

**Agenda Item No:** **Report No:**  
**Report Title:** **Photovoltaic (PV) panels to housing and other properties**  
**Report To:** **Cabinet** **Date:** **20 November 2014**  
**Cabinet Member:** **Councillor Philip Howson**  
**Ward(s) Affected:** **All**  
**Report By:** **Gillian Marston - Director of Service Delivery**  
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#### **Purpose of Report:**

To report on the progress to install Photovoltaic (PV) panel systems on up to 1,700 housing properties.

To authorise officers to pursue a staged approach to procurement to ensure that the Council maximises its opportunity to reduce tenants' fuel bills, reduce carbon emissions and create an annual income for the General Fund.

#### **Officer's Recommendations**

- 1 That Cabinet recommends to Council
  - a. to approve a budget of £2.7m within the General Fund non-housing capital programme in respect of the installation of PV panel systems on up to 700 council-owned homes on the basis of the business case presented in this report.
  - b. to approve the financing of the PV panel systems from General Fund prudential borrowing.
  
- 2 That Cabinet agrees, subject to the approval of the capital programme allocation, that
  - a. Officers conclude discussions with Fusion 21 to appoint a contractor from its PV Framework to initially install PV panel systems on up to 700 council homes.

- b. Officers conclude a call-off contract under the Fusion 21 framework subject to the Director of Service Delivery being satisfied as to completion of due diligence by Finance and Legal, including approval of the framework contract and procurement documentation received from Fusion 21.
  - c. Officers are authorised to seek an alternative Framework, subject to the same conditions as in (b) in the event that it is not possible to conclude negotiations with Fusion 21.
  - d. Officers review the business case at completion of the initial 700 panel installation programme to consider extending to a further 1,000 properties.
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## Reasons for Recommendations

- 1 This is an opportunity to invest up to £2.7m in the installation of PV Panel systems on Council-owned homes in the Lewes District which will reduce the cost of electricity for tenants, create an annual net income of approximately £49,000 for the General Fund, to produce a potential 2.5 Gigawatts of power which would reduce CO2 emissions by up to 1,500 tons per year, over the next 20 years

## Information

- 2 At the June meeting Cabinet agreed that officers should:

***Conclude discussions and contract with Access Energy and Carillion Construction through the Sussex Energy Savings Programme Contract 2013 to provide PV Panels to approximately 694 identified properties as the first phase of this project.***

***In parallel to explore other sources of funding for the second phase of this project including the use of the borrowing 'headroom' of the housing revenue account for PV panel systems so that the whole PV scheme can be delivered by 31 March 2017.***

- 2.1 Whilst commencing the process to conclude discussions through the Sussex Energy Savings Programme Contract an improved opportunity arose from the joint working initiative with Eastbourne Borough Council. In any event, further analysis of the detail for proceeding with the Access energy and Carillion offer identified technical reasons why the procurement could not proceed.
- 2.2 Eastbourne Borough Council was a pioneer in developing a financial modelling tool and an alternative procurement and funding route for the installation of PV panels on Council owned housing. This provides an additional financial benefit for the council that would otherwise have accrued to a private contractor.

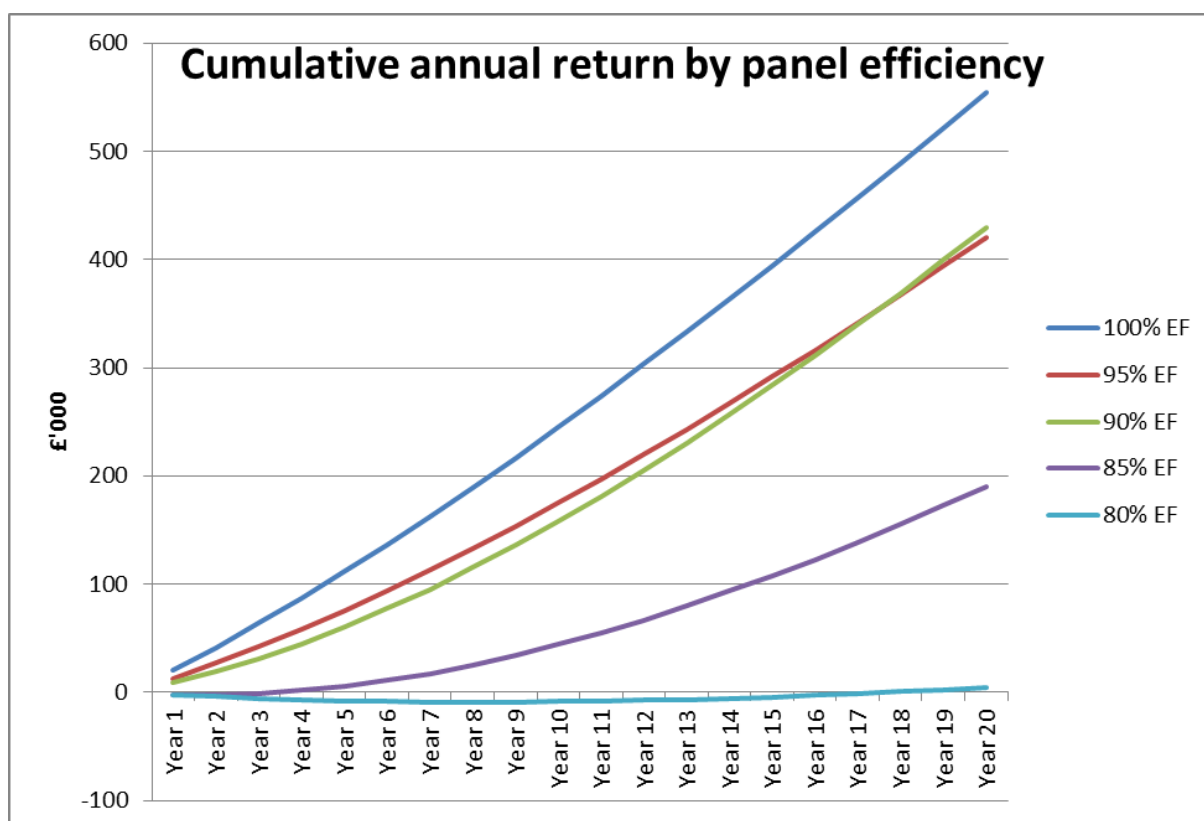
- 2.3** Eastbourne Borough Council's model was applied during the 2011/2012 financial year and the annual accounts have received an unqualified audit opinion.
- 2.4** Members will recall that the business case for PV installation allows for an installation cost to be offset by a Feed in Tariff (FIT) payment from the electricity supplier but determined by the government for a period of 20 years. In addition, income gained from selling "surplus" power to the Grid also accrues to the system owner. The tenant benefits from a reduced electricity bill of between a third and a half.
- 2.5** The alternative procurement route involves working with an existing public sector procurement club, Fusion 21. Fusion 21 was created ten years ago by seven social landlords in the north west in order to generate savings by collaborating in their procurement. It is now a national social enterprise working with social landlords using a range of OJEU compliant frameworks that create savings, both financial and time. Fusion has a PV framework in place that would allow Lewes District Council to use its Number 1 contractor and be on site within eight weeks of contract award.
- 2.6** It will be possible to construct a staged contractual arrangement to install the first identified 700 systems, and then move onto the remaining 800 or so properties that have roofs that are located in positions that can maximise solar power (using the Energy Savings Trust energy matrix).

## **Financial Appraisal**

### **3 Financial Modelling**

- 3.1** Extensive financial modelling has taken place, allowing for a range of sensitivities to be tested. Within the model, prudent assumptions were used and tested to see how much they would have to change before the programme as a whole, or elements within it, would no longer pay back over the 20 year period applicable to the FIT income stream.
- 3.2** The modelling measured the costs and income associated with the PV panel systems from the Council's perspective only. It did not evaluate the potential reduction in tenants' electricity bills resulting from the use of electricity generated by the panels free of charge.
- 3.3** The key assumptions tested were:
- System installation cost
  - System maintenance cost
  - System component replacement
  - FIT amounts
  - Borrowing cost
  - Inflation
  - Panel system efficiency over time

**3.4** The income and expenditure streams over a 20 year period of up to 1,700 potential PV panel system installations were modelled. The potential installations were grouped into generation efficiency bands. It was found that installations of up to 85% generation efficiency would produce a positive financial return to the Council. This is illustrated in the chart below:



**3.5** The following table indicates potential financial returns, on a net present value (NPV - at 2014/2015 prices) basis.

	Generation efficiency bands			
	% 100EF	% 100 to 95 EF	% 100 to 90 EF	% 100 to 85 EF
Number of installations	343	686	1,201	1,630
Capital investment required £	1,337,700	2,675,400	4,683,900	6,357,000
Average Annual surplus £	27,700	48,700	70,200	79,700
Cumulative surplus (20 years) £	554,200	974,400	1,404,000	1,594,200

An initial programme to install PV panel systems at 686 council owned homes would require an investment of £2.68m and could be expected to result in an average annual return of £49,000, equivalent to £0.97m over 20 years, a return on investment of 36%. This return is based on the prudent assumption <sup>1</sup>that the Government reduces the FIT amount by £0.05 compared with the current level from January 2015. Extending the programme to 1,630 homes would require an additional investment of £3.68m but the overall return on investment would reduce to 25%

<sup>1</sup> Late information - following completion of the modelling and this financial appraisal, OFGEM confirmed the FIT rates from 1 January 2015, which are consistent with this assumption

over the 20 year period because the second wave homes are oriented in a less favourable direction for energy capture than the first wave homes.

**3.6** The modelling indicated that there would be relatively limited financial benefit from installing systems on council owned blocks of flats because of the lower FIT amounts receivable on larger output systems. In these cases, the only gain to tenants would be from a reduction in service charges for communal lighting, etc and they would not see a reduction in their household electricity bills. It is intended to keep the modelling for flats under review, to take into account possible changes in FIT rates and panel costs.

**3.7** Key financial risks before the implementation of the programme are:

- the cost of borrowing could rise during the duration of the procurement process of the programme
- the supply and installation costs rise beyond what we have assumed
- the Feed-In-Tariff falls significantly before the systems are installed

All of these financial risks can be assessed again once the procurement process has been completed, enabling officers to ensure that the schemes remain financially viable.

**3.8** Key financial risks once the PV panel systems are installed are:

- the anticipated electricity outputs are not generated as predicted as a result of low irradiation level.  
Evaluation - the Council has installed PV panel systems at a number of sites in the last two years.
- the technical performance of the PV panel systems is not according to the specifications in the procurement documentation.  
Evaluation - It is intended to use monitoring equipment which will be able to track the performance of the PV panel systems.  
Manufacturers will also have to comply with specific warranties to ensure the correct standard. Staff costs for an officer have been built into the model to perform this monitoring role and maximise use of the warranty. There will also be a maintenance contract in place that will carry the risk of call outs and repairs.

## **4** Delivery Options

**4.1** It has not been possible to conclude an agreement with a contractor to fund and own PV panel systems on Council-owned homes, as envisaged in the previous report to Cabinet.

**4.2** The option of an installation programme being delivered through the Council's Housing Revenue Account (HRA) capital investment programme is not considered to be viable. This is because the HRA would need to borrow to fund the installation of the PV panel systems but the Government has placed a cap on local authority HRA borrowing. The Council is actively working on a number of initiatives to deliver new homes within the District which will utilise the available borrowing headroom.

- 4.3** Councils have powers under S.11 of the Local Government (Miscellaneous Provisions) Act 1976 to generate electricity. This power was further reinforced through the Sale of Electricity by Local Authorities (England and Wales) Regulations 2010 (SI/1910). The 'General Powers of Competence' enabled by the Localism Act 2011 also allow local authorities to engage in electricity generation. Other local authorities are using these powers to fund the installation of PV panel systems on Council-owned homes from the General Fund, which also receives all income from the FIT tariff and is charged with all associated revenue expenditure.
- 4.4** It is proposed to adopt the General Fund delivery option for this programme. There is no cap on General Fund borrowing but the Council must ensure that it is 'prudent' to borrow to deliver a capital project i.e. that it is affordable to the taxpayer. An initial programme to install up to 700 PV panel systems with minimum generating efficiency of 95% is considered to be affordable and sustainable. This is because a positive income stream can be expected in each year of the 20 year minimum generating period of the panel systems. Over the full period, a net return of £0.97m is forecast (at today's prices).
- 4.5** Consideration could be given to the General Fund making a reasonable contribution to the HRA in respect of each installation. This contribution would recognise that HRA property is used for the purposes of the project, and would take into account the benefit gained by tenants in terms of free electricity as well as the potential 'market rate' for third party PV installations. The level of the contribution would be set at the time that the installation programme commences. The total contribution paid by the General Fund would not be significant in terms of the overall surplus that it would gain from this project.
- 4.6** In order to meet the requirements of CIPFA's 'prudential framework' the impact of this project on the Council's prudential indicators must be assessed. These indicators are shown below and the Director of Finance has confirmed that they are acceptable. In each case it is assumed that the full cost of installation will be incurred in 2014/2015.

	Original prudential indicator 2014/2015	With PV, prudential indicator 2014/2015
General Fund non-HRA Capital Financing Requirement	£4.512m	£7.212m
Ratio of Financing Costs to net revenue stream non-HRA (Note 1)	0.95%	2.10%
Incremental Impact of Capital Investment Decisions Stream on Band D Council Tax (Note 2)	£38.30 increase	£36.63 increase
Note 1 – increase reflects additional cost of interest and principal repayments		
Note 2 – decrease reflects average annual net surplus of £57,500 derived from the panels		

- 4.7** For the purposes of the financial modelling, it has been assumed that the total cost of capital investment is funded by a loan from the Government's Public Works Loans Board (PWLB) from the date that the project commences. This is the most prudent approach for modelling, but decisions as to the actual timing of borrowing and the amount to be borrowed will be taken by the Director of Finance as part of the Council's overall Treasury Strategy, with the support of Arlingclose, the Council's Treasury advisor. This will take into account the availability of cash built up by internal funds (reserves and balances) and currently invested as an alternative to a loan. This 'internal borrowing' approach (the use of this cash which would otherwise be invested at a relatively low rate of interest) as an alternative to a loan from the PWLB would produce a significantly higher overall return to the Council.

## Legal Implications

- 4** – see exempt Appendix A

## Sustainability Implications

- 5** It is likely that each property will produce nearly 1000kWh/kWp and save 0.47Kg CO2 per kWh.

For the identified 700 properties a total estimated generation of 1.9GWh per year electricity and 890 tons of CO2 savings are expected.

If the project is extended to 1,000 more properties an additional 2.6GWh electricity and 1200 tons of CO2 savings per year could be expected.

It is possible that most of our Housing properties could potentially receive PV panels. This will act as a driver for private householders and we will explore the opportunity of providing such through our appointed contractor (in a private arrangement).

## Equality Screening

An initial Equality Impact Assessment identifies no negative impacts and in fact increasing the number of installations would benefit a wide range of tenants. To ensure all tenants are aware of the programme and its benefits targeted communications will take place to ensure the scheme is well known and understood by many groups including the vulnerable.

This project will help many tenants to save some costs of electricity.

## 7 Risk Management Implications

<b>Feed in Tariff rates</b>	The financial modelling has assumed that the FIT will reduce by 0.5p from the current level of 12.94p . Each 0.5p reduction in the FIT would reduce total income by £9,000 for the recommended programme of 700 installations. There is an inherent risk that the Government withdraws FIT payments during the 20 year period., but it is considered that the likelihood of this is minimal.
<b>Take up</b>	The experience of other landlords is the refusal rate is less than



	3%. The installation contract would be structured on a price per unit basis.
<b>Right to Buy</b>	RTB is a statutory process and it seems unlikely that the purchase price will take into account the value of the PV fitting (which is not a part of the structure and can be removed). Therefore a separate agreement outside of the RTB process will need to be negotiated. The options are that the tenant purchases the fitting or that LDC removes it (possible cost implications to the Council but the overall financial impact would be minimal).
<b>Voids</b>	Electricity will continue to be generated and exported to the grid during the period the property is empty.
<b>Pre payment meters</b>	The system can work with such meters when they are in credit.
<b>Demolition</b>	This is unlikely to be a significant issue in Lewes District Council as there are no plans to demolish council homes.
<b>Tenancy Agreement</b>	The existing tenancy agreement does not allow the council to install PV panels, but this can be resolved by requiring tenants to enter into a supplementary Tenant Agreement which will vary the existing tenancy agreement.
<b>Repair and/or replace roof</b>	The Council will continue to undertake essential / emergency roof repairs to its property. The install programme will be matched to any future roof repair or replacement programmes to make sure that any risks are minimised. In addition the survey process will identify any obvious roofing problems.
<b>Operational issues:</b>	
Capacity of electricity network	There is a need to pre-warn the electricity providers that we are undertaking this project with details of the locations to allow them time to ensure that the networks are capable of receiving electricity (as opposed to delivering it)
Sahara dust	The dust can reduce the operational efficiency of the panels. Usually, it will be washed off by the next rainfall. The financial modelling includes an allowance for annual maintenance and cleaning if required.
Bird proofing	There may be a need to provide bird proofing in some areas at the time of installation.
Administration	There will be a requirement to monitor the PV panel's efficiency through a web portal which provides a customer support resource. The cost of this resource is included in the financial modelling
<b>Data transmission costs</b>	The financial modelling includes an annual charge of £30 for the automatic monitoring, data transmission and FIT claim.
<b>Insurance</b>	An allowance for insurance is in the model, based on the Council's current premium rates.



<b>Efficiency of each individual system</b>	Each property will be surveyed to ensure efficiency
<b>Inverters</b>	The financial model assumes that all inverters will require replacement at 15 years. This assumption is considered to be prudent. A 5 year increase/decrease in average inverter life, would increase/decrease the average annual return by £7,000. The inverter converts the energy produced by the PV panels to feed into the electricity system in the home.
<b>Removing panels – end of FIT period</b>	In the early days of the FIT there was some concern about what would happen to panels at the end of the FIT period. However as the market has evolved it is now clear that panel life is up to 35 years and while there may be some degradation in panel performance residents will receive significant benefits and savings from the panels long after FIT payments end. It therefore makes no sense to take down the panels after 20 years.

## **Appendices**

### **Appendix A – Legal Implications (not for publication)**