

**Manchester City Council
Report for Resolution**

Report to: Council – 23 September 2015

Subject: Northwards Housing Solar PV Proposal

Report of: Strategic Director of Strategic Development and the City
Treasurer

Summary

To seek urgent approval for:

1. the installation of up to 1,400 PV panels to Council owned homes in North Manchester; and
2. an increase to the capital budget, by £5.513m.

The urgency in presenting this matter is due to the recently announced proposals from the Government to significantly reduce the existing Feed in Tariffs (FiT) for any solar photovoltaic schemes installed after 31 December 2015.

Recommendations

Council is recommended to approve a capital budget increase of £5.513m to cover the cost of installing 1400 solar PV panels on properties managed by Northwards Housing.

Wards Affected

Various wards to the north of the city that contain MCC social housing stock managed by Northwards.

Community Strategy Spine	Summary of the contribution to the strategy
Performance of the economy of the region and sub region	The project will promote economic development locally and regionally by delivering improvements and providing training opportunities.
Reaching full potential in education and employment	A safe, warm and dry home is essential for children to be able to study and develop. Reducing electricity costs will release income for heating costs etc.
Individual and collective self esteem – mutual respect	Tackling fuel poverty will help to reduce fuel poverty amongst some of the city's lowest income families
Neighbourhoods of Choice	Not applicable

Environmental and Climate Change Impacts

The project will help to tackle fuel poverty and will contribute towards the city's carbon reduction target.

Full details are in the body of the report, along with any implications for

- Equal Opportunities Policy
 - Risk Management
 - Legal Considerations
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Financial Consequences – Revenue

Operational and Maintenance costs are £77k per year + 2.5% inflation over 20 years for 1,400 properties (pro rata for current financial year).

Lifecycle costs of £630k relate to the inverter replacements in year 10 (2025).

Financial Consequences – Capital

A Capital Budget increase of £5.513m will be funded by prudential borrowing at a rate of £3.5% per year.

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Background documents (available for public inspection):

The following documents disclose important facts on which the report is based and have been relied upon in preparing the report. Copies of the background documents are available up to 4 years after the date of the meeting. If you would like a copy please contact one of the contact officers above.

Northwards Housing Solar PV Proposal – briefing note to the Strategic Director for Strategic Development, the City Treasurer and the Chief Executive.

1.0 Introduction

- 1.1 Northwards Housing employed a consultancy 'BlueSky' to carry out an analysis of its stock to determine its suitability for solar photovoltaic (PV) panels. From that it was determined that around 5,000 properties could be suitable (houses and low rise flats), based on securing a return on the investment through claiming the Government's FiT.
- 1.2 Prior to this, Northwards had installed panels onto the roofs of 20 blocks of flats (funded by MCC's capital programme and grants) and 1,300 houses, (funded by a 'rent a roof' scheme). In this rent a roof case the FiT is claimed by the investor who owns the PV panels.
- 1.3 PV installed on an individual property saves nearly 1 tonne of carbon per year, and can provide tenants with 'free' electricity to the value of approximately £140 per year – a really important consideration given the high levels of fuel poverty in north Manchester. Whilst it may seem unfair that this scheme allows some tenants to benefit from cheaper electricity, the same argument could be applied to a range of improvements made to different properties over time eg insulation of tower blocks, installation of ground source heat pumps etc. Consideration has been given to sharing the benefits of the cheaper electricity by levying a charge on the electricity used, but the timescales to maximise the FIT do not allow the necessary work to be undertaken for a potentially complex element of the project.
- 1.4 Various proposals have been considered as to how to deliver the 5,000 installations, with confirmation in August 2015 that an MCC self-funded route was the preferred option as opposed to a rent a roof scheme.
- 1.5 Unfortunately, on 27th August the Government launched a consultation on the review of FiTs, which proposes major changes to the FiT scheme from January 2016, the main one being a likely reduction in FiT generation payments by 87% making any installations post 31/12/15 commercially unviable based on the current market costs.
- 1.6 At a meeting between Council officers and Northwards Housing on the 2nd September, it was agreed to explore options for taking advantage of the current FiT scheme by installing as many panels onto roofs prior to 31 December 2015.

2.0 Current Proposal and Timescales

- 2.1 If there were not the time constraints on delivery then MCC would have run a bespoke tendering process in order to secure the best price possible. However, in order to speed up the process the standard Procure Plus framework tendering process will be followed.
- 2.2 As a member of the Procure Plus framework, MCC can procure from this OJEU compliant solar PV framework, and run a mini competition to appoint multiple contractors to install up to 200 panels in total a week (it is anticipated

that the contractors selected can install PV on up to 50 properties per week). Northwards Housing will project manage the delivery of the scheme (including procurement), and on-going arrangements for management and maintenance once the panels are installed.

- 2.3 It is anticipated that Northwards will conduct the tenant engagement and this cost is included in the capital costs above. It is expected the fee for this number of installs will be £69k including any external fees and contingencies. Tenant engagement is expected to commence following approval of this report.
- 2.4 In addition to this it is expected that the installation contractor will also ensure that the units are registered for the FITs.
- 2.5 In order to maximise installations, a 2 week mini competition commenced on Wednesday 16th September. Tender assessments will be completed by 2nd October and if orders are raised by MCC by 9th October, contractors could be on site for 26th October (surveys), with installations commencing 2nd November. This would give a maximum installation period of 7 weeks prior to Christmas, which could potentially deliver up to 1,400 installations. If weekend working was allowed this would assist in the delivery of the programme.
- 2.6 Prior to the mini competition, an Expression of Interest was issued to potential bidders, week commencing 7th September, to inform their decision to be included in the mini competition, and to reduce the time of the mini competition to 8 working days (16th September to 25th September).
- 2.7 In summary key responsibilities for this project will be:
- Northwards:
- Initial surveys
 - Tenant engagement
 - Project management
 - Procurement
 - Ongoing operations and maintenance of the project
- MCC:
- Secure Council approval
 - Secure funding
 - Financial management
- 2.8 The tender process may be unsuccessful if the capital costs are in excess of the costs assumed within the report, however there are no financial penalties for failing to select a contractor and Northwards will not charge any fees for abortive work.
- 2.9 In addition, should the Government accelerate the implementation of the proposed change to FiT, the tender process will include the right to end the works at any time, based on an aspirational number of installs. It is unlikely that a decision to change the FiT early could be made before the 3rd

December.

3.0 Estimated supply and install costs and FiT income

- 3.1 Prior to the FiT consultation paper, a mini market test conducted by MCC deduced we could secure the panels for £1,323 per kW, including contingencies. This would give a budget requirement of an estimated **£5.513m** for 1,400 properties including contingencies at 15% for Procure Plus fees, any roof repairs, loft boards, loft insulation and the effect of entering a sellers market as a result of the recent announcement. This will be market tested by Procure Plus via a mini competition, however, if costs are determined to be higher than modelled then the project would require further approval and may be aborted.
- 3.2 Based on a FiT rate of 11.22p/kWh for installations registered before 31 December, and a rate of 4.85p/kWh for 50% of electricity exported, the income generated over 20 years is an estimated **£10.543m**. Taking into account estimated operational and management costs over the next 20 years of £1.967m (see item 5 below), this would give an estimated net surplus to MCC of **£189k** over the life of the project although this is not guaranteed as there are a number of risks identified in paragraph 7.
- 3.3 The table below sets out the prudent base case of 1,400 properties, the assumptions to which are set out in appendix 1:-

Anticipated installation cost pre FiT consultation paper	£4,685,100
Contingencies at 15%	£702,765
Protect management and external fees	£125,000
Total Capital Cost	£5,512,865
Operational and maintenance costs 20 years	£1,966,939
Lifecycle costs	£630,000
Total anticipated 20 year expenditure	£8,109,804
Anticipated FiT generation tariff 20 years	£8,971,298
Anticipated FiT export tariff 20 years	£1,572,242
Total anticipated 20 year income	£10,543,540
Financing Costs	£2,244,999
Net profit to MCC	£188,738

- 3.4 Key assumptions made
- Installations vary in size from 3.68kWp to 2.25kWp (a detailed address list is available).

- Average yield per installation is as estimated by BlueSky, and across the 1,400 properties averages at 834 kWh per year. This value is conservative as advised by external consultants.
- FiT generation tariff of 11.22p and FiT export tariff at 4.85p.
- RPI at 2.5%
- Panel output efficiency reduces by 0.5% per annum
- Prudential borrowing rate of 3.5% has been assumed..

3.5 It should be noted that, if the expected reductions to FiT do not occur as expected from 1st January 2016, there is the potential to complete up to a further approx. 3,000 installations. The procurement route, however, would need to be confirmed.

4.0 Project Management and other fees

4.1 All project management activities will be carried out by Northwards Housing, who have extensive experience (having delivered over £250m capital projects for MCC in the last 10 years), specifically in delivering renewable energy projects such as solar PV, thermal, and ground and air source heat pumps.

4.2 The Northwards receive a fee of 8.4%, including all external fees, for managing the current capital programme. However, in the case of this PV project, because of the high level of capital investment in a short space of time, a bespoke fixed fee is proposed of £55,775. A full breakdown of this fee estimate has been provided to MCC. In addition there is an allowance for external fees of up to £13,225 for asbestos surveys, legal fees etc, and a cost for individual Energy Performance Certificates (EPCs) of £56,000.

4.3 Total fee estimate for Northwards and external fees is £125,000, or 2.5% of the installation price.

5.0 Operational and maintenance costs

5.1 The longer term operation and maintenance (O & M) of the systems will also be managed by Northwards. The re-procurement of the existing repairs and maintenance contract is currently being progressed by MCC for 2016 and the future maintenance of PV panels will be built into that contract.

5.2 Based on reviews of other PV proposals, a prudent cost of £55 per property per year has been included to allow for online FiT monitoring and system failure alert, and maintenance. Over 20 years including RPI at 2.5% this equates to £1.967m for 1,400 properties.

5.3 Lifecycle costs are expected to be £630,000, which represents the replacement of every inverter in year 10 at a cost of £450 each. This is a mid range value based on the current market range of £300 - £600. Although not all inverters will fail in the same year, it is expected under the base case assumptions that not enough of a surplus will have been created to cover this worst case scenario. It is therefore anticipated that additional funding could be required in year 10 of the project to fund this, prepaid from surpluses

generated.

6.0 Financial viability check by MCC

6.1 The below table highlights key sensitivities for the project.

Scenario	Surplus Y1-10	Surplus Y11-20	Project profit	Project IRR	Difference from Base
Base	£178,616	£640,122	£188,738	4.04%	0
Capital costs + 5%	£1,915	£475,298	-£174,586	3.54%	-£341,525
Capital cost as per Procure Plus Advice	£440,916	£930,213	£768,961	5.02%	£580,223
No Capital Contingency	£624,860	£1,134,595	£1,177,726	5.79%	£988,988
RPI at 2.72%	£211,046	£759,660	£340,706	4.24%	£89,727
RPI 1.5%	£35,797	£140,409	-£453,794	3.14%	-£642,532
Removal off 50bps interest buffer	£335,894	£813,522	£535,579	4.04%	£346,841
O & M at £45	£322,281	£840,900	£546,405	4.58%	£357,667
O & M at £60	£98,566	£539,733	£8,300	3.77%	-£180,438
Removal of RTB	£236,980	£863,591	£470,570	4.41%	£281,832
Yield at 860	£316,854	£813,016	£512,951	4.54%	£324,213
Inverters at £300	£178,616	£640,122	£398,738	4.37%	£210,000

6.2 As can be seen from the above table, the initial capital outlay will have a significant impact on the delivery of the project. The initial base case uses conservative estimates with a 15% contingency buffer. Reduction of this buffer dramatically increases the profit level of the project, highlighting the importance of price in the decision making process.

6.3 In addition to this point the project is highly dependant on inflation. A sensitivity reduction of RPI by 1% to 1.5% puts the project at a loss under the base case assumptions. This point is difficult to predict, although it must be noted over the past few quarters CPI has been close to 0% which would be detrimental to the validity of the project. Bank of England have a target CPI of 2% and RPI has historically been 0.72% higher, giving an estimated RPI of 2.72%.

7.0 Key risks

<u>Risk</u>	<u>Owner/action by</u>	<u>Level</u>	<u>Description</u>
<u>Capital Costs</u>	<u>Northwards</u>	<u>High</u>	A potential for material and installation costs to increase is mentioned in item 3 and a 15% allowance has been allowed for in the budget estimate. One of the main risks will be the availability (and cost) of materials. Procure Plus has stated that in order to

			secure materials rates and suitable quantities then a minimum deposit of 30% will be required. Another Council currently working with Procure Plus are purchasing 50% of their materials upfront (500 systems). This secures them the same rate for further orders to complete the remaining 500 installs, which will be placed when contractors start on site. MCC need to consider adopting a similar approach.
<u>Pre contract period</u>	<u>MCC/Northwards</u>	<u>High</u>	It is critical that the pre contract period is kept as short as possible, with a quick turnaround over things such as tender documentation sign off (including legal), validation of tenders and approval processes
<u>DNO engagement</u>	<u>Northwards</u>	<u>Medium</u>	District Network Operator approval is required and needs to be sought ASAP. Northwards has already been in touch with Electricity North West and can progress this.
<u>Tenant engagement</u>	<u>Northwards</u>	<u>Low</u>	There is a potential failure to complete installations because of tenant refusals. Northwards will develop a robust pre and post contract tenant engagement strategy, and keep a substitute address list in the event of no access.
<u>Opportunity cost</u>	<u>Manchester working</u>	<u>Low/Medium</u>	The delivery of this project in the timescales may mean that some other projects within Northwards' capital programme have to be delayed by a few months, whilst staff are employed on this project. This is seen as preferable to trying to recruit additional staff for a 2/3 month period in a short space of time, but it should be noted that it may negatively impact the workflow for Manchester Working during this period (unless they are successful in the PV mini competition).
<u>Timing</u>	<u>MCC/Northwards</u>	<u>High</u>	Delay to the delivery programme is likely to have a significant impact on the financial viability of the scheme, therefore, early

			consultation with contractors as to feasibility would be advised.
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Northwards Housing have compiled a detailed risk register covering all risks.

8.0 Proposed selection criteria for properties for PV install

8.1 In order to maximise installation of PV panels, it is proposed that the following criteria is applied:-

- Largest systems are prioritised (i.e. 3.68kWp, then 3. 5kWp etc)
- Only houses and bungalows are included (i.e. not flats with shared roofs)
- Properties must not be in a conservation area (planning issues may cause delays)
- Prioritise properties which, based on Northwards' stock condition survey information, don't require any roofing works which would result in the removal of the panels after installation & loss of FiT
- Disregard 'one off' installations in preference for an estate or street approach.

8.2 In addition all properties will require an Energy Performance Certificate prior to works (organised by the contractor) to demonstrate that they are minimum SAP (energy rating) of Band D. Based on Northwards' asset management database all suitable properties should already be Band D.

8.3 Proposed properties will be subject to further detailed survey to check age and condition of the roof covering, and load capacity.

8.4 All of this will be managed by Northwards within the fixed fee quoted

9.0 Properties subject to future Right to Buy (RTB)

9.1. In the current 'rent a roof' project the purchaser is given the option of retaining the panels, with the FiT retained by the funder, or having the system removed. If the system is to be removed we have to find an alternative suitable property and the FiT is claimed at whatever the current FiT rate is at that moment in time. This second option is no longer seen as a viable option going forward, with the likely FiT reductions, and therefore the following 2 options are proposed to mitigate the impact of RTB:-

- a. the purchaser retains the panels and benefits from free electricity but the FiT is retained by MCC, and O & M carried out by Northwards
- b. the purchaser buys the system when they purchase the house and the amount is added to the final sale price

9.2 Based on current rates of RTB this would affect a potential maximum of 5 installations a year. This has been factored in the financial appraisal for prudence on the basis that the legal mechanisms for the proposed RTB approach are yet to be tested.

10.0 Recommendation

10.1 The Council approves a capital budget increase of £5.513m to deliver the installation of PV panels for up to 1,400 properties

11.0 Contributing to the Community Strategy

(a) Performance of the economy of the region and sub region

11.1 The project will promote economic development locally and regionally by delivering improvements and providing training opportunities.

(b) Reaching full potential in education and employment

11.2 A safe, warm and dry home is essential for children to be able to study and develop. Reducing electricity costs will release income for heating costs etc.

(c) Individual and collective self esteem – mutual respect

11.3 Tackling fuel poverty will help to reduce fuel poverty amongst some of the city's lowest income families.

(d) Neighbourhoods of Choice

11.4 N/A

12.0 Key Policies and Considerations

(a) Equal Opportunities

12.1 There are no equal opportunities issues as a result of the proposed capital works.

(b) Risk Management

12.2 A number of key risks and mitigation strategies have been identified and are included within the report

(c) Legal Considerations

12.3 The solar PV panels will be procured using an OJEU compliant framework

Appendix 1 -PV Model assumptions for self funded.

Assumption	Value	Notes to assumption
Construction Period	2 Months	Assumes 200 installations a week following a week ramp up & 7 week construction phase. Multiple contractors allow for increased delivery.
RPI	2.5%	CPI target is 2% and RPI has historically been 0.72% higher. Lifecycle & O & M costs linked to RPI.
Electricity export rate	0%	Export rate has remained static over the past couple of years.
FIT inflation	2.5%	Linked to RPI
FIT Export rate	4.85p kWhr	https://www.ofgem.gov.uk/publications-and-updates/feed-tariff-scheme-tariff-table-1-october-2015-pv-only - Latest figures published 31/07/2015
Export rate	50%	Standard assumption on unmetered arrays. http://www.energysavingtrust.org.uk/domestic/feed-tariff-scheme
FIT Tariff	11.22p kWhr	https://www.ofgem.gov.uk/publications-and-updates/feed-tariff-scheme-tariff-table-1-october-2015-pv-only - Latest figures published 31/07/2015
Irradiance yield Average array size	834 kWhr/kW 2.91kW	As advised by BlueSky review of proposed housing stock. Joju advise 860 ± 5% for optimum roof orientation and angle.
Capital cost per kWhr	£1,323	Styles and wood quotation: £1,150 per kW Joju advise £1,000 is aggressive but possible. Advise S & W quote reasonable. Procure plus have advised on 10/08/15 that the weighted average of £1,061 per kW could be achieved. 10% contingency added on for sellers market. 5% added on for Procure Plus fees.
Economic life	20 years	FIT rate lasts 20 years, however, Joju advise panels will last for 25+ years.
EPC Certification	£40	Northwards advised cost per installation.
Northwards & external fees	£69,000	Northwards advised cost – breakdown available and is inclusive of 50k contingency
Performance degradation	0.5%	Joju – advise 0.4% is realistic.
Inverter cost	£450	Joju – advise to allow £300 - £600 depending on size and manufacturer. No inflation applied as costs are expected to reduce by 10-20% with better technology available.
O & M	£55 per install	Top end as advised by S & W. Joju confirm range should be £40-50 per house inc monitoring.
Senior debt interest rate	3.5%	PWLB rate as of 25/08/2015 is 2.95% for a 20 year annuity. 55bps buffer added.
RTB Takeup	0.3%pa	Advise by Northwards indicates 0.6%pa, however, it is anticipated some RTB will keep the panels on the roofs.