

Power Responsive – March 2017 Working Groups

Storage Working Group & DSR Provider Group

Summary

- *The Storage Working Group took place on Monday 13th March 2017 – Grange St.Paul's, London.*
- *The DSR Provider Group took place on Tuesday 21st March 2017 at the Amba Hotel Charing Cross, London.*

This document provides a combined summary of the two Power Responsive Working Groups in March 2017 to energy industry professionals participating, investing, supplying, or interested in electricity storage markets and demand side response (DSR).

Feedback collected from participants regarding market barriers and proposed solutions have been included in the Annex and will be used to help shape future Working Groups and the Power Responsive programme of activity.

Overview

Storage Working Group

Attendees: 150 delegates attended the workshop.

Government & Regulator Speakers

- Deirdre Bell – Senior Manager, Policy Analysis, Energy Systems Integration, Ofgem
 - Alex Berland – Policy Advisor, Smart Energy Team, BEIS
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DSR Provider Group

Attendees: 60 delegates attended the workshop.

Government & Regulator Speakers

- Shai Hassid – Energy Systems Integration, Ofgem
 - John Christopher – Smart Meters & Systems, BEIS
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National Grid Speakers (at both Working Group Sessions)

Chair

- Lee Priestley - Head of Business Development, System Operator, National Grid

Speakers

- Asheya Patten – Flexibility Workstream Lead, Future of SO , System Operator, National Grid
- Jon Wisdom – Capacity Development Manager, Market Change – Electricity
- Emily Hirst - Capacity Market Customer Lead, National Grid

Breakout Session Leads

System Needs and Product Strategy

- Adam Sims - Ancillary Services Flexibility Expert, System Operator, National Grid

Whole System Development to enable the Connection and Use of DER

- John West – Policy & Design Manager, National Grid
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Introduction

Delegates were welcomed to the Power Responsive Working Groups by Lee Priestley, Chair. It was acknowledged that once again to see so many delegates attend the working group (Storage Working Group in particular) was a strong indication of interest in demand side flexibility. Whilst identified that numbers can lead to a challenge in achieving the interactivity of a 'working group', delegates were reminded that the group was to remain open to all, and delegates encouraged to suggest more suitable formats for the group given the level of interest.

The day's agenda was summarized and delegates encouraged to ask questions wherever possible.

Session 1 – Government & Regulatory Update

Storage Working Group – 13th March 2017

Alex Berland (BEIS) & Deirdre Bell (Ofgem) – Energy Storage: Policy and Regulatory Overview

Whilst acknowledging that a smart energy system will assist in facing the new challenges ahead, benefits in the region of £17- 40 billion up to 2050 included deference or avoided network investments, a reduction in required back-up capacity, a reduction on operational costs (such as balancing), and maximizing the use low carbon capacity.

EFR (Enhanced Frequency Response) had provided an opportunity for Storage and there is potential to go further through multiservice contracts. The emergence of new business models, and the increasingly lower cost of Li-ion battery technology (14% p.a. from 2007 – 2014) is also encouraging.

The recent Call for Evidence on 'A Smart, Flexible Energy System' has seen a number of storage related responses (approximately 150 of the 200 responses received). The joint BEIS/Ofgem Smart Systems Plan is to be published in Spring 2017 whereby 3 separate work packages are intended to be taken forward.

From a storage perspective, addressing and removing barriers include; Regulatory Clarity, Final Consumption Levies, Planning, Ownership, Connections, and Network Charging. Additional barriers including value stacking across markets were identified, a question of 'are there missing markets for flexibility?' was posed, as is a need for a definition of storage.

Catalysing innovation was the proposed next step with commercial and residential trials and flexibility platforms.

DSR Provider Group – 21st March 2017

John Christopher (BEIS) & Shai Hassid (Ofgem) – Demand Side Response: Policy and Regulatory Overview

Similarly to the Storage Working Group the Call for Evidence was discussed in terms of responses, themes, and the proposed work packages to emerge from the joint BEIS/Ofgem Smart Systems Plan to be published in Spring 2017.

Insight into the analysis of the Aggregators section highlighted that there had been 90 respondents stakeholders across the industry, most notably Aggregators themselves, and Network/System/Market Operators, Energy related NGO's, and Software/Tech companies.

Common themes included:

- 30 respondents believe that Aggregators should have access to the BM (Balancing Mechanism), with 12 respondents believing that they should compensate retailers.
- Roughly 15 respondents believe that balancing services suffer from a lack of transparency and complexity.
- Approximately 15 respondents believe that balancing services are no longer fit for purpose.
- Several respondents stated a case for flexible market procurement mechanisms that

reward providers according to their capability.

Consumer protection was a further area of strong interest with 40 parties responding. Whilst there had been no compelling evidence of harm, a preference has been shown for an industry led code of practice. Approximately 25% support the ADE's voluntary code of conduct, whilst others favoured mandatory industry codes or a licensing approach.

Further issues raised included, the coordinated DSO-SO procurement of balancing services, and barriers in the Capacity Market.

Session 1 (cont'd) – Industry Update

Asheya Patten (National Grid) – Future Arrangements for the System Operator

The tools traditionally used by the System Operator (SO) will not deliver customer value in the future and the SO therefore requires transformation to deliver a decentralised, decarbonised electricity system.

As part of this transformation, Ofgem have consulted on proposals for a new SO model, including:

- Enhanced Roles for the SO.
- Greater SO independence – SO to become a separate legal company, wholly owned by National Grid.

As a result of stakeholders expressing desire for the SO to facilitate change, The Future Role of the System Operator programme (FRSO) within National Grid have identified 4 workstreams of focus; Flexibility, Network Competition, Whole System, and Level Playing Field. However, it will require all parties to support such changes.

The Flexibility work programme will focus on 3 core areas; Information Provision, Product Simplification, Optimising the Use of DERs. The aspiration is to achieve functioning markets that deliver equal access to all flexibility providers by working with all stakeholder groups within the industry.

Despite SO legal separation not scheduled until April 2019, the SO intend to be working as a separated entity by the Autumn of 2018.

Jon Wisdom (National Grid) – Charging Review

The drivers for Charging changes were highlighted as:

- Market & regulatory developments
- Increased distributed generation
- New smart technologies and half hourly metering
- Facilitating flexibility
- Improving charge forecasting and removing volatility
- Ensuring fair recovery of revenue

Planned timescales highlight that work is currently taking place by Ofgem to address the immediate distortions such as CMP264/265 – due to conclude in Summer 2017. In conclusion a 2-3 year Targeted Charging Review led by Ofgem will commence followed by a Future Strategic Assessment. A Stakeholder Forum will also be established in Summer 2017.

The complexities of interactions involved in the Targeted Charging Review were acknowledged. The potential scope of the Targeted Charging Review largely focuses on Embedded Benefits (including; behind the meter, treatment of transmission investment sunk costs, review of embedded benefits, harmonization of T&D arrangements and UoS charging arrangements for generation, treatment of storage, and how BSUoS is charged), Demand TNUoS (including Triads), and Ofgem's position on CMP264/265.

Emily Hirst (National Grid) – Capacity Market

National Grid's EMR (Electricity Market Reform) team were introduced as the Capacity Market Delivery Body, providing; Market Analysis, Stakeholder Engagement, EMR Systems, and Capacity Market Administration, including pre and post auction activities.

Outcomes from the 2016/17 Capacity Market auction included:

- T-4 2020/21 auction secured 52.4 GW at £22.50/kW (3.2 GW of Storage (including pumped storage), 0.44 GW of unproven DSR).
- T-1 2017/18 auction secured 54.4 GW at £6.95/kW (2.7 GW of Storage (including pumped storage), 0.04 GW of proven DSR, and 0.17 GW of unproven DSR).

The transitional arrangement auction was to take place on 22nd March with a starting capacity of 413.2 MW. The auction cleared at £45/kW/year.

Following customer feedback, the EMR team have now introduced; customer engagement leads by technology type, reduced length auctions (2 days), more agreement management submissions online, support documents, surgeries and webinars.

The EMR team can be contacted at emr@nationalgrid.com for more information about Prequalification to the 2017/18 auction rounds.

Steve Lam & Catherine Lange (National Grid) – NationalGrid.com upgrade project.

National Grid are to restructure their website design and usability around the customer journey as it has become a major customer interface. The three improvement themes, include:

- Speed and functionality
- Search and navigation
- Language and content

User testing will take place over the next few months, with a 'go-live' scheduled for June 2017. A second phase to the project will focus on; refinements, content design, and enhanced functionality.

Session 2 – Breakout Session 1

Adam Sims – System Needs and Product Strategy

National Grid's work into 'System Needs and Product Strategy' (SNaPS) have identified four areas of delivery:

- Information Provision
- Optimising the use of DERs
- Product Simplification
- Structural Market Change

The new System Needs & Product Strategy document is due to be published in late April focusing on;

- **System Inertia** – an immediate issue for the rate of frequency change
- **Frequency Response** – newly developed market structures, sub-second response, and new procurement approaches will address the need for greater volumes of faster acting response.
- **Reserve** – market structures to be developed to address reserve requirements. New pan-European reserve services will need to be included.
- **Reactive Power** - a changing generation mix will require greater reactive needs. Regional market designs and the trial of the reactive capable distribution connected assets will look to address this.
- **Black Start** – to address a dwindling provider base and revised restoration approach that's non reliant on large transmission connected assets will be introduced.

Simplification of Products:

Product simplification work will address issues such as; too many markets, lack of transparency to assessment criteria and National Grid requirements, and imbalance of market subscriptions. Proposed simplifications will be consulted on in a three stage process of rationalization, standardization, and improvements.

Future Vision for Ancillary Services:

New procurement approaches such as real-time markets in-line with EU aspirations, and 'pay-as-clear' auctions will be trialled in the coming year. Access to the Balancing Mechanism for non-BM parties will be investigated, as will the commercialisation of new technologies and business models.

Delegates were asked to consider the follow questions as part of a table exercise. Responses to the following questions have been collated in the appendix.

- Q1: What are the pros and cons of the two approaches to service improvement: single market and standardisation?
- Q2: What are your views on a mix of longer term and short term markets particularly in the transition period?
- Q3: What are your views on how new investment should be signalled? Ancillary services or CM?
- Q4: What other changes need to be made to other markets, such as the Balancing Mechanism, wholesale market and capacity market?

Session 2 – Breakout Session 2

John West, Emily Campion, Biljana Stojkovska (National Grid), & Sotiris Georgiopoulos (UKPN) – Whole System Development to enable the Connection and Use of DER

The FRSO Programme – Whole System and the ENA TSO-DSO Project

The whole system approach looks to improve the utilization of T&D network capacity through enhanced modelling, greater visibility, control, managing conflicts, and accessing DER capability.

Regional development programmes have been established. Learnings will be fed into the ENA's TSO-DSO programme in order to raise discussion. The Regional Development Work Programmes will look to enhance coordination of T&D network capabilities, release network capacity, and identify changes to cross industry processes.

NG-UKPN Regional Development Programme and Power Potential Project

Sotiris Georgiopoulos (UKPN) provided insight into the South East Regional Development Programme initially highlighting the current system constraints.

Initiatives within the South East Regional Development Programme include:

- Development of a Technical and Commercial Framework (ANM)
- Enhanced modelling and data sharing
- Facilitating Storage/Commercial Services in ANM areas
- Addressing Loss of Mains challenges

The benefits of these initiatives include; continued access to network capacity, more informed connection offers, cross network queue management, a means to compensating distribution curtailment due to transmission congestion, and increased service opportunities for DER projects.

UKPN and National Grid are working together to create commercial frameworks and establish technical requirements with a view to customer engaged products.

The Power Potential project is led by National Grid in partnership with UKPN and seeks to

create opportunities for customers. Funded through the Ofgem Network Innovation Competition (NIC), the project is due to run from January 2017 to the end of 2019. Power Potential looks to improve low carbon technology connections, decrease the risk of operational issues in the network, and decrease the cost of managing transmission constraints, by addressing the following challenges:

- High voltage in periods of low demand.
- Low voltage under certain fault conditions.
- Thermal constraints during the outage season.

The project will trial the Distribution System Operator (DSO) route to market where the DSO facilitates local participation. It's believed that 3720 MW of additional generation, and a saving of £412m can be achieved by 2050.

Presentation slides from the day

Session 1

- **Alex Berland** (BEIS) & **Deirdre Bell** (Ofgem): [Energy Storage: Policy and Regulatory Overview](#)
- **John Christopher** (BEIS) & **Shai Hassid** (Ofgem): [Demand Side Response: Policy and Regulatory Overview](#)
- **Asheya Patten** – National Grid: [Future Role of the System Operator](#)
- **Jon Wisdom** – National Grid: [Charging Review](#)
- **Emily Hirst** – National Grid: [Capacity Market](#)
- **Steve Lam & Catherine Lange** - National Grid: [NationalGrid.com upgrade project](#)

Session 2

- **Adam Sims** – National Grid: [System Needs and Product Strategy](#)
- **John West** – National Grid: [Whole System Developments to enable the Connection and Use of DER](#)

ANNEX:

- **Annex A – Storage Working Group Q&A – Page 7**
 - **Annex B – DSR Provider Group Q&A – Page 9**
 - **Storage Working Group Workshop Feedback – Page 11**
 - **DSR Provider Group Workshop Feedback – Page 16**
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ANNEX A – Storage Working Group Q&A's

- 1) **The 'smart systems plan' due in Spring - Can you define more precisely the date of availability for this work?**

A - (BEIS/Ofgem): Unfortunately we are unable to give a specific date as to when this work will be available; however we are ensuring that this plan is fit for purpose before it is published to the industry.

- 2) **Will bilateral contractual arrangements in Balancing Services be examined and can we see the SO now tender all products?**

A - (National Grid): Feedback from many of these groups and from individual meetings, is that an open honest transparent market is what everybody is asking for therefore yes the way forward for the SO is more tenders, and bilateral will become a thing of the past.

- 3) **All markets have to be interlinked. In terms of the markets, are the SO going to be looking at a mix of markets?**

A - (National Grid): CMP 264/5 encourages any views on investment/consumer costs to be fed into the Ofgem consultation.

- 4) **I'm still not clear on reasoning for the change in CMP 264/5?**

A - (National Grid): Previously an embedded generator sits within a GSP group and basically supplier's net offtake of the transmission system is less due to the embedded generator being there. Each supplier will have a commercial arrangement with that embedded generator where the costs will be split between the parties and then the consumer will pick up the rest of the bill. Consumers will still be charged for their TNUOS and 264/5. The amount that embedded generators will offer in terms of reduction in a liability will decrease and therefore the value that has to be recovered by consumers for these embedded generators being there will be lower.

- 5) **Assuming the progression of CMP 264/5 will this see an increase in capacity market prices and is T-4 coming forwards?**

A - (National Grid): Cannot comment on the expected future prices however it will be interesting to see the prices in the next auctions in comparison to the others in the year and it is interesting to see commentator's thoughts. No comment on T-4 until Ofgem clarifies at the end of the month.

- 6) **Could you share thoughts on embedded generator/storage behind the meter solutions and how it is going to be treated in regards to the triad changes?**

A - (National Grid): CMP 264/5 only affects embedded assets that have a direct export onto the distribution network; any embedded assets that sits behind the customer meter used solely at the consumer ends and reduces the customer consumption over the triad peak would still reduce the customer liability by the same amount. There is no real fall in value in that asset contribution to that consumer under 264/265, however under a charging review we feel that needs to be considered, as do assets behind the meter. Also, need to consider that the customer pays for its use of the system needs in that process. Also in the charging review out today, charging for behind-the-meter will be a specific section in the publication on the treatment of storage and network charging. And in an attempt to establish how storage is treated right now, this consultation sets out how we think storage can be treated on both transmission and distribution, keeping in mind the benefits. This document should be able to assist.

7) Carrying on the issue above its worrying and casting a doubt on behind-the-meter, can you provide us with some clearer stability on this?

A - (National Grid): Very conscious that there is a need for stability and important for a single framework for charging and for storage in general and also conscious that we need to be fair. Hopefully this document will set to rest any concerns and also give a clear overview of things that need to be considered and options to provide this stability. All the stakeholder forums come into play to address these concerns, and act as an engagement platform where we should be able to challenge anything.

8) Piecemeal approach fixes one problem but ends up distorting the market in the long term, Why don't you take a holistic view and recognise the value of that asset and develop a single framework for it for the whole system?

A - (National Grid): In terms of that holistic view it's important for the industry to consider its framework in a holistic manner and our theme of engagement over the last year has been looking at the distortions/issues with the current set of arrangements. Where we are getting to now is that there is a steer from Ofgem on what they may or may not consider in the shorter term and our proposal for the stakeholder forum is to maintain that holistic view and maintain wider considerations of all the issues that may or may not affect different parties across the industry. We recognise this as a key element to success to ensure that all parties are treated fairly on a level playing field and all technology types/connections in the assistance they give to the network.

General Comments on Future Operability Strategy and Product Simplification

- 1)
 - Complexity of markets is an issue, simplification improves its bankability.
 - Consider impacts upon aggregator's business models regarding standardised model as this is what they assist providers.
 - Standardise but standardise properly. It would not be commercially viable for National Grid to move to a single market. It is too complex.
 - Standardisation is favoured. Design these products carefully to allow some flexibility reflecting the value proposition to National Grid, and there needs to be a way for new entrant's technology to bid in, rather than lots of variables etc. One of the key reasons for that was for transparency and to see how the markets are operating.
 - For emerging technologies where costs are still coming down and not justifying long term tenders, maybe having some sort of scheme for innovation. Perhaps to pick out a concern, every year Grid offer this massive tender, and then goes quiet for rest of the year so discussed were different ways to tender e.g trading (day ahead etc).
 - Agreed on standardisation for transparency on products to help businesses trying to understand what value is actually there.
- 2)
 - Some innovative/agile companies don't want to lock down long term contracts
 - Different storage models need different certainty i.e behind the meter require longevity
 - Blend of both short and long term could be an option
 - Agreed that for longer term contracts to encourage investment, is 4 years long enough? Mixture of short term with periodic long term contracts?
 - Changes in the wholesale market perhaps a move to shorter settlement periods might provide the flexibility in these short term markets and provide value to trading businesses. Those assets in a slightly more robust way might help business cases.
- 3)
 - National Grid should be responsible for market signals as they gain the benefits from the services.
 - Clarity of requirements by giving as much as a forecast as you can – for instance in 4, 5, 10 years' time.

ANNEX B – DSR Provider Group Q&A's

1) The BM is a very complex system. Can artificial intelligence help with that?

A - (National Grid): EBS is the system National Grid has been trying to implement to the control room to make dispatch free to BM. A first step would be to make EBS work before we move on with more sophisticated AI solutions.

2) What are the main themes that came out in the call for evidence concerning the participation of domestic consumers in frequency response?

A - (Ofgem): Contracts a bit unclear. Comparison between different propositions/contracts by different aggregators is not easy. More standardisation needed.

3) Is it likely that, as a result of the call for evidence, large energy users will be prevented from having direct agreements with National Grid and provide DSR services through aggregators instead?

A - (National Grid): From a National Grid point of view there is no preference. The purpose is to activate the use of this flexibility either through an aggregator or not. It depends on the business.

4) Third Party Intermediaries (TPIs) are often gatekeepers between customers & suppliers/aggregators, is there any consideration of licensing or regulating brokers as well?

A - (Ofgem): Work on TPIs for the retail and domestic sector is ongoing – no evidence with respect to aggregators so far.

5) CM too complicated – any plans to make it simpler?

A - (National Grid): Yes, we're working on that.

6) Are there any changes to the metering requirements for the 2017/18 TA, compared to last year, to prove the response is not coming from any on-site generators?

A - (National Grid): The questions haven't changed.

7) What would be the approval process to enter the CM for really small assets, e.g a block of flats?

A - (National Grid): Should be larger than 2 MWs and should receive no other subsidies, such as RoCs, CfDs, etc.

8) Is there any guidance or update on the system for secondary trading?

A - (National Grid): There is and it was published recently under www.emrdeliverybody.com

9) How could we move forward through pilots and trials rather than authoritative solutions?

A - (National Grid): This actually relates to the whole system approach and what we are doing around flexibility. One of the key pieces of feedback we receive from participants is that we need to bring in more confidence and certainty. Concerning charging arrangements, our role as facilitators is to effectively highlight those areas that need more immediate attention.

10) Large users of energy are saving significant costs by addressing those triad periods. How will these triad savings change in the next 2-5 years?

A - (National Grid): It is mentioned in Ofgem's consultation. There is no procurement arrangement around charging at the moment. The triads are an open element to the charging methodology.

11) On level playing field and removing distortions

A - (National Grid): We would like to see all parties involved in any process. The arrangements at the moment tend to be populated by larger parties. The SO now has an opportunity to make sure that the different business models for delivering flexibility are taken on board.

12) Does national grid see the upcoming legal separation as a step towards a full independent

system operator?

A - (National Grid): National Grid plc sees that this process will allow both the SO and the TO to focus on their respective responsibilities. This is the right outcome at the right time for the end consumer that will bring in clarity and certainty. Further changes might be needed at a later stage, but for now we focus on giving this model the opportunity to materialise and make sure that it works in practice.

13) On open governance

A - (National Grid): There will be a webinar on the changes on the grid code on the 4th of April. A way for smaller players to share their views.

ANNEX C – Storage Working Group Workshop Feedback

Q1 - What are the pros and cons of the two approaches to service improvement: single market and standardisation?

Single Market (Positive)	Single Market (Negative)
Can't just be one or the other	Difficult to design correctly
No need to juggle revenue stacks	All or nothing: High risk of failure
Both models better than current	Single inappropriate contract term is catastrophic
Case Studies: US, EU, Denmark	How do investors know what to aim for
Good for customer	Price discovery
Load-based flexibility (profile matched with good value signals)	High risk
Transparent technical specs	Unintended consequences
Easier to combine services & be more flexible	New technologies
Easier to stack revenue	Difficult to understand
Procurement process: Auction may not be the best option	Can make it difficult to understand value
Seems more complex but ultimately easier: transition with a few products first	How does NG specify what we want: which characteristic is the most important when buying services?

Standardisation (Positive)	Standardisation (Negative)
Liquid and transparent	Could be restrictive
Bankability – simple = investor confidence	Stifles innovation
Easy to understand for new entrants	Lots of products
Easy to understand & quantify	Stacking is already tough enough
Some standardised / some flexible – balance	Complex market interactions growing (stacking)
Small number of services & parameters is better, transparency is good	Not optimised
Fewer products gives most transparency	Challenges aggregators
DNO requirements are more locational than SO	Price matching delivery
Can help understand & identify value of services: revenue clarity & return on investment over X period	Don't preclude an asset because of its capability
	Difficult to understand
	May not fit offering / capability
	Competition – low, prices – too low
	Risk that more and more products are created (same as current situation)

Question 2 - What are your views on a mix of longer term and short term markets particularly in the transition period?

Products to match value
4 year contract – is this long enough?
4 years are not enough – high risk
4-5 years certainty
There are two different approaches needed
<ul style="list-style-type: none"> – Should be a mix
Long-term contracts needed to let investors see the long-term value
2 years don't work / every 6 months
It's not about NG funding the asset but about the real value of the service
Long-term preferred
<ul style="list-style-type: none"> – Once new environment established – Stability needed – Open up investment – Vital – at least up to a level to repay up-front capex – Favourable for new & emerging technology – Especially over early years of asset life – 10 years of revenue security is what the banks want – Enable long term investment
Mistakes made with long-term STOR
Clarity & visibility is key
CM Interface
Shorter – more agile, but presents investment challenge
Unknown product lifetime – early adopters need it temporarily
Addressing short-term issue with long term contract
Mix of long and short-term – X% long term, X% short term
Regular auction or tender rounds
Winners curse
Market fundamentals drive investment: Technology shouldn't
Long-term contracts shift the risk to someone else
<ul style="list-style-type: none"> – Probably preferable to larger companies
MWh based deals – long-term
<ul style="list-style-type: none"> – Don't destroy markets like MW deals
What if there is a constraint for the life of a project
Generally NG's requirements will change: not commercially savvy/cost-effective for NG to offer long-term contracts
Specific cases / one-off's may need long-term contracts (new pumped hydro need long-term contracts & certainty)
Let the market choose the contract length, e.g. Price X for 4 years, price Y for 10 years
Support NG Proposal – good balance
New v old kit: why differentiate?
Level playing field: important usual suspects don't get it all
Nature of long-term agreements must be fair but older assets shouldn't be excluded

Big infrastructure projects will be needed & long term contracts essential for them
Introduce long-term conditions: no obligation on NG to use?
<ul style="list-style-type: none"> - Approximate split - NG should be counterparty (e.g. over CM signal for flexibility)
Can we provide security to investors (long-term assets need investor confidence)
Short term: Reliable price & consumer impact is limited (robust pricing)
For DNO to use flexibility: longer-term contract needed
EFR / FR type services can be different: short term okay
<ul style="list-style-type: none"> - But do short-term markets give confidence to start new build
New entrants will be initially disadvantaged
Danger of losing some value by absorbing cost-effective service in wider service

Question 3 - What are your views on how new investment should be signalled?

Clarity of requirements
Long term forecast of volumes
Longer term contract to build new kit
Risk of lack of certainty of length of subsidy
Look at terms of new contracts – do they facilitate investment?
Need a clear strategy of how the market will look for a fixed period
System architect idea
SOF from NG should provide much more info and guidance
New and existing together in auctions
Identify capacity
EFR worked for certain technologies
<ul style="list-style-type: none"> - It created the market - Price secured for EFR may not have been right for the Developers
Future development of capacity needed
NG have faith in the Wholesale Market – that reflects the requirement
Go back to the market – Wholesale-based
Impacts between markets
Signal should come from NG
Stable horizon
Need to bear in mind regulatory obligations
Minimise restrictions on stacking
Big picture – where it fits in

Question 4 - What other changes need to be made to other markets, such as the Balancing Mechanism, wholesale market and capacity market?

System costs – needs and savings to be known
Wholesale Market – shorter settlement periods
Value of duration not deration
What is motivation?
Pure cost driver
Low carbon
Facilitating new generation
Facilitate long term markets
Blend the services
Challenge of infrastructure
Refer to UKPN model requirements to analyse service needs
Difficult to unpick existing mechanisms
Conflict of DNO (DSO) / SO needs
Historically had a top-down view, now looking bottom-up a bit but aiming for the middle
Should all be technology neutral
Open up the Balancing Mechanism to Non-BM Participants
Products within the main mechanism which allow Non-BMU's to take part
Grid Code capabilities – should be different across services and technologies
Filtering in place for the Wholesale Market: Pre-Qualification process
Metering complexities
Metering & technical configuration, especially co-located PE & Storage projects
Risks to existing assets – ROCs & CfD's
Certainty of revenue: Keep son changing
CM - ££ for doing nothing different. Not incentivising new generation / CCGT. Scrap the CM?
Balancing Mechanism:
Terre
NBM's will have access to BM
Generally comfortable
Supplier portfolio changes can be positive & negative
Reduce access costs
Step changes at 50MW distorts / creates barrier
Make it simpler to access: should then see less need to rely on aggregator
Wholesale Market:
Consequences of changing Triad
1 hour gate closure: single cash-out
May loose motivation price signals, create more stress
Market works: Maybe adapt to sub-half-hourly trading blocks to allow value of flexibility to be traded and address imbalance
Capacity Market:
£7 clearing price: what can you build?
Do NG need more base load?
Only buying capacity, not flexibility
How well-suited is the CM to help build certainty for storage?

Does not signal investment nor is locational

It's not working

How to treat short duration batteries

Stacking 'relevant Balancing Services'

CM changes need to keep pace with other changes

CM Tests (if already running for FFR):

- Are the tests needed (3 times?)
- Different tests for different technology types

Other:

Product simplification – started talking in late 2015

Need clear timescales that will be stuck to

EFR 2 – will it happen?

Single tender for EFR, FFR etc

ANNEX D – DSR Provider Group Workshop Feedback

Q1 - What are the pros and cons of the two approaches to service improvement: single market and standardisation?

<u>Single Market (Positive)</u>	<u>Single Market (Negative)</u>
Makes more sense with more to pay as clear	How many variables included? - Complicated
Technology agnostics / focus on the needs	Complex Black box
No single market should be achieved	Hard to know what parameters to prioritise and how to bid
Single market is welcome and standardisation is the way there	Difficult to price individual products
More flexibility	Difficulty of setting up the value function
Easier to define new innovation projects	Infinite number of products
Promotes competition	Black Box
Easier to sell	Good theoretically but in reality it would be very complex
Unburden customers with need to understand complexity	Will this drive a single type of response
Good for diverse assets on same site	Decreases transparency
Sort out a lot a issues	Risk if just focused on balancing services
Avoid rejecting assets	Capacity should also be considered
Single set of technical requirements	Having three separate markets works quite well
Clearly defined products and very specific	NG would need to signal value correctly
Revenues easy to compare for products	Fewer single markets
	Removes Transparency
	Too complex
	Exclude some capacity
	Many products, complex for new entrants
	Complex to layer products to get the max revenue
<u>Standardisation (Positive)</u>	<u>Standardisation (Negative)</u>
Simple set of revenue streams - 5 sets	How do you interact the different products.
Clearly instructed products will increase participation	Too targeted at specific asset types
Stacking services will lead to getting better result	More restrictive
Single market is welcome and standardisation is the way there	Once 'buckets' are defined its harder to change parameters
The parameters are more important than the single market	Could present barriers to new technology
Greater opportunity to revenue stack	Too many buckets
Simplifies the market	Transparency and difficult to compare
Easier to sell	Value transparency can be complex for non-energy industry partners
Avoid customer confusion	
4/5 buckets	
Individual variables e.g. speed of response	
Clarity	

Tailored products to needs
Routes to market for all
If NG requirements change, just tweak the market parameters
Opportunity for user to offer multiple services
Standardisation has risk reward balance
Interactions between products should be captured

Question 2 - What are your views on a mix of longer term and short term markets particularly in the transition period?

<u>Short Term (Positive)</u>	<u>Long Term (Positive)</u>
Flexibility, access to market line if there is liquidity in the market	Fixed costs easier to forecast BSIS & BSU better for investment
Falling tech costs benefit	Better for investment
Should lead to more efficient markets	Need to synchronise with CM
Becomes spot market	Matters for batteries
Benefits companies contracting directly with NG (not via Aggregators)	Helps to drive down cost for NG (compare EFR & FFR prices)
More flexible for changes in company's operations	More stability
Need both for customers	Stability in the Market should be the target
Two markets - New build want long term, customers want both	Reduce investors risks
Liquid markets (doesn't currently exist)	Try a mix of both, try a Long term in the next Tender
More beneficial to end consumer	Business case certainty in Long term
Can drive innovation	Industry funded in a long term/stability way
Balance of both long & short term	Some customers want long term too
Mix of contract lengths preferable	Need both for customers
Short term = market for different technologies	Two markets - New build want long term, customers want both
	Long term helps Aggregators to plan business and get customers, guarantee revenue to customers
	Ease of getting business cases approved, 5 years ideal to kick start market or technology
	Some long & medium term
	Balance of both long & short term
	Mix of contract lengths preferable
	Mix of short and long term needed
	Long term will only attract a specific technologies
<u>Short Term (Negative)</u>	<u>Long Term (Negative)</u>
Short term contracts increases risks also for the SO	CM offers 15yr or 1 yr. agreements - too much disparity in contract lengths
Investor confidence in short term an issue	

General Comments

LT in CM & ST elsewhere

Unconvinced on the benefits of a mixture of long and short term

Exclusivity and stacking of products

Procure the best that will help cover your need

More of a certainty that the service is going to be around rather than the length of the contract

NG clear parameters / understand investors market before deciding on short / long term

Customers want ROI today - short KRM, high values

Need access to both, need both options

NG need to give a view of what they would like.

What is the definition of short and long term

Depend on the market. B.S = long & reactive

Will differ between investor ambition

Q3. What are your views on how new investment should be signalled? Ancillary services or CM?

Both - add them together to make your business case

CM finds the "missing money"

CM without political interference

Combination of everything

Depends on what new investment you are seeking

Needs to be a stronger investment signal from ancillary services - dominated by Triad

Depends on assets

Ideally ancillary services, but in reality both - with the right market

Impact of CM on ancillary services depends on drafting of the codes

Carbon values should be incorporated / internalised

Too many sticks, we need more carrots

Understand investment market/equity require certainty

New investment signals should understand this

Challenge is that DSR providers can't access all revenue streams.

If there was open access, no NG signal would be needed - market would respond

Question for BEIS?

Need to be joined up - access revenue stacks for both

Customers have grasped Ancillary services - stick with this

Capacity Market not working

Procurement flexibility

Does there need to be specific technical incentives

Need certainty of revenues across the markets

Key to incentivise users to change behaviour

Less uncertainty - lower cost of capital

Fairly agnostic

Need clarity of signal to invest

BEIS, Ofgem & NG all involved in CM - needs clear co-ordination

Need co-ordinated signals across both - CM doesn't have this currently

Need clear stable revenue streams - Doesn't matter if its though Ancillary services or CM

Q4. What other changes need to be made to other markets, such as the Balancing Mechanism, Wholesale Market and Capacity market?

Wholesale	Balancing Mechanism	Capacity Market
Wholesale market - few changes required	All resources should have access to BM wholesale market	Get rid of the CM - WAIT!! - It can be tweaked
Risk that Power Responsive undermines the wholesale market	Enable non BM to participate in BM	Equal access to CM
Procuring through SO (DTU) - takes ££ out of wholesale market	BM should be continued	Modifying metering requirements for CM - sampling as per ancillary services - overly stringent
Wholesale Market - Trading closer to gate closure	BM needs to be opened up	Less onerous (less expensive) testing regime in CM
Move some balancing into the wholesale market	Project Terre scope doesn't allow BM to be opened - no unwind option- Elexon happy to open up	CM - See consultation
Wholesale Market - Can't access	Internal conversation needs to happen within NG - base lining & harmonising??	Compliance in capacity market (often jumping ahead and not actually compliant)
More supplier offers in wholesale needed	BM - Smart systems consultation responses !! Independent access to BM	CM only giving short term signal - 1 year
	BM - Let Aggregators in / other non BM's	

Comments

Better to have stronger penalties and less upfront cost of testing

Allow more flexibility around de-rating factors

More guidance on which market to participate

We need clear market signals

DNO's could take more action to make pricing more reflective of constraints

Need clarity on 'end goal'. Regulatory /Gov. bodies for each Market - still uncertainty around policy intent

Pre-qualification - Turning demand up as well as down

Frequency response (on demand side) falls through the gaps

Create level playing field - of gen vs. non-gen

More links with DSO services - integration

Inclusion of domestic level

Including the implementation of SMART into these markets and its impact

Type testing - If you are using the same kit do you have to go through the same test procedure each time

Interaction between markets needs to be captured

Day ahead signals suppliers incentivised to offer flexible services