

Sent by email to [flexibility@ofgem.gov.uk](mailto:flexibility@ofgem.gov.uk)

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Dear Ofgem

### **Future of local energy institutions and governance**

Thermal Storage UK welcomes Ofgem seeking evidence on the future governance arrangements for DSOs and how best to maximise demand side flexibility. We particularly welcome Ofgem considering the flexibility available from electrified heat as well as from transport and electro-chemical batteries. Smart thermal storage will support the GB electricity system to manage demand for electrified heat and transport at lowest cost.

We recommend that DSO governance arrangements incentivise flexibility. This includes networks looking to incentivise flexibility, including thermal storage, before considering network infrastructure upgrades. We recommend that DSO governance arrangements consider how the electricity system interacts with and incentivises energy suppliers or other providers of demand side flexibility. In the current market structure, retailers and aggregators will provide the smart tariffs that incentivise the installation and operation of flexibility such as thermal storage.

As noted by Ofgem in the call for input, flexibility will be provided by a range of products. This will include thermal storage, heat pumps and electric vehicles. Unlike with other parts of the DNO infrastructure, DSOs will be unable to physically inspect millions of products in people's homes and driveways. This increases the importance of ensuring minimum standards for these products and an easy to use, automatic register. We recommend that all electrical products capable of providing flexibility (including thermal storage, heat pumps and electric vehicles) are automatically registered on a central asset register.

We agree with Ofgem that it is important that DSOs operate transparently. We recommend that DSOs are required to publish their assumptions around future flexibility potential and DNOs and DSOs should publicly report on the volume of flexibility procured and the type of flexibility procured. As a minimum, this should cover heat pumps, thermal storage and electric vehicles.

Ofgem acknowledges the interaction between DSO governance arrangements and other reforms, including to network charging. We encourage Ofgem to work closely with the government on the Review of Electricity Market Arrangements. We also encourage Ofgem to consider the impact of locational or nodal pricing on the operation and governance of DSOs and the procurement of flexibility across different parts of GB.

We would welcome further discussions with Ofgem about how thermal storage and the right set of DSO governance arrangements can support both grid flexibility and heat decarbonisation.

This response is not confidential and can be published on the Ofgem website.

Best wishes

Tom Lowe

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**Thermal Storage UK**

## Call for Input questions

- 1. Are the three energy system functions we outline (energy system planning, market facilitation of flexible resources and real time operation of local energy networks) the ones we should be focusing on to address the energy system changes we outline?**

We agree that those responsible for managing energy systems, including the DSOs, should consider system planning, market facilitation of flexibility and real time operation of local energy networks. DSO governance should look to incentivise flexibility. This includes producing and storing heat in thermal storage for later use before considering network infrastructure upgrades.

We note that Ofgem states that electricity demand could double to 610 TWh by 2050 because of heat and transport electrification. The Climate Change Committee (CCC) analysis underpinning this doubling of electricity demand assumes that buildings are sufficiently energy efficient to be preheated, that dedicated thermal storage is in place and that smart charging is incentivised. Research by the consultancy Aurora suggests that peak winter electricity demand for heat could quadruple. To manage this increase, we recommend that DSO governance, network charging design and half hourly settlement works together to incentivise flexibility. We welcome BEIS and Ofgem working together, including through the Review of Electricity Market Arrangements (REMA).

- 2. Do you agree with the criteria we have set out for assessing the effectiveness of institutional and governance arrangements?**

We recommend that the criteria for evaluating success includes a focus on delivering least cost solutions. This would involve:

- DSOs explaining how they have facilitated flexibility rather than DNOs upgrading network infrastructure.
- A transparent assessment by DSOs of the capacity of flexibility procured in relation to electric vehicles and low carbon electric heating (including heat pumps, thermal storage and batteries).

We absolutely agree with Ofgem that owners of flexible assets should receive the “full value of the benefit they bring to the energy system, supporting investment where it is needed”. This requires retailers providing smart time of use tariffs to maximise the cost saving from low carbon heating products. We encourage Ofgem to consider the potential value of flexibility from both homes and businesses.

- 3. Do you agree with our assessment of how far the current institutional arrangements are, or are not, well suited to deliver the three key energy system functions?**

Yes, we broadly agree with Ofgem’s assessment of the suitability - or lack of - of the current institutional arrangements. In particular, there is a lack of clarity in the current arrangements about how to deliver system-wide flexibility. This lack of clarity on roles and responsibilities is

one reason why the volume of flexibility procured through DNOs remains small (albeit growing).

In saying that, we note that other regulatory changes are required to support reforms to institutional arrangements. Changing the governance alone will not suffice. These other changes include:

- making half hourly settlement mandatory as quickly as possible (e.g. by December 2023)
- reforming network charges such as Distribution Use of System (DUoS)
- completing the smart meter roll-out by 2025 and
- mandating smart time of use tariffs for products such as thermal storage, heat pumps and electric vehicles

**4. Overall, what do you consider the biggest blocker to the realisation of effective energy system planning and operation at sub-national level?**

For DSOs to effectively plan and operate systems to achieve the criteria identified by Ofgem requires a shift in focus from delivering network investment to incentivising and rewarding flexibility. Future DSO governance arrangements should consider how the electricity system interacts with and incentivises energy suppliers or other providers of demand side flexibility. These actors will provide the smart tariffs that incentivise the installation and operation of flexibility such as thermal storage. While we welcome work from National Grid ESO, for instance on making it easier to access the balancing mechanism, the required reforms to market structure are more fundamental. In particular, electricity markets should treat demand (flexibility) and supply (generation) equally when managing the grid.

**5. Do you agree with the opportunities of change we outline and the potential benefits they may create?**

Yes. In particular, we agree that improving governance will speed up the transition to a low carbon and flexible electricity system that supports decarbonisation of heat and transport. Clarity and simplicity in governance arrangements will support market participants, including energy suppliers, aggregators and manufacturers, to develop products that reward flexibility and keep costs down.

**6. Are there additional opportunities for change and benefits that we have not set out?**

No comment

**7. We set out a number of risks associated with change. Do you agree with these risks and the potential costs they create? Are there additional risks of change and costs that have not been set out?**

We encourage Ofgem to consider the whole system cost and benefit to determine the extent to which legal separation is beneficial. DSO governance will need to ensure that networks prioritise flexible solutions over network infrastructure upgrades wherever possible. We encourage Ofgem to explore the extent to which any costs of legal separation between the

DNO and DSO may be offset by whole system benefits from the DSO focusing on low cost flexibility solutions.

Similarly, the energy industry can work to establish effective governance and institutional arrangements to reduce the risk identified by DNOs that uncertainty of responsibilities could result in operational failures and affect network reliability. Grid reliability is highly important and a key part of the RII02 price control, so there are strong incentives on the DNOs and DSOs to maximise information sharing, even under full legal separation. Again, we encourage Ofgem to consider the whole system costs and benefits of legal separation.

**8. For each model, we have set out the key assumptions which need to be true for the model to offer the right solution. Which of these assumptions do you agree with?**

No comment

**9. Out of the framework models we have developed which, if any, offer the most advantages compared to the status quo? If you believe there is another, better model please propose it.**

As noted above, clarifying the institutional arrangements will provide certainty and speed up activity by market participants such as energy suppliers, aggregators and manufacturers. This will benefit flexibility provided by thermal storage, heat pumps and electric vehicles. We agree with Ofgem that the framework models may develop and evolve over time. For instance, Ofgem may decide to pursue increasing separation between the DNO and DSO functions through the next price control. In time, this may develop into full legal separation with new institutions.

As noted above, other regulatory changes are required to support reformed institutional arrangements. This includes making half hourly settlement mandatory, reforming network charges such as DUoS, completing the smart meter roll-out and mandating smart time of use tariffs for products such as thermal storage, heat pumps and electric vehicles.

**10. What do you consider to be the biggest implementation challenges we should focus on mitigating?**

No comment

**11. Taking into account the varying degrees of separation of DSO roles from DNOs under framework model 1, do you consider there are additional measures we should consider implementing, in particular in the short term (e.g. changes in accountability etc)?**

Regardless of which option is pursued, we recommend that Ofgem requires one or both of the DNO and DSO to publish clear assumptions about how they will procure flexibility from electric vehicles and low carbon electric heating (including thermal storage, heat pumps and district heating). In relation to heat, Ofgem should require DNOs and DSOs to set out in detail how heat pumps and other technologies will provide flexibility. For instance, we welcome the recent paper from UKPN setting out their heat strategy and recommend that

this level of transparency is a minimum requirement for all DNOs. Ofgem may decide this transparency is best delivered through improved DSO governance, the RIIO-2 price control process or both.

**12. Are there other key changes taking place in the energy sector which we have not identified and should take account of?**

As noted above, other regulatory changes are required to support reformed institutional arrangements to deliver flexibility at lowest cost. This includes making half hourly settlement mandatory, reforming network charges such as DUoS, completing the smart meter roll-out and mandating smart time of use tariffs for products such as thermal storage, heat pumps and electric vehicles.

We encourage Ofgem to consider what impact locational or nodal pricing would have on the operation and governance of DSOs and the procurement of flexibility across different parts of GB. We welcome BEIS and Ofgem working together, including through the Review of Electricity Market Arrangements (REMA).

**13. What do you consider to be the most important interactions which should drive our project timelines?**

To maintain the speed consistent with achieving the UK's carbon budgets, the new framework for local energy institutions and governance should be in place no later than 2 years before the start of the next price control, i.e. by 2026. This would support DNOs and DSOs to build business plans for 2028 - 2033 that deliver flexibility and allow Ofgem and other stakeholders to interrogate and challenge those business plans.

During the 2023 - 2028 price control, Ofgem should require ongoing transparency from the DNOs and DSOs on:

- how they procure flexibility,
- the volume of flexibility procured,
- the type of flexibility procured (e.g. heat, transport or batteries) and
- the infrastructure investment avoided

This information could be reported publicly by each DSO and DNO.