

Report to: Executive Board Sub Committee
Reporting Officer: Strategic Director Environment and Economy
Date: 10th February 2011
Subject: Income Generation from Renewable Energy

1. PURPOSE OF REPORT

1.1 Renewable energy technologies like wind turbines, solar panels and biomass heaters offer an alternative to fossil fuels and can help reduce an organisation's CO2 emissions. From April 2010, Feed-in Tariffs were introduced for small-scale renewable electricity generation, offering the potential for long-term income opportunities for the Council. This report provides an outline of the opportunities and sets out proposals to seek tenders from interested suppliers to supply, install and maintain solar panels on Council buildings, including schools, and highlights the potential risks associated with the various financial options.

2. RECOMMENDATIONS: That

- 1. the invitation to tender to supply, install and maintain solar panels on Council buildings, including schools be endorsed; and**
- 2. a decision on the most advantageous financial model be determined once a full evaluation of the tender proposals have been completed.**

3. BACKGROUND INFORMATION

3.1 Feed-in Tariffs (FITs) became available in Great Britain on 1st April 2010. FITs are an incentivisation mechanism introduced by the government to promote small scale private investment in renewable technologies. The legislation obligates utility companies to pay people/organisations a set amount of money for each unit (kWh) of renewable electricity that they produce.

3.2 The scheme guarantees a minimum payment for all electricity generated by the system, as well as a separate payment for the electricity exported to grid. These payments are in addition to the energy bill savings made by using the electricity generated on-site.

3.3 The scheme covers electricity generating from Solar electricity

3.4 FITs replace previous grants schemes for renewable technologies and are designed so that the average monthly income from your installation

will be significantly greater than your monthly loan repayment (with a 25 year loan).

3.5 If an organisation is able to receive the FIT they can benefit in 3 ways:

(a) **Generation tariff** – a set rate paid by the energy supplier for each unit (or kWh) of electricity you generate. This rate will change each year for new entrants to the scheme (except for the first 2 years), but once you join you will continue on the same tariff for 25 years in the case of solar electricity (PV). The FITs for Solar PV are as follows:

Scale	Tariff level for new installations in period (p/kWh) (NB tariffs will be inflated annually)		
	Year 1: 1/4/10 – 31/3/11	Year 2: 1/4/11 – 31/3/12	Year 3: 1/4/12 – 31/3/13
<4 kW (new build)	36.1	36.1	33.0
<4 kW (retrofit)	41.3	41.3	37.8
>4-10 kW	36.1	36.1	33.0
>10-100 kW	31.4	31.4	28.7
>100kW-5MW	29.3	29.3	26.8
Stand alone system	29.3	29.3	26.8

(b) **Export tariff** - you will receive a further 3p/kWh from your energy supplier for each unit you export back to the electricity grid, that is when it isn't used on site. The export rate is the same for all technologies.

(c) **Energy bill savings** – you will be making savings on your electricity bills, because generating electricity to power your appliances means you don't have to buy as much electricity from your energy supplier. The amount you save will vary depending how much of the electricity you use on site.

3.6 The Government have confirmed as part of their comprehensive spending review that Feed in Tariffs will not be immediately cut or

replaced. They will be reviewed as planned in 2013. Systems installed now and up to March 2012 are guaranteed the payments outlined in the Appendix for the next 25 years. If the Council wishes to pursue this as an option we need to act before this date as after this time the incentives become reduce and become less attractive.

4. CURRENT POSITION

4.1 The Council has held initial discussions with a number of companies to look at the potential for utilising our roof space and that of schools to generate income.

4.2 There are a number of factors that affect the yield on a system such as:

- South/south east/west/west east facing
No shadowing from AC units, surrounding tress, other buildings etc)
- Height of building to prevent theft/vandalism
- A 10kwp needs about 100sq m (about 54 panels) on a flat roof
70sqm on a pitched roof
Roof in good condition and preferably having been recently re-roofed or the roof in good condition so unlikely to need replacing over this time
- Building to be in ownership for 25 years
- Weight bearing load

There are also issues to be considered about:

- Insurance against vandalism and theft (normally falls to the Council)
- Who meets the costs of removing and replacing the system if the roof needs repairing (normally the Council)
- Who maintains and monitors the system (normally part of a maintenance contract)
- Who will be liable if the equipment causes damage to the roof
- Performance of the equipment (this technology is well proven and the performance expected can be pretty accurately predicted, however it isn't an exact science and we would cherry pick the best buildings likely to give the predicted greater returns)
- Planning permission

Solar PV panels are silent, robust, with no moving parts and are unlikely to go wrong. They require minimal maintenance. They are also difficult to damage.

5. OPTIONS

5.1 Essentially there are three options but not all companies offer the same options and terms vary.

- 1) Self funding (provides greatest benefit of Fits but higher risk).
- 2) Leased Panels (installation and maintenance funded by a lease,

Fits to customer to cover lease payments

- 3) Fully hosted with financing provided to supply fit and maintain the panels free of charge. In this model the supplier takes 25 years of FiT and the Council gets all of the electricity savings or in some cases discounted.

5.2 The different approaches carry different levels of risks and varying degrees of return on investment.

5.3 The core difference in the two financed packages lies primarily with ownership of the Feed-in tariff. Under options 1 and 2 the Council will be the beneficial owner of the full Feed-in tariff payment for the 25 years and will receive all of the electricity savings for the life of the system. The Council will be in a position to use the income generated from the FiT payments to cover any capital/ lease payments and the maintenance payments. This offer is most suitable for lowest cost, highest yield buildings where the Council and supplier are comfortable that the capital/lease payments and the maintenance payments will be comfortably covered by the FiT from Year 1.

5.4 Capital costs vary with Option 1 requiring a high upfront capital cost, Option 2 requires an upfront capital costs but this can be varied depending on the level the Council wishes to invest and Option 3 has a very low capital cost. In general options where the Council retain the FITs offer the best return on investment but carry greater risk.

6. OTHER RISKS

6.1 Other risks that may affect the overall decision on which option is financially advantageous to the Council:-

6.2 Solar Yield

6.3 The annual solar yield will vary from year to year and from site to site. There is a risk that in years of heavy cloud cover throughout the summer, the electrical energy generated will be lower than the estimates. However, long term climate change projections predict a lower rainfall in the summer and cloud cover is expected to reduce. This could enhance the annual solar yield.

6.4 Selecting sites that are unlikely to be over-shaded by new development in future years and careful planning when siting new buildings, street lighting or telecommunication masts will help to mitigate the risks. Careful site selection and attention to local plant growth as part of the annual maintenance cycle will help to ensure yields are maximised.

6.5 Reduced solar resource leads to lower energy outputs and FIT payments and reduced rates of return.

6.6 System failures

6.7 A number of factors can effect the overall yield from a solar these include system failure, roof repairs, failure of electrical equipment (notably inverters) diminishing yield with age of panel, dust and debris, theft, vandalism. All these could be factors that could lead to a loss of or reduced level of generation and export payments.

6.8 Changes to Feed In Tariffs

6.9 The FIT generation payment is fixed for smaller (sub 4kW) solar PV panels for 25 years. The rates will reduce over time but only for new entrants. The Government could feasibly change the scheme which could impact on long term income opportunities but any changes in rates for existing FITs beneficiaries is likely to require new primary legislation.

6.10 Invitation to tender

6.11 To assess the potential for income generation the Council intends to set up a framework of suppliers to fit solar PV initially on 20 of its buildings. The specific buildings will be identified as part of the detailed tender documentation. Given the potential cost of the work is in excess of £156,000 the process is captured by the OJEU Regulations. The Council intends to seek proposals for the three options identified in the report. The tenders will need to be evaluated on the basis of potential capital costs of each option against the potential income generated from each system. As the income cannot be guaranteed the evaluation will need to factor in risks highlighted in the report to assess which is the most financially advantageous to the Council taking into account all the risk factors.

7. POLICY IMPLICATIONS

7.1 The use of renewable energy to provide electricity for Council buildings and schools would meet an objective the in the Council's Carbon Management Strategy.

8. FINANCIAL IMPLICATIONS

8.1 Energy costs associated with fossil fuels are continuing to increase and switching to alternative sources could ease the financial pressure on the Council in relation to increasing energy costs. There may be some capital costs to the Council depending on the approach to be adopted but these should be recovered and future income generated from the FITs

9. OTHER IMPLICATIONS

9.1 None

10. IMPLICATIONS FOR THE COUNCIL'S PRIORITIES

10.1 Children & Young People in Halton

None

10.2 Employment, Learning & Skills in Halton

None

10.3 A Healthy Halton

None

10.4 A Safer Halton

None

10.5 Halton's Urban Renewal

None

11. RISK ANALYSIS

11.1 A risk analysis of the various options will be built into the financial evaluation of the tenders

12. EQUALITY AND DIVERSITY ISSUES

12.1 The tender documentation will ensure that potential suppliers have Equality & Diversity Policies & Procedures in place.

13 LIST OF BACKGROUND PAPERS UNDER SECTION 100D OF THE LOCAL GOVERNMENT ACT 1972

None.