Appendix G – Options appraisal matrix (Electricity Supplies 2025)

1. This Appendix sets out the options available for the renewal of the Bristol City Council (BCC) electricity supply contracts from April 2025 to March 2029.

Electricity demand

2. An estimate has been derived for electricity demand over the four years envisaged for the new supply contracts. This estimate is used as a common baseline for all options considered.
3. The demand estimate takes in to account a number of factors that will change current electricity demand, including:
    a. The electrification of heat, through the installation of heat pumps and electric boilers in place of existing gas boilers, and the construction of further heat centres on the District Heat Network to meet growing heat demand
    b. The electrification of vehicles, through an increase in Electric Vehicle Charge Points (EVCP)
    c. Installation of energy efficiency measures that reduce electricity demand
4. Additional electricity demand from an option for the installation of Electric Cremators at BCC crematoria has not been included, as the timing and confirmation of this is uncertain.
5. Reductions in demand from the rationalisation of the BCC estate has also not been included as the programme for this is still in development.

Generation

6. An estimate has been derived of the amount of generation available from new and existing renewable generation assets that will become available during the expected period of this contract. This too is used as a common generation baseline for all options considered.
7. Generation encompassed within this baseline includes:
    a. Existing BCC wind turbines and solar farm (including a proposed expansion of the latter)
    b. New and existing community energy systems
    c. New Bristol City Leap (BCL) renewable energy systems (early developments planned over the span of this contract)
    d. New and existing rooftop photovoltaic systems, which can both provide power to the building they are mounted on, and provide surplus power for sleeving to other buildings
8. Also included is the option for the surplus power from the Bristol Heat Networks Limited (BHNL/Vattenfall) Combined Heat & Power (CHP) unit installed in the 100 Temple Street (100TS) heat centre to be included in some sleeving arrangements (this is currently exported to the grid due to limitations in the current sleeving arrangement).

Contracting options – supply

9. The ‘Do Nothing’ option is to let the current electricity supply contracts expire and not replace them. This will not immediately cut off the electricity supply to BCC sites from April 2025; the supply will continue, but BCC will be billed at significantly higher ‘deemed’ off-contract rates. This is not a viable option, some form of replacement contract is required.
10. BCC electricity supply contracts have been through a turbulent time since the Energy Crisis of late 2021, with a number of short contracts and extensions. There would be benefit from seeking longer term

arrangements to stabilise the council's supply position. In particular, a four-year contract would be attractive to potential bidders, would give time for new renewable energy systems to come on line and be included, and would avoid locking BCC in to long term supply arrangements for what is still a novel approach (BCC would be better placed to test the market again in 2029).

11. Four options are therefore proposed for the replacement electricity supply contracts:
    a. **Option 1 – conventional supply**. Under this option, BCC would terminate all sleeving arrangements, and revert back to conventional grid supply arrangements, with an 'export-only' agreement to sell the power from the council's wind turbines and solar farm. This would most likely involve the use of a Public Sector Buying Organisation framework, and would use flexible procurement as a means to reduce price risk. This would also be based on a 100% 'green' (REGO-backed) grid supply. However, it should be noted that this option is only included as a reference option, for comparison with other options. Adopting this approach would be a significant retrograde step for the council's development of zero-carbon energy supplies, and in an increasingly complex energy market, would be unlikely to be the most cost effective option.
    b. **Option 2 – Laser Sleeving**. This would be a continuation of the current Laser Energy sleeving arrangement, but incorporating additional generation so as to allow all BCC demand to be met through sleeved power. As this would be for an extended period (likely up to the end of the latest Laser Energy framework in September 2028), the opportunity would be taken to negotiate some improvements to current arrangements. There could also be options to explore similar arrangements with other Public Sector Buying Organisations, although there was limited response the last time this was tested. This would be a more straightforward option to contract for, and is seen as a contingency measure if there is limited interest in a tender for a new sleeving arrangement.
    c. **Option 3a - Split Pool/Firming – BCC only**. Option 3 would involve a tender for a new sleeving arrangement, based on a new 'split pool' model being developed with City Leap. This would be issued as a tender for two 'Lots', one to manage the Generation side of the pool as a 'Firming' service to provide a balanced baseload supply from the variable generation sources, the other to take this balanced supply and manage the Demand side and customer billing. The entity that takes the balanced supply and manages the demand must also be a licenced supplier. Note that the 'Firming' provider is not required to recruit new generators, separate PPAs would be contracted with community groups and BCL (under separate Committee approval) to build up the Generation Pool, which would them be manged by the Firming provider. Under Option 3a, this tender would be limited to just BCC demand (including some existing clients), with sufficient additional generation to meet just this demand.
    d. **Option 3b - Split Pool/Firming – wider pool**. Option 3b is the same tender for a split-pool arrangement as Option 3a, but with additional demand to increase the size (and therefore the attractiveness to bidders) of the Pool. This could include additional BHNL/Vattenfall Heat Centres as these are developed, as well as other Public Sector bodies. The Demand Pool would be managed as 'basket' arrangement, with each customer having their own contract with the Pool Manager (who would be a licensed supplier), rather than being recharged through BCC. This initial tender, for a four year contract, is seen as building the foundations for a potentially much larger operation that could include a range of additional customers and would provide an offtaker for BCL's

aspirations for much greater renewable energy generation in and around Bristol.

12. Each option is set out in more detail in the Options Appraisal matrix below.

Contracting options – generation

13. BCC will need to secure contractual agreement to make use of the power generated from non-BCC renewable energy systems to include in any sleeving arrangement. In anticipation of this, approval was given at the March 2024 Cabinet for BCC to progress and negotiate long-term Power Purchase Agreements (PPAs) with community groups and with BCL. Note that these contracts will be subject to separate Committee approval, there is no specific commitment at this stage.
14. Power from renewable generation assets (wind turbine, solar arrays, etc) is usually sold through a Power Purchase Agreement (PPA). This can be with a licensed supplier for a grid export, or directly with an offtaker organisation for a direct-wire connection (where the renewable asset is connected directly to the customer site without passing through the grid).
15. In the past, BCC had an 'export-only' PPA, which allowed the output from the council's wind turbines and solar farm to be sold to the grid. This renewable energy output was also used to offset the council's carbon emissions.
16. The current sleeving arrangement involves a PPA linked with a supply contract under the Laser Energy framework. BCC also has an agreement with the Bristol Energy Co-operative (BEC) for the power output from the Bottleyard 2 (TBY2) solar array to be included in current sleeving arrangements, and with BHNL/Vattenfall for the export of surplus power from the 100TS CHP.
17. Terms for a PPA can be based on short recurring contracts, renewed over the lifetime of the renewable energy system (this is more typical for commercial developments), or can be based on long-term agreements (typically the operational lifetime of the system, twenty years or more).
18. A long term PPA with a reputable offtaker can be critical for the financing of a renewable energy project, especially for small generators such as community groups. For the offtaker (customer of the electricity), a long term PPA offers price certainty in an increasingly unstable energy market, especially if the price agreed is based on a 'levelised cost of energy' (LCOE - whole-life cost/generation) model rather than driven by market indexes.
19. Although BCC owns and operates its own legacy renewable energy systems, some form of contractual agreement will be required between BCC as a generator, BCC as a customer, and the appointed supplier, in order for the power supplied by these systems to be incorporated in to some proposed sleeving arrangements.
20. Subject to resolution of technical and contractual issues, generation options may also include virtual supply between buildings within the same electricity grid node under new 'complex sites' arrangements[1].

[1] elexon.co.uk/documents/change/modifications/p401-p450/p441-proposal-form/

Options Appraisal matrix

Preferred option Y/ N	Option title	Summary	Timeline	Estimated costs / savings	Benefits	Disadvantages	Risks	Equalities impacts	Environmental impacts
N	1. Conventional supply	Conventional grid supply contract using flexible procurement 'Export-only' PPA to sell BCC renewable generation to the grid	Six-month lead in required to synchronise with buying windows (ideally need to be in contract by September 2024)	Contract value = £44.837M Cost to BCC = £35.813M	Simplest supply arrangements Export of BCC renewable energy generation reverts to being a revenue stream	Unable to directly incorporate BCC or other local renewable energy generation directly in to BCC electricity supplies, relies on grid renewables alone	Reverses gains in developing locally generated zero-carbon electricity supplies for BCC sites	None	Could still make a contribution towards BCC carbon neutrality if 100% 'green' (REGO-backed) electricity is contracted
N	2. Laser Sleeving	Continuation of the current Laser Energy/TotalEnergies paired-contract sleeving arrangement	Six-month lead in required to synchronise with buying windows (ideally need to be in contract by September 2024, may be some flexibility in this)	Contract value = £38.176M Cost to BCC = £30.493M	Potentially easiest procurement option Well understood supply arrangement within BCC	Current arrangements have some limitations Savings not equally distributed	This was intended as an interim arrangement, would need some renegotiation if adopted as a long-term solution	None	Significantly reduces BCC emissions relating to electricity usage
N	3a. Split Pool/Firming – BCC only	Tender for a 'split-pool' supply arrangement, with a Generation pool and a Demand pool as separate Lots, limited to BCC demand only	Up to nine months for tender and negotiation or dialogue.	Contract value = £38.328M Cost to BCC = £30.615M	Provides the means to support and expand BCC zero-carbon electricity supply, and the development of renewable energy systems in and around Bristol	Complex tender that will require supplier dialogue or negotiation	BCC demand alone may not be sufficient to attract significant interest/bids Untested contractual mechanism, will take time and resources to set up contract management systems	None	Significantly reduces BCC emissions relating to electricity usage
Y	3b. Split Pool/Firming – wider pool	Tender for a 'split-pool' supply arrangement, with a Generation pool and a Demand pool as separate Lots, with scope for a wider 'basket' of demand customers	Up to nine months for tender and negotiation or dialogue.	Contract value = £78.629M Cost to BCC = £31.402M	Provides the means to support and expand BCC zero-carbon electricity supply, and the development of renewable energy systems in and around Bristol	Complex tender that will require supplier dialogue or negotiation	Withdrawal of non-BCC demand could impact the viability of this arrangement Untested contractual mechanism, will take time and resources to set up contract management systems Note that BCC would not be directly liable for non-BCC demand, but would have a lead customer role	None	Significantly reduces BCC emissions relating to electricity usage, also enables other organisations to significantly reduce their electricity-related carbon emissions, as well as supporting and encouraging greater development of local renewable energy systems and greater use of locally generated zero-carbon electricity across Bristol