

Consultation on the Electricity Transmission Advanced Procurement Mechanism - Energy UK's response

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Energy UK is the trade association for the energy industry with over 100 members - from established FTSE 100 companies through to new, growing suppliers, generators and service providers across energy, transport, heat and technology. Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses.

The sector invests £13bn annually and delivers nearly £30bn in gross value - on top of the nearly £100bn in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100bn over the course of this decade in new energy sources. The energy sector supports 700,000 jobs in every corner of the country.

Energy UK plays a key role in ensuring we attract and retain a diverse workforce. In addition to our Young Energy Professionals Forum, which has over 2,000 members representing over 350 organisations, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity across energy. Energy UK also sits on the Electricity Products Supply Chain Council, helping to develop robust supply chains for the energy sector.

Energy UK supports the push for an Advanced Procurement Mechanism (APM) and the intention to integrate it into the RIIO-ET3 price control. However, we note that the list of eligible components for the APM could be expanded to include key vulnerable components like semiconductors and transistors. The design of the APM should also allow for coordination of procurement with non-TO energy sector parties and enable a joint order book system to be quickly implemented. This measure is key to attracting business from component manufacturers.

If you would like to discuss this response in further detail with Energy UK and its members, we would welcome further engagement.

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Consultation Response

Q1: Do you agree with our proposal to introduce the Advanced Procurement Mechanism to address supply chain constraints faced by the transmission owners?

Energy UK agrees with the need for an Advanced Procurement Mechanism (APM) to add certainty to equipment manufacturers and transmission operators (TOs) years in advance, alleviating supply chain constraints and delays.

The principles for the approach should include agility, transparency and consumer protection, as proposed. Coordination should be added as a principle, given the need to coordinate supply chain requirements across the sector to achieve Clean Power 2030 (CP30) and the UK's other emissions reduction obligations.

Energy UK agrees with Ofgem's intention to adapt the APM to allow TOs to develop a joint order book to provide additional economies of scale and longer-term signals to the market. Such pooled economies of scale, especially those that cross sectoral boundaries between TOs, distribution network operators (DNOs), low carbon technology (LCT) manufacturers, storage providers and generators, will be essential to attracting business from equipment and component manufacturers in an increasingly competitive global environment.

Energy UK supports the proposed combination of a use-it or lose-it (UIOLI) *ex-ante* funding structure based on a clear governance structure rather than relying on Ofgem approval. This will greatly aid TOs in rapidly procuring needed equipment ahead of need. The proposed governance structure needs to be as comprehensive as possible to protect consumers and market actors.

Energy UK reiterates the need to coordinate the APM with efforts to secure the supply chain beyond TOs. This will involve coordinating measures led by the Government and GB Energy to allow cross-sectoral pooling of buying power through Ofgem's proposed joint order book. The [Government's supply chain readiness study](#) identified supply chain competition between energy sectors like interconnectors, offshore wind generation and network operation for key components including high voltage direct current (HVDC) cables, converter station components, and installation vessel components. It is, therefore, essential to coordinate the APM and the future joint order book across sectors, including with OFTOs and CATOs.

Energy UK agrees that the APM should initially focus on fungible components and equipment to limit the risk of stranded assets and protect consumers' bills. To ensure the widest range of equipment is covered work on the standardisation of network equipment should be accelerated.

Energy UK does not agree that TO projects associated with CP30 are low risk, especially as the risk from delays caused by planning permission requirements, environmental impact assessments or even judicial reviews, remains significant. There may be a need to consider more adaptive mechanisms for funding and planning than the reopener process.

Q2: Do you agree with our proposed framework for evaluating eligibility?

Energy UK agrees with the overall approach of the framework for evaluating eligibility. TOs should evidence the constraint, outline mitigation measures and meet minimum transparency requirements regarding the procurement financials.

Given the tight timescales the industry is working to secure the supply chain, Ofgem should be sufficiently flexible with its evaluation framework and ensure the approach is standardised. Ofgem should also ensure the evaluation framework is consistent and coordinated with the emerging equivalent procurement mechanisms and joint tendering frameworks outside of TO procurement to ensure a consistent approach across the energy system. This is essential to delivering an effective whole-system joint order book.

Q3: Do you agree with how we have defined supply chain constraints?

Energy UK agrees with the proposed approach to defining supply chain constraints based either on lead times or limited remaining capacity for a piece of equipment or component type.

Energy UK agrees with Ofgem's preference for a flexible approach to evaluating what a long lead time is relative to a tolerable timeline. A more reliable approach might be for Ofgem to examine lead times relative to the ability to meet CP30 and later the Strategic Spatial Energy Plan (SSEP) objectives.

Q4: What are your views on which equipment types are most constrained, which are at risk of future constraint, and which are less of a concern, and what are your views on the items we should include within the scope of the APM?

Network operators, BEAMA, the Government, and those specialised in the electrical equipment supply chain have set out that the following assessments can be made about various pieces of electrical equipment:

- **Transformers** are at risk of insufficient capacity over the coming years to meet business plans. Manufacturers report that customer demand forecasts are not granular or long-term enough to inform the level of capacity expansion. Steel shortages would also impact on this supply chain.
- **Grain-oriented electrical steel (GOES)** makes up most of the weight of a transformer and is a specialised material with most manufacturing capacity concentrated in a few countries with low production costs, mainly South

Korea, Japan, China and Germany. An even smaller list of countries and factories can manufacture GOES to suitable UK standards.

- **Transformer tap changers** are manufactured by a handful of companies globally making them more at risk of disruption.
- **Transformer bushings** are similarly only made by a few producers globally, making them vulnerable to disruption.
- **Insulating material** and the associated insulator and transformer oils suitable for transformers have very concentrated and limited capacity, mainly in Belgium, and require highly specialised labour and production processes, making additional capacity slow to scale competitively.
- **HVDC cable** are at risk due to international competition for demand, for example from the Tennet T network in Germany and the Netherlands, and demand from other parts of the sector, namely interconnectors and offshore wind generators. While there are efforts to rapidly upscale HVDC manufacturing in the UK, production from the XLCC factory in Hunterston in Scotland is not expected until 2026 and the LS Eco Advanced Cables plant near Newcastle is not expected until 2027. In that time, many uncertainties can emerge that delay these plants' production or drive up costs, with alternate capacity worldwide rapidly being booked up for many years. Labour in this sector is also highly concentrated in a few countries, with new workers typically needing to be relocated abroad for training. The cost of HVDC transmission systems is also highly variable and difficult to forecast, dependent on various factors, including but not limited to power capacity being transmitted, submarine or land-based transmission type, environmental factors, and access/cost of equipment such as costly converter stations.
- **Converter stations** risk a shortage of design engineers for converter valves, limiting the number of orders manufacturers can meet. Ofgem should also note the high concentration of patent filings for high-voltage converter stations in China according to [research by the United States' Department of Energy \(DOE\)](#).
- **Semiconductors and transistor** supply is an often-overlooked bottleneck. In 2021, the world's largest semiconductor and transistor company, holding 54% market share, Taiwan Semiconductor Manufacturing Company (TSMC), was unable to catch up with demand. This was mainly due to their 'just-in-time' production model which is not well suited to unanticipated demand changes. The other major issue is demand from competing uses from other sectors and within the energy sector. Other energy users include renewable generator inverters, battery energy storage system inverters, variable frequency drives, static synchronous compensators, rectifiers, and static frequency converters. Semiconductors are also at supply risk from various scaling challenges and competing demand for copper and non-oriented electrical steel (NOES).
- **Switchgear and circuit breakers'** lead times have doubled due to demand in non-network energy sectors and delays from the transition to non-SF-6 gas switchgear. Nonetheless, unlike converters, the patent environment for

switchgear is somewhat more distributed globally. There is growing competing demands from utilities, data centres, transport, and industrial applications.

Q5: What are your views on our intention to exclude strategic procurement from the APM, and the potential benefits of later expanding the APM to include it?

Energy UK understands Ofgem's hesitancy to exclude constrained equipment in the initial scope of the APM due to the novel nature of this mechanism and the potential for expenditure to be at risk. It is welcome to note Ofgem's intention to review this position in due course.

Given the race between markets for electrical equipment, there may be benefits to allowing TOs to procure equipment more broadly, including amalgamating orders from manufacturers in large bulk buys, further driving down costs. Ofgem should engage closely with the component manufacturing sector and with analysis from TOs soon to establish the merit of broadening the scope of the APM.

Q6: Do you agree with how we have characterised fungible, flexible and bespoke procurement, and our proposed treatments of each of these? Do these definitions reflect real world contracting and engineering realities?

Energy UK agrees with the characterisation of fungible, flexible and bespoke procurement.

Components considered fungible must consider the flexibility of components jointly procured across the energy sector. This should not result in Ofgem restricting the range of components actors can jointly procure to those products fungible across energy sectors. Where possible, to limit costs to consumers, flexible and fungible components needed in multiple sectors should be prioritised in the APM.

Flexibility in determining exact standards later on in the process should be allowed for TOs under the APM. However, there remains a need to rapidly accelerate the speed at which exact design needs are established to shorten lead times and attract business from component manufacturers. As Ofgem notes, the best way to do this is to increase the standardisation of equipment.

Energy UK agrees with the approach to case-by-case approval of bespoke equipment advanced procurement. Ofgem should revisit the equipment standardisation workstream to ensure this mechanism is not used too frequently and thus causes undue delay to procurement.

Q7: Do you agree with our proposed approach to funding services contracts through the APM?

Energy UK overall agrees with Ofgem's proposed approach to funding services through the APM.

Having TOs justify why a service was indirectly procured rather than directly from manufacturers, often at greater expense, is welcome. However, the reason for choosing indirect over direct procurement can be from activities that can't be directly procured, such as the on-site assembly of network infrastructure. TOs should not see processes for procurement increase in complexity if there is clear industry-wide reasoning in such activity areas.

Ofgem should ensure the assessment framework for services for TOs is not overly burdensome given the need to address labour shortages in key areas and the potential of the APM to attract labour to those markets.

Q8: Do you agree with our rationale for using a UIOLI mechanism for the majority of APM expenditure, rather than other regulatory tools?

Energy UK agrees that the UIOLI mechanism is better suited to the needs of the APM given its flexibility and ability to be adapted to protect consumer bills.

Q9: Do you agree with our proposal for the APM allowance to be capped at 20% of the estimated equipment cost?

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Q10: Do you agree with the use of a re-opener to update the APM in-period?

The use of in-period re-openers to update the APM is appropriate.

Given the rapid speed and scale of buildout required in the coming years, and the long timescales involved in reopeners, Ofgem may need to consider the integration of more adaptive planning measures within the APM to avoid the need to use a drawn-out reopeners process.

Q11: What are your views on our proposed approach to cost reconciliation?

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Q12: What are your views on how we should approach in-period updates to the APM?

Energy UK recommends regular APM Working Group sessions involving TOs, equipment manufacturers and other industry representatives with an agenda item for each session to propose any addition or subtraction from the APM list. The subject would then be discussed and the decision to add or subtract a component ultimately reviewed by Ofgem.

Q13: Do you agree with our proposal regarding retrospective application of the APM?

Energy UK agrees with Ofgem's proposed approach to the retrospective application of the APM.

Applying only to contracts between TOs and equipment manufacturers dated no earlier than the publication of this consultation may limit delivery for projects already initiated. Pre-existing contracts essential for project delivery should therefore be considered for inclusion.

Q14: Do you agree that the publication of detailed APM costs and volumes could be commercially detrimental to TOs, and by extension consumers? If so, why?

Energy UK agrees that some information could be detrimental to TOs but, given the incumbent position of the three TOs as regulated monopolies and the benefits of increasing competition through more transparent information on technologies used, this risk, and subsequently the risk to consumers, remains low.