Call for Evidence on introducing non-price factors into the Contracts for Difference Scheme

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About SuperNode and Superconductors

SuperNode, headquartered in Dublin, Ireland, is a global technology development company that designs and delivers cutting-edge, superconducting cable systems for bulk electricity transmission.

Conventional transmission cables are limited in terms of current levels which in turn limit their power transfer capability. Networks based upon superconducting cable systems can move larger quantities of power over longer distances with smaller and less obtrusive infrastructure, without electrical losses and at significantly lower voltages. SuperNode's technology will connect electricity markets in a way that facilitates the integration of large-scale renewables and the achievement of a decarbonised pan-European energy system.

SuperNode was founded in 2018 by Dr. Eddie O'Connor and renewable energy developer Mainstream Renewable Power Ltd. SuperNode is jointly owned by Dr. O'Connor and Norwegian green investment group AKER Horizons.

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1. SuperNode Response

Question 9. Are there alternative non-price factors that should be considered?

Suitability for export and Power exchange

One alternative non-price factor that could be considered is 'suitability for export and power exchange'. In order to optimise a renewable powered energy system, coordination with the UK's neighbours and participation in a European-wide energy system is critical. The variability and intermittency and integration challenges of renewable energy in the forms of solar and wind can be solved by power exchange between participants of a interconnected meshed continental scale grid. Grant Shapps along with the energy ministers of 8 other North Seas countries as part of the declaration from the Ostend North Seas Energy Summit, outlined plans to develop such a 'meshed offshore grid'.

Offshore wind should be optimally located based not just on what is consumed locally but also on how the UK fits into a wider European energy system. This system should allow for optimal power flows in and out of the UK in times of excess supply and demand. The UK's renewable resource is vast and the UK can be a net exporter and this should be a consideration when locating offshore wind.

The planning of the system may fall under the remit of the FSO but it could also be reinforced in a non-price factor.

Efficiency and Raw Materials Use

One such factor that warrants careful consideration is the efficiency of a project from a raw materials standpoint. As the demand for critical raw materials continues to rise, efficient utilisation of these resources becomes crucial to ensure a sustainable and environmentally responsible transition.

To promote resource efficiency, contracts should be awarded to projects that demonstrate circularity and an optimal use of materials and energy. For example, one promising technology that aligns with this objective is the utilisation of superconducting transmission cables. European companies are preparing superconducting transmission technology that would be commercially available from around 2030. These would reduce the materials use of energy transmission dramatically. To carry one kA one metre, superconducting cables requires 180 times less raw material than conventional, copper-based power cables. Superconducting cables work extremely well with DC (direct current), which is generally accepted as preferred approach to meshed grids at pan-European scale..

The EU deploys the principle of "energy efficiency first"which states that it is vital to take utmost account of cost-efficient energy efficiency measures and circularity in shaping energy policy and making relevant investment decisions. The UK should adopt a similar approach to ensure the lowest use of – mainly imported – raw materials needed for meeting the UK decarbonisation tagets. This approach involves giving paramount consideration to measures such as cost-effective end-use energy savings, demand response initiatives, and the adoption of more efficient energy conversion, transmission, and distribution systems. By integrating these measures into the evaluation of CfDs, projects can optimise their overall energy efficiency and raw material use, while minimising the environmental footprint of energy infrastructure.