Jersey Gas Ltd

Report to the

States of Jersey

Environment Scrutiny Panel

March 2009

Concerning the development of the States of Jersey Energy Policy and proposed changes

to the Building Bye Laws

Contents

1. Issue

The second States of Jersey Energy Policy Consultation paper declared electricity as supplied by the JEC as low carbon. Jersey Gas disputes this assumption and is able to provide significant supporting evidence to defend our position.

The issue with regard to which fuel(s) are low carbon is fundamental to the Energy Policy direction as an objective of the policy is to use low carbon fuel(s). If the States of Jersey Energy Policy continues to believe that electricity is a low carbon fuel, the policy, subordinate policies and work streams will be constructed to deliver outcomes that promote the sales of electricity and reduce the sales of gas and heating oil. For example

- The proposed changes to the building bye laws will promote electricity by adding to the cost of construction of buildings heated by gas or heating oil.
- Potentially the introduction of a carbon tax.

Such a policy direction could in the short term lead to the withdrawal of gas and or heating oil from the Jersey market. This in turn would be at odds with other stated Energy Policy objectives those being to provide a secure and affordable energy supply for the island. Examples of how these objectives could be compromised by promoting the use of electricity follow:

a) Jeopardise security and resilience of supply. Jersey would become totally dependent upon one type of energy, predominantly from one source (Europe) and possibly one supplier (EDF).

b) Reduce diversity within the energy market impacting upon customer choice and competition.

c) Increase the heating and energy bills for many households and businesses in Jersey. Gas and heating oil have a price advantage over electricity in most applications.

d) Increase in infrastructure costs, which in turn will further add to the heating and energy bills for households and businesses in Jersey. If heating oil and gas were backed out of the energy market in Jersey we estimate that JEC's peak load would increase by a factor of 3. Significant costs would be incurred to meet such an increase in peak load. For example

   - Additional cables to Europe to import electricity.
   - Possibly additional on island generation given the islands total dependence on electricity.

- Substantial reinforcement of the JEC's on island distribution network.

The above infrastructure improvements would cost several hundreds of millions of pounds. The Energy Policy consultation document authors were asked to provide their estimates of the increase in JEC's peak load and associated costs but have declined.

e) Increased costs for customers and disruption. If gas and heating oil were withdrawn from the heating market households and businesses would be forced to replace existing gas and heating oil appliances at significant costs and disruption.

f) Increased number of road works. There would be significant disruption to the islands roadways to facilitate the wholesale reinforcement of the JEC's on island distribution network to cope with the increased peak demand.

The outcomes a) to f) are realistic and pose a serious threat to the island. Even if the Energy Policy's view of electricity being low carbon were correct it would be a very high price to pay for the carbon reductions gained. However, as we describe in section 3 of this report, the Energy Policy's treatment of imported electricity as low carbon is flawed, it is at odds with other jurisdictions approach and accepted methods. Other jurisdictions assessments of grid electricity is that it is a high carbon source of energy when compared to gas, heating oil or even coal when used for heating purposes.

Hence, unless the Energy Policy is challenged over this issue Jersey may put itself at risk of the outcomes listed above a) to f). Also whilst doing so unwittingly cause an increase in global carbon dioxide emissions, this in turn could impact upon the reputation of Jersey on the international stage.

2. Background

Jersey Gas provided feedback to both the Energy Policy consultation papers.

Following the consultation paper issued on the 24th September 2007 Jersey Gas had a number of meetings and exchanged information with the authors of the consultation document, Mr Chris Newton, Director of Environment and Dr Louise Magris, Assistant Director Environmental Policy. The dialogue was predominantly about the assumptions and calculation basis used to assess the carbon content of imported electricity. Jersey Gas learnt that the Energy Policy authors based their view on the carbon content of electricity on that as provided by the electricity supplier, JEC, who in turn refers to the company that supplies them with the majority of their electricity EDF. Jersey Gas rejects this approach. Jersey Gas believes that the approach is naive, selective and not sufficiently robust for Energy Policy purposes. It is a calculation method which is at odds with other jurisdictions and that would lead to outcomes that are likely to increase, not reduce, global carbon dioxide emissions. Jersey Gas's case is explained fully in section 3 of this report.

Jersey Gas do agree that by converting to electricity and then importing electricity from Europe Jersey could claim zero or low carbon dioxide emissions for the island. This is because in some

calculation methods the emissions associated with electricity are calculated at the point of electricity generation. However, such a strategy of moving to electricity and then importing all electricity would for the foreseeable future lead to an increase in global carbon dioxide emissions. Therefore it would be at odds with the ultimate goal of addressing global warming. As such this is not the action of responsible government. Adopting such a strategy could impact upon the reputation of the island on the international stage.

Despite the dialogue between Jersey Gas and the authors of the consultation document in the first quarter of 2008 we were told that they have not changed their stance. Jersey Gas have continued to research this subject matter and have built a significant dossier of evidence to back our position. Some of the evidence, a number of independent energy consultants' reports and communications, were provided in the third quarter of 2008 to the authors of the consultation document. There was little feedback to these reports from the Energy Policy authors other than to say that they were not persuaded. We have received nothing in the way of a detailed explanation as to why they continue to support their original view with regard to the alleged low carbon credentials of imported electricity.

On the 22nd October 2008 Jersey Gas were invited to attend a meeting with various politicians and senior civil servants. This meeting was convened as a result of Jersey Gas objecting to the proposed changes to the Jersey Building Bye Laws which favoured electricity again based upon the low carbon assumptions of the Energy Policy. Jersey Gas were hoping to be able to present its up to date dossier of information on the carbon issue to those present at the meeting, however at this meeting we were effectively told that the issue was closed. We were however assured that the Building Bye Laws would not be passed until an assessment had been made of the economic impact of the changes in the Building Bye Laws upon Jersey Gas. We felt that the economic impact assessment would give us the opportunity to open the carbon debate again.

However Jersey Gas became concerned upon the announcement on a radio interview on Friday 13th February 2009 in which Senator Cohen, Environment Minister, suggested that the Building Bye Laws would be changed within a matter of weeks despite Jersey Gas's concerns.

This announcement caused Jersey Gas to contact the Environment Scrutiny Panel. It should also be noted that Jersey Gas have approached the Jersey Chief Minister, Senator Le Sueur and Mr Swinson, Comptroller and Auditor General, in order to bring this matter to their attention. To date we have not been invited to meet with either the Chief Minister or Mr Swinson.

Also during this period of activity we have been invited to meet with Mr Andrew Skate, Chief Officer of Planning and Environment in order to discuss our concerns. This meeting is scheduled for 10th March 2009.

3. Carbon intensity debate

In order to determine the carbon content of various energy sources and fuels they are assigned what is known as a carbon intensity figure. The carbon intensity declares the weight of carbon

dioxide emitted (kg of CO2) per unit of energy provided (kWh, kilowatt hour). The lower the carbon intensity figure the lower the carbon dioxide emitted for each kWh of energy used.

3.1 Carbon intensity of various fuels.

The following carbon intensities are taken from the UK Carbon Trust Fact Sheet CTL018.

Natural gas 0.185 kg CO2/kWh
LPG 0.214 kg CO2/kWh
Heating oil 0.252 kg CO2/kWh

Carbon intensities for the fuels listed above are relatively straight forward to calculate. However carbon intensity figures for electricity are more difficult to calculate if the source of electricity is taken from a grid system. This is because grid systems typically have various inputs, different forms of generating plant, nuclear, hydro, coal, oil, wind, wave, gas etc. Each type of generating plant will have difference carbon intensity dependent upon the fuels that are used and the efficiency of the plant. As a result the grid system average carbon intensity is used. Again from the UK Carbon Trust Fact Sheet CTL018 the following carbon intensity is assigned to UK grid electricity.

UK Grid electricity 0.537 kg of CO2/kWh

As can be seen UK grid electricity has a carbon intensity 2 or 3 times higher than natural gas, LPG or indeed heating oil.

However Jersey are connected to the European grid. Here we can provide information published from the International Energy Agency.

European 15 countries circa 0.354 kg of CO2/kWh
European 25 countries circa 0.38 kg of CO2/kWh

As can be seen the carbon intensity for European electricity is still significantly higher than that of LPG and or heating oil. The European figures above do not include distribution and transmission losses hence are lower than they should be for electricity delivered to the point of use. Jersey Gas believe that the States of Jersey Energy Policy should assign a grid average carbon intensity to imported electricity.

However the Energy Policy authors have chosen to ignore the above carbon intensities for European grid electricity and instead have adopted a figure of 0.08kg of CO2/kWh which is low as a consequence of the current supply contract with EDF who have a large nuclear generation capacity in Europe.

There are serious problems with respect to the Energy Policy Authors adoption of this carbon intensity. These are fully described in section 3.2 and 3.3.

3.2 Testing the appropriateness of the carbon intensity figure chosen for imported electricity by the Energy Policy authors.

The following sub sections assess and test the appropriateness of the carbon intensity figures postulated by the Energy Policy authors (0.08 kg of CO2/kWh) and by Jersey Gas (0.38 kg of CO2/kWh the European grid average). As you will see the tests all support the use of the grid average.

3.2.1 Does the carbon intensity figure reflect how the European grid will react to a change in demand?

a) The Energy Policy authors carbon intensity assumption of 0.08 kg of CO2/kWh.
This figure does not reflect how the European grid will react to an increase in load. It suggests that Europe has underutilised or unused low carbon generation capacity available. This is not the case, it does not have such generation capacity available, if it did it would use it. In economic terms low carbon generation is normally called "must run" generation because it is low marginal cost. For example who would shut down a wind turbine once it has been built, its running cost being significantly less than a hydrocarbon power station. If Jersey did not use the low carbon electricity from Europe, is it switched off? No, it is most likely used elsewhere in Europe backing out high carbon generation. The figure of 0.08 kg of CO2/kWh does not reflect intercompany and inter country trading of electricity and generation capacity as promoted by EU directive 2003 / 54 / EC – Common Rules for the Internal Market in Electricity.

b) The Jersey Gas carbon intensity assumption of 0.38 kg of CO2/kWh.
The figure is more reflective of how the European grid will respond to additional demand, ultimately this additional / marginal demand is likely to be met through hydrocarbon generation as Europe does not have underutilized or unused low carbon generation capacity available. It does reflect trading between Europe's generators and countries as promoted by EU directive 2003 / 54 / EC – Common Rules for the Internal Market in Electricity.

3.2.2 Is the carbon intensity figure consistent, reliable and predictable?

a) The Energy Policy authors carbon intensity assumption of 0.08 kg of CO2/kWh.
The carbon intensity figure is not consistent, reliable and or predictable. If the JEC cannot secure a supply contract with EDF then the carbon intensity assumption as adopted by the Energy Policy authors is likely to increase significantly thereby undermining the strategies developed by the Energy Policy. If EDF merged with another generator or supplier, or if

EDF purchased another generator or supplier, or if another supplier purchased EDF then the suppliers' generation profile would change substantially, again likely to significantly increase the carbon intensity figure adopted by the Energy Policy authors. This again would undermine the strategies developed by the Energy Policy. The low carbon intensity figure chosen is completely reliant upon commercial activities largely beyond the island's control.

b) The Jersey Gas carbon intensity assumption of 0.38 kg of CO2/kWh.
The carbon intensity figure is consistent, reliable and predictable. It will reduce in the long term as Europe tackles the high carbon emissions of electricity. By adopting this figure Jersey's strategies of tackling climate change will not be jeopardised by activities beyond its control. We will be able to predict the carbon intensity of imports into the future, they will not change significantly year on year. Jersey would adopt a method of calculating carbon intensity for electricity which is consistent with other jurisdictions.

3.2.3 Does the carbon intensity figure align to calculation methods and assumptions used by other jurisdictions.

a) The Energy Policy authors carbon intensity assumption of 0.08 kg of CO2/kWh.
This carbon intensity assumption does not align with other jurisdictions and published methods. In the UK DEFRA, the Carbon Trust and across Europe BSI PAS2050:2008 do not allow organisations to calculate carbon dioxide emissions based upon an electrical suppliers generation profile. Organisations must use the grid average even if they purchase electricity on a "green tariff".

Jersey Gas have challenged the Energy Policy authors to provide any published methodology that would allow the calculation of carbon emissions to be based upon an electrical suppliers generation profile. To date they have not responded or provided any supporting information.

b) The Jersey Gas carbon intensity assumption of 0.38 kg of CO2/kWh.
This method of calculating a carbon intensity figure aligns with the approach taken by DEFRA, the Carbon Trust and BSI PAS2050:2008 none of which allow organisations to calculate carbon dioxide emissions based upon their electricity suppliers generation profiles. These documents all declare that organisations must adopt a grid average for electricity used.

3.2.4 Will the carbon intensity figure adopted deliver strategies and outcomes that will reduce carbon dioxide emissions?

a) The Energy Policy authors carbon intensity assumption of 0.08 kg of CO2/kWh.

This carbon intensity figure will not deliver strategies and outcomes that will reduce global carbon dioxide emissions. To the contrary it is likely to deliver outcomes that will increase global carbon dioxide emissions. There will be no or little environmental incentive to reduce electricity demand. There will be no or little environmental incentive to develop renewable generation, (solar, wave, sub-sea turbine and wind etc.). It will encourage the replacement of gas and heating oil in homes with grid electricity. These outcomes are not consistent with other jurisdictions approach with tackling climate change. An example of this would be that a Jersey low carbon home could be a poorly insulated single glazed property providing it was heating with grid electricity, this is completely at odds with Europe's vision with regard to low carbon homes.

b) The Jersey Gas carbon intensity assumption of 0.38 kg of CO2/kWh.
This carbon intensity figure will deliver strategies and outcomes that will reduce global carbon dioxide emissions. There will be environmental incentives for renewable generation (solar, wave, sub-sea turbine and wind etc.). Such outcomes are consistent with other jurisdictions approach with regard to tackling climate change. For example if the grid average carbon intensity figure is used low carbon homes in Jersey would look similar to those visualised in the rest of Europe.

3.3 Other evidence to support the Jersey Gas carbon intensity assumption of 0.38 kg of CO2/kWh for imported electricity.

3.3.1 Independent energy consultants and experts comments.

Jersey Gas sought the opinions of a number of energy consultants and experts in the second quarter of 2008. Four consultants were asked to comment upon the appropriateness of the carbon intensity assumption adopted by the Energy Policy authors. All four made comments to the effect that the Energy Policy authors choice of carbon intensity was inappropriate for a policy which aims to reduce global carbon dioxide emissions. Extracts from their reports and communications are provided below.

- Poyry Energy Consulting, Senior Consultant, Angus Paxton, "As the entirety of Europe is interconnected one would argue that average Europe emission factor is the most appropriate".
- Isis Ventures Ltd, Energy and Utility Advisors, Peter Ritson, Director, "The impact of additional electricity demand on the network has to be assessed across the whole of Europe".
- Energy Markets International Ltd, Peter Cameron, Director, provided a detailed study of the marginal electricity supply in France on a number of days in December 2007 and concluded the marginal electricity to be of a carbon intensity of 0.529 kg of CO2/kWh for the period studied.

- AEA Energy and Environment "Increase in electricity demand on the island is likely to lead to increased overall CO2 emissions given the way that EDF sources its energy to deal with increasing demand in both the long and short term".

3.3.2 Consistency with various other Channel Islands reports.

Assigning the carbon intensity figure for the European average as proposed by Jersey Gas would be consistent with various Channel Islands press reports associated with the European cable link projects and operations. The States of Guernsey, Green Peace, GEL and JEC have been quoted in various press reports in alluding to how we are accessing the European mix of generation and in some cases reinforcing that the connection with Europe would not promote the nuclear power industry.

Adopting the Jersey Gas proposed figure would also be consistent with the Guernsey SEB report, Future Electricity Supplies for Guernsey which formed the Billet D'Etat XIX 1996. An example quotation from this report reads "the Committee sees the major potential benefits in a cable link with Europe as being enhanced security of supply and access to a competitive market for energy produced from a wide range of sources", the sources and percentage contribution are quoted elsewhere in the report and contain a significant proportion of hydrocarbon generation, circa 50%.

4. Conclusion

We would like to thank the Environment Scrutiny Panel for giving us the opportunity of bringing this matter to their attention. If there is any further information or explanations required please do not hesitate to contact Paul Garlick, Managing Director, Jersey Gas, work telephone number 01534 755518, mobile number 07781116293 and email paulg@i-e-g.com. If required we would welcome the opportunity to make a presentation or discuss our concerns with the Scrutiny Panel.

Hopefully we have conveyed the fact that this is a very serious issue, not only for the Jersey energy market and those who have business activities associated with it, but for all customers and businesses, the public at large and indeed for the island.

We believe that Jersey could be about to make a serious mistake that may have significant financial implications and jeopardise the islands energy supplies. A mistake that could embarrass Jersey on the international stage.

We urge the Scrutiny Panel to intervene and request a full review into the Energy Policy's authors choice of carbon intensity for imported electricity. We urge the Scrutiny Panel to ensure that there is full and open dialogue with regard to this issue in order that the choice of a carbon intensity figure for imported electricity is appropriate, consistent, defendable and will deliver outcomes that will reduce global carbon dioxide emissions.