

Development of Solar Farm Capacity

Date: 14th December 2022

Report of: Director of Resources

Report to: Executive Board

Will the decision be open for call in? Yes No

Does the report contain confidential or exempt information? Yes No

Brief summary

The Council is committed to working towards ensuring its energy consumption is 100% from zero carbon sources by 2030 in line with the Climate Emergency ambition of becoming net zero by 2030. The rising cost of energy, and the pressure this puts on the Council's budget, also places further importance upon energy security.

The development of a solar farm has the potential to generate a significant volume of clean renewable energy that can be used to supply a proportion of the Council's demand.

Solar farm development provides protection to the Council from volatile market prices associated with fossil fuel-based generation, by reducing the costs associated with electricity purchasing and providing support with energy security.

They also provide opportunity for biodiversity net gains on sites chosen for the solar farm development, helping to enhance the local environment.

Site selection is a challenging process with a number of issues across a range of areas needing to be considered.

This report outlines the process behind selecting and developing a site along with the challenges and risks in doing so and seeks a range of approvals necessary to progress towards meeting a new, increased target for local renewable electricity generation.

Recommendations

- a) Approve increasing the commitment to deliver 10% of the Council's electricity demand through locally based renewables generation by 2025/26, with a new commitment to achieve 30%.
- b) Approve the injection of up to £50m for the development of a mix of solar farm capacity and rooftop solar with potential for battery storage with individual sites.
- c) Delegate authority to spend to the Director of Resources for individual sites with construction costs of under £500k, with sites valued at over £500k being approved by Executive Board based on site specific business cases and funding arrangements.

- d) Delegate authority to award a contract for the design, build, operation and maintenance of sites to the Director of Resources.
- e) Provide authority to establish a local authority company should there be a requirement, on terms that are agreed by the Director of Resources and in consultation with the Executive Member for Resources, City Solicitor, and the section 151 officer.
- f) Agree to the principle of selling surplus electricity generated at a solar farm to the National Grid or other public sector organisations within the city where there is a positive financial benefit.

What is this report about?

- 1 Within the Energy Strategy and Action Plan approved by Executive Board in February 2022 the Council set out that its energy consumption is to be 100% from zero carbon sources by 2030 in line with the Climate Emergency ambition of becoming net zero by this time. The significant energy costs are contributing to current budget pressures and as such managing the cost of energy is a key priority for the Council. The Energy Strategy and Action Plan sets out a proposed pathway for minimising the environmental and financial impacts associated with energy.
- 2 Over the last 2 years the Council has been successful in installing roof top solar in conjunction with air source heat pumps across a number of buildings within its estate such as schools and leisure centres. The Council has also delivered a substantial solar scheme at the Stourton Park and Ride site in partnership with the West Yorkshire Combined Authority and First West Yorkshire. Work is also ongoing to reduce the Council's overall energy consumption through areas such as LED lighting, building consolidation, and better building management.
- 3 Whilst these are excellent achievements there is a need for the Council to significantly expand the volume of electricity that is sourced from renewable sources in line with the Energy Strategy and Action Plan commitment of delivering 10% of the Council's electricity demand through locally based renewables generation by 2025/26.
- 4 The development of a solar farm has the potential to generate a significant volume of clean renewable energy that can be used to supply a proportion of the Council's demand. They have the benefit of providing economies of scale in comparison to developing multiple rooftop sites, providing the ability to generate much more electricity. They can also generate electricity that can be attributed to demand where there are no opportunities for rooftop. Solar farms are also easy to maintain, provide opportunities for increasing biodiversity potential on a site, and are temporary developments that can safeguard sites. It is considered that the development of solar farm capacity provides the best opportunity for large scale local renewables generation and it is therefore intended that the opportunities and benefits that can be derived from solar generation be actively pursued by the council.
- 5 The Council's has a relatively high annual electricity demand, which in 2021/22 was 104,400MWh). This total demand is spread over around 2,300 supply points ranging from buildings to traffic lights, making it unviable to directly supply the electricity generated at a solar farm to individual sites. As such the electricity generated will be supplied to the grid and sleeved to the Council through its electricity supply contract. Based on the size and profile of the Council's electricity demand, it has been identified that developing solar farm capacity with an installed peak capacity of c.30MW will most efficiently meet the council's demand. Capacity over this figure will largely generate surplus electricity. Targeting delivery of a scheme or

schemes on this scale has led to the conclusion that the existing 10% local renewables commitment could therefore be increased to a more ambitious figure of 30% to enable greater potential from solar.

- 6 To maximise the use of the generating capacity of solar farms it is intended that as a minimum a site be designed and developed to be battery enabled, allowing battery storage to be installed but not necessarily from the start of a site becoming operational. Batteries enable electricity to be stored in periods where generation does not mirror demand, and for this stored electricity to be released at times when it meets demand or by selling the electricity when there is a financial benefit in doing so.
- 7 Whilst the aim of a solar farm is to generate electricity to meet the Council's own demand there may be surplus electricity generated. Whilst this could be stored in batteries, alternative options would be to sell this surplus to the National Grid or to sell this to other public sector organisations within Leeds to generate revenue and help them to meet their own carbon reduction targets and ease budget pressures.
- 8 There is a strong intent to develop solar farm capacity within the Leeds boundary and the Sustainable Energy and Air Quality Team (SEAQ) are looking to bring forward capacity in the shortest timescales possible given the climate emergency and energy cost pressures. The primary aims of the project are:
 - Provide a valuable contribution towards the Council's climate emergency ambition of becoming net zero by 2030 through reducing CO2 emissions associated with the Council's energy use and support the Council in its transition to 100% renewables by 2030.
 - Provide protection to the Council from volatile market prices associated with fossil fuel-based generation, by reducing the costs associated with electricity purchasing and support with energy security.
 - Provide biodiversity net gains on the site chosen for the solar farm helping to enhance the local environment.

Additionally, the development of a solar farm will:

- Attract inward investment into the city to support the renewable development of Leeds.
 - Create a number of short-term construction jobs through the construction period helping to retain wealth in the local economy.
 - Provide opportunities for community benefits and educational opportunities associated with renewable energy.
 - Contribute to a reduction in the carbon intensity of the grid in the West Yorkshire region.
- 9 Where there is potential for rooftop solar this will also be explored however it is considered that the number of remaining buildings that are suitable are limited as there are a limited number of larger sites with suitable rooftops. Rooftop solar can be directly supplied to the building and the impact of inclusion of on-site batteries will be explored where the buildings demand and a business case supports this.
 - 10 The initial approach will be to explore installation of rooftop solar on sites such as Kirkgate Market, and also Adel Beck Secure Children's Home which already has a small amount of rooftop solar installed. It is anticipated that the majority of the electricity generated at these sites will be used on site.
 - 11 This report is being brought to Executive Board as it demonstrates a commitment and desire to pursue the development of solar farm capacity prior to undertaking a full procurement exercise.

It also enables the council to move at pace on some of the smaller rooftop solar schemes that can be brought forward.

What impact will this proposal have?

- 12 Solar farm capacity has the potential to be developed across multiple sites meaning generation capacity can be scaled up to maximise the generation potential. A site has to be selected based on a range of criteria that assess suitability from a planning and technical perspective. Work has been carried out in conjunction with advisers to review all Council owned sites against a number of criteria such as existing use, allocated use, heritage factors, local planning policy allocations, size, and greenbelt allocation.
- 13 Given constraints associated with the availability of suitable sites within the urban area (and sites not within the Green Belt), it has been necessary to consider the potential of sites on open land, within the designated Green Belt. However, it should be emphasised that in terms of national planning policy (the National Planning Policy Framework), this has set a very high bar regarding the acceptability of development in the Green Belt, *“The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence.”* (NPPF, para 137, 2021). The NPPF goes on to note, *“When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. ‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations”* (NPPF, para.148). By virtue of their definition, solar farms constitute “inappropriate” development in the Green Belt. Consequently, within this context of this policy framework any future planning applications would need to be considered on their individual merits (with regard to the five purposes of the Green Belt) and will also need to demonstrate Very Special Circumstances, in order for proposals to come forward.
- 14 Through the site selection exercise 3 sites were initially identified as having suitable characteristics, with one of these a non-Greenbelt site. The sites were located in Harewood Ward adjacent to the outer ring road, Wetherby Ward near the Thorp Arch Estate, and Garforth and Swillington Ward near Bullerthorpe Lane. The sites were selected based on them being considered suitable from a technical perspective and through having a limited number of planning related constraints. They were also sites that were available in the short term due to the nature of the tenancies. Preliminary Ecology Assessment and Biodiversity Net Gain baseline studies were carried out by advisors to further determine their suitability, with 2 sites identified as having potential for Great Crested Newts.
- 15 Additional work involved carrying out title checks on the land. This identified that one site had restrictive covenants in place, which limit development to only a few activities. This coupled with some challenging planning considerations meant the site was discounted. The remaining 2 sites were found to have very significant costs relating to grid connections, which would result in the sites being financially unviable. Whilst there remains potential for a new substation to be constructed near one of the sites that would support a future connection, both sites have been ruled out at this time.
- 16 Work to date has shown that site selection is a complex process where multiple issues across separate areas have to be reviewed simultaneously. Further work is now ongoing to review additional sites to understand their suitability and any grid connection or title issues. It is likely that these sites will have longer availability timescales due to current tenancies and may also have costs associated with varying or ending tenancy agreements.

17 The identification of sites and seeing these sites through to development has financial costs. Surveys such as Preliminary Ecology Surveys cost in the region of £5k per site, pre-planning advice costs £15k per site, and grid connection applications for large connections £8k per site. These are activities that may result in a site being discounted so it should be recognised that there could be level of abortive costs associated with identifying sites.

How does this proposal impact the three pillars of the Best City Ambition?

Health and Wellbeing

Inclusive Growth

Zero Carbon

18 The development of a solar farm has the potential for providing biodiversity net gain improvements, either on or off site and this is likely to improve the surrounding local green space. There are a range of opportunities with these being somewhat site specific, however because solar farms can be in place for 30 years and require minimal maintenance there is potential for a range of conservation initiatives. Sites can for example provide havens for wildlife and rare species, can include wildflower meadows for pollinators, and can help increase plant and invertebrate species where there is any onsite open drainage.

19 Solar generation provides clear benefits in terms of carbon reduction with solar energy being classed as zero carbon, which will further propel the Council's towards its objective to be a Zero Carbon city by 2030. For example, a 21MWp solar farm generating and supplying 23,000MWh of electricity per year has the potential to save around 4,400 tonnes of CO2 compared to purchasing the same volume from the grid.

20 The proposals will provide the council with greater energy security as it will generate a proportion of its own energy, which will not be so subject to wholesale market price volatility. Energy produced by the solar farm will also allow the council to make financial savings, easing the financial burden on the organisation's budget. It will also expand the green jobs market in the city through having the potential for short term construction jobs.

21 Within the procurement exercise the contractor will be require to evidence social value TOMs (Themes, Outcomes and Measures), which are expected to include in person or virtual site visits for local residents and schools, details of their fleet makeup to ensure the cleanest vehicles practically available are accessing and servicing the site, and opportunities for the completion of apprenticeships to support the future workforce around clean and renewable technologies.

22 An Equality, Diversity, Cohesion, and Integration (EDCI) screening report has been completed, however there it is considered there is limited impact from the proposals.

What consultation and engagement has taken place?

Wards affected: N/A

Have ward members been consulted?

Yes

No

23 The Council's Asset Management team within City Development have been and will continue to be involved in the site selection process. Their knowledge and understanding of Council sites is crucial in being able to determine site specific issues and they will support with any necessary tenancy discussions.

24 Ward members will be consulted once specific sites have been identified to understand any specific issues and concerns they may have.

25 The Executive Member for Infrastructure and Climate and Deputy Leader and Executive Member for Resources have and will continue to be briefed.

- 26 Procurement and Commercial Services (PACS) have been consulted on the procurement process and the contract documents.
- 27 Finance have been consulted, in particular in order to understand the potential VAT implications of a significant capital scheme.

What are the resource implications?

- 28 Legal and technical advisors have been appointed to develop contract documents. Following site selection, a procurement exercise will be carried out to appoint a single organisation to a single supplier framework agreement. The contract will involve a number of work packages ranging from pre-construction services (planning application), a construction contract, and operation and maintenance contract.
- 29 The procurement will be carried out using Crown Commercial Services (CCS) Helga Dynamic Purchasing System (DPS). This provides access to pre-vetted organisations amongst which mini competition can be undertaken to select an appropriate contractor. A Capability Assessment to shortlist companies has already been undertaken with expressions of interest gained from a number of organisations. This has shown that there is interest within the market from organisations that are interested in working with the Council to develop solar farm capacity.
- 30 Finance options for construction costs are to be explored to understand the most viable option. Public Works Loan Board (PWLB) is one option, and discussions with the UK Investment Bank have identified that they are interested in investing in the development of solar farm capacity.
- 31 The business case for development of a solar farm is largely subject to the specific development costs of a site. An economic model shows that a solar farm with an installed peak capacity of c.10MWp will have construction costs of c.£10m and look to provide annual savings against the Council's current electricity costs.
- 32 Approval for the development of sites that are considered viable and have development costs of over £500k will be sought from Executive Board on the conclusion of individual business cases. Developments valued below £500k will be approved by the Director of Resources. This separation is in relation to current levels of delegation and also the relative risks attached to the development of larger sites.
- 33 Up to £200k has been allocated from the Council's Innovation fund to provide financial support for business development costs such as legal and technical advisors, where these costs cannot be secured via external funding sources.

What are the key risks and how are they being managed?

- 34 Site selection – there is a risk of not finding a suitable site due to a number of reasons such as grid connection capacity, title and deed issues, technical characteristics of the site, as well as a need to secure planning permission. The council owns a significant number of sites so it is expected there will be suitable sites however the number of sites may be limited.
- 35 Tenancy risks – some council sites have existing tenancies that would require negotiating to amend the terms of the tenancy or to end the tenancy. The timescales attached to this could bring delays along with the potential for compensation. Any costs will be factored into financial models when determining the viability of a particular site.
- 36 Timescales – there may be delays to the delivery programme for a number of reasons, such as tenancy issues, planning issues, grid connection timescales.
- 37 Costs – there are financial costs attached to some areas of site selection, so there is a risk that the Council incurs costs in relation to sites that are ultimately discounted, and so there is a

financial risk through abortive costs This will be managed by carefully selecting sites and only spending where there is a need.

- 38 Due to the Council's VAT exemption limit, there may be a requirement for the solar farm to be developed via an SPV dependent on the level of commitment within the capital scheme. It is not anticipated this will present a significant risk, however discussions with legal advisors and the Council's VAT team will continue to determine the most appropriate action. A key decision associated with establishing an SPV will be reported to Executive Board, however, it is envisaged that it would be established on similar terms to the SPV associated with the Leeds Pipes District Heating Network.

What are the legal implications?

- 39 Legal services will support the delivery of the projects identified including all due diligence in relation to Property title checks to determine whether there are any issues associated with identified sites such as land ownership, access rights, or restrictive covenants. The package of support will include advising on planning proposals and company law.
- 40 Any existing tenancy agreements will be reviewed to understand any issues associated with amending or ending a tenancy. Any dialogue and negotiation with tenants will be led by the councils Asset Management Team in City Development.
- 41 The procurement will be carried out in accordance with the Council's own Contract Procedure Rules (CPR's) and in accordance with the requirements of the CCS Helga DPS.
- 42 Electricity generated at a solar farm will need to be sleeved via the Council's electricity supply contract and as such the contractual arrangements for this need to be established with the council's supplier.
- 43 The decisions within this report were not included within the List of Forthcoming Key Decisions for a period of 28 clear calendar days prior to taking the decision due to administrative error.

Options, timescales and measuring success

What other options were considered?

- 44 The option of purchasing electricity via a corporate Power Purchase Agreement (PPA) has been explored in line with the commitment made in the Energy Strategy and Action Plan, and there remains a requirement for this to ensure the council's carbon reduction ambition can be achieved. However, it is considered there is less control over sourcing electricity via a PPA compared to bringing forward local generation as it relies upon schemes being brought forward for development. Corporate PPA's also often require long term purchasing commitments (e.g. 15 years) and it is not considered to be an ideal time given the current energy market to enter into such an agreement as the high energy costs would be reflected within the purchasing price.
- 45 It is considered that bringing forward local solar farm capacity provides greater security and price stability. In addition it also demonstrates a clear commitment that the Council is leading the way in the city in terms of bringing forward large scale local renewable energy generation.
- 46 Whilst roof top solar provides an option, there is limited roof top space available on existing council buildings as it requires larger roof tops with the structural integrity to support the panels. Whilst roof top solar will be pursued as far as possible to maximise this opportunity, it is not considered this option will provide the council with sufficient capacity to enable it to achieve its commitments.
- 47 Another option is to do nothing. This option would result in the council failing to meet its climate emergency commitments and remaining more exposed to prevailing market prices for energy.

How will success be measured?

48 Success will be measured by seeing the development of solar farm capacity within Leeds whereby the electricity generated is used to offset a proportion of the Councils demand, ultimately meeting the new 30% target.

What is the timetable and who will be responsible for implementation?

49 It is anticipated that site selection work will be completed early in January 2023, which will enable the council to carry out the procurement to appoint a contractor. The CCS Helga DPS will help to expedite this process meaning a contractor could be appointed by March 2023, when further site selection work can be carried out prior to a planning application being submitted. Whilst there are programme risks, the ambition is to have a site operational ahead of the peak generating periods for solar (i.e. spring 2024) so that the benefits can be maximised.

50 The Chief Officer Sustainable Energy and Air Quality will be responsible for implementation.

Appendices

- Equality Assessment.

Background papers

- N/A.