AGENDA ITEM: 3

Cabinet:15th September 2015

Extraordinary Council: 15th September 2015

Report of: Assistant Director Housing and Regeneration

Relevant Managing Director: Managing Director (Transformation)
Managing Director (People and Places)

Relevant Portfolio Holders: Councillor I. Moran
Councillor J. Patterson
Councillor C. Wynn

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SUBJECT: INVESTMENT IN SOLAR PHOTOVOLTAICS (PV) ON COUNCIL HOUSING STOCK

Wards affected: Borough wide

1.0 PURPOSE OF THE REPORT

1.1 To present the potential environmental and financial benefits, for the Council and its tenants, offered through the installation of solar PV on Council housing stock, together with the associated risks. Also, to seek relevant approvals to invest up to £4.440million in solar PV installations on Council owned housing, subject to the project delivering a minimum 4% rate of return on investment and completion of a procurement exercise.

2.0 RECOMMENDATIONS TO CABINET

2.1 That the opportunities, benefits and risks of investing in solar PV technology be considered and noted.

2.2 That Council be recommended to approve borrowing of up to £4.440M for investment in solar PV on Council housing stock, subject to a minimum 4% rate

of return being achieved and noting the comments at paragraph 4.6 of this report.

2.3 That, subject to Council approval of funding, delegated authority be given to the Assistant Director Housing and Regeneration to procure, contract and install solar PV on suitable Council housing stock and to take all steps necessary to complete the project.

2.4 That call-in is not appropriate as the matter is to be considered at full Council and the relevant project must proceed without delay to secure the relevant outcomes sought.

3.0 RECOMMENDATIONS TO COUNCIL

3.1 That the opportunities, benefits and risks of investing in solar PV technology be considered and noted.

3.2 That borrowing of up to £4.440m be approved for investment in solar PV on Council housing stock, subject to a minimum 4% rate of return being achieved and noting comments at paragraph 4.6 of this report.

3.3 That delegated authority be given to the Assistant Director Housing and Regeneration to procure, contract and install solar PV on suitable Council housing stock and to take all steps necessary to complete the project subject to paragraph 3.2 above.

4.0 BACKGROUND

4.1 Solar PV is a reliable and well established method of generating electricity, suitable for a vast number of homes in the UK. The Government's Feed-in Tariff (FiT) scheme currently guarantees index linked income payments for every KWh of renewable electricity generated by a solar PV system for 20 years. Despite reductions in the FiT rate since its launch in 2010, the significant reductions in capital costs to install solar PV technology means that it still provides a good investment opportunity that can provide positive cash flows and attractive rates of return. However, the FiT rates paid by the Government are continuing to be reduced over time and consequently, it is important that any investment in solar PV that the Council wishes to make should take place as quickly as possible.

4.2 The Council has previously installed solar PV on a small number of its buildings including the Derby Street offices. This investment has delivered a positive experience based on the income generated and the energy savings achieved. This report now considers a far larger investment in solar PV on Council houses, bungalows and flats.

4.3 A Blue Sky solar suitability assessment has been undertaken to identify those properties within the Council's housing stock that would be best suited to solar

PV. Using a combination of accurate, high resolution aerial photography, height data and solar irradiation information, the Blue Sky assessment compiled the key solar suitability statistics of all properties, including roof orientation, roof pitch, useable roof area and potential solar panel array size and produced a list of properties that will provide the maximum gain in terms of generation and income.

4.4 Solar PV offers an opportunity for the Council to support its tenants by reducing the cost of their electricity bills, helping those struggling in fuel poverty and protecting them against electricity price increases over the next 20-25 years. Council tenants living in houses and bungalows selected to receive a solar PV installation could benefit from savings on their energy bills by utilising the renewable electricity as its generated. Depending on the size of the property, this could range from anything between £100 - £200 a year. It is proposed that solar PV installed on flats is connected to the landlords supply. The reasoning behind this is set out later in the report.

4.5 The carbon savings achieved from displacing fossil fuel based electricity with that from a renewable energy supply would also have a positive impact on helping to tackle climate change, meeting national renewable energy targets and increasing security in our energy supplies.

4.6 On 27th August 2015, the Government announced a Consultation paper on the FiT proposing changes which would significantly reduce the rate of FiT from 1st January 2016. This could potentially undermine this initiative. The results of the consultation will not be known for at least 28 days. I am therefore proposing that Members give authority to invest up to £4.440M and that an appropriate minimum rate of return of 4% be used. If the Government do not reduce the FiT as proposed, this will enable the proposals in paragraph 5 to be carried out in full. If the Government do however reduce the FiT, work will cease in December. If this situation does occur, I anticipate that up to 1054 houses and bungalows will benefit but flats could need to be excluded. I will not proceed with this work unless the minimum rate of return is achievable.

5.0 PROPOSALS

5.1 The results of the suitability assessment are set out in Table 1 below. As illustrated, the Council has over 2,934 properties suitable for solar PV, which would require an £8.75M investment package to fully deliver. However, it is recommended that the investment is limited to £4.440M based on the 1,434 properties that have a south / south west / south east orientation for the following reasons:

- It is best practice that the scale of investment in a specific area is limited so that risk exposure is controlled (you shouldn't put all of your eggs in one basket).

- The more investment that takes place in solar PV there may be less scope there is for investment in other service areas such as economic development and regeneration activities and leisure.
- East and West facing properties produce a lower energy output and consequently a lower rate of return, and would not meet the target 4% rate of return for this project.
- The higher the number of properties included in the project, the longer it will take to complete, which is likely to produce a lower rate of return given that the FiT income is reducing over time.

Orientation	Property Type	No. of Properties	Total Install Cost
South	Houses and Bungalows	378	1,064,486
South	Flats	190	730,740
South West/ South East	Houses and Bungalows	676	1,914,178
South West/ South East	Flats	190	730,740
PROPOSED TOTAL		**1434**	**4,440,144**
East	Houses and Bungalows	946	2,745,628
West	Houses and Bungalows	554	1,564,546
GRAND TOTAL		**2,934**	**8,750,318**

Table 1: **Investment Summary**

5.2 While the installation of solar PV is taking place on Council housing, it is proposed that the cost of the capital investment is funded from the General Revenue Account (GRA) rather than the Housing Revenue Account (HRA). The HRA is not in a position to make this investment because it is subject to a Government imposed borrowing cap, and its available borrowing has already been fully allocated through the HRA Business Plan. The GRA is however in a position that it can take out the required borrowing, and in return it should receive a net rate of return of at least 4% after allowing for capital financing costs. Details on the business case for this investment are set out in the finance section below.

6.0 CONSIDERATIONS

6.1 Legal powers are available including those under Section 11 (1) of the Local Government (Miscellaneous Provisions) Act 1976 to establish such generating and other installations as it thinks FiT for the purpose of producing electricity. That power extends to the installation of solar PV panels, and under regulations

(the Sale of Electricity by Local Authorities (England and Wales) Regulations 2010), there is power to sell any electricity generated. The exercise of these powers is subject to compliance with any requirements in Part 1 of the Electricity Act 1989, which does not present any difficulty and the generation of power and feeding it back to the grid under the FiT regulations, as proposed in this report, do not engage those licensing requirements.

6.2 Under s.74 of the Local Government and Housing Act 1989, the Council is required to keep a Housing Revenue Account, of sums falling to be credited or debited in respect of houses and other buildings provided under Part II of the Housing Act 1985, and land which has been acquired or appropriated for the purposes of that Part. The properties where the solar PV panels are to be located are held by the Council for housing purposes and thus within the Housing Revenue Account. In implementing and operating the project, the Council would be discharging functions under the Local Government (Miscellaneous Provisions) Act 1976, rather than the Housing Act 1985, although it would impinge on those housing functions. The main beneficiaries of the project would be those council tenants who would benefit from the free electricity generated and also the landlord in respect of electricity use in common parts for the flats. The scheme would also have a positive environmental impact which would benefit the whole area as well as generating an income through the FiT.

6.3 In such circumstances it is considered appropriate that the GRA can pay for and receive income from installations on HRA properties. Any costs incurred by the HRA, e.g. staff time in managing and maintaining this initiative will be recharged against the projected costs and income from this scheme.

6.4 Tenancy agreements for each property fitted with solar PV will need to be varied. This will require a variation to be drawn up to cover issues such as ownership, tenant co-operation for access and on-going maintenance, tampering and damage etc. The installation of solar PV will not be compulsory, but the benefits offered to tenants are expected to provide a low refusal rate.

6.5 Should a tenant exercise their right to buy a council house that benefits from solar PV, the Council would look to ensure the panels remain on the property, under the Council's ownership, by way of a lease agreement that would be signed during the right to buy process. This way, the Council is guaranteed the return on investment from the FiT and the tenant continues to benefit from free electricity. Whist these issues will be time and resource intensive at the early stages of the project and to some extent as on-going work, it is considered achievable. Suitable adjustments will be made to reflect this position as necessary in the Right to Buy (RTB) valuation process.

6.6 The contract(s) for the supply and installation of the panels will be over the EU threshold so the Public Contracts Regulations 2015 will apply. The contract will be procured in accordance with the regulations.

6.7 The works can be carried out under Permitted Development so there will be no requirement for planning permission.

7.0 SUSTAINABILITY IMPLICATIONS/COMMUNITY STRATEGY

7.1 This project would have a positive effect on various sustainability considerations. Installing solar PV on our properties would improve housing quality and help tackle local fuel poverty levels through reductions on tenant's energy bills. Whilst the properties chosen to benefit from solar PV will be primarily based on roof orientation, fuel poverty levels across our housing stock will reduce as a result of this project.

7.2 It is inevitable that there will be tenants that are disappointed that their property has not been selected for solar PV. In these cases it will be made clear that, whilst we are looking to help as may households as possible, the project does have to be financially viable for the Council and is based around a business plan that can only accommodate a certain number of properties. Investment from the HRA could be considered for initiatives to benefit tenants who are excluded from this scheme in future years.

7.3 The carbon savings associated with displacing fossil fuel based electricity with that from a renewable source should be given significant weight. Reducing the use of carbon intensive fuels reliant on finite resources will help to tackle climate change, meet national carbon reduction and renewable energy targets and promote sustainability. The average 3KW solar PV system will save an estimated 1,237kg/CO_2/year. This project is therefore likely to deliver carbon savings of approximately 1,774 tonnes a year, if fully completed.

7.4 Decentralised energy supplies and self-sufficient energy generation need to increase in the future if we are to have security in our energy supplies and protect the Council and our tenants from increasing energy prices and the risk of climate change.

8.0 FINANCIAL AND RESOURCE IMPLICATIONS

8.1 The initial capital investment required for this project has been estimated at £4.440m. A financial assessment has been prepared on this basis in Appendix 2 with the assumption that this cost will be funded by prudential borrowing from a lender such as Public Works Loan Board, at a fixed interest rate of 2.9% and a 20 year term. This analysis shows that the project should deliver a net cash income of £141,899 to the GRA in the first full year of operation increasing to around £200K in subsequent years. The payback period to recoup the investment would be 10.6 years.

8.2 If Members wished to use available capital resources or reserves to fund this project then it would generate an additional saving of just under £8,000 per £100,000 funding from this source.

8.3 Timescales will be a significant influence on the success of this project. We will need to act quickly to ensure installations are fitted and registered prior to any reduction in FiT rate. As a result, we would need to install as soon as possible following project approval. This will have significant resource implications on finance, legal and property services teams but is considered achievable. There will also be on-going resource implications such as system monitoring, tenant enquiries, general maintenance and documentation for changes to tenancies and right to buy sales. Clearly, if the Government change the FiT arrangements and if less properties are fitted with solar PV, then the income will reduce but so too will the investment. The recommendation at 2.2 and 3.2 cater for this and ensure that there will be at least 4% rate of return achieved.

8.4 Procurement of both materials and installation are in-hand to be competitively procured through the OJEU compliant Procure Plus Framework. Through these arrangements, materials can be procured through a direct award process which could be undertaken relatively quickly, however this is not appropriate for installation works which would need to go through a mini tender process. Realistically, this will take 3 weeks for completion. All framework contractors are MCS accredited to supply and install solar PV.

8.5 Tenant education will be a large part of this project, to ensure that tenants change their behaviour to utilise the benefits that solar PV can provide and maximise savings on their energy bills. This, along with continual monitoring of the systems, will be a large demand on staff resources, especially in the initial stages of delivery, however this can be delivered by existing resources.

8.6 Operation and Maintenance costs of £50 per installation per year, RPI linked at 3% per annum, have been included in the financial model. This £50 also allows for online system monitoring and failure alerts, a sinking fund for inverter replacement after year 10 and a system check every 5 years.

8.7 Cost information is based on robust market intelligence for labour and materials, subject to the comments made above. Generation data modelling has been found to underestimate in the majority of cases so we can be confident that income figures will be achieved.

8.8 Installations on blocks of flats would be sized in accordance with roof space per block, not per property. It isn't financially viable to install smaller systems linked to each property. As a result, the electricity generated will feed into the land-lord's (i.e. Council's) supply, providing further savings on Council energy bills that haven't been accounted for in the above figures. Whilst the roof space of a flat doesn't form part of a tenancy, a variation may be required for tenants living in the upstairs flats, should the loft space be accessed through their property. There will be no significant impact on service charges as a result of this project. If the Government's proposals on part of the consultation arrangements on Fi T are implemented, it is likely that no work will be able to be carried out to flats in any event.

8.9 The FiT figure has been calculated using solar PV generation data and the deemed export tariff. The figures provided have been modelled on predicted FiT levels in six months' time (March 2016), accounting for a predicted 7% drop in FiT levels, as has typically been seen over recent years. Timescales are therefore an important factor for this project as the FiT will drop further on a quarterly basis. Equally important is the Government's consultation on reducing FIT from 1/1/16.

8.10 The total install costs are based on current market value, however the recent Government consultation has already resulted in volatility in the market and significant increases in materials costs are expected over the following weeks. Pre-ordering materials, secured by deposit, will protect the Council from this inevitable increase as demand for products intensifies. Placing a deposit on materials at an early stage will also ensure materials will be in place at the end of September 2015 and, more importantly, secure the rate for all required materials without re-stocking charges, should the full amount of installs not be delivered. The business case will be refined once definite costs have been secured for both materials and install, following a competitive tendering exercise.

8.11 The insurance implications of installing solar PV to Council housing have been investigated and are expected to result in minimal increases to our existing premiums.

8.12 An advanced survey will be undertaken to ensure that the roof will have the load bearing capacity to have solar PV installed. Therefore, not all properties identified will be capable of being included in the proposal.

9.0 RISK ASSESSMENT

9.1 Such a significant investment obviously comes with a risk however; this risk has been mitigated as far as possible. Whilst the sun's energy obviously can't be guaranteed, the models used to estimate solar PV generation utilise location specific weather and sunlight hours to generate the data as accurately as possible.

9.2 The materials specification is of a very high quality, further guaranteeing generation as far as possible. The panels are guaranteed for 12 years and the inverters (which convert Direct Current to Alternating Current) are guaranteed for 10 years. The output from the solar PV systems is guaranteed for 20 years. All parts and labour are covered for the first five years and the business case for this project includes cost for replacing inverters, if necessary, after 10 years.

9.3 Generation data modelling has been proved to be conservative so all income figures are prudent and considered achievable. We also have first-hand experience that this is the case from the seven PV systems the Council have invested in over the last four years. These have been closely monitored since installation and have been found to be exceeding generation and income predictions.

9.4 There is also a risk that Government could choose to close and/or reduce the FiT scheme at any point during the 20 years. This would leave the Council with the principle debt to be repaid. By keeping our investment under £4.440M, this should allow the project to be rolled out fairly quickly, minimising the risk associated with the proposed reduction in FiT from 1st January 2016. It also allows other investment projects to be undertaken within the prudential borrowing regulations, so success isn't dependant on one project. It is expected that, as with other schemes, any commissioned and registered systems receiving FiT would be honoured for the full 20 years should the FiT scheme be closed in future years.

9.5 Permission to install solar PV also needs to be granted from the Distribution Network Operator (DNO), which in our area is Electricity Northwest. They need to check that the existing electricity grid is capable of withstanding the additional supplies that the new systems will generate and may refuse certain properties on this basis. Initial enquires with the DNO have established that there are no issues. The delegated authority to the Assistant Director of Housing and Regeneration will allow any variations.

Background Documents

There are no background documents (as defined in Section 100D(5) of the Local Government Act 1972) to this Report.

Equality Impact Assessment

There is a direct impact on members of the public, employees, elected members and / or stakeholders. Therefore an Equality Impact Assessment is required. A formal equality impact assessment is attached as an Appendix to this report, the results of which have been taken into account in the Recommendations contained within this report

Appendices

Appendix 1 - Equality Impact Assessment
Appendix 2 - Solar PV Investment Figures

Appendix 1

Equality Impact Assessment Form	
Directorate: Transformation	**Service: Housing and Regeneration**
Completed by: Tina Iball	**Date: 21st July 2015**
Subject Title: Solar PV	
1. DESCRIPTION	
Is a policy or strategy being produced or revised:	No
Is a service being designed, redesigned or cutback:	No
Is a commissioning plan or contract specification being developed:	Yes
Is a budget being set or funding allocated:	Yes
Is a programme or project being planned:	Yes
Are recommendations being presented to senior managers and/or Councillors:	Yes
Does the activity contribute to meeting our duties under the Equality Act 2010 and Public Sector Equality Duty **(Eliminating unlawful discrimination/harassment, advancing equality of opportunity, fostering good relations):**	No
Details of the matter under consideration:	Installation of solar PV to provide tenants in eligible properties with free electricity generated.
*If you answered **Yes** to any of the above **go straight to Section 3*** *If you answered **No** to all the above **please complete Section 2***	
2. RELEVANCE	
Does the work being carried out impact on service users, staff or Councillors (stakeholders):	
If **Yes,** provide details of how this impacts on service users, staff or Councillors (stakeholders): *If you answered **Yes** go to **Section 3***	

If you answered **No** to both Sections 1and 2 provide details of why there is no impact on these three groups: *You do not need to complete the rest of this form.*	
3. EVIDENCE COLLECTION	
Who does the work being carried out impact on, i.e. who is/are the stakeholder(s)?	Tenants living in eligible properties selected for a PV installation.
If the work being carried out relates to a universal service, who needs or uses it most? (Is there any particular group affected more than others)?	N/A
Which of the protected characteristics are most relevant to the work being carried out? Age Gender Disability Race and Culture Sexual Orientation Religion or Belief Gender Reassignment Marriage and Civil Partnership Pregnancy and Maternity	 Yes No Yes N No No N No Yes These characteristics have been selected as they are most likely to be at home during the day to utilise the electricity as its generated.
4. DATA ANALYSIS	
In relation to the work being carried out, and the service/function in question, who is actually or currently using the service and why?	We don't currently have Solar PV on any residential properties.
What will the impact of the work being carried out be on usage/the stakeholders?	Tenants in properties Fitted with PV will benefit from free electricity generated and see reductions on their energy bills, helping to tackle fuel poverty.
What are people's views about the services? Are some customers more satisfied than others, and if so what are the reasons? Can these be affected by the proposals?	Properties will be selected based on the basis of their orientation and size. Some tenants will therefore benefit when others won't.

What sources of data including consultation results have you used to analyse the impact of the work being carried out on users/stakeholders with protected characteristics?	No consultation has been undertake to date but will be should the project receive approval. Depending on the size of the property, eligible properties can hope to save between £50 and £200 a year on their energy bills.
If any further data/consultation is needed and is to be gathered, please specify:	None
5. IMPACT OF DECISIONS	
In what way will the changes impact on people with particular protected characteristics (either positively or negatively or in terms of disproportionate impact)?	Tenants will benefit from free electricity generated and see reductions on their energy bills, helping to tackle fuel poverty. There will be no identified negative impact on tenants.
6. CONSIDERING THE IMPACT	
If there is a negative impact what action can be taken to mitigate it? (If it is not possible or desirable to take actions to reduce the impact, explain why this is the case (e.g. legislative or financial drivers etc.).	Should a tenant be adamant they do not want solar PV on their home, they will be removed from the project.
What actions do you plan to take to address any other issues above?	No further actions are planned at this time.
7. MONITORING AND REVIEWING	
When will this assessment be reviewed and who will review it?	This assessment will be reviewed during consultation with tenants.

APPENDIX 2
SOLAR PV PROJECT FINANCIAL APPRAISAL - CASH FLOW ANALYSIS

Year	Capital Investment	Borrowing	Principal Repayment	Interest Cost	Operation and Maintenance costs	Officer time / Other costs	Equipment Replacement / Deterioration	Income	Net cash flow
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
0	-4,440,144	4,440,144							0
1			-222,007	-128,764	-71,700	-25,000	0	589,371	141,899
2			-222,007	-122,326	-73,851	-25,750	0	601,158	157,224
3			-222,007	-115,888	-76,067	-26,523	0	613,181	172,697
4			-222,007	-109,450	-78,349	-27,319	0	625,445	188,321
5			-222,007	-103,011	-80,699	-28,139	0	637,954	204,097
6			-222,007	-96,573	-83,120	-28,983	0	650,713	220,030
7			-222,007	-90,135	-85,614	-29,852	0	663,727	236,119
8			-222,007	-83,697	-88,182	-30,748	0	677,002	252,368
9			-222,007	-77,259	-90,827	-31,670	0	690,542	268,779
10			-222,007	-70,820	-93,552	-32,620	-119,344	704,352	166,009
11			-222,007	-64,382	-96,359	-33,599	-122,924	718,440	179,168
12			-222,007	-57,944	-99,250	-34,607	-126,612	732,808	192,389
13			-222,007	-51,506	-102,227	-35,645	-130,410	747,464	205,670
14			-222,007	-45,067	-105,294	-36,714	-134,322	762,414	219,009
15			-222,007	-38,629	-108,453	-37,815	-138,352	777,662	232,406
16			-222,007	-32,191	-111,706	-38,949	-142,503	793,215	245,859
17			-222,007	-25,753	-115,057	-40,117	-146,778	809,080	259,367
18			-222,007	-19,315	-118,509	-41,321	-151,181	825,261	272,928
19			-222,007	-12,876	-122,064	-42,561	-155,716	841,766	286,541
20			-222,007	-6,438	-125,726	-43,838	-160,387	858,602	300,205
Total	-4,440,144	4,440,144	-4,440,144	-1,352,024	-1,926,606	-671,770	-1,528,529	14,320,157	4,401,084

Average net surplus	220,054
Payback period	10.6 years

Column	Key Assumptions		Value
	Numbers of properties		1,434
[1]	Assumed Project lifetime - years		20
[2]	Capital investment cost - estimate		£4,440,144
[3]	Long term borrowing		£4,440,144
[4]	Annual debt repayment - borrowing is repaid in equal instalments over project lifetime		£222,007
[5]	Interest rate on borrowing		2.90%
[6]	Operation and maintenance costs per property in year 1 of £50		£71,700
	Costs then increase by inflation each year		3.0%
[7]	Cost of officer time spent on managing scheme in year 1 / other costs (estimate)		£25,000
	Costs then increases by inflation per year		3.0%
[8]	Equipment replacement / deterioration	- Year 10 - 2% of initial capital cost uplifted by inflation	£119,344
	Cost then increases by inflation each year		3.0%
[9]	Year 1 income figure - see overleaf		
	Income is index linked so assume increases by inflation each year		3.0%
	Module degradation assumed at 1% per year		-1.0%
	Annual change in income is then		2.0%