

Auction Trial for Frequency Response FAQs

Last Updated: 12/11/2018

Updates since last version included in green text.

For clarification, or to submit additional questions and feedback, please contact commercial.operation@nationalgrid.com.

- This document will be updated within 5 working days in response to questions received at the above mailbox.
- Q&A from the Auction Trial for Frequency Response - Webinar are included below.
- Please read the below Q&A before contacting Account Managers with queries regarding the Auction Trial.

| Testing & performance monitoring | |
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| For DFFR post-event monitoring, do you require data at 5 Hz (because response needs to start within 2 seconds) or 1 Hz (because for Primary, the full response needs to be delivered within 10 seconds of event)? | For performance monitoring of dynamic frequency response in the auction trial, 1Hz sample rate must be provided. |
| Auction algorithm | |
| For example, if your requirement was for 50 MW and the cheapest offer in the auction was for 51 MW, you would reject the offer. In this example, the auction would “clear” at zero and you would buy no volume. | We are still to determine what the maximum bid size will be, but it will be smaller than the requirement, e.g. 10 or 20 MW. This should minimise the risk of the auction failing to clear. |
| Will the algorithm or logic be shared in the auction documentations? | Unfortunately, we cannot share the algorithm itself, as this will be proprietary to our partner company, who are developing the auction platform. However, we will share all the design parameters, results and process logic that is used. |
| Will the mathematical model for the algorithm be published in the Auction documentation? (objective function, variables and constraints) | We will share as much information as possible, however the algorithm will remain the IP of the auction platform developer. |

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| <p>Thanks for this presentation: one Q: in the auction, how would 2 identical bids be judged if they both are in line to meet the buy orders? i.e. there are 5 MW remaining requirement; if 2 x 5MW bids are next in line with identical parameters; which one would be chosen?</p> | <p>Where two bids are identical but only one can be successful, a randomisation process will be used to select the successful bid. This is similar to the approach used in other markets such as the Capacity Market. The specifics of this process will be detailed in the market rules.</p> |
| <p>"I have a question regarding the auction trial and the algorithm that will be employed, specifically in relation to 'maximising economic welfare'. My understanding is that this algorithm will remove the smaller and expensive party bids in an effort to reduce any inflating of the clearing price, basing the clearing price on the bid order instead. My question is, is this understanding correct? And if so, under a scenario in which low marginal cost renewable plants have access, is there any mechanism in place to mitigate against any price suppression as a result of renewables taking part?"</p> | <p>Your understanding is correct, although the algorithm will not "remove" small expensive bids. The algorithm will create the sell order stack considering only the price of each bid, so small expensive bids would be higher up the merit order and less likely to be successful. One of the goals of the trial is to understand the behaviour of participants in the trial and understand what the market price would be for these products, and therefore we are not intending to include any mechanisms to artificially affect the clearing price at this stage. However, as it is a trial we will keep this under review, and welcome any feedback or proposals.</p> |
| <p>Clearing prices</p> | |
| <p>Consider an example where one dynamic provider offers volume (and is accepted) at a price of 0 and the balance is made up from static providers offering at prices of upto 3 £/MWh. If I've understood correctly, the clearing price for dynamic would be 0 and the clearing price for static would be 3 GBP/MWh. Have I understood correctly? If I have understood the design correctly, this doesn't feel to be the right result and the dynamic provider should also get paid 3 £/MWh.</p> | <p>A cleared price auction should incentivise bidding at your marginal price rather than guessing the price that the market may achieve. Therefore, everyone should get paid at least their marginal cost, if not more. The static and dynamic products are separate which is why they have separate clearing prices; the residual auction at the end is a way of automating the trade off in the volume we buy of each product, rather than being a combined market. At different times, the two products will have different supply and demand curves, so their exchange rates will fluctuate accordingly. Implementing a methodology that pays both services the same price would obscure this information from the market. However, we will discuss the merit of using a 'higher of' rule, and keep it under review during the trial period with the platform developer.</p> |
| <p>How does NGENSO or the provider decide whether to enter into the standard FFR auction or into the new auction trial? Providers are looking for the highest price.</p> | <p>We believe that the auction will reduce some of the barriers to entry and increase transparency in our procurement, and therefore will be attractive to providers. In addition, using a cleared price approach to the auction trial, successful providers should be confident that they will always get their marginal cost or higher. However, this is a trial and we will be looking to providers to give their feedback.</p> |

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| <p>Currently, the FFR price is driven / capped by the price paid for MFR. If the new services are different in speed and general nature to MFR, how will the prices be linked? How are participants to be guided in discovering the prices NG are willing to pay?</p> | <p>There will not be a price link between products, but where one service offsets the requirement for another, this will be communicated through the market information. For example, 1MW of LFD in the auction equates to 1MW of Primary + Secondary in Mandatory or FFR.</p> <p>The auction clearing prices will be published each week, so price discovery will be open to all, including those not participating in the trial.</p> |
| Prequalification | |
| <p>Regarding prequalification for participation the Weekly Auction trial, if a unit is already prequalified to provide FFR or FCDM, will it be prequalified for the Auction? Or will it need to undertake new testing?</p> | <p>Assets which have been pre-qualified for FCDM will be pre-qualified for Low Frequency Static, so long as they confirm that the relays can meet the 1s trigger criteria. Assets which have been pre-qualified for dynamic frequency response (Primary, Secondary and High) either for participation in the FFR or mandatory markets will be considered to have pre-qualified for the appropriate dynamic products in the auction. For Low Frequency Dynamic this pre-qualification is subject to the MW capability being revised in line with the standardisation of Primary and Secondary into a single Low Frequency Dynamic product).</p> |
| <p>Do conventional plant that provide PSH response have to amend their MSAs to also provide PH in order to participate in these auctions?</p> | <p>MSA response matrices will not need to be amended if the relevant unit's PSH performance at the relevant load point meets the detailed specification of LFD/HFD, which will be published in due course.</p> |
| <p>Will the application & contract process open ahead of the mid 2019 date discussed?</p> | <p>Yes, we are aiming to have contract terms available by Q1 2019/20.</p> |
| <p>What is the access route for new providers?</p> | <p>New providers will be able to sign up to the contract terms, and once their assets have been prequalified they will be able to participate in the auction. Speak to your account manager or email commercial.operation@nationalgrid.com</p> |
| <p>For windfarms within the MFR service, are there any extra requirements/tests for providing any of the products in the market trial or those are going to be considered prequalified?</p> | <p>We do not anticipate any additional testing for those assets which are already pre-qualified for Mandatory Frequency Response, subject to the relevant unit's PSH performance at the relevant load point meeting the detailed specification of LFD/HFD, which will be published in due course.</p> |
| Timings & processes | |
| <p>Please confirm the new expected approximate date that the Trial will begin</p> | <p>We are aiming to roll the trial out as soon as possible, it is likely to be around June 2019.</p> |

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| What time will the auction take place? as it would be good to happen before the morning DA auction, so that assets can be sold in that auction if not successful in the FR auction | We are flexible regarding the exact timing of the auction, and would welcome feedback on this from providers at commercial.operation@nationalgrid.com |
| Are 'normal' frequency response auctions still happening as per the timetable published already? | We will continue with the existing FFR tender process during the trial, any changes to this will be communicated through the Market Information Report. |
| How frequent are the auctions? | Every week. |
| Can you confirm that the trial will start in June for the next 2 years. | That is our aim. |
| Can a Unit join the Trial after June 2019? for example, will a newly built unit ready to operate in December 2019 will be able to join the Trial? | Yes, subject to prequalification, units can join the trial at any point. |
| It looks like National Grid will procure just Low Dynamic and High Dynamic products that are quite similar to existing FFR product suite in the auction trial. Is my understanding correct? If National Grid will not procure these new frequency response products during the auction trial, is there any timeline when these services will be introduced? | Yes, initially the auction trial will cover standardised versions of existing products. The procurement method(s) and associated timeline for bringing new products to market can be found in the implementation plan published in December 2018. |
| Auction parameters | |
| Will there be any minimum tender values? E.g. 1MW per EFA block? | Yes, the minimum volume bid will be 1MW |
| When you procure for an EFA block, is the requirement across the week the same for every similar EFA block? For instance, will the volume requirement for EFA3 on a Saturday be the same for the volume requirement for EFA3 on Sunday and Monday, etc.? And will the prices for the different blocks be the same or will there be an option for these to be different? | No, the requirement could be different, and we will communicate these to the industry weekly. Consider a separate auction, with a separate volume requirement (buy order) and separate clearing price for each product and each EFA block. |
| If a provider was to bid in a volume for a specific product for EFA1, is the provider stuck to providing that identical volume for EFA1 for all days of the week or will the option be available to make a different bid for EFA block 1 for each day of the week? e.g.- Bid low side static of 2MW on Monday for EFA1, then bid low side static of 10MW on Tuesday for EFA block 1, then No bid for low side static for EFA block 1 for the rest of the week? This would be important for intermittent generation or for DSR assets as demand levels do vary across a week, even during the same EFA blocks. | We want to make things as flexible as possible without unduly increasing complexity, so providers will be able to make individual bids (i.e. different volumes and prices) for each EFA block, for each day of the week. |
| Do linked bids all have to have the same bid price | No, they may have different prices. |

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| <p>What are the parameters for all the services? Also is there any specific testing required?</p> | <p>The parameters will be fully described in the contract terms, however will align closely to existing services such as dynamic PSH and FCDM. We do not anticipate any additional testing for those assets which are already pre-qualified for the above services, this will be clarified in the documentation.</p> |
| <p>Could you clarify the volume that will be procured: you mentioned 50-150MW, is it 50-150MW for each product : 50-150MW of low dynamic, 50-150MW of low static ...?</p> | <p>Our intention is to procure 50-150MW of each product, however this will vary with operational requirements and at certain times may be zero. As far as possible we will take volume from the mandatory market, but in order to guarantee volume to the market it is likely that the volume bought through FFR will be reduced as well. This will be kept under review through the duration of the trial.</p> |
| <p>Does NGENSO envisage the longer term (2 yrs+) contracts will be awarded using the same platform and clearing price algorithm?</p> | <p>Not during the trial period, however it may be that this is included in the full rollout, should the trial be successful.</p> |
| <p>Can the provider choose EFR terms as opposed FFR terms for State of charge management within the delivered service? With it being aimed at faster acting response, EFR is more akin for batteries.</p> | <p>The state of charge management approaches allowed will be detailed in the contract terms and product description, but will not include an EFR-type envelope approach.</p> |
| <p>Question: The 50-150MW that will be used. Is this 50-150MW of low AND 50-150MW of high (together 100-300MW) or a total of 150MW made up of for example 75MW low and 75MW high.</p> | <p>Our intention is to procure 50-150MW of each product, however this will vary with operational requirements and at certain times may be zero.</p> |
| <p>Is NGET open to have aggregation of windfarms (BMUs) participating in the auction? I'm aware there are considerations around metering requirements that need to be met but wondering if we can work with NGENSO to overcome barriers in this aspect along with developing a control system that optimizes the resource and responses from across the portfolio.</p> | <p>Aggregation of BMUs is not in scope of the auction trial, but is something that we are investigating for all services. We are supportive of the approach, subject to the metering and locational aspects being addressed (e.g. consequences of having part of an aggregated portfolio behind a constraint boundary). Please speak to your account manager for the latest developments.</p> |
| <p>In light of the relatively small volumes National Grid is looking to buy, we've considered whether it is possible for us to reduce our frequency response holding volumes at different de-load levels. It appears we are able to do this relatively painlessly. National Grid might want to consider the impact of us doing this. Moreover, it may be worth checking whether the CCGTs have the ability to do this</p> | <p>The ability of plant with response capabilities higher than the maximum bid size to participate in the auction is one that we are keen to address. Through the design phase of the auction we will be engaging with stakeholders to understand how we avoid creating unnecessary barriers to participation.</p> |

Market Information

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| <p>For the demand it is looking to procure (50MW-150MW), is this an average value over the day, the maximum over the peak requirement, the sum of Primary, Secondary and High or not etc? It's probably worth noting that looking ahead at the volumes available in FFR next year, National Grid may struggle to release volume for the trial without foreclosing the FFR market.</p> | <p>Some weeks may have flat requirement profiles, whilst some weeks may have varying requirement profiles, it will depend on the conditions at the time but we will endeavour to provide the information to the industry as soon as we have it. The interaction between the auction volumes and the FFR market requirement is one we are aware of, and we will be communicating further on this through the FFR Market Information Report.</p> |
| <p>Will data resulting from the trial be made available to those not directly participating, so that they can look for opportunities to innovate / bring new technologies / new business models to market?</p> | <p>Yes, we will be publishing all relevant information via the Network Innovation Allowance portal.</p> |
| <p>Will you provide a kind of simulated access to the frequency auctions for those potential providers that do not currently participate in the balancing services?</p> | <p>We will raise this with our partner company, the auction platform developer, who will be providing training and documentation as part of the development phase.</p> |
| <p>Once faster acting products are introduced into the trial, will you still buy 50-150MW of each product, or too early to tell?</p> | <p>It is too early to tell what the size of the buy order will be for these products.</p> |
| <p>Interaction with other services</p> | |
| <p>We really need to understand how this auction will interact with Mandatory Frequency Response (MFR). Is it possible that successful auction bids will be unwound for MFR requirements? Will we keep our auction trial payment? Will we receive a payment for the MFR holding? What happens to any repositioning value in the BM? Will there be a response energy payment for the auction product? Etc.</p> | <p>The auction will be for commercial frequency response, i.e. the same as FFR. Like FFR, the control room will be notified of which units are already providing response and therefore are unlikely to instruct them for mandatory response. There may be a requirement to reposition a unit providing commercial response to deal with operational issues, but in this situation the unit would continue to receive availability payments for response.</p> |
| <p>Thanks Adam, very helpful. It would be useful to understand how these products would interact with existing products and how Project MARI would affect it too? For instance, I think there would be divisible bids which would be similar to curtailable? May be better to keep terminology similar too so that people can understand what's meant. Similarly, if MARI is using social welfare and trial is not, does this introduce an inconsistency which ultimately will need to be addressed?</p> | <p>The auction will be procuring products as close to existing products as possible so the interaction should be 1:1, i.e. a volume requirement of 1MW of Low Dynamic in the auction equates to a volume requirement of 1MW of Primary + Secondary in Mandatory or FFR. It would be sensible to keep terminology consistent, we will raise this with our partner company. MARI will be a reserve service, so is more likely to interact with STOR requirements than frequency response. We are in the process of reviewing our reserve services to identify what they should look like in the future, and how they interact with TERRE and MARI. It is anticipated that this will be ready for communication Q1 next year, as we also are required to justify to Ofgem any continued use of Specific Products. On the social welfare approach, we do not believe the benefits outweigh the drawbacks, however we will keep this under review for any future full rollout of auctions.</p> |

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| <p>How curtailments are going to be managed in interaction with the Auction Trial? For windfarms that are actively exposed to BOAs, how FR volumes could be guaranteed knowing that we can't foresee curtailments at the time of bidding into the auction.</p> | <p>Any BM generator that is successful in the auction will be flagged to the control room as being held on commercial frequency response. This does not mean that the control room cannot BOA the unit, but they are less likely to. If a unit providing commercial frequency response is subject to a BOA, they are held whole for the impact on their frequency response provision.</p> |
| <p>Products</p> | |
| <p>Why has NGET decided to structure the Fast Acting Response as Static while Dynamic Response is a slower acting service?</p> | <p>The auction will be trialling a different way of procurement, and therefore we wanted to keep the products being procured as close as possible to existing products. This will help the market determine the appropriate price and allow us to more easily compare the trial results to the status quo. Ultimately, we hope to use auctions to procure more balancing services, but this will be determined as part of the rollout strategy for the new product suite.</p> |
| <p>From the webinar, we can see products design for either dynamic and static responses. As per below, requirements appear to be binary step responses (all or nothing). Can you clarify whether the actual expected responses from National Grid for these products are proportional to the frequency deviation as in MFR service (Frequency sensitive mode characteristics) or just steps towards the full volume offered?</p> | <p>The dynamic products will be proportional to system frequency, as per existing definitions of PSH.</p> |
| <p>Will the new faster acting response products (dynamic containment, dynamic balancing and dynamic regulation), once introduced within the auction trial, replace the 2 Dynamic Products?</p> | <p>Ultimately the new frequency response product suite will replace the PSH products currently procured through the FFR tender, more information can be found in the implementation plan published in December 2018.</p> |