

EXECUTIVE COUNCIL

CONFIDENTIAL

Title of Report: Energy Policy Options
Paper No: 224/11
Date: 28 September 2011
Report of: Director of Public Works

1.0 Purpose

1. To offer for consideration comment and options and seek Members views on options which might be followed in relation to the development of an energy Policy and Strategy for the Islands in order that this can be reviewed and developed and presented for consideration and approval by Members at an appropriate stage.

2.0 Recommendations

2.1 That the energy policy of for the Islands should:

(a) Promote practice, including via the revision of legislation relating to construction standards under the Building Control Regulations and Planning Ordinance, which will reduce consumer operating costs through energy conservation and good energy house keeping.

(b) Seek to reduce reliance upon imported fossil fuels but particularly for the production of electricity throughout the Falkland Islands - in Stanley through the continued development of the Sand Bay Wind farm and in camp through further development of 24 hour power systems including at larger farms utilising centralised supply.

(c) Encourage the use of appropriate technology that will reduce or optimise the use of energy including, where this appears appropriate in the broader Economic context, by means of loans or grants

(d) Seek to reduce the production of carbon dioxide and other polluting emissions associated with the consumption of fossil fuels.

2.2 That the Broad Strategy set out in 4.6 below should be supported by Members, subject to a further more detailed submission(s) being made on how this might be delivered

3.0 Summary of Financial Implications

None at this stage. The introduction of loan or grant systems to encourage change should this become part of approved policy has the potential to incur costs.

4.0 Background

4.1 It is suggested that the primary aim of any national energy policy should be to make energy available to the population at the level required but to promote and encourage sensible and efficient use before promoting alternative or renewable forms.

4.2 The draft Energy Policy has been drawn up against a background of;

1. Electricity production island-wide relying largely on imported fossil fuels.
2. The widespread use of fuel oils and liquefied petroleum gas for heating and cooking purposes.
- 3 An international desire to reduce atmospheric levels of carbon dioxide and other pollutants associated with the combustion of fossil fuels.
4. The attendant disadvantages of continued high reliance on imported fossil fuels, which are;
 - Increasing cost to the national economy, and lack of control over this linked to:
 - Economic risk arising from oil price sensitivity and currency valuation changes,
 - Outflow of foreign exchange.

4.3 Leading on from the above there are two core areas where real progress is anticipated as being possible to wide benefit.

1. The level of energy use for heating buildings can be reduced significantly by the improvement of insulation and draught sealing standards and more efficient systems – minimising need and maximising utilisation.
 2. There is greater yield potentially available from the Sand Bay Wind farm through the use of technologies which are still being developed both in the area of storage and possibly of optimising usage by consumers through so called ‘smart metering’ and using variable tariffs to encourage usage when there is potential for greater demand to be met from wind generated output.
- 4.4 There are likely to be long lead in times for this second area due to this being developing and sophisticated technology and the need to allow bedding in on the

wind farm project itself, as the even the installed flywheels potential has yet to be fully realised, with work still being done by the manufacturers on control software which is now projected to be available in December 2011.

4.5 Objectives:

1. To reduce consumer needs and operating costs through energy conservation and good energy house keeping.
2. To continue to reduce reliance upon imported fossil fuels particularly for the production of electricity throughout the Falkland Islands.
3. To reduce production of carbon dioxide and other polluting emissions associated with the consumption of fossil fuels.
4. 4. To encourage the use of approved and appropriate technology that will reduce or optimise the use of energy including, where this appears appropriate in the broader Economic context, by means of loans or grants

4.6 Suggested Broad Strategy

1. Continue to develop the supplementation of the Stanley electrical power system through wind power as a renewable energy source, via the monitoring, investigation and development proposals utilising storage and system control developments and technology.
2. Continue to provide encouragement for Camp residents to conserve fuel oil through use of renewable energy technology.
3. Promote energy conservation measures in the public sector and recommend that attempts are made to reduce annual energy usage through good or automated energy management and use of low energy equipment.
4. Ensure appropriate low energy measures are considered for incorporation into all new building projects.
5. Promote energy conservation measures in the private sector through issue of advice and information.
6. Drive change and improvement in building efficiency through the introduction of appropriate changes in Planning and Building Control Legislation
7. Re evaluate the grant assistance programme for insulation of domestic premises and other improvements or developments considered to be of relevance to the Islands.

8. Evaluate a grant assistance/loan programme for the supply of low energy equipment.
9. Evaluate a grant assistance/loan programme for the purchase and/or installation of renewable energy utilising systems for domestic and commercial premises

There is a range of basic drivers for people to invest in new strategies.

4.7 Primary drivers

1. Proven to be cost effective in the short term. (Up to 5 years.)
2. Shown to instantly improve comfort levels.

These are likely to lead individuals and organisations to make the change themselves, if properly informed of the benefits.

4.8 Secondary drivers

1. Shown to be cost effective in the medium term (5-10 years)
2. Easier to use/reduce maintenance or have other secondary benefits
3. Socially desirable (Social image, property value, etc.)
4. Environmentally desirable (green image)

These may lead some individuals to make the change themselves, but only if they can afford to meet any additional capital costs without impacting too heavily on their short term expenditure – the lower paid individual may not be able to afford to make the improvement despite being aware of the longer term gains.

This is an area where short term loans or low level grants may have effect – such as the home improvement scheme operated by FIDC but with extremely low levels of funding each year.

4.9 External levers

1. Is there any financial encouragement? (Grant, tax relief, etc – a grant can reduce payback time (ROI) to parties involved with the investment)
2. Is there a legal requirement (Building and Planning Regulations, etc.)
3. Fuel costs, duties or taxes may encourage energy savings.

Many of the schemes in use in UK and elsewhere to install solar panels (whether these are for water heating or production of electricity (photovoltaic) are heavily subsidised and some of the costs for these schemes are met through charges made for

electricity. One such example is the Feed in Tariff, where those installing photovoltaic panels on domestic properties are paid 43.3p per unit for each unit generated and used, for a minimum of 25 years. In pure economic terms the panels would not pay for themselves for perhaps a 20 year period and might therefore be considered uneconomic, although offering some gains in terms of fuel displacement and carbon emissions reduction for the country as a whole.

Analysis has been carried out on a range of typical solar water heating schemes and the estimated typical payback period on a domestic water heating scheme is estimated to be between 7.5 and 10.5 years (at current elevated fuel prices; a year ago payback was assessed at 12 to 15 years), assuming that best use is made of the installation as water usage needs to be managed well to optimise output - so actual payback may be as much as twice as long as a poorly used system may recover little more than 50% of the theoretical heat available.

Members are asked to consider if they would be willing to support schemes which have medium term gains, and if so if that might extend to full grants or if there should always be some level of payment by those benefitting from the scheme. The current FIDC housing assistance grant scheme is at 50% of materials cost.

Some accredited or proven performance data is essential to demonstrate the overall benefits and advantages in this environment and it is suggested that further work would be needed on this as a precursor to any scheme being implemented, so if it is considered that any schemes providing financial support may be forthcoming, this data would need to be gathered and analysed. There may be time implications only if suitable data can be gathered from existing historic records, but if not then equipment may need to be purchased and then operated for at least a year. No costs are known at this stage.

As with the wind power system, a local champion and demonstrably effective pilot project can assist with these initiatives.

4.10 **Overseas influences**

1. Reduced energy consumption encouraged for most domestic equipment in EU.
2. Industry energy efficiency standards increasing
3. Overseas regulations and laws on appliance efficiency
4. People's expectations based on overseas experiences
5. Improved insulation standards are now the norm.
6. Improved and reliable building energy management systems
7. Corporate Social Responsibility (CSR) drivers; a policy to reduce pressure on the environment, (wastage, contamination, etc.) improve energy efficiency and reduce carbon footprint across the entire spectrum of an organisation's operations.

Of the above the first 4 are likely to have a positive effect with no change to current policy or practice locally, as gradually only the more efficient machines and equipment will become available, other than as second hand items such as vehicles – where the lower tech maintenance requirements of older less efficient vehicles for instance may be more of a positive to the Islands than the lower fuel usage or carbon emissions.

Even with 5, it is noticeable that kit houses of higher insulation standards than are required by the local Building Regulations are being imported on a regular basis, and the lower standards may tend to be those which are locally fabricated – and attract lower costs to build in many cases, and in refurbishments which are not required to meet the Building Regulations in relation to insulation and efficiency levels.

5.0 Conclusions

5.1 There is considered to be a need to reduce the level of importation of fuels for energy and areas appearing to offer benefit, not least of all wind, and the improvement (reduction of need) of energy use in buildings and activities.

5.2 There are already some clear winners such as the wind farm which it is considered can over time be gradually improved so as to give even better returns, even though this may require further investment.

5.3 There are also areas where simple steps such as legislating to ensure buildings are constructed and upgraded to higher performance standards and which will have permanent positive effect.

5.4 There are also areas where longer term benefits may be possible, but further investigation is needed and it may be that FIG will need to assist with funding in order to encourage others to invest, with a view to wider economic and longer term benefit which may result.

6.0 Financial Implications

None

7.0 Legal Implications

None at this stage, although there may be need to be work done on the Building Regulations and Planning Ordinance

8.0 Human Resources Implications

None