National Grid ESO
Faraday House, Gallows Hill
Warwick, CV34 6DA

Please provide your assessment of each criterion in the below pro-forma:

Product Name	Static Firm Frequency Response (Static FFR)
Product Description	This product requires providers to activate automatically on a frequency relay following a frequency deviation. The trigger frequency for the relay is set at 49.7Hz. The provider must reach contracted output within 30 seconds of the frequency excursion and sustain delivery at this output for a further 29 minutes 30 seconds. Payments are made to successfully contracted providers for their availability only (£/MW/hour), no further payments are made for utilisation of the service.
ESO Business Lead	Neil Morgans
RAPID Complete (Please provide hyperlink)	n/a
RACI Complete (Please provide hyperlink)	n/a
Planned Go-Live Date	To Be Confirmed*

* subject to ESO prioritisation and system/process readiness

Criteria	Assessment
Homogeneity	*The Static FFR product is a homogeneous product.* Each MW offered of this service is equally as good as another MW from a different asset/provider. This is due to the standardised service parameters such as: • Speed of delivery All providers are required to reach full output within 30 seconds of a frequency trigger excursion. • Duration of Service All providers are required to sustain their delivery until 30 minutes following the frequency trigger excursion. • Dispatch All providers are dispatched automatically via frequency relay. • Location Procurement will be at a national level. • Metering All providers will be required to submit performance metering data at 1Hz granularity.
Full Information	*Full information is available to market participants in respect of this Static FFR product.* ESO's daily requirement (in MW) will be published at day-ahead stage ahead of the auction. The full auction results, which includes both accepted and rejected bids together with their volume and price, will be shared on the ESO Data Portal after assessment is completed. Longer term views on ESO requirements will be published in our monthly Frequency Response Market Information Report which is available on the ESO Data Portal.
Competition	*The existing Static FFR market is moderately competitive over EFAs 1-4 and not competitive over EFAs 5 and 6. We believe that moving the market to daily procurement will increase liquidity and that a Pay-as-Clear payment mechanism is best placed to signal value over specific EFA periods of undersupply to capable market participants. ESO is well placed to protect consumers from any undue price manipulation with respects to this service in these uncompetitive periods as there are multiple alternative actions that we can take to meet our requirement through different markets (e.g., DC market) and in real time (BM actions). This means that we will never be a distressed buyer for this service.* To assess the level of competition to be expected in a daily market for Static FFR we considered outcomes from the past 12 Tender Rounds of the FFR monthly tender for delivery from September '21 – September '22. This data was drawn from publicly available records held on the ESO Data Portal.

Firstly, we calculated the level of supply provided to the market as compared to ESO's requirement. Since TR144 (for delivery in December '21) the ESO requirement has been fixed at 250MW for each EFA block.

The following chart shows the difference between supplied volume and ESO requirement on working days where positive values show supplied volume was greater than ESO requirement and negative values show supplied volume was lower than ESO requirement.

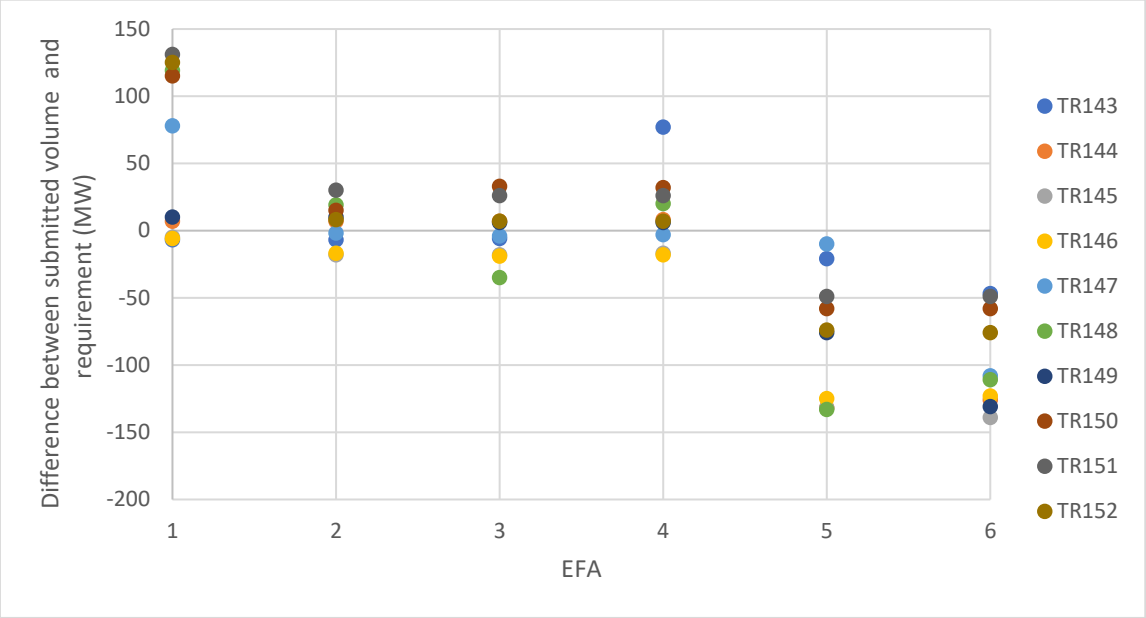

Chart 1: Comparing supplied volume into the Static FFR market with ESO's published requirement.

This shows that supplied volume has been improving over recent tender rounds (brown and grey dots) in EFA 1- 4 although EFAs 5 and 6 remain undersupplied. This undersupply can be attributed to market participants preferring to reserve their assets for short term opportunities that present themselves over these peak demand periods. We believe daily procurement will help to increase participation where this market is an attractive option to providers as market participants will be able to adjust their bidding strategy daily depending on the value of their alternative options.

Additionally, a daily auction will allow a day ahead alternative cost/pricing methodology to be implemented which should better reflect the short-term opportunity that assets have in other markets and therefore further encourage participation.

Secondly, we calculated the HHI for each EFA block across the past 12 tender rounds.

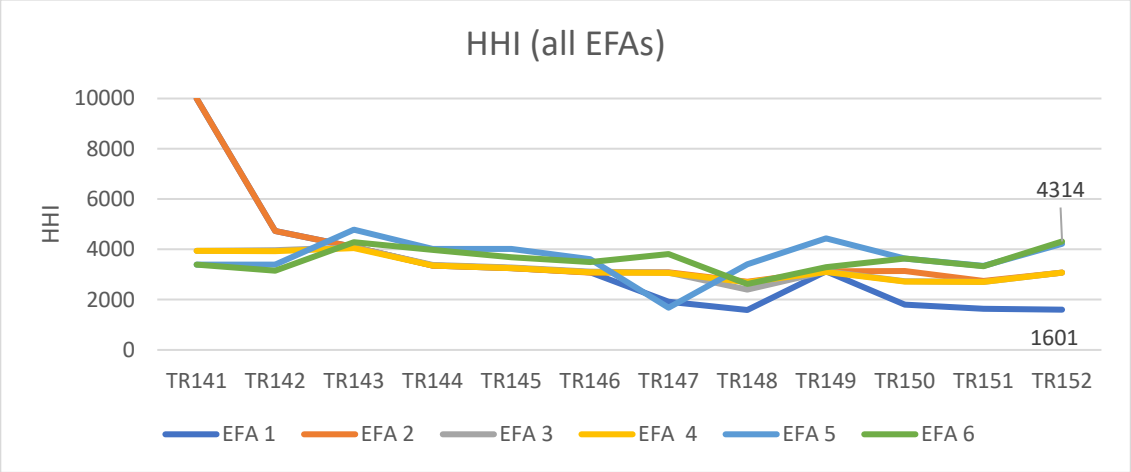

Chart 2: The Herfindahl Hirschman Index (HHI) of market concentration

The HHI has been falling in recent Tender Rounds but still signals a moderately concentrated market for EFAs 5 and 6 as most of the volume is submitted by only a few suppliers.

We believe that a Pay-as-Clear payment mechanism will provide the best market signal to potential market participants and increase liquidity and diversity of market share within these uncompetitive periods. We have seen evidence of increasing liquidity in the DC markets to support this statement.

Finally, we have considered the tendency of market participants to employ price discovery to determine ESO willingness to pay and respond with bids accordingly.

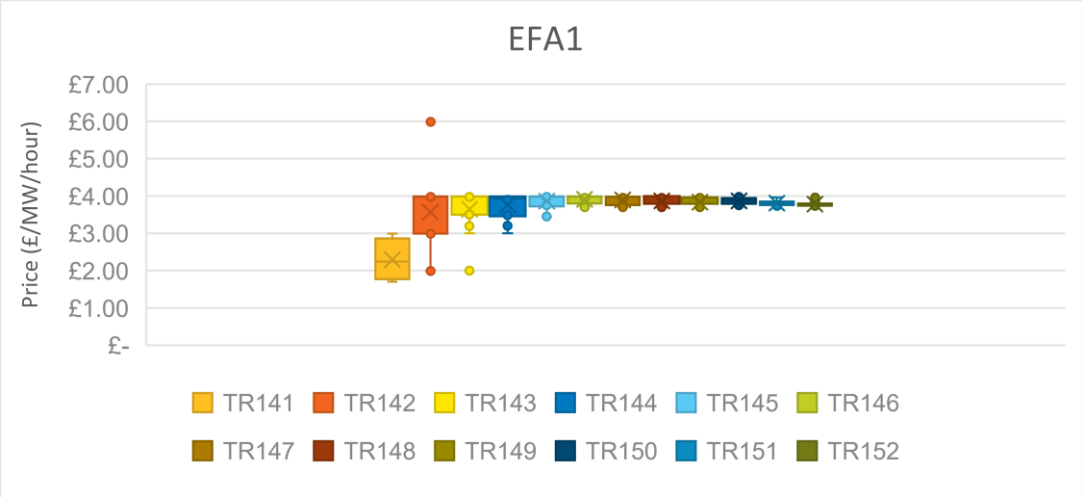

Chart 3: Price dispersion of bids into EFA1 a well-supplied EFA block

This chart shows the price dispersion of bids into Static FFR monthly tenders for EFA 1 on working days. This is our best supplied EFA block. These bids are for availability only, no further payments are made should the service be utilised.

Market participants have tried different bidding strategies and discovered that our price cap for this EFA block is usually £4/MW/hour. Consequently, bids are tightly clustered at this value. This is partly due to the Pay-as-Bid payment mechanism which highly rewards the marginal bidder with a higher unit payment than others.

	We believe that in a Pay-as-Clear market we may have seen market participants willing to offer bids more reflective of their marginal cost as they know they will receive the same price as all other contracted units if that price is competitive and economic. This could lead to a new lower equilibrium clearing price in this block being found more quickly. In an undersupplied EFA block like EFA 5 we can see providers also clustering at the cap price. Under a Pay-as-Clear regime we would expect this to continue to happen and the market would clear at the cap price. This would lead to a very similar outcome in terms of total cost to today's Pay-as-Bid market.

Conclusion	**<u>Outcome of criteria assessment</u>** We believe that the three criteria have been sufficiently met to recommend a Pay-as-Clear payment mechanism for the availability payment for the Static FFR product. As mentioned above, no further payments are made for utilisation of this product and therefore the utilisation payment can be considered to be £0/MWh. This payment mechanism will contribute to the well-functioning of a competitive market and provide clear signals to market participants ultimately delivering consumer value compared to the counterfactual. **<u>Implementation costs Cost Benefit Analysis (CBA)</u>** To implement the new procurement approach for Static FFR will require the development of a new assessment process including a new assessment tool. The need for a new tool and process is driven by the movement to daily procurement. There is no additional cost identified for a Pay-as-Clear payment mechanism through a process mapping and implementation assessment. This means that the additional IT system cost of Pay-as-Clear compared to Pay-as-Bid is expected to be zero. This finding therefore supports the proposal to implement a Pay-as-Clear payment mechanism for the assessment process to determine availability payments. As previously stated, there is no further payment upon utilisation of Static FFR and therefore no assessment process needs to be developed for this element of the product. **<u>Alignment with other response services and futureproofing</u>** We intend to continue to procure Static FFR for the foreseeable future. We see it as a cost-efficient option to support post fault frequency recovery to meet our frequency obligations. We may look to adjust some of the service parameters in the future to ensure it aligns well with our new suite of response service DC,DM and DR. Therefore, we feel that a Pay-as-Clear payment mechanism best reflects our intention to procure this product on an enduring basis bringing it up to date and in line with our other enduring response services which are also procured Pay-as-Clear. **<u>Opportunities to optimise and develop</u>**

	Moving to daily procurement and Pay-as-Clear will also enable us to test whether our assumption that this product is a cost-effective option to support DC in managing post fault frequency recovery holds. This will provide invaluable information for our continuing development and optimisation of our response product suite.

If Pay as Cleared is not the outcome, further detail is required.

Overall Assessment	n/a
Description of measure proposed to minimise the use of the Specific product subject to economic efficiency	n/a
A demonstration that the Specific balancing product does not create significant inefficiencies and distortions in the balancing market inside the scheduling area	n/a
A demonstration that the Specific balancing product do not create significant inefficiencies and distortions in the balancing market outside the scheduling area	n/a
Where applicable, the rules and information for the process for converting the balancing energy bids from Specific balancing product into balancing energy bids from standard balancing products. EU Regulation 2019/943	n/a

Date of scheduled review	n/a

Product Type	Legacy or new?	In Scope of regulation? (EU Regulation 2019/943, A6(4)	In scope of PP?	Current or Planned Payment Mechanism (Availability) Not Covered by Methodology	Current or Planned Payment Mechanism (Utilisation) Covered by methodology	Subject to reassessment? (Utilisation only)
BM BOA	Legacy	Yes	No - legacy	N/A	Pay Bid	No
STOR	Legacy	Yes	No - legacy	Pay as Clear	Pay as Bid	No
Fast Reserve	Legacy	Yes	No - legacy	Pay as Bid	Pay as Bid	No
Negative Slow Reserve (NSR)	New	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Positive Slow Reserve (PSR)	New	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Negative Quick Reserve (NQR)	New	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Positive Quick Reserve (PQR)	New	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Nuclear Deload	Legacy	Yes - Instructed by BM	No – Legacy	Pay as Bid	Pay as Bid	No
Super SEL	N/A	Yes - Instructed by BM	No	Pay as Bid	Pay as Bid	No
Dynamic Containment	Legacy	Yes	No - Legacy	Pay as Clear (Availability)	No utilisation payment – therefore meets criteria of Pay as Clear	No
Dynamic Moderation	Legacy	Yes	No - Legacy	Pay as Clear (Availability)	No utilisation payment – therefore meets criteria of Pay as Clear	No
Dynamic Regulation	Legacy	Yes	No - Legacy	Pay as Clear (Availability)	No utilisation payment – therefore meets criteria of Pay as Clear	No
Firm Frequency Response (Primary and High)	Legacy	No	No - Legacy	Pay as Bid	Index Linked Payment	No
Mandatory Frequency Response (Primary and High)	Legacy	No	No - FRR & legacy	Pay as Bid	Index Linked Payment	No
Firm Frequency Response (Secondary)	Legacy	Yes	No - FRR & legacy	Pay as Bid	Index Linked Payment	No
Mandatory Frequency Response (Secondary)	Legacy	Yes	No – FRR & Legacy	Pay as Bid	Index Linked Payment	No

Enhanced Frequency Reserve	Legacy	No	No - Legacy	N/A	N/A	No
Pathfinder (Voltage, Stability, Constraint Management)	N/A	No	No	N/A	N/A	N/A
Auction Trial	Legacy	No - no longer procuring	No	N/A	N/A	No
SpinGen	Legacy	No - no longer procuring	No	N/A	N/A	No
Fast Start/BM Start Up	Legacy	No - no longer procuring	No	N/A	N/A	No
Blackstart	N/A	No - - (Non-Frequency Ancillary Service)	No	N/A	N/A	N/A
Inertia Services	N/A	No - Non-Frequency Ancillary Service	No	N/A	N/A	N/A
SO to SO trades	N/A	No - Pre-Gate Closure, therefore not balancing	No	N/A	N/A	N/A
SO to SO Misc	N/A	No - Pre-Gate Closure, therefore not balancing	No	N/A	N/A	N/A
Capacity Market	N/A	No – Capacity Mechanism	No	N/A	N/A	N/A