

Renewable Methane Opportunities

10th October 2008

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CNG Services Ltd

- Owns the UK's highest capacity CNG filling station and is developing a number of innovative low carbon transport and electricity generation projects including:
 - Trialling home-fill CNG device with the VW Eco-fuel Caddy (CNG)
 - Cleaning bio-gas and injecting biomethane into the gas grid
 - Cleaning bio-gas and using it to fuel vehicles
 - Generation of electricity from gas pressure energy
 - Consultants in relation to LNG imports to UK



1 LNG tanker holds around 65,000 tonnes of gas.....
enough to fuel around 65,000 CNG Caddy's each doing
20,000 km per annum!

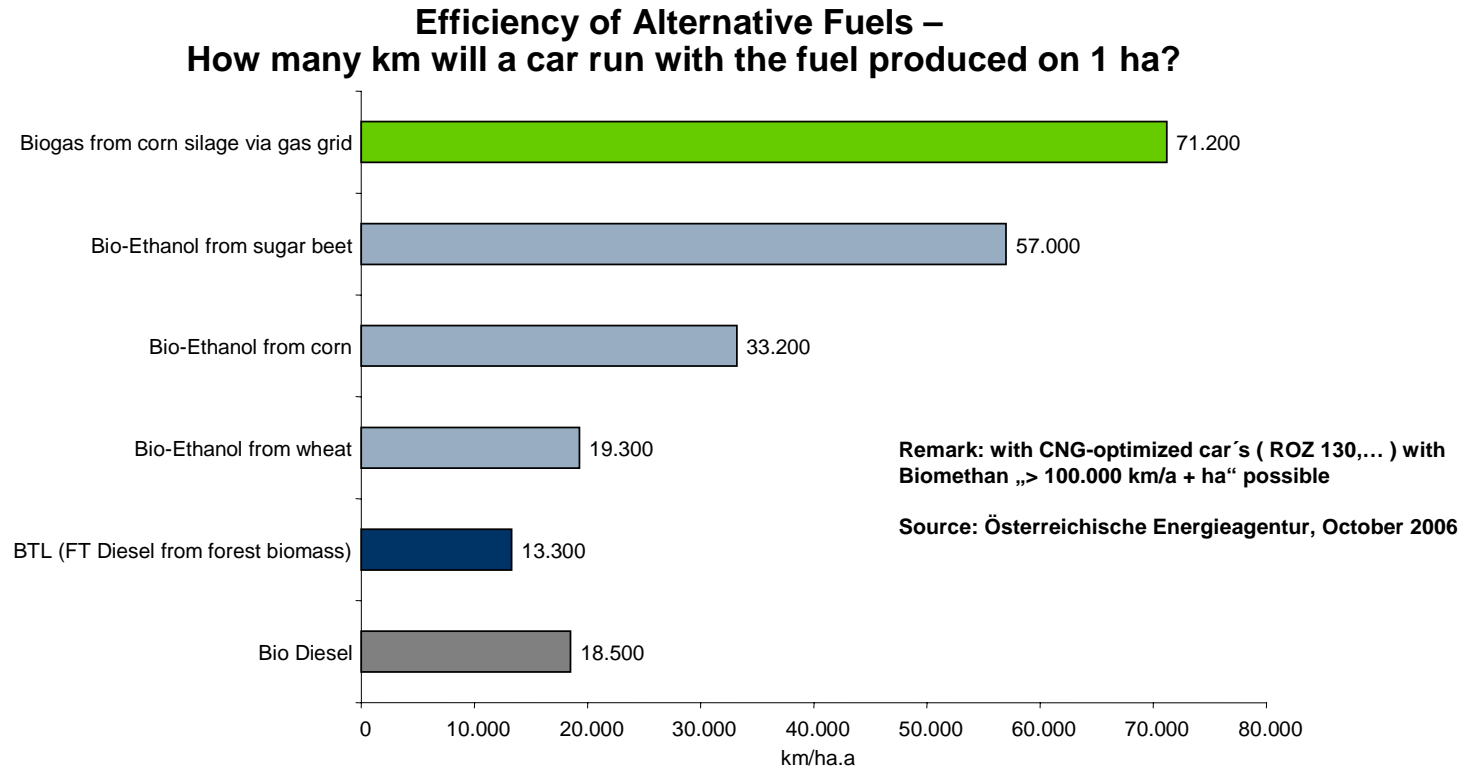
Summary of the presentation

- What is biomethane?
- How material can it be – compare to Morecambe
- Biomethane resource available in the UK and the way it is used today
- Use of biomethane – electricity/heat/vehicles
- Reminder that diesel CO2 emissions are rising
- Show what the VW and Opel engineers are doing “It’s the vehicles stupid”
- Biomethane production
- Biomethane utilisation vision

What is biomethane?

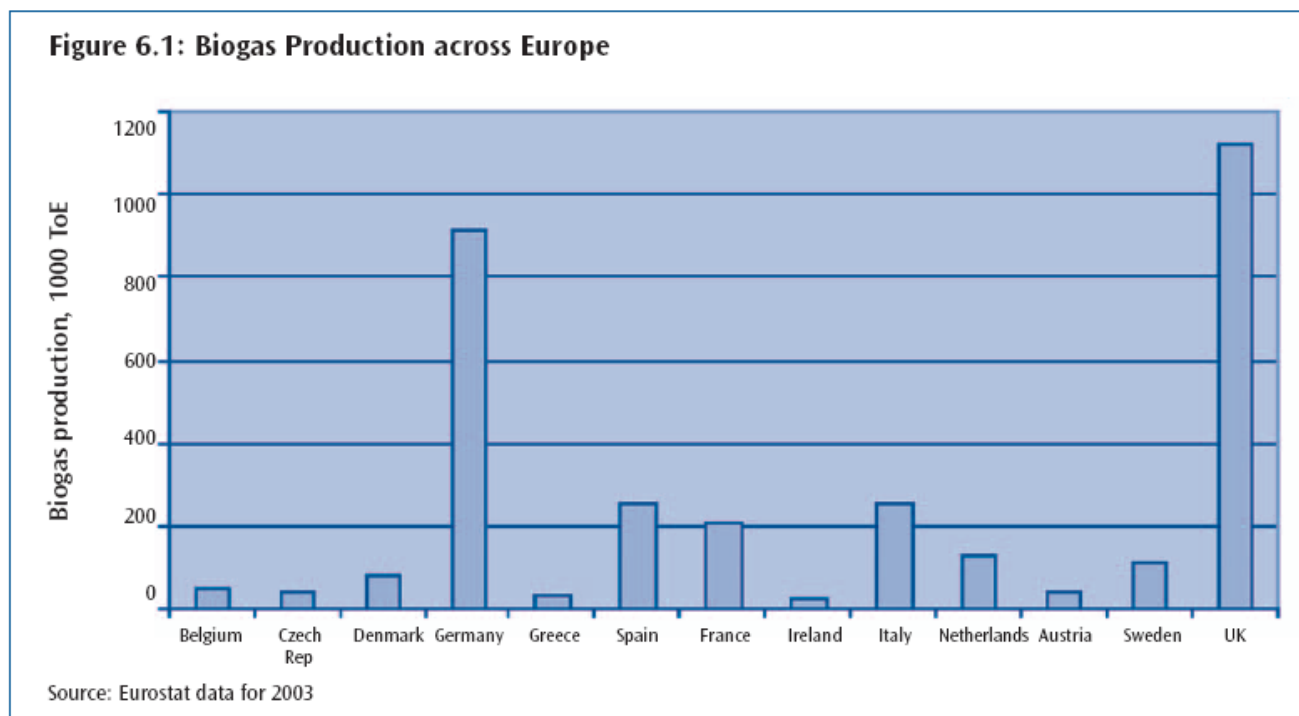
- Bio-gas contains typically 65% methane, 35% CO₂
 - Lager shandy
- Natural gas contains around 90% methane, with ethane, propane, butane, CO₂ and nitrogen making up the rest
 - Blended whisky
 - Made from dinosaur poo in a prehistoric AD, contaminated over the millenia
- North Morecambe gas
 - High CO₂, high N₂
- Biomethane is bio-gas without the CO₂, containing around 98% methane
 - Malt whisky, the elixir of life
 - Vehicles love it - Clean gas in, clean gas out
- Compress biomethane to 200 bar and you have a carbon neutral vehicle fuel
 - Remarkably simple to brew

The fuel – renewable methane



- Biomethane is renewable natural gas
 - From an anaerobic digester or from landfill or from gasification of biomass
- Offers carbon neutral transport option:
 - Lowest 'Well to Wheel' CO₂ of any fuel
 - Most efficient use of land

Organic Waste to Landfill and Biogas Production



- UK is top of the EU production league because we are the best at putting organic waste onto landfill sites....

Biomethane Resource

UK Govt says:

The potential for biogas

7.6.3 The UK produces over **100 million tonnes of organic material** per year that could be used to produce biogas. This breaks down as follows:

- 12-20 million tonnes of food waste (approximately half of which is municipal waste collected by Local Authorities, with the rest being hotel or food manufacturing waste);
- 90 million tonnes of agricultural material such as manure and slurry;
- 1.73 million tonnes of sewage sludge.

Biogas can also be produced from energy crops such as maize or grass leys.

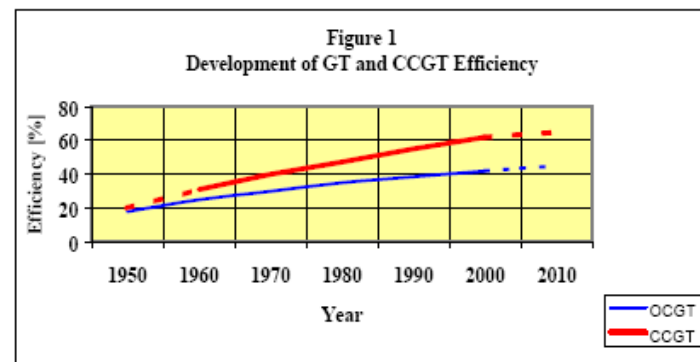
7.1.1 Renewable sources used to generate electricity and heat(1) ; electricity generated from renewable sources (continued)

	Wind and wave	Solar photo-voltaics	Hydro		Landfill gas	Sewage sludge digestion	Biomass				Total			
			Small scale	Large scale (3)			Municipal solid waste combustion (5)	Co-firing with fossil fuels	Animal Biomass (6)	Plant Biomass (7)	Total biomass	Wastes		
Electricity generated														
1990	9	-	127	5,080	138	318	141	-	0	-	595	5,812	83	
1991	9	-	142	4,482	208	328	150	-	1	-	688	5,320	88	
1992	33	-	149	5,282	377	328	177	-	52	-	934	6,398	104	
1993	217	-	159	4,143	447	378	252	-	122	-	1,198	5,717	165	
1994	344	-	159	4,935	617	381	449	-	192	-	1,518	6,966	352	
1995	392	-	165	4,672	682	410	471	-	199	-	1,642	6,871	412	
1996	458	-	118	3,275	708	410	489	-	197	-	1,805	5,685	417	
1997	667	-	164	4,005	918	408	585	-	199	0	2,110	6,945	483	
1998	877	-	205	4,511	1,185	388	849	-	234	0	2,554	8,848	583	
1999	850	1	207	5,128	1,708	410	856	-	469	1	3,429	9,616	569	
2000	946	1	214	4,871	2,188	387	840	-	456	31	3,882	9,914	519	
2001	965	2	210	3,845	2,607	383	880	-	542	234	4,526	9,549	528	
2002	1,256	3	204	4,584	2,679	388	907	296	568	272	5,080	11,127	545	
2003	1,285	3	150	2,987	3,278	384r	955	602	535	402	6,174r	10,600r	579	
2004	1,935	4	283	4,551	4,004	440r	971	1,022	565	362	7,364r	14,147r	583	
2005	2,904	8	444	4,478	4,280	470r	964	2,533	468	382	9,107r	16,940r	578	
2006	4,225	11r	478r	4,115r	4,424	468r	1,083	2,528	434	353	9,288r	18,116r	651	
2007	5,274	11	534	4,554	4,877	617	1,177	1,956	555	409	9,291	19,664	707	

Estimated that it could supply around 20% of all UK road transport fuel

Energy Efficiency and Government Policy

- Produce biomethane in a new AD and will earn DOUBLE ROCs from April 2009 (currently single ROC)
 - No efficiency test, no need to use any waste heat
 - No need to meter the biomethane, no need to insulate the ADs
 - Electrical efficiency around 30 - 35% for raw biogas
- Inject the same biomethane into the gas grid, use in a CCGT or good quality CHP, earn NO ROCS
 - CCGTs are efficient, small reciprocating gas engines are not
- BERR says it is a matter of principle that biomethane has to be burnt were it is made to get ROCs
 - Already plants being built to earn Double ROCs
 - The Morecambe effect



Morecambe Gas (1)

- In 1973, Gulf (now part of Chevron) drilled through the South Morecambe gas field
 - They said it was dry....
- John Bains of British Gas looked at the logs and identified 600 feet of pay!
- Probably the single most important event in the history of Centrica, BG Group and National Grid
- 172 BCM of gas = 69 billion therms
- Worth £62 Billion at today's gas prices
- Golf and chocolate from 1974 - 2008

Key events that led to this discovery might be summarized as follows:

- (1) the wish of the government in power in 1969 to foster a national presence in the exploration of British waters by allowing the then Gas Council to take 100% interests in EISB blocks;
- (2) the readiness of the Gas Council to exploit this opportunity;
- (3) the unwillingness of the Council's main North Sea partner to participate in the proposed application, with its offer of a firm well;
- (4) the unwillingness of other majors to join the application;
- (5) the informal gift by Gulf in 1973 of the logs of wells 110/8-1 and -2, on the basis of a 'gentleman's agreement' that HGB would likewise make data available from any wells it might drill;
- (6) the brilliant re-interpretation of the logs of well 110/8-2 by John Bains in 1974, to reveal approximately 600 feet of untested pay in the Sherwood Sandstone;

Morecambe Gas (2)

- Whilst National Grid, Centrica and BG Group are doing fine, the Morecambe gas has nearly gone
 - Lancashire dinosaurs pooped for 200 million years, we set fire to it in 30
- So, we need to start to make it again
- Today we produce around 6,000 GWh of electricity from biomethane which means we burn around 20,000 GWh of biomethane = 600 million therms
 - Worth £540 Million per annum
 - So, 100 years = £54 billion
 - Not far from the Morecambe £62 billion, especially as we have not started to make any energy crops yet
- Not clear why the UK Govt is DOUBLING the ROCs benefit from April 2009 without ANY consideration of energy efficiency
 - Global warming? UKCS decline? China/India?
 - Balance of payments?

Centrica and GDF mull new UK offshore gas storage

Thu Mar 27, 2008 7:26am GMT

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LONDON (Reuters) - Centrica (CNA.L: [Quote](#), [Profile](#), [Research](#)) and Gaz de France GAZ.PA are studying building the UK's first offshore gas storage facility for over 25 years, the owner of British Gas said on Thursday.

Centrica, which owns the UK's only existing offshore gas storage site, Rough, located under the North Sea, is looking at converting the Bains gas field in the East Irish Sea into a seasonal storage facility about a fifth of the size of Rough.

The partnership with GDF and UK independent First Oil plc has been announced ahead of an Anglo-French summit in London aimed at closer cooperation between the two countries, particularly on energy security.

"We believe Bains has real potential as a new gas storage facility," Centrica Chief

Executive Sam Laidlaw said.

"As the UK becomes increasingly reliant on imported gas and flexibility from North Sea fields declines in the coming years, investing in much-needed storage facilities, which will boost this country's security of supply, forms part of Centrica's long-term programme of investing," he said in a statement.

If built, the facility could be ready to top up British gas supplies for the winter of 2011/12 and would have a storage capacity of up to 20 billion cubic feet.

The final investment decision will not be taken until 2009, and Centrica gave no indication of the costs involved. But industry sources said such a facility would likely cost over 300 million pounds.

Centrica, which operates the Bains gas field, will manage the development with a 52.8 percent stake in the project, while GDF has a 34 percent share and First Oil 13.2 percent.

Baines

So, if you discover a £62 billion gas field you get a gas storage reservoir named after you!

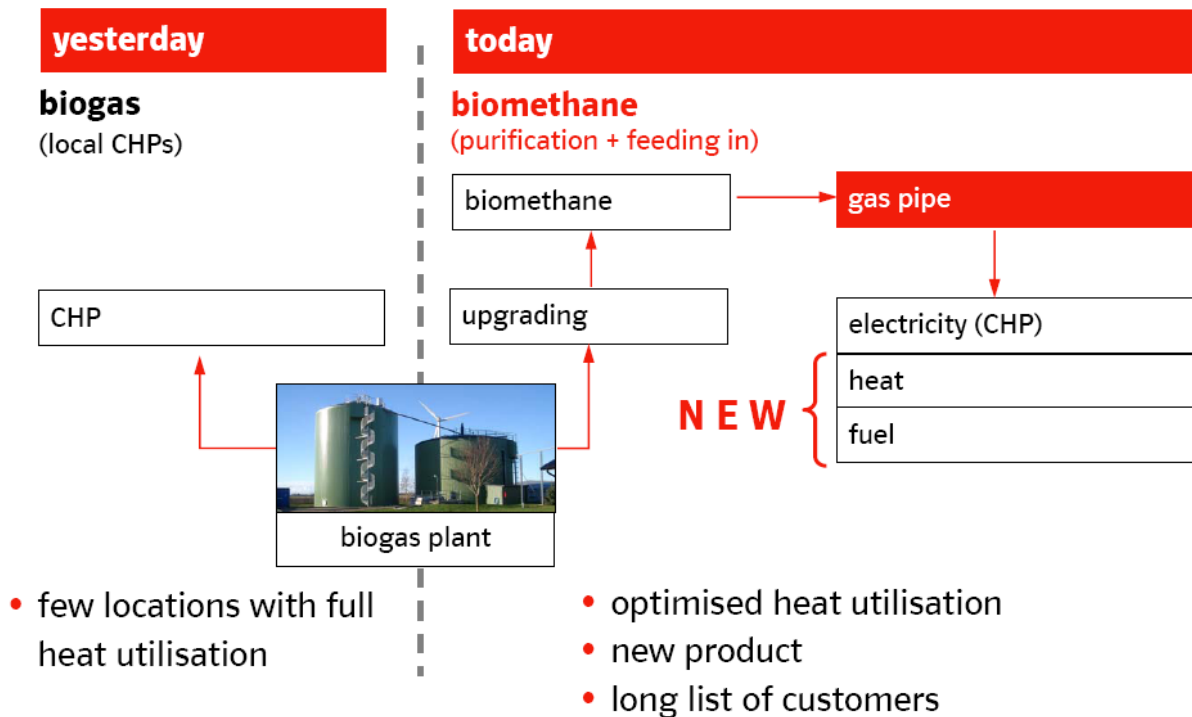
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Biomethane Utilisation in 2008

What we *should* be doing



why biomethane?



Germany Leading

- Germany has over 3,700 agricultural scale biogas plants
- The Biogas industry employs around 10,000 people
- The industry is worth about 1 Billion Euro / yr to the German economy
- BtG growing fast
 - Target of 10% of all German gas by 2020
 - China and India do not owe Germany a living

E.ON begins operations at Schwandorf biomethane plant

15th July 2008

By Staff Writer

German utility E.ON has commenced commercial operations at Europe's largest biomethane plant at Schwandorf in Bavaria, Germany, together with biogas company Schmack.

Since the beginning of 2008, biogas has been produced at the Schwandorf facility from regional raw materials. This biogas is then treated to reach natural gas quality and fed as biomethane into E.ON Bayern's natural gas pipeline system.

At the Schwandorf plant, about 16 million cubic meters of biogas can be obtained annually from roughly 85,000 tonnes of local renewable resources. Maize, grass and intercrop silage is used. The output of natural gas quality biomethane, upgraded from filtered biogas, is approximately 1,000 cubic meters per hour.

RWE Innogy builds biogas plant in Saxony-Anhalt

Letter of intent signed with Hese Biogas for further plants in Germany
Another 10 plants to be built by 2012

RWE Innogy is going to build a biogas plant with a thermal capacity of approx. 6.5 megawatts in the municipality of Güterglück in the state of Saxony-Anhalt. From the summer of 2009, the site is to produce biogas which will be processed to meet natural gas specifications and fed into the local natural gas network. The general contractor for the construction of the biogas plant is Hese Biogas GmbH in Gelsenkirchen, a company of the Schmack Biogas group. Construction is scheduled to commence in October 2008.

Biomethane - Renewable energy from the gas network

Biomethane: Feeding in the gas network;
Projects in Germany (March 2008)



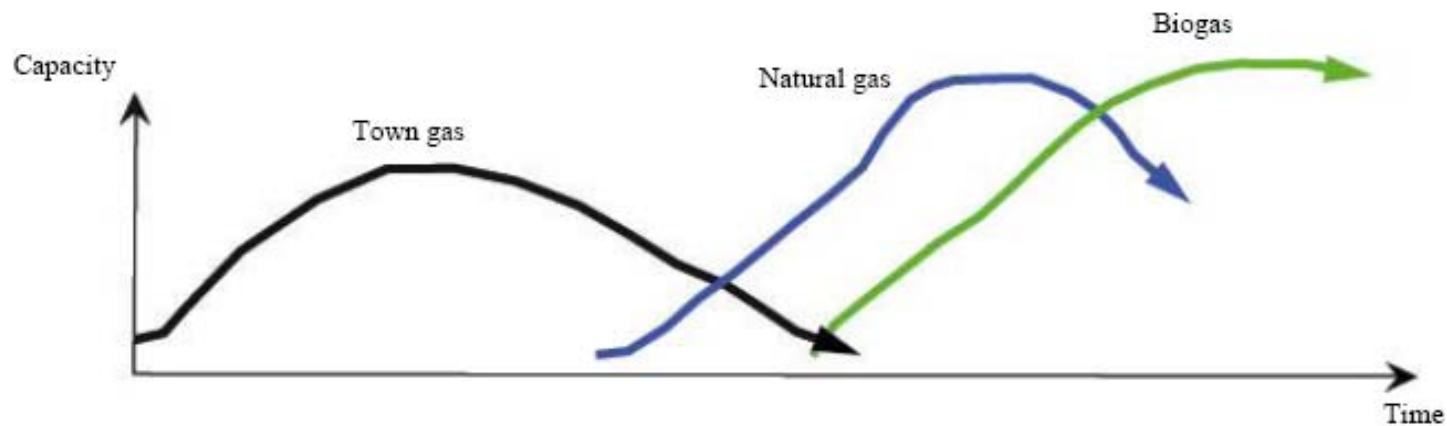
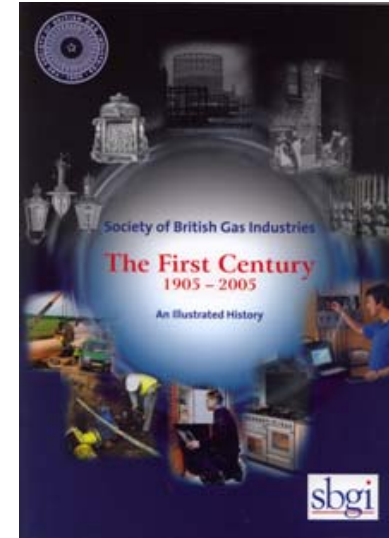
All data in cubic meter
Biomethane per hour.

* These plants are
under development.

www.asiue.de

History of UK gas market

- Gas from coal (1792 – 1970)
- Gas from oil (1950 – 1970)
- Gas from North Sea (1967..)
- Gas from Norway, Nigeria, Algeria, Trinidad, Qatar
- Now we need to start making it again on a large scale
 - And using the energy not wasting 65% of it



Diesel

- Diesel vehicles are excellent
- Diesel is a very good fuel for road transport
- Exhaust emissions will be lower with Euro 5
- However, 'easy oil' is running out and new oil has a large CO₂ penalty associated with it:

Abandon oil sands, urges big investor

Heather Cannon, investment editor
The Observer, Sunday September 14 2008

One of Britain's biggest investors will launch a campaign this week to persuade Shell and BP to drop their plans for heavy investment in oil sands and shale projects in North America.

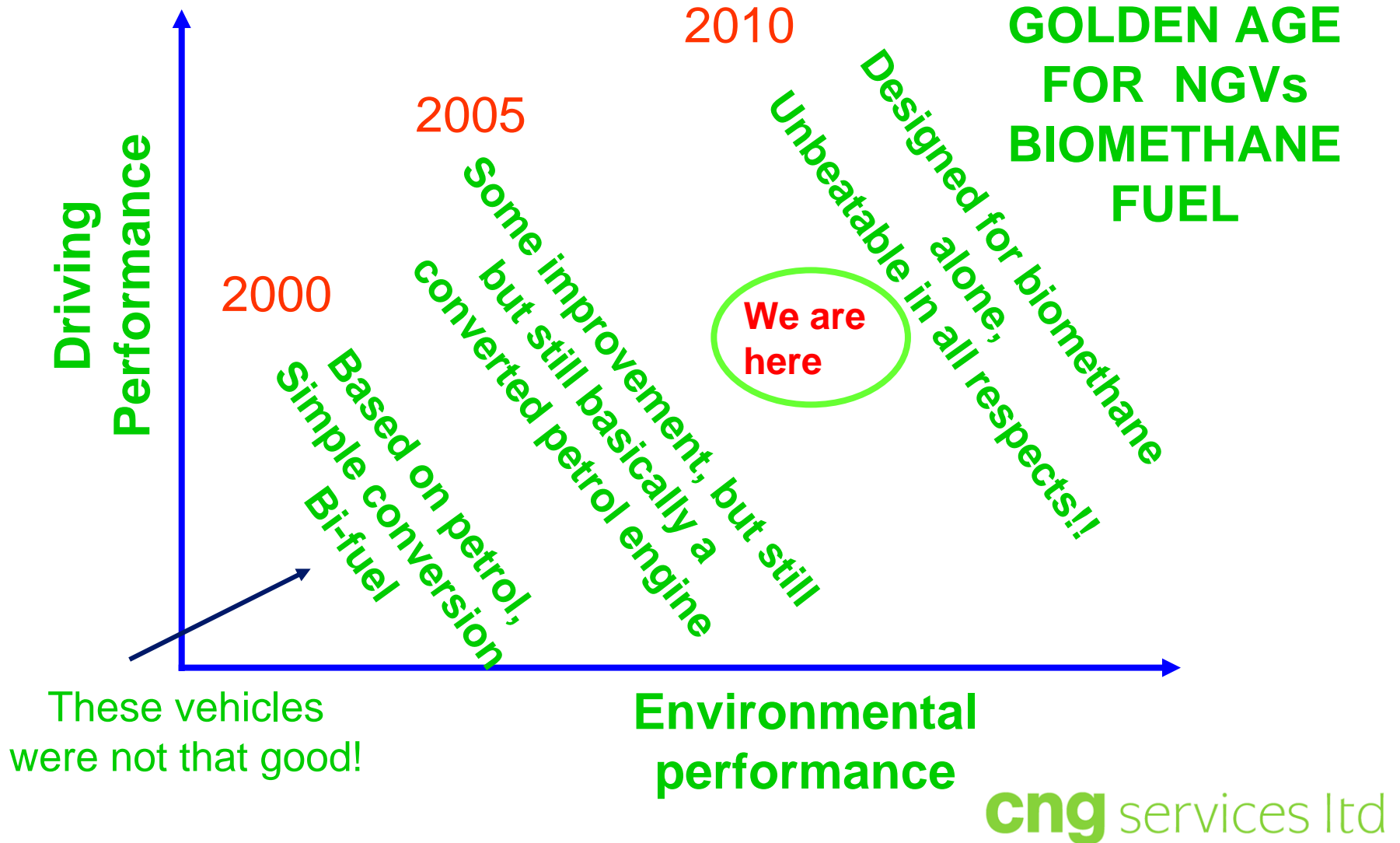
Co-operative Asset Management is concerned that the huge environmental costs of producing crude from oil sands or shale could change the economics of these so-called 'unconventional' fuel sources, putting the oil companies and their investors at risk of a huge wasted investment.

Paul Monaghan, head of sustainability and social goals at the Co-op, points to research showing that extracting oil from shale creates eight times as many emissions as conventional oil production, while oil sands produce three times as much. While these sources are economic at current oil prices, a fall in crude or a rise in the price of carbon under the trading system could make them much more expensive.

GTL, oil shale, oil sands
– all are **very bad** in
terms of CO₂.

CO₂ emissions from
making fossil diesel are
on an upwards path

Vehicles that can run on biomethane – the journey so far



Passat 1.4 TSI EcoFuel



Being manufactured on the production
Line in Germany from November 2009
> 25,000 sales per annum?

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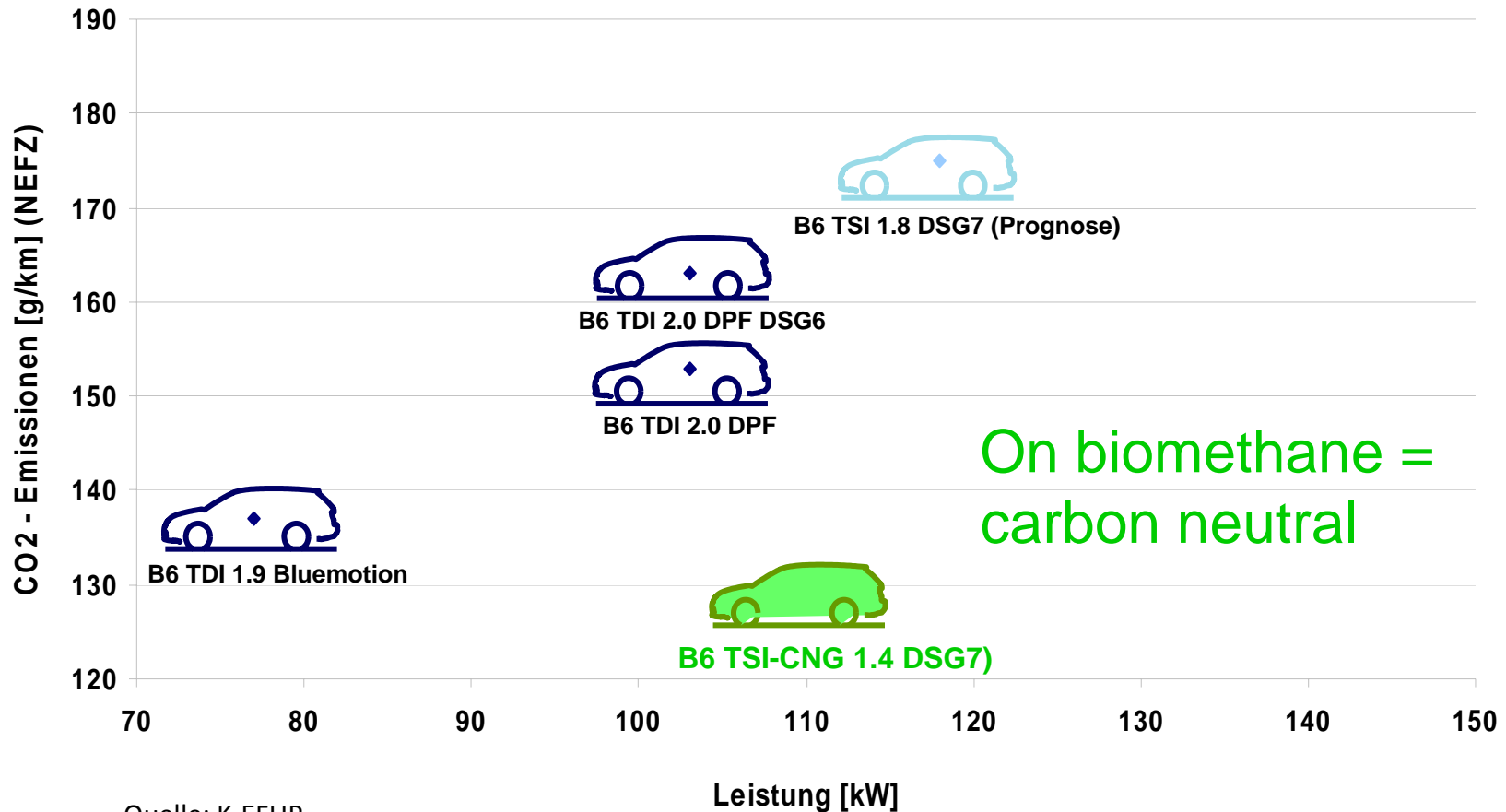
Passat TSI EcoFuel

- engine 1.4 TSI CNG
already fulfills Euro-5
- operating mode: bivalent
- performance 110 kW / 150 PS
- torque 220 Nm (1.500 – 4.000 U/min)
- maximum speed 210 km/h
- fuel consumption 5.1 kg / 100 km
- CO2-emissions 129 g/km
- Features instrument panel with level gauge for gas /gasoline und operating range
- operating range biomethane 420 km
3-underfloor gas tanks, steel
135 Liter (22 kg)
gasoline 400 km, 31 Liter
- 820 km total operating range



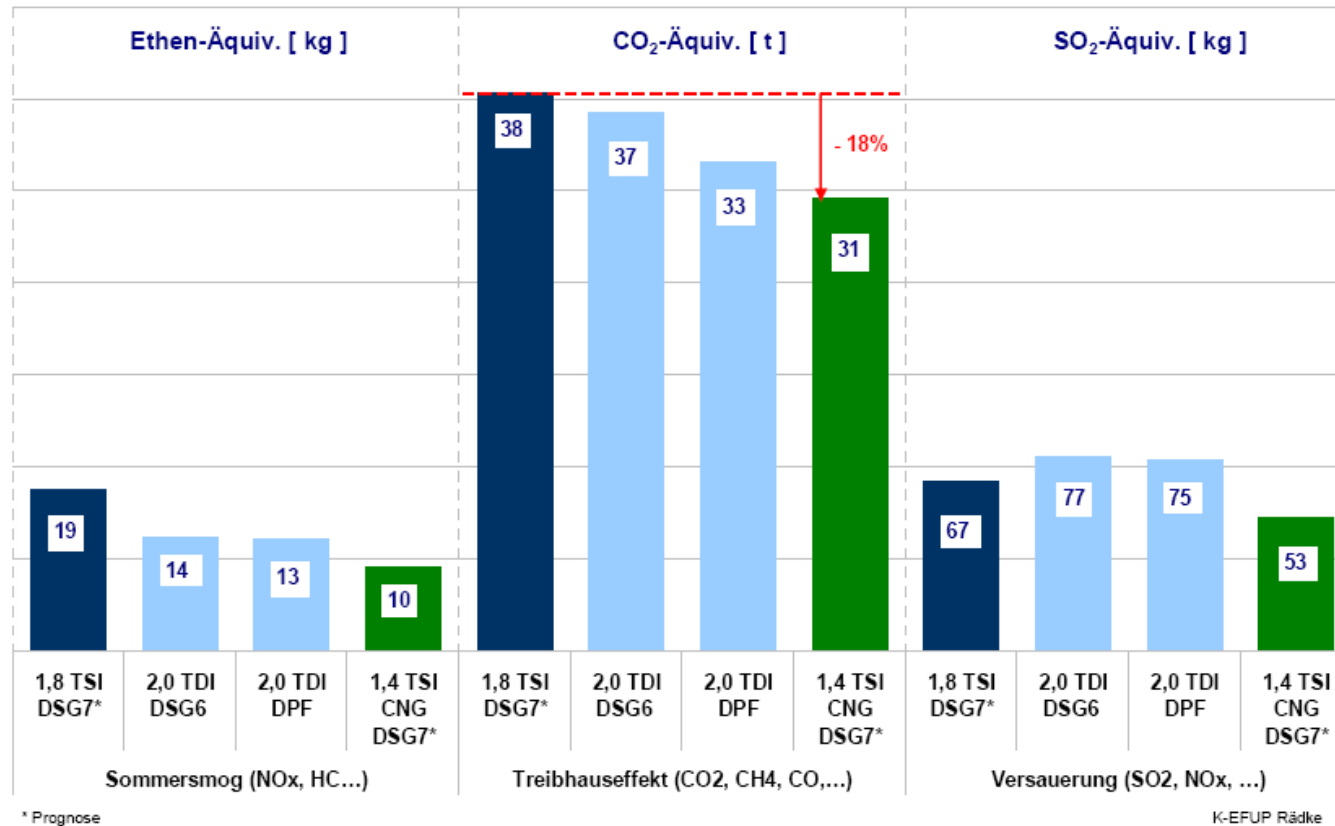
CO2 emissions

VW Passat - different engine/fuel options



Air quality

VW Passat - different engine/fuel options



For NOX and particulates, the TSI CNG is best. It is also best for CO2 even on fossil natural gas. **On biomethane it cannot be beaten**

Opel Zafira



May 15, 2008

Opel Adds New Turbo CNG Unit To Pro-Environmental Engine Range

Higher output and torque with lower consumption and emissions

In 2009, Opel will introduce one new 1.6-liter turbo CNG engine (Compressed Natural Gas) with around 110 kW/150 hp and 210 Nm of torque. Developed by GM Powertrain in Turin, the new unit joins Opel's current aspirated CNG engine, which has the same displacement and an output of 69 kW/94 hp.

"Environmental awareness and driving fun are no longer mutually exclusive," says Alain Visser, Chief Marketing Officer, GM Europe. "With this newly developed turbocharged CNG engine, **we continue pursuing our strategy of turbocharging engines to increase efficiency** – meaning lower consumption and emissions – without making any concessions in performance."

Key features of the new CNG engine include a turbocharger integrated into the exhaust manifold, an intake manifold with gasoline and CNG fuel pipes, an oil cooler and piston cooling. By virtue of their propulsion units, natural gas-powered Opel vehicles produce 80 percent less nitrogen oxide than a diesel, and almost 20 percent less CO₂ than a gasoline model (nearly 10 percent less CO₂ than diesel). Furthermore, the exhaust gases contain almost no soot particles.

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FastLane

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Saturn Outlook

July 31st, 2008

[Business](#)

Natural Gas: An Enticing Alternative

By Larry Burns
GM Vice President, Research & Development

Volatile oil prices have been dominating the news lately, underscoring growing unease about the automobile's heavy dependence on petroleum. As these concerns reverberate from Main Street to Wall Street, General Motors is working toward new solutions that will answer the growing demand for personal transportation in an affordable and sustainable way.

Because GM believes there is no single technology solution to displace petroleum, we are aggressively pursuing biofuels such as E85 ethanol and leveraging other efficiencies such as advanced engines and hybrids. We also are developing entirely new technology solutions that do not rely on petroleum, such as the Chevrolet Volt extended-range electric vehicle and fuel cell vehicles.

Another alternative, natural gas, is enticing because it is abundant, affordable and relatively clean. This week in Washington, D.C., the Select Committee on Energy Independence and Global Warming listened to testimony on the role natural gas can play in our nation's transportation sector.

In the near term, we can use compressed natural gas (CNG) in internal combustion engines. Mid term, we can leverage natural gas to create electricity for the Volt and future variants. In the long term, natural gas could be an excellent source for making hydrogen for fuel cell vehicles, either at the filling station or in people's homes.

Toyota Camry Hybrid

Toyota prepare to show CNG-Hybrid integrated in 2008 LA auto show

September 24th, 2008 — [Auto show / Motor Show](#), [hybrid vehicle](#), [toyota](#)



Toyota is set to roll out the world's first vehicle powered by compressed natural gas (CNG) and electricity as part of a drive to expand its line-up of hybrid vehicles.

The Japanese carmaker plans to show a concept hybrid CNG-electric version of its Camry mid-sized saloon at the Los Angeles auto show in November.

It is clear that for round town small electric and plug-in hybrids are great, but for longer distances and anything involving time and weight, there is nothing that can beat biomethane made from waste or from the whole crop

VW Caddy Eco-fuel

- Best selling CNG van in Germany, launched mid 2006
 - Built to run on CNG rather than a petrol conversion
 - Right hand drive is type approved for sale in UK
- UK trial underway:
 - With “Phill” home-fill device
 - Range 350km on bio-methane + 150 km on petrol



Fill Up Your NGV At Home With **Phill** By FuelMaker

Phill by FuelMaker enables owners to refill their Compressed Natural Gas (CNG) powered cars at home from their existing natural gas supply line.

Refueling is as easy as 1-2-3! Simply plug Phill in to your car whenever its not in use, press "Start", and let Phill fill your tank!. Relax and enjoy your free time as Phill automatically shuts off when your tank is full.

PHILL is:
Convenient, refueling a typical compact car overnight allows for over 100 miles of travel.
Quiet, producing no more noise than an air conditioning unit.
Economical, using no more electricity than an average small appliance.
Flexible, easily mounting inside or outside of a garage.
Compact, measuring 30" x 14" x 13" (H x W x D).



Refuel your CNG vehicle with Phill and benefit from:

- Single occupant access to car pool lanes.*
- Free parking.*
- The security of filling up your car in your own home. More free time.
- One consolidated fuel bill, no more having to worry about expensive rates on payment by credit cards.
- Contributing to a healthier environment.
- Reducing your dependence on imported fuel supplies. (* where applicable)

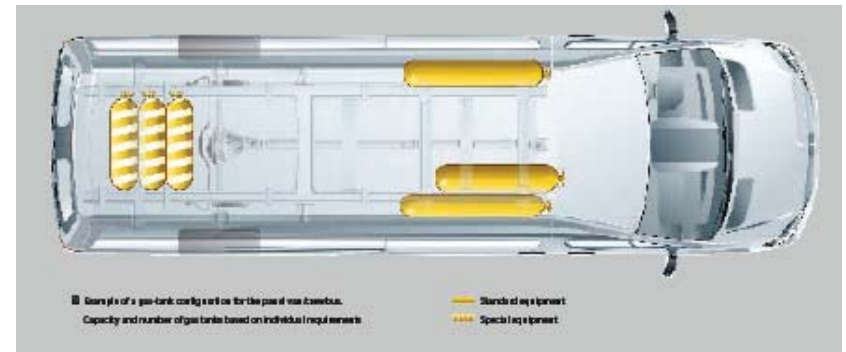
Installation is easy! All you need are:

- An existing natural gas supply line.
- A dedicated electrical outlet.
- A licensed and qualified installer.

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MB Sprinter NGT

- Mercedes Benz
 - Sprinter CNG in UK in Q2 2009
 - First time MB have designed a CNG Sprinter from 'first principles' (rather than petrol conversion):
 - Very low emissions
 - 25% less CO₂ than petrol on grid gas
 - Carbon neutral on bio-methane
 - Also has petrol tank
 - Total range of 1100 km
 - Ideal for supermarket home delivery, quiet, clean, long range, fast refuelling



In Germany, it is expected that this vehicle will become the vehicle of choice for Utilities and delivery companies looking both at their CO₂ footprint, their emissions performance and at their bottom line...on biomethane it is carbon neutral

Iveco Daily

Iveco presents new Daily CNG

At the European Road Transport Show 2007, Iveco will be exhibiting the new Daily CNG which was recently introduced in Italy. This van makes Iveco one of the few commercial vehicle manufacturers to sell a heavy van with a natural gas driven engine straight from the factory.



All Iveco Daily CNG versions are equipped with the 3.0 litre F1C CNG engine. This four-cylinder, 16 valve, turbo-charged engine provides 136 hp (100 kW) and 350 Nm of torque. The standard version comes with a manual, six-speed gearbox. As of early 2008, an automatic Agile gearbox will also be available.

Five tanks

The Daily CNG comes equipped with five tanks with a total capacity of 220 litres. An optional sixth tank can be installed to provide a total capacity of 250 litres. Iveco has not yet issued fuel consumption figures or a range.

Ecologically responsible vehicle

The Daily CNG's emission values are well under the limit prescribed by the Euro 4 and Euro 5 standards. The CNG engine equipped Daily is therefore regarded as an ecologically sound vehicle which qualifies for the EEV (Enhanced Environmental Vehicle) classification according to European environmental legislation. All the natural gas versions bear the CNG logo and the hummingbird symbol.



Being trialled by Veolia running on biomethane

Very low emissions of NOX/particulates


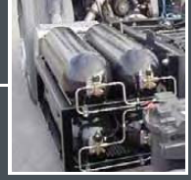
Carbon neutral on bio-methane

MB Econic - rigid

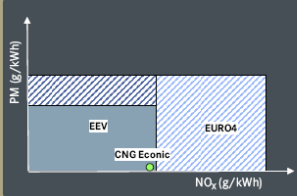
- 20% lower CO2
- Very low emissions, EEV
- No congestion charge
- 50% of noise of diesel and expected to be approved for night running (avoiding traffic and congestion charge)

2 Global Excellence Update – Future Products & Technology DAIMLERCHRYSLER

CNG-ECONIC: VIRTUALLY NO PARTICLES PRODUCED - TRUCK GROUP ONLY OEM WITH CNG IN HD SEGMENT

- Good CNG availability from fossil fuels & Biogas → Continuous Market Growth expected
- Complete Solutions available; Mercedes-Benz only OEM with CNG in HDT segment
- Range up to 400 km
- EURO5 and EEV* compliant



The graph shows PM (g/kWh) on the y-axis and NOx (g/kWh) on the x-axis. EEV has low PM and low NOx. CNG Econic has very low PM and low NOx. EURO4 has high PM and high NOx.

*Enhanced Environmentally Friendly Vehicle DaimlerChrysler Truck Group 22

Decreasing CO2 impact



Diesel



CNG



biomethane

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MB Econic - tractor

- Distribution logistics
 - This vehicle is a CNG Econic tractor, operating in Germany
 - Gross combination weight rating 40 tonne
 - EEV emissions and 20% lower CO2 than diesel
 - On bio-methane, carbon neutral
- MB bringing to UK in right hand drive form
 - Storage tanks vertically arranged behind the cab to give long range
 - In UK in Q2 2009



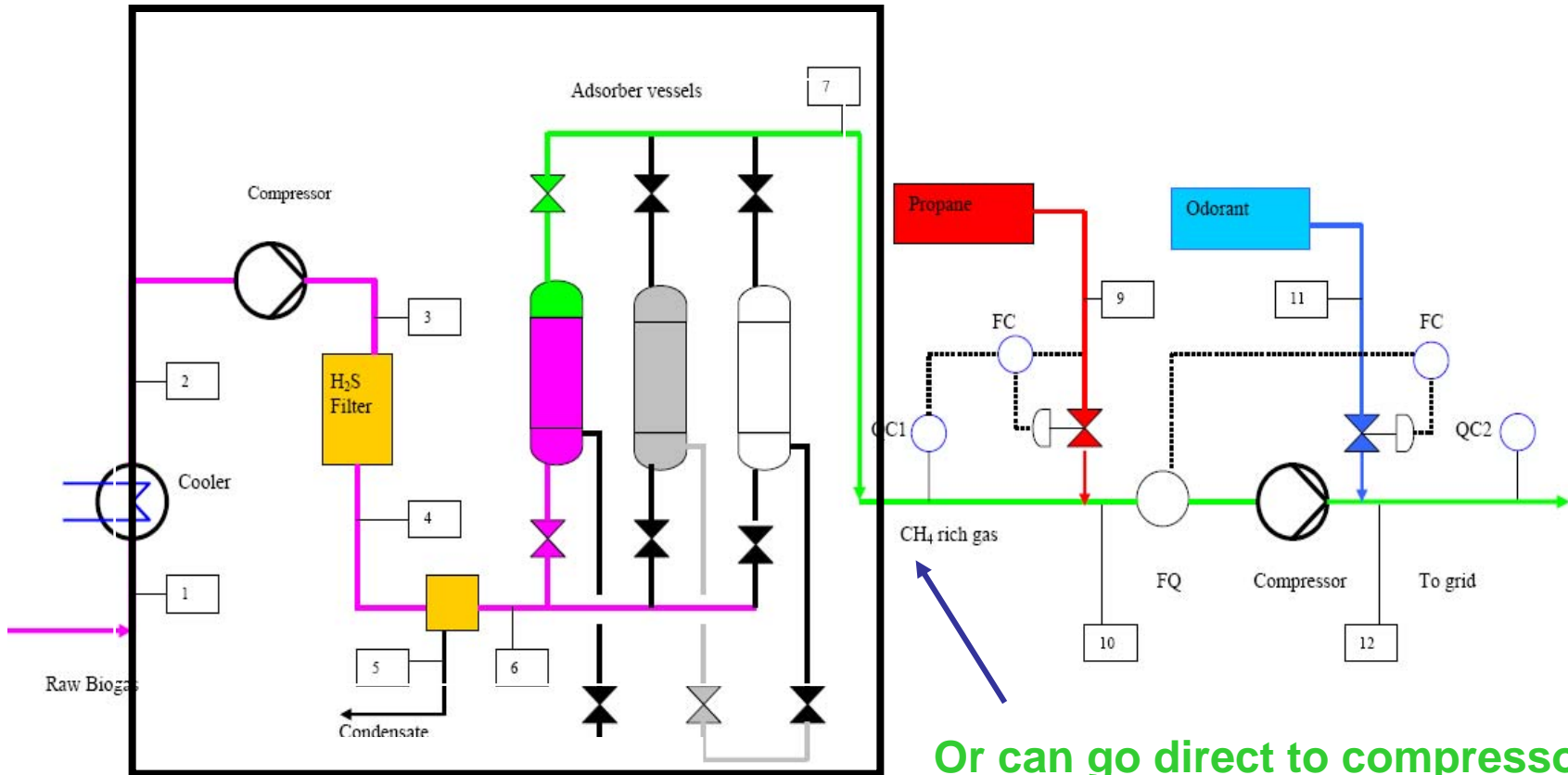
Biomethane fuelled refuse trucks

- Refuse Trucks
 - MB Eonic (see below in Malmo, running on bio-methane)
 - Iveco (right) – all 560 refuse trucks on methane in Madrid



- UK Waste
 - Best Practice for Waste is separation of green material at source and then anaerobic digestion
 - Best use for biogas is to clean up for vehicles due to very low efficiency of electricity generation from reciprocating engines

Bio-gas to biomethane



Or can go direct to compressor and vehicles from here

Lots of ways to clean biogas to biomethane for vehicles or grid injection – No technology issues, costs falling due to larger production volumes and containerisation

Eco-leadership Projects

Customer	Source of gas	Vehicles	Comments
Water Company	Sewage treatment works – 40,000 m ³ /day of gas available	Vehicles on site plus injection into gas grid (could be used to fuel Passat with home-fill device)	1 Passat doing 20,000 km needs 1,000 kg of gas. All this gas would fuel 5,700 Passats from this sewage works
Water Company	New AD using food waste	Caddy, Sprinter plus exported via trailers	On site electricity generation would be <35% efficient
Local authority	Organic waste (garden and kitchen)	Refuse trucks, Sprinters, buses	AD avoids use of landfill
Grower	Waste from growing fruit and vegetables	Sprinter	CO ₂ separated from biogas to be used to increase growth rate of crops
Waste Management Company	Domestic organic waste + abattoir waste	Inject into gas grid	On site electricity generation would be <35% efficient

“It’s the vehicles, stupid’

Biomethane Utilisation Vision

- UK has a huge potential resource
 - Can stop wasteful use of biogas for non CHP electricity
 - Transportation is the most CO2 efficient use on a Well to Wheel basis because it reduces the production of 'marginal diesel' and has a very simple supply chain – make the fuel where it is used
- Thousands of small ADs built across Britain to process organic waste, farm waste and purpose grown crops such as miscanthus – a second generation biofuel, made from the whole crop not just the 'fruit'
- Renewable methane used for electricity and get 2 x ROCs but only as Good Quality CHP – if not, it should only get 1 x ROC
- Injection into gas grid widespread, with hundreds of 'embedded methane production sites'
- 50,000 jobs in this business
- Each of these gas production facilities can also supply vehicle fuel with the Passat, Zafira, Camry Hybrid, Caddy, Sprinter, Eonic etc being widely available across Britain

PS - Biomethane as vehicle fuel – why not make electricity instead and have electric vehicles?

Question:

I attended an SMMT Commercial Vehicles Section meeting in London last week where the subject of alternative fuels briefly came up.

xxxxxx indicated that it was a non-sense to fuel road vehicles with gas and that it made more sense to burn gas to generate the electricity to power electric vehicles.

How would you respond to such a challenge?

Answer

1. Efficiency:

Burning the biogas to make electricity will be at around 30-35% efficient which is not that good! 65 - 70% of energy wasted. We cannot afford to waste that much energy, those days have gone.

If you burn gas in a central CCGT you get 58% which is not so bad. But to get biogas into the gas grid you clean it up and then inject it into grid.....at same time, you can run vehicles on this gas, perfect!

2. Electric cars:

1. What range on an electric Passat would you have? Is 820 km possible? How does drive-ability compare to TSI/petrol? How long to re-charge? Can you see Passat drivers in an electric version, when?

2. Are there any electric buses and refuse trucks?

3. What range would an electric Sprinter have? How much weight hit? How long to fill up? Can you envisage Tesco home shopping using electric vehicles?

To quote the German guy in VW who developed the Passat:

I personally believe that CNG/biomethane (long range) and electricity (short range) are the fuels for the future in transportation

Ask xxxxx for a list of white vans, trucks, buses, refuse trucks, Passat size vehicles that run on electricity. If none, ask for a list of such vehicles being developed. The Passat TSI biomethane took 5 years, the OEMs must be working now on such vehicles for 2013?

3. Interaction with Wind

By 2020, when it is windy, UK will get its electricity from nuclear and wind...all the gas fired power plants and coal will be off, on hot standby. When wind falls (or is too strong) they will start up.

If you make biogas you have to generate electricity ALL the time, even when its windy (as biogas gas is made all the time), this means a lot of the time you will be making it but you may not want it...if you make it into vehicle fuel you can always use it....

Regards

John