

Agenda Item	5
Report No	CCWG/16/20

The Highland Council

Committee: Climate Change Working Group
Date: 22nd October 2020
Report Title: Solar PV Programme
Report By: Executive Chief Officer – Infrastructure & Environment

1. Purpose/Executive Summary

- 1.1 This report provides a summary of the Council's Solar PV programme and an update on the progress to date, including proposed next steps.

2. Recommendations

- 2.1 Members are asked to note the contents of this report.

3. Implications

- 3.1 Resource – All resource is fully costed into the programme. This is funded via the Council's £7m Salix Recycling Fund (RF), which is comprised of a £3.5m interest free loan from Salix and a further £3.5m borrowing from PWLB (as part of the organisation's commercial investment in renewables).
- 3.2 Legal – There are no legal implications arising from this report.
- 3.3 Community (Equality, Poverty and Rural) – Installations are taking place pan-Highland, predominantly in high electricity consuming corporate buildings such as schools and leisure facilities. This programme, and the wider overarching Salix programme, are business case-led therefore only viable sites will be progressed. Buildings that benefit from the addition of solar panels will see a reduction in electricity consumed from the grid and therefore a reduction in carbon emissions.
- 3.4 Climate Change/Carbon CLEVER – Not only will the Solar PV programme deliver significant carbon savings for the Council, it also forms part of the wider Salix RF. This means that the financial savings will be reinvested in further energy efficiency projects (resulting in a greater reduction in carbon).
- 3.5 Risk – Due to Health & Safety concerns regarding Covid19, the most immediate risk relates to contractors accessing sites and undertaking multiple site works at once. Implementing strict control measures, such as more robust working practices and preventing work across multiple sites simultaneously, has elongated the programme. The Energy & Renewables Board have agreed this is an acceptable delay due to the perceived heightened risk of contractors being on site. All contractors have provided revised programmes of work to reflect the enforced control measures. Additionally, some minor delays have been experienced due to contractor personnel having to self-isolate.
- 3.6 Gaelic – There are no Gaelic implications arising from this report.

4. Background

- 4.1 On 28th February 2018, Corporate Resources Committee approved a paper establishing the case for the installation of £2.3m of Solar PV across the Council's non-domestic estate.
- 4.2 The £2.3m, borrowed from Public Works Loan Board (PWLB), would see the Council invest in a renewable technology with the electricity generated being used directly on-site at the point of generation in council buildings. The self-financing nature of the proposal, where we would essentially "sell" the energy to the building to cover the capital borrowing plus interest, would reduce our reliance on grid supplied electricity and help the organisation mitigate against increasing energy prices. The electricity would be priced at market rate initially and any annual increase in the unit price would be conservative (below market rate), allowing the organisation to reduce its energy spend and demonstrate a profit without burdening budgets.
- 4.3 This programme and investment forms part of the Council's £7m Salix Recycling Fund (RF). Salix Finance Ltd. awarded the Council a £3.5m interest-free loan, matched funded against this investment and the River Ness Hydro project, which is the largest Salix amount has ever awarded in Scotland and the largest awarded to a local authority in the UK. The loan fund is ring-fenced for investment in projects that will reduce the Council's energy spend and carbon emissions.
- 4.4 The Solar PV programme will deliver, and in completed sites is already delivering, the following benefits:
 - savings of ~350,000kg CO₂e per annum that will help the Council meet ambitious Climate and Ecological Emergency targets;
 - delivering ~£4m net profit* for the Council over the life of the assets (modelled over 25 years);
 - further protecting the Council from future electricity price increases;
 - serve as a successful example of a self-financing proposal and establish the business justification for an increase in renewables across the estate;
 - improve the organisation's track record of delivery, which will in turn improve our reputation and green credentials;
 - demonstrate the key aims of Highland Council - to be ambitious, sustainable and connected.

* This money will feed into the Salix RF as a long-term intervention to ensure further energy efficiency works are continuously delivered.

- 4.5 This work, and the wider RF, are hugely important in helping meet our climate change targets and helping mitigate against increasing prices and market instability. The recycling nature of the fund ensures that we are continuously investing in energy efficiency projects and endeavouring to be as self-sufficient as possible.

5. Progress to date

- 5.1 To ensure sites being progressed realise sufficient savings to satisfy Salix criteria – projects must repay themselves within 10 years through energy bill savings and must cost no more than £278 per tonne of carbon dioxide saved - the following selection criteria was initially used to assess the estate -
 - Electricity consumption above 80,000kWh per annum;
 - Roof mounted – Pitched preferred to avoid issue with flat roof covering;
 - Array size above 20kW to support economies of scale;

- A building asset life of a minimum 10 years but preferably longer;
- 80% on-site consumption of generated electricity

5.2 To help realise some economies of scale, sites have been grouped based on their proximity to one another; geographically grouped lots allow us to progress less favourable sites in remote locations as they are typically grouped with more favourable sites. This approach has worked well and has been adopted across the Salix LED programme to ensure that we are progressing works across the region regardless of rurality.

5.3 With installations happening across 33 sites and generating a total of over 2.3MW, this is the most ambitious renewables installation programme the organisation has ever undertaken.

Current state of programme as of 22/10/20:

Lot #	No. of sites	Installed capacity	Annual carbon savings (kg CO2e)	Capital cost (£)	Status
1	3	~380kW	57,614	~370k	Complete
2	5	~205kW	39,218	~186k	Complete
3	8	~478kW	83,214	~464k	7/8 sites complete. Alness Academy awaiting completion due to School build contractor delays
4	6	~167kW	27,021	~167k	4/6 sites complete and awaiting handover documentation. Kinlochbervie High School scheduled for October holidays. Dingwall County Buildings requiring approval from SSEN.
5	1	~279kW	40,000	>380k	IRA carport experiencing delays due to post-covid focus on completing active sites. Site surveys to be undertaken during October holidays. Thurso carport dropped due to grid restrictions.
6	10	~868kW	141,428	~723k	3/10 sites complete with a further 1 site underway. Delays due to covid and currently awaiting revised work programmes that factor in increased H&S requirements.

5.4 The programme has experienced significant unforeseen challenges that have resulted in delays and in some cases, increased costs; however projects can still be progressed with confidence as the Salix RF is managed as a total fund, meaning less favourable sites can be advanced, as the more favourable sites realise greater savings and balance out the total fund.

5.5 Some of the main challenges for the project team can be summarised as follows:

- Grid restrictions have eliminated a number of sites and have also impacted our ability to install renewables on a larger scale. Installations are designed based on building demand, and in most of the sites progressed there is sufficient building consumption to justify a larger array, however due to the lack of available grid capacity, systems have had to be scaled down. Furthermore, smaller installations across a greater number of sites result in higher associated cost per installed kW and require more time to complete.
- Covid-19 lockdown resulted in several months where work was unable to take place. This, coupled with an increased need to adopt strong health and safety protocols, has

caused slippage to the programme. Pre-Covid-19, a number of sites would be progressed concurrently and would result in the programme completing earlier. This approach has changed as we look to minimise any unnecessary travel to and from sites, therefore the remaining sites will be completed sequentially, further elongating the programme and adding costs.

- Internal charging and application of an hourly rate multiplier has been a challenging barrier to overcome. This has stretched project budgets and impeded our ability to realise greater savings (which would be reinvested in more projects and initiatives through the Salix RF). This also creates ongoing uncertainty for projects, as we try to manage the risk of increased costs both internally and externally, whilst also remaining compliant with the agreed Salix criteria.

5.6 Whilst some of these barriers still stand, and with very little ability to directly address them, as a cross-service project team (comprised of officers from Property, Energy and Transformation), we have developed a better understanding of these challenges. We have also built strong working relationships with key stakeholders to help minimise the impact these issues will have on any future renewables work we undertake.

6. Next Steps

6.1 The project team will continue to progress Phase 1 works and are optimistic that all 33 sites will be fully complete and operational early 2021, albeit with the caveat that any increase in Covid-19 restrictions will likely impact contractors' ability to travel and undertake works.

6.2 In addition to this phase of solar (phase 1), the initial analysis for a supplementary phase is underway (phase 2). Phase 1 focused on income generation, therefore many of the more favourable and lucrative sites have already been progressed; this means the remaining sites – ones that have not been ruled out due to grid restrictions or concerns over the structural integrity of the roof - are likely to yield a smaller financial return. Therefore, this proposed phase (phase 2), with support from the Executive Chief Officer for Infrastructure and Environment, will be progressed using a 'cost recovery' business model. Whilst significant savings may be harder to realise, the capital outlay and repayments (either to PWLB or the Salix RF) will be covered by the savings i.e. self-financing. Furthermore, this approach will offset a reliance on grid supplied energy helping mitigate against rising energy prices, whilst also reducing carbon emissions and further enhancing our green credentials. Whilst this work has started, ensuring adequate funding is in place for the preliminary analysis has proven challenging; key personnel are required to charge their time to an agreed project budget; however, in this instance there is no defined budget as the analysis is speculative and any installation work would only be funded once a robust business case has been developed. This is an ongoing barrier in developing a project delivery pipeline which is essential in supporting the development and delivery of a wider energy strategy.

6.3 The Council has several legacy solar installations - work that was complete prior to this current programme. Many of these systems have had little or no maintenance and lack the robust remote monitoring required to ensure the assets are operating effectively and realising benefits for the organisation. To address this and ensure that all renewable installations – both past and present - can be monitored remotely and are proactively maintained, a piece of work is underway to evaluate the legacy assets and develop a rectification plan for each. Some of these assets are offline and failing to generate therefore it is imperative this is addressed to ensure better carbon savings and reduced reliance on grid supplied energy (and future cost avoidance relating to increasing energy prices). It is anticipated, where viable, that this work will be funded through the Salix RF.

Designation: Executive Chief Officer – Infrastructure & Environment

Date: 22nd October 2020

Author: Martin MacDonald