

Market strategy for Somerset, UK

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Are there existing filling stations and natural gas and biogas driven cars already in the region?	Yes

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Summary

In Somerset, there is one gas filling station which has opened since the start of the Madagascar project but generally there is a lack of awareness of the potential of natural gas and biomethane as vehicle fuels. Initial work will concentrate on **expanding** the number of **gas vehicles** using the existing gas filling station, by approaching potential end users. This will then give the impetus for **further gas filling stations** around the region. The marketing in these two areas will concentrate on one-to-one meetings with interested parties, small group meetings, and general promotion at relevant events held in Somerset

The use of **biomethane** as a vehicle fuel will be more of a challenge as all existing biogas plants in the UK generate electricity. Most of the work will be at a national level aimed at facilitating the upgrading of biogas to biomethane, whilst at a local level meetings will be held between potential biogas plant owners and those involved in the natural gas industry. The **natural gas grid** in the UK is extensive but as many biogas plants are in remote farm situations, work will be done nationally to ensure that the responsibility for and expense of connecting biogas plants to the national grid lies with the grid rather than with the biogas plant owners. In the interim, encouragement will be given for EcoTransit and other companies to operate a trailer system for collecting the biomethane from the biogas plant and transporting it by road to the filling station where it can be offered for sale.

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Introduction/Background

The market for gas vehicles in the UK is in its infancy. Actually the UK was one of the early adopters of gas as a vehicle fuel, but the technology was undeveloped, and so the failure of many of the vehicles has meant that people see it as a problem fuel.

In Somerset, there is virtually no knowledge or understanding of the fact that natural gas or biomethane can be used as vehicle fuel.

The development of the first natural gas filling station in Wincanton has led to much interest from local depot based fleet owners, and hopefully there will now be more support from the local authorities.

Somerset Council have been actively promoting bioethanol as an alternative fuel, and have not yet shown any support for natural gas and biomethane.

In the 1970s in the UK there were many farm based digesters, but the technology was not sufficiently advanced for these to have been successful, so from the point of view of farms it will be necessary to allay their fears and rekindle their interest.

After much lobbying by Organic Power and others, the government have agreed that anaerobic digestion is the preferred method for treating the organic fraction of household waste. There are a small number of biogas plants in the country but all these convert the biogas into electricity.

Somerset County Council do not as yet have a digester, but have been considering one for many years, and with the new interest nationally may be encouraged to go ahead and build a plant. Somerset is one of the principal food processing areas in the UK and many of the commercial companies have expressed an interest in digestion.

A dedicated biogas conference was run by the local council in 2006, but the emphasis was on farm scale plants producing electricity and there were many myths which had to be dispelled.

The UK produce more biogas (from landfill sites) than any other country in Europe and most water treatment plants have had biogas plants for many years, although they have not considered the gas they produce as very valuable, and in some cases the gas is simply flared off.

Analysis of the different aspects of the gas market

Analysis of the background

In the UK government all effort has concentrated on liquid biofuels, and this is reflected at a local level in Somerset.

Fuel duty is 13.70p/Kg until 1st October when it will increase to 16.60p/Kg. The rate on petrol and diesel will increase from 50.35p/Kg to 52.35p/Kg. The government has agreed to maintain the differential with diesel on a rolling 3 year basis. Biomethane is taxed at the same rate as natural gas, there is no concession for the fact that it is renewable, except that the duty differential will remain until 2012.

Vehicle Excise Duty (VED) is linked to carbon dioxide emissions and fuel type. NGVs pay less VED than their equivalent petrol or diesel. For example a car running on alternative fuel producing less than 100g/km CO₂ pays no duty.

Registered OEM gas vehicles are exempt from the London Congestion Charge Zone and the Low Emission Zone in London, provided that their emissions are less than 120g/km CO₂ and that they meet Euro 4 standard.

These moves by the government together with the high price of diesel and petrol should act as a catalyst for fleet owners to convert their fleets to natural gas.

There are now a number of pressure groups and environmental organisations promoting natural gas and biomethane as a vehicle fuel.

The UK government is now supporting anaerobic digestion as a waste treatment, although at the moment their focus is on electricity production

The following programmes are in place:

- Banded ROCs (2 ROCs/MWh)
- Standard and protocol for digestate
- Bio-energy Capital Grants Scheme
- Axis 1 of Rural Development Programme for England
- Anaerobic Digestion Demonstration Programme
- Environmental Transformation Fund

There are many regulations relating to feedstock for anaerobic digestion plants. Any potential biogas plant operator will need to investigate whether a Waste Management Licence and Pollution Prevention Control licence will be required for their particular feedstock. At present the digestate produced from anaerobic digestion is considered a waste that needs to be disposed of, rather than a valuable resource, although there are pressure groups working towards changing this. The UK regulators are presently working on a “digestate standard” which, later this year, will allow the product of anaerobic digestion, if strict controls are met, to be considered as a fertiliser.

Market inquiry

There is a growing awareness amongst fleet operators that converting to alternative and renewable fuels can be a useful marketing tool in promoting their green credentials. The lower cost of natural gas and biomethane is however the prime incentive for interest in the fuel. The UK market generally has been stagnant or falling over the last few years.

In the Somerset region the market share of clean vehicles is growing slowly, but as yet there are no natural gas vehicles. It is felt that the move towards gas vehicles will come from the supply side and that once the spread of filling stations will lead to a greater market for gas vehicles.

Analysis of the concept “methane gas as vehicle fuel”

Natural gas is a very simple fuel.

The only simpler fuel available is hydrogen, which is technically an energy 'carrier' rather than an energy source itself. As yet there is no economic method of creating and distributing large quantities of hydrogen, so, until this occurs, natural gas will remain the clean fuel of choice for some time. Being rich in Hydrogen, natural gas is often used as a feedstock, which is one of the reasons why natural gas vehicles are often referred to as the 'pathway to the hydrogen economy'. Ultimately, an investment in natural gas infrastructure is an investment in hydrogen infrastructure.

Natural gas vehicles are quieter and cleaner than those powered by petrol and diesel.

Biomethane is the world's most environmentally friendly vehicle fuel. The route to having vehicles being powered by biomethane is to begin by having them fuelled by natural gas and then to replace this fossil fuel natural gas with biomethane when the use of natural gas vehicles has become established.

Natural gas vehicles (NGVs) have a deserving reputation for being one of the cleanest transport fuels available, not just with respect vehicle emissions, but also for fuel production. Studies around the world consistently show that natural gas engines produce fewer harmful emissions than petrol, diesel or LPG, in spite of the considerable improvements made to these fuels in recent years. Even when measured against other 'clean' fuels or methods, such as petrol-electric hybrids, NGVs emissions are frequently lower.

Apart from producing fewer emissions, natural gas also poses fewer environmental hazards than other fuels. In the event of an accident, natural gas dissipates into the atmosphere rather than spilling on to the ground - a major benefit for our waterways and wildlife.

Natural gas vehicles (NGVs) deliver substantial benefits to the community. These include:

- Increased energy security
- Reduced energy costs
- Reduced air pollution
- Reduced greenhouse emissions
- Use of local resources
- Reduced noise pollution
- Employment opportunities

- Increased road safety

Because these benefits are felt by the community at all levels - local, national and international - government policy plays an important role in ensuring these are realised.

Analysis of competitive products

As a transport fuel, compressed natural gas and biomethane are in competition with liquid fuels, both fossil and renewable. The principle advantages of the liquid fuels lie in the fact that there is a good infrastructure and vehicles are of course widely available. Where the liquid fuels, whether fossil or renewable do not score well is in the pollution caused. The fossil fuels are heavily polluting both during manufacture and at the point of use and so cause damage to the air quality where the vehicles are driven. The renewable liquid fuels cause environmental damage during their manufacture, although at the point of use they are relatively clean.

Many very serious and detailed studies have been compiled comparing the environmental benefits of all the available alternative and renewable fuels compared with petrol and diesel, both tank to wheel and well to wheel, but the following table gives a very broad summary of the comparative advantages of the different fuels.

Vehicle fuel	Clean, low pollution while driving	Clean, low pollution during manufacture of fuel	Low level of particulates	Secure local supply	Vehicles widely available	Widespread infrastructure
Petrol	No	No	Yes	No	Yes	Yes
Diesel	No	No	No	No	Yes	Yes
Electricity generated from fossil fuel	Yes	No	Yes	Yes	No	No
Electricity generated from renewable sources	Yes	Yes	Yes	Yes	No	No
Compressed natural gas	Yes	Yes	Yes	Yes	No	No
Biomethane	Yes	Yes	Yes	Yes	No	No
Biodiesel	Yes	No	No	No	No	No
Bioethanol	Yes	No	Yes	No	No	No

Analysis of customers/consumers

Natural gas and biomethane as vehicle fuels are virtually unknown in the region. Potential customers are interested but the following issues are raised:

- Are there any vehicles available?
- How much does it cost to buy a new gas vehicle?
- How much does it cost to convert an existing vehicle?
- How far can I go before refuelling?
- Are gas vehicles safe?
- Where are the filling stations?
- Where is biomethane available?

Farmers and other producers of organic waste are beginning to be fairly knowledgeable about biogas plants, but the emphasis is always on making electricity. Very few are interested in making biomethane.

Short and long term threats and possibilities

Natural gas and biomethane should both be very attractive vehicle fuels in the long term particularly because of the low environmental impact, especially when considering that biomethane actually does good for the environment rather than just being 'less bad'. The other advantage of gaseous fuels is the security of supply. The UK has one of the most comprehensive natural gas grids in Europe and this has a huge advantage over tankers of liquid fuel (whether fossil or renewable) being driven around the country. In order for the UK to truly take advantage of biomethane there will need to be a means of feeding it into the natural gas grid and a trading mechanism will need to be put in place so that biomethane generated in one part of the country can be purchased from the gas grid in another part of the country. If these should fail to come into operation in the long term, then the attractiveness of biomethane will be threatened. It is because this is seen as one of the major threats to biomethane being adopted that there are companies and government agencies working hard towards seeing that it is accepted, and all the indications are that this work will be successful.

Bottlenecks on the gas market

In the UK the principle bottlenecks to the adoption of natural gas and biomethane as vehicle fuels are:

1. Biogas plants are thought of by the farmers, the waste producers, and the government as generators of electricity and not of biomethane
2. Biomethane can not yet be fed into the natural gas grid
3. Lack of gas filling stations
4. Lack of willingness by major vehicle distributors to consider gas powered vehicles
5. Lack of examples of people using gas vehicles to encourage others

Market Strategy

Message

- Biomethane - an alternative and renewable vehicle fuel with market leading features when it comes to climate, environment and health aspects, offering security of supply
- Natural gas - an alternative fuel with positive features/characters (although it is a fossil fuel) when it comes to environmental effects and health aspects, also offering security of supply
- An alternative fuel that can be delivered at a low cost

Choice of target group and distribution strategy

Vehicle expansion

- Within the region of Somerset we will be concentrating initially on the area around Wincanton where EcoTransit have very recently opened a new filling station. Wincanton is in the far south east corner of the region, and so we will then concentrate our efforts on the other end of the region around Taunton, where many of our Wincanton contacts also have depots
- Initially we will concentrating our efforts on the potential end users, many of whom have already expressed a general interest in using gas and in converting a number of vehicles within their fleets. Once this has been successful then more work will be done with the vehicle distributors, and taking the message out to a wider audience.
- Once there is an established market for natural gas, with a number of filling stations and a few vehicles, then we will concentrate on bringing the concept to a wider market within the region
- We will work both on a one to one basis with potential customers for the gas filling station in Wincanton, but will also work on a broader basis with those already involved in the gas vehicle industry in the UK and with potential customers for future filling stations
- As an initial means of distributing information about Madagascar the e-newsletter will be used, and contacts will be made aware of the Madagascar website. We will hold meetings and training sessions and information about these will be distributed to our network partners.
- We will attend local environmental events as a means of getting the message to a wider audience
- Many of our network partners are already aware of the benefits of gas a vehicle fuel in principle, but need to be brought from that position to the actual purchase or conversion of vehicle. Where one to one meetings are necessary, we will hold these

Filling station expansion

- Geographically, we will concentrate particularly on areas at the outer reaches of the region to complement the new filling station in Wincanton which is in the far south east corner, to create a balanced network of gas filling stations within the region
- Within the region of Somerset we will be introducing potential fleet owners to the concept of gas and once there is a viable group of potential users we will work with EcoTransit to see that more filling stations are built. We will be working initially with those who have already expressed an interest in gas as a vehicle fuel
- There will be a combination of small group meetings, personal meetings following a wider publicity campaign to coincide with the 'official' opening of the Wincanton gas filling station
- As with the marketing of gas vehicles, within the region the Madagascar e-newsletter and website will be used as an initial means of distributing information. We will hold meetings and training sessions and information about these will be distributed by e-mail to our network partners. We will ensure that there is as much personal contact as possible, so that the e-mails are welcomed and then actually read and acted upon, rather than being destroyed as spam.

Biogas supply

- Our priority will be to ensure that the biogas produced by Organic Power is upgraded to biomethane and is made available for sale at the Wincanton gas filling station. We will then concentrate on ensuring that all those considering building new biogas plants within the region are aware of the option of using their biogas as a vehicle fuel rather than to generate electricity
- We will concentrate on ensuring that all those considering building new biogas plants within the region are aware of the option of using their biogas as a vehicle fuel rather than to generate electricity. This will be done by holding meetings between potential biogas plant owners and EcoTransit who will purchase the biomethane.
- The fact that all UK existing biogas plants are used to generate electricity, is seen as a real bottleneck in the adoption of biomethane as a vehicle fuel. Under Madagascar, most of our efforts to change this will concentrate on lobbying the UK national government to ensure that the best possible incentives are available for biomethane producers, and to facilitate putting biomethane into the existing natural gas grid. We will work closely with the Biomethane for Transport group within Environment Protection UK, with the Biogas Group within the Renewable Energy Association, with the Natural Gas Vehicles Association, the Low Carbon Vehicle Partnership, and the various gas distribution companies such as Wales and West. Work will also be done with government departments such as DEFRA which are now encouraging biogas plants to ensure that they are aware of the option for upgrading biogas to biomethane rather than just concentrating on the generation of electricity.

Gas grid expansion

- There is no need for Madagascar to be concerned with any expansion of the natural gas grid in the UK
- We will be working mainly at a national level, particularly to encourage a Feed In Tariff so that the gas companies take responsibility for the expense of connecting biomethane producers to the natural gas grid. We will also be supporting EcoTransit and other companies in the gas industry with plans to collect biomethane from outlying rural biogas plants by trailer so that it can be made available at natural gas filling stations
- This will be done by attending parliamentary meetings, lobbying MPs, and publicising the trailer system for distributing biomethane.