

Interconnection and the Capacity Market

Executive Summary

Previous Expert Group papers highlighted the difficulties of integrating non-GB capacity within the Capacity Market. However, it is clear that interconnection can and does offer security of supply benefits. Indeed, it is a strategic objective of Government to support investment of interconnection whilst ensuring value for money for consumers. Furthermore, we wouldn't want to distort where investors situate plant that can contribute to GB security of supply. Excluding interconnection could also be troublesome for the State Aid application. In light of this, DECC has been asked that some means be found to include interconnection and/or non-GB capacity in some form within the Capacity Market if possible.

This paper recognises that the inclusion of non-GB capacity on **exactly** the same terms as GB capacity will not be possible. This is because it is difficult to see how capacity payments may be applied to generation capacity or demand response in adjacent markets without linking it to interconnector capacity directly. It would be unreasonable to make cross-border capacity eligible for capacity payments without some sort of guarantee that the capacity would contribute to relieve stress in the market with a capacity mechanism. This, of course, directly depends on the availability of interconnector capacity between the markets. Physical limitations on capacity volume but also on directional flow currently make this option incompatible with the arrangements under the Target Model.

Instead we seek to establish a basis for its inclusion drawing on relevant parts of the CM design. We believe that our current approach provides an appropriate means of rewarding security of supply contribution from non-GB capacity.

The proposal would allow interconnector owners (or an agent thereof) to participate in the capacity auctions, with them being the capacity agreement holder. They would be responsible for the interconnector being technically available and also for the availability of balancing services should the interconnector not be delivering energy at the level of its capacity obligation during a GB system stress event.

It is recognised that the proposed model cannot definitively guarantee the flow of interconnectors themselves during stress periods¹. This proposal relies on efficient GB energy market prices ensuring that interconnectors flow to GB at times of stress. However, interconnectors would be de-rated according to our expectations of technical reliability and the likelihood of imports to GB at times of system stress.

In terms of timing, it will not be possible for interconnectors to participate in the 2014 auctions. DECC has investigated several approaches but this area is extremely complex and, so far, we have been unsuccessful in finding a solution that works within the framework of the Target Model. Instead, for the 2014 auction, any capacity that is statistically assumed to be delivered to GB by all interconnectors at times of

¹ The only models that would permit this "fixing" of interconnector flows would be incompatible with the EU Target Model.

system stress will be taken into account when determining the overall volume of capacity to procure in the relevant capacity auction. This will prevent surplus capacity from being purchased in GB.

In the meantime, DECC is working to develop a detailed policy solution which will examine the potential for participation of interconnected capacity in the capacity market for subsequent capacity auctions commencing in 2015.

The Expert Group is specifically invited to comment on the following questions:

- Does the Expert Group believe that the proposed model offers a suitable approach?
- Is the Expert Group satisfied with the proposed work planning?

1. Rationale for the proposal

1.1. The Capacity Market is a remedy for “missing money”. Addressing the missing money for GB capacity while not for interconnectors could lead to underinvestment in interconnection and overinvestment in more expensive GB capacity in its stead.

1.2. This will incorrectly signal a reduced value of any security of supply contribution from interconnected markets (which may drive up costs to GB consumers), reduce revenues to existing interconnectors and harm the business case for new interconnectors.

1.3. Additionally, a GB Capacity Market that is able to reward security of supply contributions of non-GB capacity would be beneficial in any State Aid discussion with the European Commission.

1.4. Government is seeking a solution that meets the following key objectives:

- where possible capacity procured from non-GB sources must physically deliver electricity to the GB system at times of system stress;
- where there is no physical delivery of its electricity to the GB system at times of system stress, penalties equivalent to those faced by GB capacity should be imposed; and
- the solution must be compatible with the EU Target Model and third package requirements, and maximise compatibility with the internal energy market

1.5. The rationale for incentives on interconnectors according to whether they are exporting to GB at times of stress is that it ensures that the interconnector is rewarded for its true level of de-rated capacity – recognising that the

interconnector is only beneficial for security of supply if it connects to a market that has spare capacity at times of stress in GB.

1.6. Previous efforts to focus on the delivery of capacity by generating plant or DSR from outside of GB have failed to deliver against these objectives as there is no definitive means for that plant to “guarantee” delivery of their energy across the interconnector to Great Britain at times of GB system stress.

1.7. However the design of any remedy is complex. Interconnectors under the Target Model will essentially operate in two timescales.

- The first is where parties take long-term positions and trade in “Physical Transmission Rights” (PTRs). These give them the right to nominate flow across the interconnector up to 9am day-ahead of delivery. If they do not then the right is lost and sold on their behalf to other users.
- Subsequent to this there is an “Implicit Auction” across the interconnector to determine cross border flows using a ‘market coupling’ algorithm that compares spot energy prices at the day-ahead stage across the interconnector and sets the flow according to these price differentials. These implicit auctions are anonymous and dictate the quantity and direction of flow across interconnectors. This bears no relationship with the previously sold PTRs and in particular can result in a change in the overall net position of the interconnector flows.

1.8. This means that an assessment of the deliverability of any non-GB Capacity is not possible. The PTRs and the implicit auction could be used to measure delivery of capacity although in neither case can they exactly replicate the system of metering a GB generating unit’s delivery of energy direct onto the GB Transmission System at times of stress.

2. Detailed Description of the Proposal

2.1 Pre-Qualification

Interconnected capacity would need to pre-qualify by application to the Delivery Body in much the same manner as any other prospective Capacity Market participant. Each interconnector would form a Capacity Market Unit (CMU) with the interconnector owner being the party that would be eligible to take on any capacity obligation.

GB capacity is de-rated according to technical reliability. This is also true for interconnectors. However, the fundamental difference in the approach to de-rating is that interconnectors will additionally be de-rated according to the likelihood of exporting to GB at times of system stress. This is because an interconnector itself does not provide any generating capacity.

The Delivery Body would need to devise a methodology to de-rate each of these “interconnector CMUs”. This de-rating is likely to be based on technical reliability and

the likelihood of the interconnector flowing to GB at times of system stress. The Delivery Body would apply this to derive the maximum “de-rated” capacity that may be submitted into the auction by the interconnector owner.

For the avoidance of doubt, should an interconnector CMU be de-rated to a zero or negative capacity value (a negative capacity value implying that it will be exporting energy from GB at times of system stress) it will not receive any capacity payments.

The interconnector owner would be eligible to bid on the basis of a price taker and for a capacity obligation of maximum duration one-year. It is currently being investigated whether it would be eligible to bid for a longer term capacity agreement should it be able to demonstrate that it is incurring expenditure greater than the relevant expenditure thresholds for longer term capacity agreements as set out in the capacity market rules.

All other pre-qualification criteria must be met including the requirement for a UK registered company that is part of the same corporate group as the interconnector owner to be the entity that enters into any capacity agreement.

An existing interconnector owner may elect to opt-out of the auction at this stage. In such cases, in the calculation of the amount to procure, this capacity will be assumed to be present in the relevant delivery year (unless the interconnector has notified the Delivery Body that it is to cease operation by the commencement of the relevant delivery year.)

An existing interconnector that does participate will be required to do so as a price-taker and will not be allowed to set any price above zero in the auction.

2.2 Auction

The interconnector owner will participate in the auction in the same way as any other prospective capacity provider. Should it be successful then it will receive a capacity agreement. It will be eligible to receive monthly capacity payments based upon its de-rated capacity and the auction clearing price.

All other rights and obligations of a capacity obligation also apply, for example, provisions relating to the demonstration of capacity capability (and subsequent spot tests if not) also apply.

The revenues received by the interconnector owner from the capacity market can be used by the interconnector owner to arrange for balancing services to be available to the GB TSO post gate closure at times of system stress.

2.3 Delivery

An interconnector CMU that has successfully secured a capacity obligation will have its energy delivery performance monitored during periods of GB system stress. Delivery is counted as imports and not just that the line is technically available.

In common with all other CMUs with capacity obligations, should the energy delivered across the interconnector CMU during a stress period be less than its load following capacity obligation then the interconnector owner as holder of the capacity obligation will be exposed to penalties under certain conditions. Likewise if the energy delivered is in excess of the capacity obligation then it will be eligible to receive over-delivery payments.

The delivery of energy across an interconnector is primarily through the arbitrage by energy traders of electricity prices between the interconnected markets. However the interconnector owner is able to influence these flows in cooperation with other Transmission System Operators (TSO). Classified as a TSO under the Third Package, the interconnector owner is able to trade in the markets to influence interconnector flows to ensure system stability. It is also potentially able to access the shared balancing services markets that will be introduced under the planned European electricity balancing network code through a partnership with the other TSOs at either end of the interconnector. This offers a tool to enable it to facilitate delivery of energy during times of GB system stress. It would be for the interconnector owner to investigate the arrangements and put such balancing services in place that would facilitate such changes in flows. The development of these balancing services is beyond the remit of the design of the capacity market.

3. Assessment against Objectives

3.1. Objective A: Where possible capacity procured from non-GB sources must physically deliver electricity to the GB system at times of system stress;

The incentives around the delivery of energy under the proposed model are predominantly financial and market led with the back-stop that the interconnector owner would be able to facilitate physical action to ensure system stability. This physical action would take the form of co-ordinated action with other TSOs to facilitate the despatch of balancing services across the interconnector to deliver energy to Great Britain post gate closure. This back-stop offers a greater degree of surety around physical delivery than a model that relies on price arbitrage alone.

3.2. Objective B: where there is no physical delivery of its electricity to the GB system at times of system stress, penalties equivalent to those faced by GB capacity should be imposed

Under the Third Package, Interconnector owners are precluded from altering the direction and magnitude of flow across the interconnector. Therefore, at times of system stress, it cannot be 100% sure that the energy will be flowing to GB and Interconnector owners cannot be penalised for that. However, due to a lack of visibility of balancing services available in the other market, and as yet, an EU approach that is not fully coordinated, DECC believes that the interconnector owner can play an important facilitation role here. If the interconnector is exporting at times of system stress, the owner would be liable for penalties

equivalent to those faced by GB capacity if the interconnector is not technically available or if balancing services were not available to the GB TSO in real time.

3.3. Objective C: the solution must be compatible with the EU Target Model and third package requirements, and maximise compatibility with the internal energy market.

From initial conversations with the System Operator, the European Commission and ENTSOe, our understanding is that the proposal is compatible with the target model and third package requirements. It works within the rules set out for the trading of energy, the rules concerning the allocation of the rights to use interconnectors to flow energy between member states and the rules that set out how TSOs are permitted to influence flows of energy across interconnectors post gate closure. A key part of the further work planned on interconnection in the coming months shall be to engage again with the European Commission and further discuss this model with them to confirm their views on its compatibility.

4. Conclusions and Next Steps

- 4.1. It is recognised that there is significant further work that would enable this model to be implemented. This would be undertaken with a view to enabling interconnection to participate in the 2015 T-4 auction for Delivery Year 2019/2020.
- 4.2. Should this proposal be accepted as a viable one for the basis of further discussion with external parties the aim would be to continue to have broad engagement with external stakeholders. Among others, these stakeholders include:

- National Grid (as EMR Delivery Body)
- The European Commission
- Ofgem
- National Grid Interconnectors Ltd (NGIL)
- Statnett
- Eirgrid
- RTE
- TenneT
- Elia

Alongside this stakeholder engagement we shall also have feedback from our capacity market consultation available by the end of the year, which may also feed into our deliberations.

4.3. The timeline for the workplan is as follows:

- Expert Group meeting: 17 Dec 2013
- Consultancy work: 1Q 2014
- Develop detailed policy proposal: 2Q 2014
- Discussion at Project Board and Expert Group meetings: 2Q 2014
- Consultation: 2H 2014
- Secondary legislation laid in Parliament and final approval: 1Q 2015

4.4. The Expert Group is invited to give its views on the content of this paper, and in the following specific areas:

- Does the Expert Group believe that the proposed model offers a suitable approach?
- Is the Expert Group satisfied with the proposed work planning?