

Siemens Energy Limited

Ofgem Electricity Transmission Advanced Procurement Mechanism

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About Siemens Energy

Siemens Energy is one of the world's leading energy technology companies. The company works with its customers and partners on energy systems for the future, thus supporting the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from power and heat generation and transmission to storage. Its wind power subsidiary Siemens Gamesa makes Siemens Energy a global market leader for renewable energies. An estimated one-sixth of the electricity generated worldwide is based on technologies from Siemens Energy. Siemens Energy employs around 98,000 people worldwide in more than 90 countries and generated revenue of €34.5 billion in fiscal year 2024. www.siemens-energy.com

In the UK, Siemens Energy and Siemens Gamesa employ over 6,000 people across more than 25 sites, including manufacturing & service centre locations in Lincoln, Hull, Newcastle, Ulverston, Worcester and Aberdeen.

Our response to the consultation questions

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

We agree there is a need for change and welcome the aims of the Advanced Procurement Mechanism (APM) however it needs to go further and be less restrictive, as we explain below.

Siemens Energy delivers substation projects

In the UK, Siemens Energy builds electricity substations for Transmission Owners (TO) and others. We are both an Original Equipment Manufacturer (OEM) and a 'turnkey' Engineer Procure Construct (EPC) contractor. We deliver projects through in house engineering and project management capability ("Services" in the language of the consultation). As such our comments relate to substations and solutions, not products or overhead lines. Most of what

we do is therefore in the category “Bespoke” or “Flexible” rather than “Fungible”. Many of the concepts in the consultation appear to be based on procuring loose equipment from factories so do not fit well with the scope we and others provide to TOs.

The transmission market has changed

The market for transmission projects has changed. Growth in global transmission market has already used up spare supply chain capacity. We expect global demand to continue to grow for at least a decade with a CAGR 18%. On top of this global trend, we have the GB Clean Power Mission which requires grid to be built here at a much faster rate. This is a fundamentally different situation with a different balance of risks for electricity customers. It requires a step change in regulatory design. The APM as proposed may not be sufficient.

When supply chains are tight, suppliers offer longer lead times or prioritise some customers or projects, declining to bid others. Suppliers are already prioritising customers who offer definite orders over ‘frameworks’ or who procure programmes of work rather than individual projects. Under today’s processes, this puts the GB transmission industry at a disadvantage compared to some other countries where customers can engage with suppliers with fewer regulatory constraints.

Growing the supply chain

The challenge for transmission in GB is not only to attract the attention of a globally constrained supply chain supply chain but to grow additional supply chain capacity, sufficient to deliver the scale of the Clean Power Mission.

Regulation of British TOs therefore needs to enable them to procure in ways that attract competitive bids and support suppliers to invest in extra capacity and workforce. This means.

1. Buying in a timely way that reflects lead times
2. Buying in bulk, i.e. programmes rather than projects
3. Using contracts that are straightforward without adding extra risk to supply chains

Ofgem has rightly recognised this changed environment and hence proposed the APM. Our concern is that the APM, although welcome, does not go far enough to meet the changed demands on the industry. It attempts to address the first of the three but in a way that undermines the third.

The need for full commitment to delivery

As a project contractor, we need an unfettered contract which allows our project manager and team to use their best endeavours to deliver the entire project. This includes starting and working on all parts of the project in a timely way. Anything less than a full commitment tends to inhibit the ability of the project manager to deliver the project. Partial commitment adds risk and cost, whether expressed as limited notice to proceed, or an undue focus on cancellation profiles. (see question 2)

The fundamental issue here is that Ofgem still approves each scheme at a later stage. The APM does not remove this step, it just allows TNOs to place some contracts earlier but with restrictions. Partial commitment to a project, with the jeopardy of a pending approval, changes the behaviour of TO and supplier. Suppliers will be reluctant to bid and must price in extra risk. TO concerns over retrospective assessments by Ofgem may inhibit TOs from using the mechanism as intended. We need Ofgem to approve the scheme at an earlier stage and let the team get on with delivery.

The timing of Ofgem assessment of the need for a project is an issue for Ofgem and TOs that should not be allowed to impact on a TOs relationship with its suppliers. If the UK develops a reputation for cancelling or restraining projects, it will be harder to attract a supply chain, let alone support growing capacity.

Programmes rather than projects

An issue that has inhibited TOs engaging in more collaborative and long-term relationships with suppliers has been the role of Ofgem in reviewing the need for every project individually. A key objective for the APM should be enabling TOs to procure programmes rather than individual projects. This attracts more competitive bids from suppliers and enables us to invest in building the workforce.

Human resources are more constrained than materials

Today's workforce is insufficient to build the 88 projects in the NESO advice to government. The relatively short horizon for committed projects makes it challenging for an individual supplier to invest more in training at the risk they may not secure the potential projects and others will poach their trained staff.

Last year Siemens Energy teams worked around 600,000 hours on sites in UK&I, this will rise around one Million hours in three years' time, based on existing contracts. Beyond that date existing commitments fall off rapidly. If this is only a short-term peak, we would aim to support it with temporary resources, but these may not be available if other contractors are equally busy. Commitment by TOs to programs of work would enable recruitment to start across the industry to support all TOs through the T3 regulatory period and beyond.

(see questions 2, 4 & 5)

A positive role for Ofgem

We would therefore like to see Ofgem play a strong part in actively delivering the clean power mission. The APM as proposed is still embedded in the language of economic price regulation and in our view errs on the side of caution, limiting what a TO can spend and when. There is an opportunity to be bolder and make it an enabler for a vibrant and competitive transmission market in the UK.

We urge Ofgem to find a way to give full clearance to projects and programmes at an earlier stage. The new role for the NESO in strategic planning gives an opportunity to move Ofgem approval earlier in the process.

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

All projects should be eligible

We find the concept of eligibility for the APM unhelpful and fear it may be inflexible and too slow to respond to evolving market conditions. Instead, we would propose that any TO procurement be eligible for the APM without the need to show it meets specific criteria. TOs would then be able to work with their suppliers to positively manage emerging constraints.

Testing against pre-determined eligibility criteria adds delay and cost and limits the flexibility of TOs to manage dynamic constraints in the supply chain. A retrospective test of eligibility would be less clear and might inhibit use of the APM. Given the widespread and changing nature of supply chain constraints we suggest neither is necessary.

We would prefer no formal test of eligibility – a Use It When You See A Need For It (UIWYSANFI) allowance.

If there must be any test of eligibility as suggested in the consultation the following comments would apply.

Requirement – showing a specific constraint

We would recommend much less emphasis is placed on identifying and proving specific constraints and instead the focus is on using the APM to secure necessary capacity in a timely way at reasonable cost. We would highlight four aspects of this:

- Buying in bulk to attract competitive bids, not just overcome constraints
- Committing to the whole project not subcomponents
- Timely vs. just in time
- Building the workforce

As discussed in Q1, constraints manifest either as longer lead times, or as a reluctance to bid certain customers or projects. The Challenge for the APM is to enable TNOs to secure supply chains needed for the full programme of work.

Procurement across a programme rather than an individual project is likely to yield more interest from the supply chain. i.e. procuring programmes through the APM can deliver a positive benefit for customers, not just overcome constraints.

As a solution provider we commit to delivering a complete working system. If our customers can only commit to components of that system deemed to be constrained and we must delay work on other parts of the project it restricts our ability to deliver efficiently.

As a turnkey contractor we can work with our suppliers to decide when timely commitment needs to be made. The idea of “just in time” procurement may be valid in a factory setting but not on a construction project. If everything is procured at the last moment, then everything is on the critical path and any one delay impacts the whole project. Part of the value we add as a turnkey contractor is managing the lead times and dependencies of the project as a whole. To do so we need a full order. If the APM encourages partial commitment, only to those parts of the project that are on the constrained list it will make UK projects harder to deliver and therefore less attractive to bid.

Mitigation of waste

Mitigation of waste could be interpreted in two ways: procuring something that is unused, or delivering network assets earlier that are (initially) under used. We see little additional risk of either from the APM, given the growth in demand for electricity and the urgency of the 88 projects required by 2030. We believe Ofgem already has powers and TOs general duties to avoid waste and it is not a necessary extra criterion.

Procuring something that is unused is unlikely in the context of substation projects, as the scope is well defined at contract stage, not least via a single line diagram.

There is a well understood concept in project management of contingency. When the target date is critical it may be worth pursuing two options until there is sufficient confidence to drop one. This is efficient in project terms but with hindsight looks wasteful if the potential issue did not occur. Any post completion assessment needs to recognise where such an approach was taken that it is not automatically ‘waste.’

The regulatory approach in GB has been to guard against TOs spending too much or too soon. The systems are designed to make TOs justify any expenditure to keep bills down. We would observe that the resulting delay to projects has been a contributing factor to increasing constraint costs and grid queues which have had a negative impact on the wider economy much greater than any saving on electricity bills. There is an asymmetric impact if a transmission project is delivered too early or too late, but regulation only sees the grid cost.

The balance of risk is changed by the expected growing demand for electricity as heat and transport decarbonise. If grid capacity is “overbuilt” it is likely to be used sooner than in a low growth market.

Transparency

We are comfortable with transparency between TOs and Ofgem provided this does not have commercial implications for us with our competitors. We are used to scrutiny by our customers and to providing them the information and detail they expect will be required by Ofgem.

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

In the definition of supply chain constraints (para 2.10) we suggest adding “*or ability to get offers from suppliers*”

We also see this as a backward facing definition and would like to add “*, or that early commitment will enable investment in additional capacity including workforce capacity*”

The definition then becomes:

To demonstrate eligibility of an expenditure category for APM funding, we are proposing to require the TOs to provide evidence of the constraint (e.g. through examples of current lead times or capacity ***or ability to get offers from suppliers***) and the impact that this will have on project delivery timelines and any resulting increases in cost to the consumer, ***or that early commitment will enable investment in additional capacity including workforce capacity.***

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?

A growing industry is by implication constrained

The transmission network infrastructure supply chain is currently constrained due to the significant growth required in a short period. Large investments are necessary to increase capacity to meet the projected demand for workforce and equipment. Until these investments are made, the supply chain will remain unable to meet future demand. Constraints apply to equipment; factory capacity and workforce as follows.

Equipment

The scope we deliver is substations. We have observed a trend towards growing lead times for a wide range of the equipment we use as summarised in the following table.

Equipment	2021	2022	2023	2024
Power Transformers	14-18 Months	18-24 Months	30-40 Months	30-48 Months
GIS	12 Months	18 Months	22 Months	24 Months

AIS	10 Months	14-16 Months	18 Months	18 Months
Disconnectors	7 Months	10 Months	10 Months	12 Months
Instrument Transformers	10-12 Months	12-14 Months	10 Months	10 Months
Surge Arresters	6 Months	8 Months	6 Months	6 Months
Busbars and Clamps	6 Months	7 Months	8 Months	8 Months
Insulators	6 Months	7 Months	6 Months	8 Months
Earthing Transformer	up to 13 months	up to 21 Months	up to 21 Months	up to 18 Months
Resistors	4 Months	5 Months	6 Months	6 Months
LVAC	4-5 Months	6 Months	6 Months	6 Months
AVR	4-5 Months	7 Months	8 Months	10 Months
DC Systems	4-5 Months	6-7 Months	6 Months	7-8 Months
Diesel Generator	4-6 Months	4-6 Months	7 Months	7 Months
Structures	3-5 Months	3-5 Months	6-8 Months	6-8 Months
C&P Panels	2-6 Months	2-6 Months	9-12 Months	9-12 Months
Relays	2-5 Months	2-5 Months	up to 8 Months	up to 9 Months
Power Cable	4-6 Months	4-6 Months	8-12 Months	up to 18 Months

These lead times are indicative only and based on delivery time from a detailed order. Before orders can be placed there is a need to engineer a solution to determine the detailed specification, prepare drawings, and run a procurement process. Installation and commissioning depend on ground and civil works, erection of structures, installation of cables and other plant, availability of outages etc.

On each project a different set of equipment and activities will form the critical path. Even an item with a relatively short lead time can become a driving constraint for a project if it depends on or is required before another item. The concept that some types of equipment are constrained, and other types are not, does not fit with the nature of project delivery.

Factory slots

There is an opportunity cost for a factory when it commits production capacity to a specific customer or project. Factories are reluctant to 'book slots' for potential projects when the timing or commitment is uncertain. We have seen a trend towards higher 'cancellation charges' and increasingly a refusal to commit to any slot without a full order.

Projects are not just equipment

Substation projects require a large team to engineer, procure, construct and commission them. Engineering workforce capacity is increasingly the driving constraint in our ability to deliver

projects to the desired timeslot. We therefore need to commit a full project team to a project. Mobilising and demobilising teams has a significant cost. If a project is cancelled, we may lose key staff to competitors. We are therefore extremely reluctant to accept a project without a full commitment.

Workforce is the biggest constraint in the supply chain

Programmes of work are especially valuable in enabling suppliers to grow the workforce. For a one-off project we will find temporary resources and disband the team at the end of the project. If we have a programme of work, we can commit to longer term recruitment and training. We can also offer our customers the same team for successive projects increasing the mutual learning and benefits that come from longer term relationships.

An important point for TR3 is that if suppliers do train additional workers, they will still be inexperienced. We will need to allow extra working hours on sites for closer supervision and learning on the job. TOs should be encouraged to work with suppliers on recruitment, training and workforce development and allow funding in contracts to support 'bringing on' the workforce that all of us need.

No one supplier can address the industry wide workforce challenge, nor the TOs, nor government. We need a joint approach that includes all parties. Ofgem has a role in helping the industry to start growing the workforce now, sufficient to deliver T3 and the rest of the Clean Power Mission.

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?

As described above we strongly urge Ofgem to allow advance procurement across a wider range of projects than those that include an item on the constrained list. We believe there are benefits for customers in enabling TOs and their suppliers to build strategic relationships across projects, not least because this allows investment in growing the workforce. (see Q4)

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?

We understand the characterisation in the consultation. As a substation contractor most of our projects are 'bespoke' or at least 'flexible.' If Bespoke projects are excluded from the APM it will exclude a significant part of the investment required for 2030 and beyond. Overhead lines are useless without substations at each end. The ASTI programme included several substation projects. We see no reason that the APM should exclude substations because they fit the category of bespoke.

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

Engineering, site construction and commissioning 'services' are an integral part of our scope. These fit the category of 'Indirect' procurement of engineering services. We are pleased to see that Ofgem is minded allowing them through the APM.

There are many reasons why it makes sense for an OEM to offer a complete substation. We can design a solution based on close integration of our range of equipment reducing the risk of a 'pick and mix' approach. We can stand behind our solutions and commit to manage and be responsible for interfaces. We have demonstrated over many years that this approach is effective and efficient for substations. We suggest that if any eligibility test is required it should be done generically for all substation projects to avoid unnecessary repetition of the same justification on every project.

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

Our understanding of the UIOLI concept is that it is neutral in terms of any return for the TO. It is an advance payment of something that would normally be allowed. We therefore agree that it is an appropriate mechanism for the APM in the overall regulatory approach. We would like to see UIOLI extend to 'bespoke' substation projects so that a specific reopener is avoided.

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

We strongly disagree with this proposal. The creation of any threshold reinforces the issues of partial commitment described in previous answers. A threshold could, perversely, result in more cautious procurement by TOs or unwillingness to bid by the supply chain that would have the opposite of the intended effect.

Furthermore, 20% is an arbitrary threshold which has no relationship to the timing of commitment to resources and sub suppliers on a specific project.

If there is to be a cap there needs to be a mechanism to ensure that the cap is reviewed with Ofgem and raised well in advance of a project coming close to reaching the cap so that it does not represent a threat to the project team.

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

We prefer an unconstrained APM allowance which would have little need for a reopener. The more constraints are added to the scheme, the more likely it is that reopeners will be required during a price control period. We agree that this may be more often than once a year, so Ofgem would need to be able to trigger reopeners when required.

If the reopener is the only mechanism for 'bespoke' projects most of our projects would be subject to reopeners and the APM would be of limited use.

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

The efficient procurement test needs to be well defined in advance to avoid uncertainty driving more transactional behaviour. E.g. seeking to show due process even where to do so results in greater cost.

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

The concept of turning items on and off the list of constraints and therefore whether the APM applies or not would provide flexibility. However, we prefer no list of constraints and for TOs to decide when they wish to use the APM without the need to meet predefined criteria. (As stated above.)

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

We agree with the urgency to deal with the reality of constrained supply chains, so the ability of TOs to act during the 56-day statutory standstill period is welcome.

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?

We do not have a view on whether publishing more detail would impact on TO's competitiveness. Ofgem's proposal seems reasonable.

Follow up

We thank Ofgem for inviting responses on this important proposal and hope that our comments will help you make the final design effective. To follow up on any of these topics please contact Matthew Knight matthew.knight@siemens-energy.com

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