System Needs and Product Strategy: Webinars July 2017

Questions and Answers

General Questions

How are you ensuring that all interested parties, existing and new, with different technologies/capabilities are aware of these proposed changes, particularly industrial & commercial consumers who can provide services?

We have been working closely with our colleagues working on the Power Responsive campaign and attending multiple industry events to ensure that a wider audience is aware of these changes.

Definitions of the different existing services seem to be spread around a load of different web pages and documents... or are they neatly documented in one place that we've not stumbled across yet?

Service guides can be found on the following webpage these give a high level overview of each service: http://www2.nationalgrid.com/uk/services/balancing-services/service-guides/

We appreciate that the structure and information on our website could be improved and there is currently a project underway to revamp our website.

What potential do you see for battery storage in the future?

Our approach to procurement is technology neutral. We aim to make our markets open to all relevant technologies to deliver the most economic solution for customers. Battery storage is likely to be an increasing part of the energy industry so developing markets which signal our system needs and facilitate the participation of all technology types will encompass battery storage.

Is it (or can it) be possible to access information such as the average rate of utilisation of a particular service? For example: a site providing 20 MW of FFR contracted for 24/7 availability - how many times will this site be required to provide primary/secondary/high freq response in a week on average?

We are looking at how we can provide more consistent information across all balancing services, including mandatory frequency response. On your particular question (assuming that the service offered is dynamic response as opposed to static), the assets will be required to provide the service all the time, as dynamic response is a continuous change in output as a result of changes in system frequency.

I've read about the potential of interconnectors in providing some of the services that you mention in the SNAPS document. Given National Grid's ownership of interconnectors, do you see a conflict of interests here?

We intend to create products and markets that all parties can compete in fairly, regardless of technology type. Whilst some interconnectors are owned by National Grid Group, these are separate companies and will be treated as such in any service procurement.

The Consumer power scenario has been chosen as the base scenario. Can you explain why and why are the system needs only being evaluated against one scenario?

In the time horizon used in the document there is little difference between the FES scenarios, and therefore the choice of scenario has no material effect.

Inertia and ROCOF

You've just shown how inertia drops critically but followed up by saying that you don't currently want to create an inertia product. Why not?

Inertia is fundamentally linked to other system needs. We therefore do not presently believe that the creation of a standalone market for inertia is the right approach; however, we are exploring options to value inertia within the design of other balancing services markets.

Inertia provides continuous opposition to frequency deviations, without a measurement delay. Inertia reduces the amount of frequency response that is required from conventional frequency response services that measure and respond. Inertial sources of reactive power similarly provide a continuous response to changes in voltage without a measurement delay.

We believe that acknowledging these valuable characteristics of inertia in the design of other services, rather than creating a bespoke inertia product, will create more transparent, open and liquid markets.

The industry is presently undergoing a change programme to desensitise distributed generator RoCoF relays. This will allow the system to be operated at significantly lower levels of inertia. We therefore do not believe in creating a market for inertia that is likely to be disrupted or subject to early foreclosure as the change programme progresses.

If you got rid of ROCOF-based loss of mains relays, what would then define the system ROCOF limit, and what would replace the protection on DG?

RoCoF relays are presently undergoing a desensitisation programme as opposed to removal. There are alternative protection devices (notably 'vector shift' protection) that offer similar functionality, however, they must also be set appropriately for low inertia conditions. A joint Distribution Code and Grid Code working group is assessing this issue. More information is available here: http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Grid-code/Modifications/GC0035-GC0079/

Does the inertia chart on page 9 of the System Needs and Product Strategy document use the current 0.125Hz/s RoCoF limit?

Yes, this chart uses the existing limit. The need to curtail large losses will significantly decrease once the RoCoF limit is change is fully implemented.

I was also expecting to see requirements for system fault current

Fault current was not explicitly considered as part of System Needs and Product Strategy as we do not presently anticipate a widespread requirement within the next 5 years.

Reactive

Can you explain the reactive market trial in the SE more please? What is the scope and set up?

More information on this project can be found here: **http://nationalgridconnecting.com/power-potential-ready-make-name/**

There's nothing wrong with scheduling plant to provide active and reactive power surely? You just need to be more transparent about the value/amount of RP delivered to the market?

There is nothing wrong, as long as the requirement and the assessment is clear and transparent to the market.

Black Start

What minimum size of MW can be considered in relation to Black Start?

There is no specific MW minimum for the provision of Black Start services however a provider must have the relevant technical capability to be able to deliver an effective service. A potential provider needs to have a sufficient reactive range to energise to key substations/other generators and the capability to manage the instantaneous loading of demand blocks (~35-50MW) as sections of the DNO are switched in during the restoration process.

More information on the technical requirements can be found on our website:

http://www2.nationalgrid.com/UK/Services/Balancing-services/System-security/Black-start/

Why is development of an 'improved' black start service planned to take so long when there is already a gap, or some contracts are already costing so much more than what we've been used to?

There is already work underway to develop new Black Start services and we are working with potential providers to consider how are restoration strategy can utilise a more diverse range of service providers. We will be publishing our existing restoration strategy and procurement methodology later in the summer to increase transparency in this area.

BEIS has set up an industry wide black start task force. How does this consultation and that task force link together?

National Grid is closely involved in the black start task group and the development of any future black start service will be informed by the outputs of this group.

Product Strategy

All short term contracts favour incumbents and old, existing plant. Longer term contracts permit (but don't favour) new plant. I propose that 1/3 of contracts be 15+ years ONLY for new plant; 1/3 for 7-8 years ONLY if new plant or substantial investment; 1/3 for 2 years for any plant. This minimises system costs and finances investment without adding to total system cost. Greenness can be incentivised by contract length (not subsidy): 100% clean plants take the advertised contract length, coal 50% and everything else linearly between the two depending on greenness. New technologies can be incentivised by conditional letters of intent, again without subsidy.

We will be looking to the consultation responses to give us an insight into the most appropriate contract length. We will also be using the metrics in the responses to understand whether any aspect of product design is favoured more by one segment of the market than another, e.g. do all incumbents favour short term contracts or is there a mix of views across market segments? On the point around renewable incentives, the SO has an obligation to ensure that markets are technologically neutral and provide a level playing field for all technology types. It is our view that policy aims such as a reduction in carbon-intensive generation are best met through targeted subsidies rather than through designing unequal market arrangements.

Will it possible/easier in the future to use a single asset for multiple services and therefore revenue streams? Eg ESS for FFR and capacity etc

Our intention is to simplify and streamline our products, and this will facilitate accessing multiple revenue streams from those assets which are capable of it.

Can you please give an example how a "single product, multiple variables" might work? Is there already a product in this regard that you are procuring today?

There is not a current product that is fully procured this way. An example would be an asset tendering in to the 'frequency response product' and providing their speed, duration, recovery period, MW, price and droop curve. For each of these variables the SO would have published a value relationship such that the party would have an appreciation of where the most value can be found. Each asset would have a slightly different tender, and an optimisation algorithm would select the most economic based on the SO value functions for each variable.

What is your view on the value of these markets in future, we have seen various estimates in the public domain from NG employees ranging from flat costs to 100% increase. Thanks

We can't forecast the value that these markets may have, all we can say is that we will increase transparency such that the industry can be clear about how that value is arrived at. Ultimately, it is the competitiveness of the markets which will drive the value for parties.

What concrete steps can we expect of the rationalisation phase first (what products will disappear and when? what about ongoing contracts?) and from standardisation second (only one frequency product already in October 2017)?

Rationalisation is currently undergoing review and sign off, after which we will communicate with affected parties and update the industry. This is planned for end of July. Standardisation analysis is ongoing, and any proposed changes will be undertaken through the OCP/DCP process for each market. Currently that is estimated as commencing in September/October.

can you say a little more about how the implementation of European Network Codes and the particular products being trialled/introduced affect your options for SNaPS?

We are working closely with our colleagues in ENTSO-e to ensure that the developments in balancing services are compatible with our current and future services. In particular, we are looking at how we can develop a combined Reserve product that include the proposed pan-European balancing products mFRR and RR.

New FR product from March 18. Can we expect a new tender straight after i.e. with period of pre-qual for new builds and connections 18 months thereafter like EFR?

We will ensure that any changes to the products are communicated with sufficient time for parties to pre-qualify. The specifics of any long term procurement will be developed with the industry between now and the procurement itself, which may or may not be in April.

Can you set out what you envisage your new Frequency Response Market (in March 2018) will look like? What will be the key differences versus today's arrangements?

The look of the market will depend to a large extent on what the consultation feedback is, however at least initially it will be in the form of a monthly tender in the same format as FFR.

Which of the current products lend themselves best to 'standardisation model' in the view of the SO? Can you talk through an example of status quo and new standardised product.

There is potential for all the service areas to be procured through standardised products, although arguably Black Start would need more development than other services. There are examples of the two approaches in the consultation.

What potential do you see for battery storage to participate in future products?

Battery storage will be an important part of the energy mix as it has a considerable degree of inbuilt flexibility.

Regarding Frequency Response, you say that you will value fast response to a higher extent. Keeping in mind that for EFR, energy storage secured 100% of contracts, which role do you expect energy storage to play in the new product from today's perspective? I.e., how much of a focus do you expect to put on response time in the sub-second timescale?

Battery storage will be an important part of the energy mix as it has a considerable degree of inbuilt flexibility. We cannot procure all of our frequency response requirement in very fast timescales as this creates other operability issues, therefore there will still be a need for slower-acting response products such as Primary, Secondary and High.

How can participants sign-up for the early 2018 trials on different procurement approaches?

We will communicate more details on the auction trials, along with the structure and route for participation, in the autumn.

Is TRIADS being replaced with another service?

Triad avoidance is not a balancing service, it is a market signal that parties can choose to respond to. The review of Triad is being conducted by Ofgem through their targeted charging review (https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-consultation).

When does NG expect to release the new guidance for CM? When do you expect there to be a settled position on derating for battery projects? Will your impact your product strategy?

The EMR Delivery Body that runs the CM is a ring-fenced entity within the SO, and therefore we have no additional information beyond what has been made public. We are aware of the review of derating factor for storage sites, but this is not a consideration for balancing services.

Why do you think standardisation approach will facilitate more secondary trading in comparison with single approach?

Standardisation creates products which are more easily traded between different parties than diversification by fixing more of the parameters. However we welcome views on all aspects of secondary trading.

will there be a minimum asset size for frequency balancing services (currently 1MW)? also a longer period to go-live from bidding date (currently 6months)

At present, we believe 1MW is an appropriate minimum level. As part of the development of any long term product, we would look to see how best to facilitate new build assets and this includes the allowable development period.

In frequency response, are you considering shorter tendering time frames, as has happened in Germany, to enable more renewables participation with better forecasts?

Yes, but this work will follow on from the improvement stage of Product Simplification. The auction trials discussed would be the first step to investigate this sort of approach.

In your answer you doubted that short term contracts favour existing plants. If there aren't any contracts of sufficient length to be "bankable" for the investment community, new plant will not be built and this is sufficient to ensure that existing plants win most or all contracts. This is why there's been negligible large scale investment outside any instruments (ROCs, CfDs, OFTOs etc.) that give at least 15 year contracts.

Thank you for your views, we will take that on board as part of the consultation.

Would there be a MW cap for particpating in the new FR services. E.g. 50MW as per the EFR tender?

That is yet to be determined, but it is unlikely as the EFR cap was intended to create competition in a new service area and to avoid sterilisation of a nascent market.

Have you given thought to how new/revised Balancing Services might flow into the Cashout Price calculation?

Balancing services providers should not be disadvantaged through the provision of balancing services which support the security and quality of the system. The details of the ABSVD methodology and spill payments are linked to BM access and are being reviewed via a number of routes (P354, P355, etc.). We will ensure that we are involved in these discussions as we develop the product suite.

Will you be continuing to hold regular FFR auctions while running this process or will these start coming to an end soon?

We will continue to run our existing procurement activities throughout the process.

Should the ancillary services market be the one that provides signals for new investment? Don't you think that responsability should fall on the Capacity Market and Wholesale Market?

That is one of the questions that we ask in the document, and we would welcome views.

How suppliers can sign-up for the trials?

We will communicate more details on the auction trials, along with the structure and route for participation, in the autumn.

Don't you think that liquid pay as clear short term markets would be enough to provide a market signal for new investment?

We welcome views from the community as to whether this is the case or not.

Don't you think the timelines propose for delivering new products and rearrange existing ones is too tight and ambitious for the purpose you are pursuing?

They are intentionally ambitious. Our approach to development of balancing services is 'design by doing'. We do not want to spend several years coming up with the perfect approach, only to find that the industry has moved on and the solution is no longer fit for purpose. The timelines indicate

when the industry should expect to see the first major development, however we will review and iterate these products further beyond these timelines.

Apart from the voltage control project with UKPN, what concrete next steps are you taking to open up access for distributed resources to provide services and avoid potential conflicts with DNO operational decisions?

We are working with DNOs as part of the ENA's Open Networks project to ensure that we coordinate better on all fronts. We will be publishing a Commercial Principles paper in the next few weeks in conjunction with the FRSO Whole Systems workstream which covers distributed resources in more detail.

Are you planning on encouraging more embedded generators to join the BM. Better visibility, and control.

We are looking to support the work that is ongoing to enable wider access to the BM for all parties.

The report shows that need for many of the balancing actions are expecting to increase. Is it correct to assume that this means that BSUoS charges are going to go up? When will energy supplier be able to have this information, and will the fact that you have analysed need going forward for the next 5 years, will the MBSS report develop to include forecasts past the next two years at a time?

BSUoS is made up of a number of elements, of which balancing actions are one and balancing services are another. We cannot say whether the charges will go up or down, as forecasting BSUoS is challenging, but we will look to publish as much information as we can.

Also, embedded generation does not currently attract BSUoS charges. If this is contributing to higher volatility in the system, is there a plan to change this any time soon?

Ofgem have recently sought views from the industry on the treatment of embedded generators (connected to distribution) in their Targeted Charging Review Consultation. This looked at a number of charging arrangements, including BSUoS charging for demand and generation. The consultation document can be found here: https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-consultation

Do you see any key areas of interaction or interference with the Ofgem CfE?

We support the Ofgem/BEIS Call for Evidence on Flexibility, and the work we are doing through the Flexibility, Whole System and Level Playing Field FRSO workstreams is intended to address a number of the issues that were discussed in that document.

In this work, how is NGET taking account of the European requirements to use standard European products for balancing and to minimise the use of national (GB) products for balancing? I realise that this is subject to Brexit (unknown!) and that many ancillary services won't count as balancing, but certainly frequency restoration and replacement reserve is included in these European requirements and some required on quite short timescales (as early as 2019 perhaps).

We are working closely with our European colleagues through ENTSO-e, and our intention is to develop our products to mesh seamlessly with the new standard products (mFRR and RR).

Do you expect the location of projects to impact on their ability to participate in the new products, or will it come into your algorithm to calculate the contract value awarded?

Where location is a factor, we will communicate that clearly in our requirements and valuation.

Q7 is about secondary trading? How would it work in principle? A potential ancillary service provider could avoid penalties by buying in the secondary market in case it could not provide the service it is contracted for. e,g a short duration storage asset running out of energy, could buy FFR in the secondary market?

Yes, as long as the parties on either side of the trade both had been prequalified for the service they should be allowed to trade (assuming the product design facilitates it).

Do you see SNAPs interacting with P344 (Project TERRE) and P355 (introducing BM-Lite)?

The European standard products will be incorporated in our work on the reserve market. Wider access to the BM is something that we are keen to see, but we want to ensure that it is addressed in a holistic way that covers all the issues. We will discuss this further in the upcoming Commercial Principles paper.

Can you explain the linkage to pan-European products for reserve and frequency response more please. Is this driven by regulation or NGC preference?

We are an active member of the common energy market, and support the development of pan-European balancing services as being in the best interests of consumers in GB. As part of the work undertaken by ENTSO-e on the Electricity Balancing Guidelines (EBGL), two standard products have been proposed covering the period 15minutes to 30minutes, and 30+ minutes. We consider these products to be analogous to slower STOR providers or BM actions, and will be looking to integrate them with the new reserve products. The EBGL also contain general rules for non-standard balancing services, and we will look to align with these for our frequency response products as far as possible.

When work on it is completed, you plan to publish the full value functions of the optimization mechanism for the new frequency response product, correct?

Yes, transparency is key to making such a market work.