

REPORT TO: Executive Board
DATE: 25th February 2021
REPORTING OFFICER: Chief Executive
PORTFOLIO: Environmental Services
SUBJECT: Halton Smart Micro Grid
WARDS: All

1.0 PURPOSE OF THE REPORT

To consider proposals for the development of a smart micro grid that that would seek to decarbonise the Council's building electricity, heating and transport via the culmination of several technologies.

2.0 RECOMMENDATION: That

- (1) a formal bid be made to the Strategic Investment Fund for 50% funding of the estimated total project costs (circa £4,971K).
- (2) a bid of £60k be made to the Energy from Waste Environmental Fund to support pre development costs.
- (3) Subject to a successful Strategic Investment Fund Bid a further report be brought to Executive Board setting out a detailed financial case to support the project.

3.0 SUPPORTING INFORMATION

- 3.1 The Council completed construction of a 1MW Solar Farm, connected by private wire to the DCBL Stadium, on the former St Michael's Golf Course in September 2020.
- 3.2 Following completion of the project further feasibility work has been undertaken to see if there is scope to extend the Solar Farm and create a micro grid connecting other Council buildings.
- 3.3 The key features of the feasibility study looked at:-
 - 3.3.1 Increasing the size of the Council's solar current PV generation portfolio by installing a combination of additional rooftop and solar farm solar PV generation schemes. This would aim to bring the total installed capacity to 5.1MW and would be achieved by extending the existing Solar Farm by 2.95MW and installing an additional 900kw of roof top solar.

- 3.3.2 Connecting the additional solar PV generators and building loads via the installation of a High Voltage ring between the following Council sites in central Widnes:

- Halton Stadium, Lower House Lane, Widnes WA8 7DZ
- The Municipal Offices, Kingsway, Widnes WA8 7QF
- The New HBC Leisure Centre, Ellis Street, Widnes, WA87AP
- The Lower House Lane Depot, WA8 7AW (See diagram below)

Anticipated HBC owned 11kV ring cable route



- 3.3.3 Installing a 2MW / 4MWh battery storage scheme in order to maximise the use of solar PV power overnight, and to additionally support the District Network Operator electricity grid and national grid via ancillary services.
- 3.3.4 Utilising the generated renewable energy to support the use of heat pumps in the new Leisure Centre, thus electrifying the heat loads in the new building (rather than using natural gas)
- 3.3.5 Providing the necessary electrical infrastructure and 49 chargers at the Council's Lower House Lane depot to enable the electrification of the Council's mini-busses, refuse collection vehicles and vans that are parked overnight at the Council's depot. The scheme will also provide for 19 Electric Chargers at the new leisure centre site.

- 3.4 The combined capacity of the identified schemes (old and new) would be circa 5.1MWp and would be sufficient to meet the combined demand of the four buildings and the electrification of the Council's transport fleet. The micro grid systems has the potential to generate 4,188,000kWh per annum.
- 3.5 The feasibility study suggests that the optimal battery capacity for the project would be between 4MWh and 5MWh but further work in this area is required.

4.0 Provisional costings

- 4.1 An outline budget estimate for the scheme has been worked up. The total cost to construct the project would be in the region of £10.611M (net of VAT), however this sum includes c£700K that has already been invested by the Council in the 1MWp solar farm. The additional investment requirement would therefore be £9,833M.
- 4.2 The investment modelling has assumed that 50% of this figure (£4,917K) would be funded via the SIF fund. The project is not considered commercially viable without grant funding or high Power Purchase rates. The remaining funding would need to be provided by the Council as match funding.
- 4.3 The modelling. suggests that the project would generate a net income of c£334k p.a. Based upon these initial assumptions, the project IRR over 30 years may be c4.24%, with an NPV £1,004K based on a 3% discount factor.

5.0 POLICY IMPLICATIONS

Nationally the Government has set a target for the UK to reduce its Carbon Emission in the period 2028-2032 to 57pc below 1990 levels. The Council also set its own reduction targets and these are currently being met. The Council has also recently declared a Climate emergency which calls for the Council to produce and use more renewable energy in its buildings. This scheme will help contribute to further reductions and support the Council's ambitions.

6.0 FINANCIAL IMPLICATIONS

- 6.1 The project would require a £4,917,000 of funding by the Council as match funding to any successful SIF bid.
- 6.2 The illustration suggests that the project would generate a net income of c£334k p.a. Based upon these initial assumptions, the project IRR over 30 years may be c4.24%, with an NPV £1,004K based on a 3% discount factor.

7.0 IMPLICATIONS FOR THE COUNCIL'S PRIORITIES

7.1 Children and Young People in Halton

None

7.2 Employment, Learning and Skills in Halton

None

7.3 A Healthy Halton

None

7.4 A Safer Halton

None

7.5 Halton's Urban Renewal

The Scheme will bring back into use a Council asset that has been unused for some years and is unsuitable for major development. It will contribute to the Council's targets to reduce carbon emissions and will demonstrate local leadership in promoting locally generated renewable energy, removing the reliance on traditional fossil based fuels. The project will also act as a demonstrator project for the Liverpool City Region (LCR) and could provide a model to be replicated across the LCR on differing scales.

8.0 RISK ANALYSIS

8.1 A risk register for the scheme would be developed that puts in place control measures to mitigate against the main risks.

9.0 EQUALITY AND DIVERSITY ISSUES

None

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

Document	Place of Inspection	Contact Officer
-----------------	----------------------------	------------------------

"None under the meaning of the Act"