

“The power of tomorrow”



How can we retain this view?

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- Reduce visual pollution
 - PM - local clear skies - Europe
- Reduce toxic pollution
 - NOx - human health - Delhi
- Reduce greenhouse gas
 - CO2 - global warming
- Reduce fuel costs
 - Dollars - the driving factor - Politics

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DieselGas: world leaders in engine management technology design and development of dual fuel systems for diesel engines.

A team of skilled diesel engine, fuel injection, combustion and electronics engineers use 25 years' experience to replace diesel fuel, with biogas or natural gas, in diesel engines

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Development project with Bosch Brazil

DieselGas

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Development with Caterpillar Inc USA

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DieselGas Technical Centre

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Video of technology

- Design
 - Mass production components
 - Dedicated components
- Operation
 - Electronic control of diesel, gas, air & diesel injection timing

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Features and benefits

- Performance like original diesel
 - fuel efficiency - power - torque - driveability
- Self tuning for varying gas compositions
- Self diagnostics, fault logging, analysis software
- Diesel substitution
 - On road driving cycle up to 80%
 - Maximum at full load 90%
- Emissions reductions
 - PM ~75%
 - CO2 >20%
- Fuel cost **savings of 50%** in Thailand
 - Conversion cost payback 6 to 8 months

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Landfuel
truck at
Redvale



Urban bus in Brazil

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400hp Detroit Series 60 Unit Injector electronic engine

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Dual Fuel Engines for
Generators

Dual Fuel engines for
Vehicle repowering



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Fuel price as guide to successful markets

Country	CNG or CBG price	Diesel/litre	CNG/CBG price as % of Diesel
Thailand	US\$ 0.29/m ³	US\$ 0.96	33%
Malaysia	RM 1.15/m ³	RM 2.58	50%
Bangladesh	Teka\$ 8.5/m ³	Teka\$ 38.5	22%
Korea	Won 680 /m ³	Won 1,950	35%
India	R 25/kg	R 36	55%
Singapore	S\$ 1/kg	S\$ 1.20	66%
Pakistan	R 35/kg	R 37	75%
NZ	? /m ³	NZ\$1.25	30 - 50%

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Economics in New Zealand market

- Biogas costs
 - Production/compression
 - CNG as alternative
- Politics
 - Policies - green waste, capital incentives
 - Taxes - fuel, waste
 - Long term certainty on pricing for investment
- Diesel replacement best option
 - Lower cost/unit of consumption
 - Less infrastructure
 - Dual fuel most efficient

Biogas “The power of tomorrow” today

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