



Thermal constraint solution template

Constraints Collaboration Project

18 January 2024

Thermal constraint solution template: an example (1/2)

We'd love to hear your views on this possible solution via this [form](#)

| Name: | Demand for Constraints* |
|--|--|
| Proposal by: | ESO |
| Overview | |
| What is the specific part of the thermal constraints problem this proposal is addressing? | <i>ESO analysis shows that by 2030 we're looking at over 10 TWh of constrained volumes in B6, with the boundary being constrained around 1/3 of year and an average of 4GW of constraint actions required when it is. The majority of constraint management actions taken by ESO involve curtailment of generators; with associated cost, carbon & system operability issues. Demand to use the renewable electricity (instead of it being curtailed) is not currently accessible or available in the right location</i> |
| How does it solve the problem? | <i>This proposal would enable investment in new sources of demand, in the right locations, to use the excess electricity and reduce the volume of curtailment by offering lower cost electricity in those locations. New demand could be in the form of hydrogen production facility, data centre, large distillery, etc. The proposed commercial service offers a deliverable option ahead of more formal government approach via REMA, potential for sharper locational signals via TNUoS changes and would complement traditional network reinforcements. It could provide a market signal for new demand in Scotland and allow the production and consumption of clean energy whilst reducing costs of constraints</i> |
| Which of the below categories does your solution fall into (you can choose more than 1 category and please elaborate if 'other') 1. Increase physical network capacity 2. Increase effective network capacity 3. Reduce overall volume of ESO actions 4. Reduce price of ESO actions 5. Other | 2) Reduce overall volume of ESO actions and 3) Reduce price of ESO actions |

Thermal constraint solution template: an example (2/2)

| Name: | Demand for Constraints* |
|---|---|
| Value to ESO Market Design Framework | |
| What is the value to the consumer? (value for money) | <i>Limits curtailment of generators and wasted renewable energy , product could be structured to return money to the BSUoS pot providing consumer benefit</i> |
| What is the value to the control room? (efficient dispatch) | Less curtailment due to increased demand in the right locations |
| What is the value to the service provider?(efficient investment) | Provides longer term investment signals (until REMA) for new demand sources to locate in constrained areas |
| What is the carbon saving value? (helps 2035 target) | Increases the use of renewable electricity – exact carbon saving depends on the source of the demand (e.g. H ₂ production facility) |
| Impact and implementation | |
| Does this project provide other value to the system? (e.g., stability, frequency) | <i>Depends from whom the ESO is procuring the demand:</i> – <i>If it was a hydrogen production facility, then it could deliver whole system benefits through the contract, for example abatement of fossil fuel usage outside of the electricity system. Out of the other ancillary services, reserve may be the most likely for them – further investigation is required to determine how quickly a hydrogen facility could flex their plant.</i> |
| What are the potential challenges with implementation? | <i>Further investigation needed to assess the value to consumers and how the scheme could work in reality (for example with regards to eligibility and ESO licence conditions)</i> |
| When would we contract? (e.g., day ahead, T-1, T-4) | <i>Tender two years ahead (e.g. in 2024, for phased delivery in 2026-2029)</i> |
| How long is the contracting period? | <i>10 years, with sunset clause when locational pricing kicks in. Duration of 10 – 50 hours per annum (when receiving discounted electricity)</i> |
| How would prices be set? | <i>Tendered</i> |
| What is the lead time? | <i>To be confirmed: subject to administrative feasibility</i> |
| Other comments | <i>Still scoping the idea, looking for co-creation with industry to develop feasibility</i> |

*Please note that the template presented is for illustrative purposes only and does not indicate a formal or firm commitment for future commercial opportunities from the ESO.

