port Hedland. Fleet operators will be able to access LNG along most of the major heavy haulage routes within WA once this network is installed.

With the increase in supply of LNG now available, the EVOL LNG team is busy providing further training to new LNG drivers to ensure safe refuelling at all facilities. Feedback from drivers on refueller performance is very positive with refuelling faster than the equivalent high flow diesel dispensers.

## Mitchell Corp LNG program ramps up

Mitchell Corp has steadily ramped up their LNG program and now has the majority of its fleet converted to operate on LNG. Mitchell Corp is well placed to enjoy the financial and environmental benefits of operating on LNG.

While the financial return is driven by the comparative cost of diesel, Craig Watson, Director Assets and Maintenance Services of Mitchell Corp, expects to “reduce its greenhouse gas emissions by greater than 11,000 tonnes per annum, further adding to the savings potential once carbon trading is introduced.”

The majority of the fleet has been converted to operate on LNG using the Clean Air Power CAT C15 Dual Fuel LNG system with a small number of the new Euro4 compliant Westport Innovations HPDI-ISX systems. The next operational challenge is to increase LNG substitution and utilisation rates to targeted levels.



## LNG tankers

All 18 pocket road train tankers are fully operational and distributing LNG into the various HDV refuellers and enGen power station sites.

# Cootes trialling LNG

Cootes Transport Services is a well-presented, high profile fleet of trucks transporting predominantly liquid fuels, and is a division of International Energy Services (IES).

Cootes/IES began trialling an LNG powered Kenworth T404 SAR conventional prime mover with Clean Air Power C15 Dual Fuel engine, using LNG from the EVOL LNG multi fleet facility in Deer Park in September 2008. This vehicle continues to operate on LNG today.

The truck has a home base in Geelong, and is used to pull a single 54kl water capacity LPG trailer delivering product from Port Campbell to the Shepparton and Echuca areas of central Victoria. This vehicle travels about 1,000 kms per day and is double shifted, stopping at the EVOL LNG Deer Park refueller as part of its return leg.

Early indications are that the vehicle is performing very well.



## Power Stations operating successfully



LNG was delivered to sister company enGen's power stations at Darlot and Sunrise Dam in the northern goldfields of Western Australia in September 2008. The Darlot plant is fully operation with the Sunrise Dam site increasing its load to 100% in February 2009.

Five pocket road train combinations, managed by Kleenheat Gas' logistics team, will operate around the clock to service the requirements of the power stations.

## LNG Champion

At the International Association of Natural Gas Vehicles Convention held in Brazil in mid 2008, Peter Armstrong, EVOL LNG's Senior LNG Vehicle Coordinator was named the "LNG Champion" for the Asia Pacific Region.

Peter's passion for LNG and commitment to the development of the LNG industry in Australia led to his nomination for this prestigious award.

His commitment was most evident when he identified the need for additional under bonnet cooling when applying the Clean Air Power ("CAP") C15 system for Australia's harsh conditions. Peter developed a concept secondary air charge intercooler for the CAP C15 system. After demonstrating a significant improvement in engine performance and LNG substitution, the intercooler concept has been incorporated as part of the CAPs C15 LNG conversion system.

Peter has instigated many other fitment improvements for the C15 system and has developed training packages for driver and workshop employee.

Congratulations Peter.



## Murray Goulburn expanding its LNG fleet

Murray Goulburn Co-Operative (MGC) has added an additional 16 x CAP C12 Kenworth T401 powered trucks and one Kenworth T404 SAR Westport powered truck to its fleet based at Leongatha, Victoria, following excellent results with its LNG trucks to date.

MGC's original quota of 8 x Kenworth T404 SAR C15s at its Laverton Integrated logistics centre were supplemented after relocating the LNG refueller to the Leongatha facility where the milk collection vehicles could be included. This relocated vessel was recommissioned on 1 February 2008.

The refuellers at the MGC Koroit and Leongatha depots are exceeding expectations and larger refuellers may be required in the near future.

MGC is looking forward to additional refuellers being constructed in the future.

## Westport and Kenworth to produce LNG vehicles in Australia

**With increasing awareness and concerns associated with global warming, Westport Innovations and Kenworth have joined forces here in Australia.**

EVOL LNG is working with Kenworth and Westport at Kenworth's Bayswater facility to assist in bringing LNG powered Kenworth trucks into the Australian market. Below is an extract from the recent press release by Westport Innovations on this development.

"Westport Innovations Inc. and PACCAR Australia Pty Ltd. ("PACCAR"), announced today that the companies will develop and commercialise liquefied natural gas (LNG) Kenworth trucks for the Australian market. Australia's Kenworth Trucks, a division of PACCAR, plan to begin factory-installed production in mid-2009 beginning with the T908, K108 and T408SAR truck chassis and roll out across additional models into the future. The LNG trucks, featuring the Westport high pressure direct injection (HPDI) LNG engine and fuel system, will be produced at the Kenworth Bayswater plant outside Melbourne, Australia.

"With an abundant, low-cost, domestic natural gas supply, Australia makes an excellent market for Westport's high-performance heavy-duty LNG engine and fuel system," said Michael Gallagher, President and Chief Operating Officer of Westport. "Our demonstrated greenhouse gas reductions of 20-25% relative to diesel engines, 95% diesel substitution levels, and power output up to 580 horsepower



are clear advantages of Westport technology. PACCAR's leadership in providing factory-built LNG Kenworth trucks on two continents shows their commitment to the environment and the economic concerns of their customers."

### About Westport's ISX G and LNG System for Heavy Duty Trucks in Australia

Westport's engine and liquefied natural gas (LNG) fuel system for heavy-duty trucks allows trucking fleets to move to lower-cost, domestically available natural gas and/or biogas while offering significant greenhouse gas reductions compared with similar diesel engines. Based on the industry-leading Cummins ISX diesel engine with cooled EGR, Westport's direct-injection LNG version of the engine offers the same horsepower, torque, and efficiency as the base diesel engine it is replacing, with ratings in the Australian market of up to 1850 lb-ft torque and 580 peak horsepower.

The Westport LNG fuel system comprises LNG fuel tanks, proprietary Westport fuel injectors, cryogenic fuel pumps and associated electronic components to facilitate robust performance and reliable operation. The Westport engine is fuelled with vaporized LNG—a safe, cost effective, low carbon, and low emissions fuel. LNG fuel tanks can be configured to suit customer range requirements. The Westport LNG system for the Cummins ISX is certified to 2008 Australian Design Rules (ADR 80/02 and ADR 30/01).

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