

Renewable energy export arrangements for the Council's large renewable energy projects

To: Environment and Green Investment Committee

Meeting Date: 16 March 2023

From: Executive Director Place and Sustainability

Electoral division(s): All

Key decision: Yes

Forward Plan ref: 2023/046

Outcome: To provide an agreed route for optimising income and reducing risk for the Council in relation to the sale of electricity to the grid from its large renewable energy capital projects.

Recommendation: The Committee is asked to:

- a) Agree the plan for managing income contracts for the large energy projects as set out at paragraph 2.10
- b) Delegate the decision to enter into Power Purchase Agreements (PPAs) for the large energy projects to the Executive Director Place and Sustainability in consultation with the Executive Director of Finance and Resources, and the Chair and Vice Chair of Environment and Green Investment, on the basis of specialist energy market advice to inform decisions.

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1. Background

- 1.1 To help accelerate the Net Zero energy transition, the Council has invested in a range of large energy projects to generate renewable electricity and income. The Council's first solar farm, Triangle in Soham, is a 12MW solar farm in operation since 2017 which has been generating income for the last five years through selling electricity via a power purchase agreement (PPA). Triangle Farm is supported by the Government's Contracts for Difference (CfD) scheme, which sets the electricity price received.
- 1.2 It is expected that the 39MW North Angle Solar Farm will start generating clean electricity from July 2023. In addition, the St.Ives Smart Energy Grid will also sell electricity from September for up to 2 years via a PPA, and future projects that are or will be developed will also generate electricity sales including battery storage.
- 1.3 PPAs come in many different forms and are dependent on a range of factors including whether the electricity is supplied via the distribution network (the grid) or via a private wire (direct connection) or as a result of electricity being stored in a battery and supplying when demand is high. Grid dependent PPAs include a 'standard PPA' selling to an energy supplier; corporate PPAs also known as 'sleeved' or 'virtual' PPAs which can be selling to a business or organisation and a private wire is where electricity is sold directly to a company through a cable. There are many different terms and risk profiles that can be included in PPAs including access to different market mechanisms, for example, selling on the day ahead market, and they can have varying lengths and benefits.
- 1.4 Four years ago, the Climate Change and Energy Service investigated the possibility to sell electricity it generated from its renewable energy assets to itself via a 'sleeved' PPA or 'netting off' arrangement. 'Netting off' is an arrangement whereby the Council would match the electricity purchased (import) with the electricity sold (export) effectively selling its own renewable electricity generated to itself. A range of options were explored but at the time there was no financial benefit to the Council of doing this. Since then, the energy market has changed.
- 1.5 At Environment and Green Investment (EGI) committee on 1 December it was agreed to procure specialist consultancy support to advise the Council on the best opportunities to optimise income from its renewable energy asset investments. The procurement planned for the first quarter of 2023 was to appoint specialist advisors to advise on North Angle Solar Farm ahead of its energisation in July 2023 and subsequent projects that require PPAs. It is the remit of the Environment and Green Investment Committee to agree the 'export' or selling arrangements for the large energy projects.
- 1.6 The Council was notified by the Eastern Shires Purchasing Organisation (ESPO) in November 2022 of the need to renew its electricity import contract for 2024-28. (This is the contract to supply electricity to all of the Council's buildings and other assets such as street lighting.) The decision for the procurement of utilities sits with Strategy and Resources (S&R) Committee. A paper was taken to Strategy and Resources Committee on 26

January. During January the potential for netting off opportunities was raised and reported to Committee. This led to the decision being deferred to March 2023 Strategy and Resources Committee, to allow further investigation of potential 'netting off' opportunities either through the Council's existing supplier (Total Energies) via the ESPO framework contract, or through an alternative such as E Energy (formerly called Beond), who operate a Dynamic Purchasing System (DPS) for electricity import supply.

- 1.7 The outcome of this paper is to agree the proposed plan to manage the PPA export contracts for the Council's energy generating assets.

2. Main Issues

2.1 Current Position

The Council has already entered into PPA arrangements for the following assets:

- Triangle Solar Farm, a PPA selling via the grid in place until October 2023
- St.Ives Smart Energy Grid is in contract to sell its renewable electricity via a private wire from November 2024 to a local customer
- Babraham Smart Energy Grid is finalising a PPA with a local customer selling its renewable electricity via a private wire

2.2 This year, the Council will look to:

- Agree the next PPA for Triangle Solar Farm from November 2023
- Put in place a grid based PPA arrangement for North Angle Solar Farm for July 2023
- Enter a short term grid based PPA contract for St.Ives Smart Energy Grid from September 2023-November 2024

2.3 **Timing.** There is now only four months to agree and negotiate a PPA for North Angle Solar Farm (NASF), slightly longer for the other two projects, St.Ives and Triangle Solar farm. NASF is a significant investment and the Council is reliant on its income. On this basis, a plan is set out in paragraph 2.10 on the process to achieve a PPA.

2.4 **Netting off opportunities with 'Import' supplier(s).** The Council both buys and sells electricity, as it is both a consumer and also a generator through its solar generation assets. It is theoretically possible to match some of the volumes of electricity exported and sold from the Council's solar generation assets against part of what is purchased through our incoming supplies from the grid, (known as 'netting off'), through arrangements such as Power Purchase Agreements (PPA). As discussed, the decision on the electricity supply (import) contract sits with the Strategy and Resources Committee under its terms of reference. Decisions on export contract(s) for electricity generation assets sit with the

Environment and Green Investment Committee. Whether or not a netting off arrangement is utilised, both an electricity supply (import) contract and one or more export contracts would still be required, since the volumes bought and sold at different times would not match exactly.

2.5 It would not be possible to net off the electricity generated from the Triangle farm site specifically, because that site already benefits from the Government's Contracts for Difference (CfD) scheme, the regulations for which dictate the mechanism for selling exported electricity. Nonetheless, a netting off arrangement for the larger North Angle Solar Farm (NASF) (which is currently under construction and expected to come online later in 2023) would be possible. NASF is expected to generate 39GWh of electricity per year; around double what the Council uses at all of its sites combined. A small proportion of the electricity from NASF would be reserved for the private wire to supply the Swaffham Prior Community Heat Network, but the majority left over (around 37GWh per year) would be available to export and sell. Comparing the forecast export volumes from NASF with the forecast volumes required to import to all CCC's own buildings and street lighting across the year, it is expected that the Council would produce an excess of electricity from March to October, but there would be a deficit from November to February.

2.6 Table of forecast monthly use and generation

Month	Forecast total volume imported to all CCC sites (MWh)	Forecast total volume exported from NASF (MWh)	Forecast volume that could be netted off (MWh)	Forecast remaining volume to import (MWh)	Forecast excess generation to sell (MWh)
October 2024	1,541	2,338	1,541	-	797
November 2024	1,740	1,275	-	465	-
December 2024	1,867	887	-	980	-
January 2025	1,921	853	-	1,068	-
February 2025	1,640	1,463	-	177	-
March 2025	1,601	2,964	1,601	-	1,363
April 2025	1,104	4,689	1,104	-	3,585
May 2025	1,013	4,950	1,013	-	3,937
June 2025	935	5,112	935	-	4,176
July 2025	1,004	4,832	1,004	-	3,828
August 2025	1,033	3,964	1,033	-	2,931
September 2025	1,117	3,599	1,117	-	2,482
Year total	16,514	36,925	9,348	2,689	23,099

The forecast import volumes are somewhat uncertain and subject to change each year, but this is the best estimate based on the information we have.

2.7 Procurement of specialist energy market advisors . The procurement of specialist energy market advisors approved by EGI committee in December 2022 was temporarily paused whilst the netting off options were explored alongside the potential Council's import

contract. The procurement will now look to recommence but will be adapted to accommodate the electricity sales from North Angle Solar Farm sitting initially outside of the procurement due to the timing. This will change the 'benefit' in the procurement and potentially the range of specialist consultants that apply. However, the need for specialist consultancy for the energy projects remains for this year and to inform the detailed project design for battery storage projects informed by the market opportunities. Batteries offer the advantage of managing peaks in energy demand and smoothing out any supply volatility which can significantly improve income generation potential from renewable assets.

- 2.8 **Wholesale pricing versus Retail pricing.** For grid dependent PPAs the electricity is sold at the 'wholesale price' (also known as the commodity price). The current indicative price in the market for a large solar array exporting directly to the grid, without any onsite energy demands like EV charging, is approximately £145/MWh. This has come down in recent months from the peak last summer of around £300/MWh. There will be some variation between PPA providers in terms of price but there will not be a significant degree of variation. The 'retail price' that end users pay who import electricity from the grid comprises both the wholesale/commodity price and an assortment of 'non-commodity' charges such as transmission and distribution network charges, fees and taxes. These non-commodity charges are the same no matter who the supplier is and apply as long as the electricity passes through the grid (but not in the case of private wires).
- 2.9 Part of the reason that there isn't great variation in prices offered in the market is because approximately 50% of the retail price of electricity arises from non-commodity charges such as grid related transmission charges and green levies. This means that the wholesale price of electricity bought and sold through PPAs tends to be around 50% of the retail price of electricity. An opportunity currently being explored is Corporate PPAs, known as 'sleeved PPAs'. Large organisations with high scope 2 carbon emissions and limited options for onsite reductions could be interested in purchasing a Corporate PPA, for assets like North Angle Solar Farm. The benefit to the purchasing organisation is the transfer of the Renewable Energy Guarantee of Origin (REGOs) from our renewable energy assets with the sale of the electricity. This provides the purchaser with the opportunity to retire the REGOs and claim the scope 2 emission reductions, supporting their Net Zero ambitions. Further exploration of this opportunity, supported by specialist advice that understands the market demand for these types of agreement and likely income, is underway. It is this expert advice that is needed to optimise income.
- 2.10 **Risk Management.** The current key risk is to get in place a PPA for selling the electricity for North Angle Solar Farm. The timescales are now tight timescales for entering into a PPA and the impact if this does not occur is income loss to the council. To manage the Council's income risk from PPAs the following plan is proposed.
- a) The export and import contracting arrangements for electricity are separate contracts. Decouple the decision making on the import contract from the export opportunities.

- b) Put in place the most financially viable option for NASF between:
 - I. A standard PPA agreement secured as a one-off consultancy process to procure a short-term contract starting in July to secure the income; or
 - II. A netting off arrangement to be agreed with the approved import supplier, whomever is agreed at Strategy and Resource Committee, if this is possible with the selected import supplier.
- c) Given that the Council's electricity import contract expires at the end of September 2024 and a new 4-year contract starts from the beginning of October, it is possible that different arrangements could be made for each contractual period in terms of sale of export electricity for NASF. Options include PPA, followed by netting off, or the reverse, or a PPA for both or a netting off agreement for both. The optimum options for each contract period will be selected based on point b above.
- d) The selected import provider could provide this PPA or an alternative provider.
- e) This would also allow more time to assess what benefits self-supply offers for the Council's Climate and Environment Strategy, if any.
- f) Retain Triangle Farm in the procurement for specialist advisors and proceed with the procurement approved by EGI committee in December 2022. This will allow time to procure and for the procured advisors to support the PPA negotiations for St. Ives and Triangle Farm.
- g) Include North Angle Solar Farm in the procurement for specialist advisors, but from year 2 of the contract. This means the short-term timeline and income risk are managed but that the Council can bring all the PPAs back together under the specialist advisors for more strategic solution.
- h) Use delegated authority to enter into new PPAs, outside of the committee cycles, to enable the Council to enter into the most optimal available agreements as needed, many of which are likely to have short expiry dates.
- i) Build the Council's knowledge, capacity and understanding of the sustainability impacts of different export options, which will be a factor in decisions about which contractual options to pursue in the future;

3. Alignment with corporate priorities

3.1 Environment and Sustainability

Agreeing a plan for the management of all income from large renewable energy projects will support the Council in delivering its Net Zero ambitions and support the development of a more resilient local energy economy.

3.2 Health and Care

The selling of clean electricity via Power Purchase Agreements has no health impacts but the generation of the electricity from renewables offers health benefits from cleaner air and managing climate risks.

3.3 Places and Communities

Local renewable energy projects can supply clean energy to local businesses to help build local energy resilience and deliver their scope 2 emissions reductions on their journey to net zero.

3.4 Children and Young People

No significant implications

3.5 Transport

The smart energy grid projects on the Council's park and ride sites include sale of clean electricity for electric cars, buses and taxis, supporting the decarbonisation of transport

4. Significant Implications

4.1 Resource Implications

The procurement of specialist consultancy will help the Council to identify the best opportunities to maximise its income from its energy investments. Existing staff resources from the energy, finance and procurement teams will need to support the PPA contracting or netting off arrangement.

4.2 Procurement/Contractual/Council Contract Procedure Rules Implications

All procurement activity will be compliant with the Council's Contract Procedure Rules.

4.3 Statutory, Legal and Risk Implications

The Council will need to enter contractual arrangements for the PPAs.

4.4 Equality and Diversity Implications

There are no significant implications within this category.

4.5 Engagement and Communications Implications

There are no significant implications within this category.

4.6 Localism and Local Member Involvement

There are no significant implications within this category.

4.7 Public Health Implications

There are no significant implications within this category.

4.8 Environment and Climate Change Implications on Priority Areas:

4.8.1 Implication 1: Energy efficient, low carbon buildings.

Positive/neutral/negative Status: Positive

Explanation: This does not involve any buildings, however, it will enable the Council to further develop renewable energy projects supporting decarbonisation of Council and other buildings.

4.8.2 Implication 2: Low carbon transport.

Positive/neutral/negative Status: Neutral

Explanation: The PPA arrangements will not directly deliver low carbon transport however some projects have incorporated EV charging infrastructure. On balance this is neutral.

4.8.3 Implication 3: Green spaces, peatland, afforestation, habitats and land management.

Positive/neutral/negative Status: Neutral

Explanation: This does not involve any impacts on the above for the PPA contracting and any physical impacts were dealt with through the physical construction of the energy assets.

4.8.4 Implication 4: Waste Management and Tackling Plastic Pollution.

Positive/neutral/negative Status: Neutral

Explanation: This does not involve the creation of any waste.

4.8.5 Implication 5: Water use, availability and management:

Positive/neutral/negative Status: Neutral

Explanation: This does not involve any water use.

4.8.6 Implication 6: Air Pollution.

Positive/neutral/negative Status: Neutral

Explanation: See 4.8.2

4.8.7 Implication 7: Resilience of our services and infrastructure and supporting vulnerable people to cope with climate change.

Positive/neutral/negative Status: Neutral

Explanation: PPAs exporting electricity to the grid do not directly enhance grid resilience, as when the grid is down, they will not operate. However, in some cases there is an indirect resilience benefit, where connected to local off-takers like Swaffham Prior, they potentially make a carbon saving project viable, by providing electricity through private wire, when the grid is operational.

Have the resource implications been cleared by Finance? Yes

Name of Financial Officer: Sarah Heywood

Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by the Head of Procurement and Commercial? Yes

Name of Officer: Clare Ellis

Has the impact on statutory, legal and risk implications been cleared by the Council's Monitoring Officer or Pathfinder Legal? Yes or No

Name of Legal Officer: Linda Walker

Have the equality and diversity implications been cleared by your EqIA Super User?

Yes

Name of Officer: Sheryl French

Have any engagement and communication implications been cleared by Communications?

Yes

Name of Officer: Kathryn Rogerson

Have any localism and Local Member involvement issues been cleared by your Service Contact? Yes

Name of Officer: Sheryl French

Have any Public Health implications been cleared by Public Health?

Yes or No

Name of Officer: Kate Parker

If a Key decision, have any Environment and Climate Change implications been cleared by the Climate Change Officer?

Yes

Name of Officer: Emily Bolton

5. Source documents

5.1 Source documents

- Climate Change and Environment Strategy 2022
- Procurement of technical consultancy to support revenue optimisation, 18 December 2020

- Procurement of technical consultancy to support revenue optimisation on the large energy projects, 01 December 2022 and decision.
- Electricity Procurement for 2024-28, 26 January 2023 and decision.

5.2 Location

- Climate Change and Environment Strategy 2022

[Climate Change and Environment Strategy 2022](#)

- Procurement of technical consultancy to support revenue optimisation, 18 December 2020

[Procurement of technical consultancy hyperlink](#)

- Procurement of technical consultancy to support revenue optimisation on the large energy projects, 01 December 2022 and decision.

Paper - [Procurement of technical consultancy to support revenue optimisation on the large energy projects hyperlink](#)

Decision - [Procurement of technical consultancy to support revenue optimisation on the large energy projects decision hyperlink](#)

- Electricity Procurement for 2024-28 and decision.

Paper - [Electricity Procurement for 2024-28 hyperlink](#)

Decision - [Electricity Procurement for 2024-28 decision](#)

[Procurement of technical consultancy to support revenue optimisation on the large energy projects \(cmis.uk.com\)](#)