

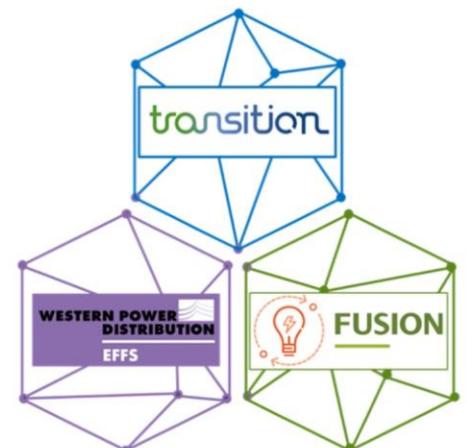


Service Conflict Resolution Report

Version 1.0

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Working in
Collaboration

Table of Contents

Executive Summary.....	3
1 Project TRANSITION	5
2 Development of the Basic Market Rules	6
3 STOR War Game.....	7
4 Feedback from Workshops	8
4.1 Addressing Unintended Consequences and Learning Points from 2019	8
4.2 Feedback on BMR.....	9
4.3 Unintended Consequences and Learning Points.....	10
4.4 Word Maps from Slido	11
4.5 Specific Feedback	12
4.6 Next Steps.....	12
Appendix 1 – Organisations and Attendee Roles for Service Conflict Resolution Workshops.....	14
Appendix 2 – BMR used for the Service Conflict Resolution workshops.....	15
1 General Rules	15
1.1 Portfolio Rules for the Delivery of a Flexibility Service.....	15
1.2 Market Abuse	15
1.3 Flexibility Service Stacking.....	16
1.4 Minimising Costs for the Delivery of Flexibility Services	16
1.5 Active Network Management Schemes	16
2 Flexibility Market.....	17
2.1 Standard Flexibility Products and Flexibility Services.....	17
2.2 Use of the Flexibility Market	17
2.3 Availability	18
2.4 Selection of Successful Offers.....	18
3 Peer-to-Peer Flexibility Services.....	18
3.1 Approval to exceed Maximum Import Capacity or Maximum Export Capacity	18

3.2	Enabling P2P Flexibility Services.....	19
4	Conflict Management.....	19
4.1	Priority of access.....	19
4.2	Communication to avoid Conflict in Delivery of a Flexibility Service between ESO and DSO	20
4.3	Conflict in Delivery of a P2P Flexibility Service between Market Actors	20
5	Dispute Resolution Process.....	20
5.1	Determining a Dispute.....	20
5.2	Potential Outcomes of a Dispute.....	21
6	Revision of Rules.....	21
6.1	The Rules will be reviewed and iterated after each workshop or trial <i>period</i>	21
Appendix 3 – Presentation for the STOR War Game 26 November 2020.....		22
Appendix 4 – Visual Scribe Output for the STOR War Game 26 November 2020.....		35

List of Tables

<i>Table 1 - Unintended Consequences and Learning Points and how they have been addressed</i>	8
Table 2 - Feedback collected during breakout sessions.....	9
Table 3 - Unintended Consequences and Learning Points during breakout sessions.....	10

List of Figures

Figure 1 - Main areas Addressed in the BMR.....	6
Figure 2 - One word summary of the Service Conflict Resolution workshops.....	12

Executive Summary

In 2019 the UK legislated to reduce the net emissions of greenhouse gases by 100% relative to 1990 levels by 2050¹ and have since strengthened this commitment with a Ten Point Plan to accelerate the path towards Net Zero². This plan discusses the need to invest in low carbon technologies (LCTs) whilst advancing the electrification of transport and heating. However, delivering Net Zero will also require a transformation in the scale of active participation of low carbon technologies in the electricity distribution network.

The transformation is already under way; in 2019 the UK distribution network capacity totalled 32,875MW³, an increase of 3.6% compared to 2018. As the number and capacity of embedded generation projects continues to increase and the electrification of heat and transport gathers pace, there is an increasing need to manage the network issues that arise. These issues include overvoltage, fault-levels, protection settings and thermal ratings of assets.

Flexibility is increasingly being seen as integral to the management of these issues. This is one of the key themes identified in the 2020 Future Energy Scenario report⁴ which anticipates increasing levels of electricity flexibility under all scenarios between now and 2030. The growing flexibility markets are already being considered and used by Distribution Network Operators (DNOs) to address constraint issues as a viable alternative to network reinforcement.

In addition to the flexibility requirements of the DNOs, Market Actors (aggregators, asset owners, suppliers, traders, etc) want to use peer-to-peer (P2P) services to maximise the use of available capacity allocations, maximise the potential of connected LCTs and to trade other services (including service obligations). This will be crucial in increasing the utilisation of the distribution network and enable the significant increase of LCTs required to achieve Net Zero. As P2P services become a mainstream solution, there will be an increased need for interactions between all Market Actors to avoid any unintended conflicts.

The 2019 TRANSITION Market Rules Simulation events were based on a set of Basic Market Rules (BMR) which included rules for the market and the behaviour of Market Actors in a facilitated flexibility market. The BMR were created to support market simulations and the delivery of services during TRANSITION and to inform the Energy Networks Association Open Network Project (ON-P) and the development of market rules for the delivery of DNO flexibility services. During 2020, Origami revised the BMR to address

¹ "The Climate Change Act 2008 (2050 Target Amendment) Order 2019", published by HM Government, June 2019

² "The Ten Point Plan for a Green Industrial Revolution", published by HM Government, November 2020

³ "Digest of UK Energy Statistics (DUKES)", published by Department of Business, Energy and Industrial Strategy, July 2020

⁴ "Future Energy Scenario", published by National Grid ESO, July 2020

issues highlighted through the 2019 events, removed content addressed in the Flexibility Service Agreement (FSA)⁵ and further developed the conflict management rules.

The Service Conflict Resolution workshops, based on the approach and format of the 2019 TRANSITION Market Rules Simulation event, were used to test the conflict management rules in the for the delivery of an ESO and DSO service under system and network stress events. The format and BMR were iterated through three stages; development within Origami to establish the format and materials, iteration with SSEN to test the format and obtain feedback and delivery to a group with representatives from all DNOs, ESO and Ofgem.

The delivery of the Service Conflict Resolution workshops was significantly affected by COVID-19; the duration and delivery changed from a one day face to face workshop to a half day online workshop. The interactive sessions that formed part of the workshop include unexpected interruptions consisting of emails during the breakout sessions to mimic some of the interactions during TRANSITION workshops in 2019. However, despite these changes the SSEN and external stakeholder events created great interaction from the participants, wide ranging discussions on the scenarios and very favourable feedback. The project will therefore run further workshops in the first half of 2021 (Peer-to-Peer War Game and a Pre-Trial War Game) to remain engaged with all external participants during the further development of the BMR. The BMR will then be revised to reflect the feedback from all three War Games in readiness to support field trials during 2021.

This report summarises the development and delivery of the Service Conflict Resolution workshops, key discussions, feedback, and outcomes; the workshop materials are included in an Appendix.

⁵ A revised version of the FSA, "ON21-WS1A-P4 Updated Common Contract (01 March 21) Updated standard agreement reflecting stakeholder feedback. Common Contract V1.2 (Workstream 1A - Flexibility Services - Product 4 - Commercial Arrangements)" is available at <https://www.energynetworks.org/publications>

1 Project TRANSITION

TRANSITION will help understand the changes required to the traditional distribution network design, maintenance, and operation, to consider new market models, and to trial new services under various scenarios. The project is explained further on the TRANSITION website⁶

TRANSITION is currently in Phase 2 of the project⁷ and during this phase will focus on;

- the procurement of the DSO systems required to undertake the TRANSITION trials;
- the implementation of a Neutral Market Facilitator (NMF) and Whole System Coordinator (WSC) solution that enables data exchange between industry actors participating in the trials and trading of flexibility services; and
- conducting a wide scale trial to test the services, roles and rules and inform ON-P.

This report focusses on the application of the conflict management rules within the Basic Market Rules (BMR) to a STOR War Game which involves testing the rules in a variety of scenarios. Feedback will also be solicited through two other War Games (peer to peer services and the TRANSITION Pre-Trial) before the BMR is revised. This revised version of the BMR will be used during the Pre-Trials and Full Trial during 2021.

⁶ <https://ssen-transition.com/library/>

⁷ <https://ssen-transition.com/wp-content/uploads/2020/10/SSEN005-TRANSITION-Project-Progress-Report-Sept-2020-Rev-1.0-FINAL.pdf>

2 Development of the Basic Market Rules

TRANSITION developed the BMR in early 2019 which included rules for the market and the behaviour of Market Actors in a number of key areas as identified in Figure 1. The BMR is an enabling set of rules with a number of generic rules that avoid specifying details unless unavoidable to allow application to situations that were not considered. The BMR were created to support market simulations and the delivery of services during TRANSITION and to inform the ON-P and the development of market rules for the delivery of DNO flexibility services.

The BMR were tested through a series of workshops in 2019 and subsequently revised to reflect the feedback from the workshops. A report was published on the TRANSITION website that documented the development of the BMR, the development and iteration of the workshop materials, BMR v1.0, the learning points and future work⁸.

During 2020 Origami developed BMR v1.0 through addressing the following issues;

During 2020 Origami developed BMR v1.0 through addressing the following issues;

- the issues highlighted in the 2019 report and revise the BMR as required;
- remove content addressed in the Flexibility Service Agreement developed by the ON-P and revise the BMR as required;
- improve the constraint management rules for use in the Service Conflict Resolution workshops; and
- develop the rules to be consistent with the latest thinking from ON-P.

The scenarios stimulated discussion on the suitability of specific rules to address the scenario and whether any changes were required or there were any unintended consequences. The BMR will then be changed to incorporate the feedback.

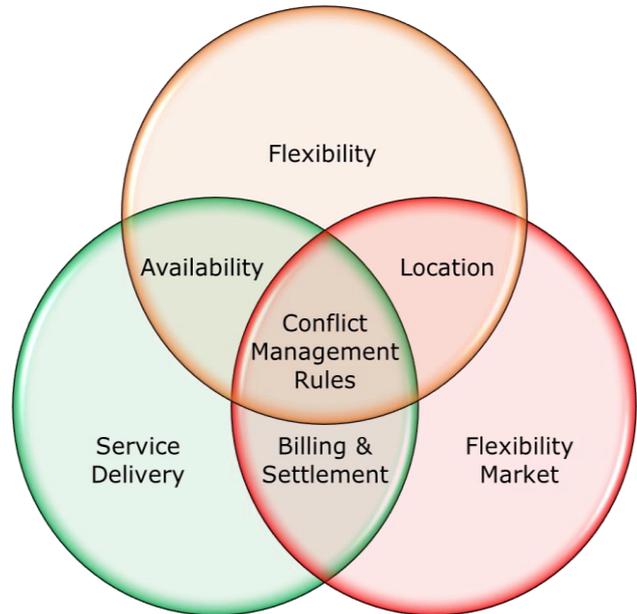


Figure 1 - Main areas Addressed in the BMR

⁸<https://ssen-transition.com/wp-content/uploads/2020/02/Market-Rules-Development-Phase-1-v1.0.pdf>

3 STOR War Game

The STOR⁹ service is an ESO service whose instruction and delivery could overlap with two DSO services; Secure DSO Constraint Management and Sustain Peak Management due to similar instruction and delivery timescales. As such, STOR is an ideal candidate to explore potential conflicts in procurement and / or delivery and to test the conflict management rules within the BMR for the delivery of an ESO and DSO service under system and network stress events. The revision to the BMR as a result of this workshop could inform the development of future ESO or DSO services.

The Service Conflict Resolution workshops were designed to be an interactive session focussed on obtaining feedback on the conflict management rules using a number of scenarios and focussed questions. The format was initially based on that of the highly successful 2019 TRANSITION Market Rules Simulation events that Origami developed and ran. However, COVID-19 challenged the development and delivery of the Service Conflict Resolution workshops. The Service Conflict Resolution workshop delivered on 26 November 2020 went through four iterations from initial concept to external stakeholder engagement which can be summarised as follows;

- First Version (Origami project team only) – initial scoping based on all day face-to-face workshop with three 1-long scenario-based breakout sessions;
- Second Version (general Origami attendees) – revision to half day online workshop with two breakout sessions each based on two short scenarios with an email interruption;
- Third Version (general SSEN attendees) – as second version with refined materials; and
- Fourth Version (attendees from all DNOs, ESO and Ofgem) – as third version with refined materials and each breakout session based on one scenario, an interruption and focussed questions to obtain more feedback on Basic Market Rules. The interruption comprised unexpected emails that were received during the breakout sessions to mimic some of the interactions during TRANSITION workshops in 2019.

Further details on the Service Conflict Resolution workshops can be found In the Appendices;

- Appendix 1 - Organisations and Attendee Roles for Service Conflict Resolution workshops.
- Appendix 2 - BMR used for the STOR War Game 26 November 2020.
- Appendix 3 - Presentation for the STOR War Game 26 November 2020.
- Appendix 4 - Visual Scribe Output for the STOR War Game 26 November 2020.

⁹ The STOR (Short-Term Operating Reserve) service provides the ESO access to sources of extra power to help manage when the actual demand on the system is greater than forecast or unforeseen generation unavailability (<https://www.nationalgrideso.com/industry-information/balancing-services/reserve-services/short-term-operating-reserve-stor>).

4 Feedback from Workshops

The primary objective of the Service Conflict Resolution workshops was to solicit feedback on the BMR on specific scenarios and questions. Four approaches were adopted;

- Each breakout session had a facilitator who was knowledgeable of the BMR and the STOR War Game to maintain focus;
- Origami and TRANSITION both provided observers for the TRANSITION and external stakeholder Service Conflict Resolution workshops to collect feedback;
- Sli.do was used to solicit feedback at the end of the workshop; and
- Attendees were encouraged to provide feedback after the Service Conflict Resolution workshops.

4.1 Addressing Unintended Consequences and Learning Points from 2019

The TRANSITION report “Market Rules Development Initial Variant” identified a number of unintended consequences and learning points, these were considered in the development of the STOR War Game and during the review and revision of the BMR. Table 1 identifies how these points were addressed.

Table 1 - Unintended Consequences and Learning Points and how they have been addressed

Unintended Consequence or Learning Point	How Point has been addressed (or will be)
Market Actors want compensated for any DNO outage.	The penalty for non-delivery of a DSO / ESO flexibility service is the revenue that would have been generated. Rule 1.2 proposes a similar approach in the event of a DNO outage.
The DSO could facilitate P2P flexibility services with little or no risk on the Market Actor.	Any failure of the DSO to deliver on their obligations (except an unplanned outage) will result in no cost payable to the DSO for the relevant period. This is a similar approach to the penalty for non-delivery of a DSO / ESO flexibility service. Rule 1.2 proposes the contract for P2P flexibility services pays the DSO a small administrative charge for enabling the additional export or import.
The DSO should be incentivised to minimise their net costs of delivering flexibility services if the underlying system need no longer exists.	Rule 2.4.2 obliges the DSO to minimise the cost of a flexibility service that is no longer required.
The BMR needs to encourage innovation but prevent market manipulation in any sense.	Rules 2.2.2 and 2.2.4 ensure Market Actors can only trade a P2P flexibility service if the Market Actor can take delivery of or use the P2P flexibility service. Rule 2.5.2 ensures DSOs only use Distributed Energy resources (DERs) in an ANM scheme in the event that the relevant constraint is present.

Unintended Consequence or Learning Point	How Point has been addressed (or will be)
The BMR is relatively inflexible which could prevent smaller Market Actors from adopting a more innovative delivery approach or flexibility coming to market.	Addressed in part in Rule 2.1. Consider further during the TRANSITION Pre-Trials in 2021.
Market Actors to be incentivised to deliver contractual commitments.	This is a contractual requirement and should be addressed in the relevant contract (see Rule 2.2.4). Rule 5 provides sanctions for regular offenders.
Need a standard glossary across ON-P and industry.	Joint FUSION-TRANSITION work will publish a report on Common Terminology during 2020 that will be shared with ON-P WS1A. No further action.
Market Actors adopted a variety of strategies from small trades to understand prices to market dominance.	This is valid market behaviour. No further action.
The Events provided good feedback on the BMR	These points were captured in the TRANSITION report "Market Rules Development Initial Variant", published on 4-Feb-20. No further action.
LIFO discussions hinted that flexibility could be discounted to reflect the contribution at the constraint.	"Industry led Access Rights Allocation Group 2019, Combined report for 'The Trading of Non-firm distributed generation curtailment obligations', and 'The Exchange of Access Rights between Users', Product 1 and 2, 13th January 2020" published by the Energy Networks Association ¹⁰ addresses this issue.

4.2 Feedback on BMR

Table 2 summarises the feedback collected during breakout sessions identifies each item that will be addressed after the Peer-to-Peer War Game and Pre-Trial War Games have been held.

Table 2 - Feedback collected during breakout sessions

Feedback Received	How issues could be Addressed
Some of the market rules are unclear as to when they apply.	Consider the inclusion of thresholds that could apply before a market rule applies and consider in the revised BMR.
Appropriate commercial requirements for the delivery of flexibility services should be covered in the ON-P Flexible Service Agreement.	TRANSITION to engage with ON-P during the review of the revised version of the Flexibility Services Agreement due to be published soon.
DSO and ESO should have more lenience for unplanned outages and priority of access.	These two situations should be captured separately in the BMR as 'Firm' and 'Non-Firm' connections. The points also arise in comments on specific Rules below. Planned outages should be mitigated through DSO / ESO communication.

¹⁰ http://www.chargingfutures.com/media/1396/product-1-and-product-2-combined-report_version-10.pdf

Feedback Received	How issues could be Addressed
Rule 1.1.5 might benefit multiple asset owners and work against the stand-alone provider.	Develop a secondary trading rule to the BMR which applies to all Market Actors equally and not just those with a portfolio.
Rule 2.2.5 could encourage Gaming.	Strengthen description of market manipulation to include gaming.
Rule 2.2.7 is open to interpretation. Market Actors may be, or may claim to be, naïve to the conditions of the network.	See comment on Rule 2.2.5 above. Consider reflecting operational approach to this issue in the revised BMR. There could be a risk-based approach when procuring flexibility from 'Non-Firm' connections and the decision should rest with the DSO / ESO who bear the consequence and not the customer.
Rule 4.1.5 is potentially contentious. Ambiguous as to who will be responsible for deciding which Market Actor faces the most significant consequences.	Market liquidity should be considered when both parties face a security issue. If neither party has access to a liquid market, then some system security issues will take precedence over others. Develop a hierarchical sequence of actions to address the issue that can be easily applied. This issue may be considered as part of the ENA work on primacy rules; it may be that some rules apply only some of the time and there is a need to consider the criticality of services.
Rule 4.1.3 is potentially contentious. The ESO would rely on Distributed Generation if there was an event across multiple Distribution Networks.	Develop a hierarchical sequence of actions to address the issue that reflects the nature of the needs for the service. Issues addressed should include market liquidity. Consideration should be given to level of interaction required across different time horizons and for different processes.
Rule 4.2.2 is ambiguous and potentially contentious. 'Regular communication' was considered too woolly and not prescriptive.	The regularity of communication required between the ESO and DSO should be set and agreed. The ESO and DSO should not dictate the contracting strategies of Market Actors.
Rule 4.2.3 is potentially contentious. Only the ESO and DSO can be reasonably expected to be able to identify issues.	Service Providers should not be expected to have any understanding of what might impact the network. Market Actors should declare the issue to the relevant party once they become aware of the issue. The required commercial and operational data will need to be exchanged at appropriate points ahead of real-time and during actual operational timescales.

4.3 Unintended Consequences and Learning Points

Table 3 summarises the unintended consequences and learning points identified during breakout sessions and identifies each item that will be addressed after the Peer-to-Peer War Game and Pre-Trial War Games have been held.

Table 3 - Unintended Consequences and Learning Points during breakout sessions

Unintended Consequence or Learning Point	How issue could be addressed
Require appropriate communications methods at regular frequency.	A meeting is to be arranged to discuss how this can be captured in the BMR, potentially with the attendees of the external STOR War Game. This is also being considered as part of ON-P 2021 work in WS1A P5 and WS1B P7

Unintended Consequence or Learning Point	How issue could be addressed
The tendering process should be transparent and open.	The market rules should be transparent. Competition law may need to be considered in the development of the BMR.
The BMR needs to encourage innovation but prevent market manipulation in any sense.	To be considered when the BMR are developed further.
Distribution generators must have a certain level of reliability when providing critical services.	Consider different mechanisms to mitigate this risk and one solution could be price.
A Market Actor could provide contradictory Services, e.g. Secure Constraint Management (Pre-Fault) to the DSO and ODFM to the ESO, at the same time, resulting in a Net Zero effect on the network.	This could become a serious issue and consideration should be given how it is addressed, e.g. the flexibility provider declares their asset unavailable to the ESO or DSO if this situation arises. Co-ordination and communication required between the ESO and DSO to reduce the need for exclusivity of services which could discourage the stacking of services and increase market prices. Indicating services that can be stacked could aid the flexibility provider in avoiding this situation.
There was a recognised need for better data management and forecasting to manage potential conflicts.	Requires a co-ordinated strategy utilising a Whole System Coordinator with standardised rules and contracts; this is being considered by WS1B P6.
Most customers on the Distribution Network will be under some form of flexible connection / ANM scheme in the future.	A risk-based approach could help mitigate the risk of non-delivery at the procurement stage whilst not restricting participation. Improved data and forecasting could help to alleviate some of the impacts.
Extensions to service windows may be required.	Bilateral interactions may be required in times of network or system security issues.
There may need to be a set of Operational Rules which interact with the Market Rules.	Operational Rules could consider the operational criticality of some services which may need to take precedence over market rules to ensure network security is maintained against the respective standards. The primacy work being considered by ON-P may also consider this point.

4.4 Word Maps from Slido

Slido was used to capture feedback at the TRANSITION and external Service Conflict Resolution workshops. One question was to summarise the Service Conflict Resolution workshop in one word. The word map produced by Sli.do are reproduced in Figure 2; larger the words obtained more votes.

Figure 2 - One word summary of the Service Conflict Resolution workshops



4.5 Specific Feedback

The following two points were made during the breakout sessions that testify to the value of BMR;

- TRANSITION STOR War Game - a number of SSEN participants commented that the rules would be very helpful in supporting day to day activities and asked when they would be available for use. For example, the BMR rules on when and how network reconfigurations should or should not maintain connections to flexible assets would improve the efficiency of making these decisions in real-time; and
- External STOR War Game – the interest in the BMR was illustrated by one DNO participants in a breakout session who asked to stop discussion on the scenario early to provide comments on the BMR.

Melanie Bryce (Oxfordshire Programme Director, SSEN) attended both the TRANSITION and external Service Conflict Resolution workshops and commented;

“Thanks go to Origami who designed a compelling and engaging simulation session which really helped the TRANSITION project get to the heart of some of the conflict that might occur, and the coordination that is likely to be required between different flexibility markets. There was some very positive feedback at the end of the session which has been echoed by a number of colleagues who took part. The whole session was professionally delivered and targeted well to the audience – giving everyone a chance to get involved.”

4.6 Next Steps

The format of Service Conflict Resolution workshops, whilst similar to the 2019 TRANSITION Market Rules Simulation events, remains a very different means of engagement and feedback than that adopted for many other innovation stakeholder engagement events. The high level of engagement from all participants created a significant and positive effect on the value of the Service Conflict Resolution workshops to both attendees and TRANSITION. As such, TRANSITION fully intends to use this approach towards stakeholder engagement events in future.

TRANSITION will disseminate the feedback and learnings from the Service Conflict Resolution workshops as follows;

- publish this report on the TRANSITION project website and use it to support wider dissemination;

- provide specific feedback on the Service Conflict Resolution workshops and the BMR to the ON-P and engage with WS3 and WS1A in relation to conflict management and market rules work to be undertaken during 2021;
- engage with the DSO, ESO and Ofgem attendees at the external STOR War Game to gain further input on the BMR as they develop, and this could include attendance at future War Games; and
- engage with FUSION and EFFS (as part of TEF) on the conflict management rules they developed to improve the BMR further.

In addition to the above, areas of the BMR will be subject to further review through a Peer-to-Peer War Game and a Pre-Trial War Game during the first three months of 2021. The BMR will then be revised to reflect the feedback from all three War Games in readiness to support field trials later during 2021.

Although the BMR were created to support market simulations and the delivery of services during TRANSITION, ongoing feedback on the content and development will be provided to ON-P. This feedback will inform the development of market rules for the delivery of DNO flexibility services and, once developed will involve extensive stakeholder engagement and consultation before being introduced as part of business as usual activities.

Please see www.ssen-transition.com/news for upcoming details.

Appendix 1 – Organisations and Attendee Roles for Service Conflict Resolution

Workshops

There were 40 unique attendees across all iterations of the Service Conflict Resolution workshop from all DNOs, the ESO and Ofgem;

- Electricity North West Ltd
- National Grid ESO
- Northern Powergrid
- Ofgem
- Origami Energy
- Opus One
- Scottish and Southern Electricity Networks
- SP Energy Networks
- UK Power Networks
- Western Power Distribution

Attendees came from a variety of departments across DNOs and the ESO, including;

- Control Room
- DSO
- Flexible Solutions
- Innovation
- Market Development
- Market Services
- Networks - Whole System
- Operational Technology
- Outage Planning
- Portfolio Management
- TRANSITION Project Team
- Programme Office
- System Development
- System Planning

Appendix 2 – BMR used for the Service Conflict Resolution workshops

1 General Rules

1.1 Portfolio Rules for the Delivery of a Flexibility Service

- 1.1.1 Providers of a flexibility service may use a portfolio of one or more DERs to deliver a flexibility service, provided the portfolio meets the requirements of the flexibility service.
- 1.1.2 If a flexibility service is to be provided by a portfolio, the Market Actor should declare the availability of the DERs most likely to be used to deliver the flexibility service.
- 1.1.3 If a flexibility service is to be provided by a portfolio, the Market Actor should inform the buyer of any change in the DERs which are providing the flexibility service including substitution or replacement as soon as practicable.
- 1.1.4 If a flexibility service is to be provided by a portfolio of DERs, the Market Actor can substitute or replace a DER that was expected to deliver that flexibility service. This can only happen if the DER to be replaced or substituted becomes unavailable to deliver the flexibility service and Rule 1.1.5 or 1.1.6 applies.
- 1.1.5 If a flexibility service is to be provided by a portfolio of DERs, the Market Actor can substitute a DER that was expected to deliver that flexibility service with another DER from within the portfolio, provided the substituted DER is approved to deliver that flexibility service and is in the same delivery area.
- 1.1.6 If a flexibility service is to be provided by a portfolio of DERs, the Market Actor can replace a DER that was expected to deliver that flexibility service with another DER from a third party (which could be sourced through the flexibility market), provided the replacement DER is approved to deliver that flexibility service and is in the same delivery area. The contractual rights, obligations and responsibilities for a flexibility service remain with the Market Actor who signed the flexibility services contract and are not transferred to the third party providing the replacement asset.

1.2 Market Abuse

- 1.2.1 Market Actors have an obligation to deliver a flexibility service in accordance with the contract for that flexibility service.
- 1.2.2 Market Actors should only transact P2P flexibility services where they can deliver or use the P2P flexibility service and should not use P2P flexibility services for market abuse purposes. Any such action would be will be subject to Rule 5.

- 1.2.3 Market Actors should not default on the delivery of one flexibility service to benefit from delivering another flexibility service for financial gain. Any such action would be will be subject to Rule 5.
- 1.2.4 Market Actors should not use inside information to manipulate the delivery or price for flexibility services or the flexibility market. Any such action will be subject to Rule 5.

1.3 Flexibility Service Stacking

- 1.3.1 The stacking of flexibility services is the ability of a Market Actor to increase revenue by making a DER available to deliver more than one flexibility service concurrently or to deliver flexibility services in adjacent settlement periods.
- 1.3.2 Market Actors are permitted to stack flexibility services provided;
 - 1.3.2.1 the DER is approved to deliver the flexibility services to be stacked;
 - 1.3.2.2 the delivery of one flexibility service to be stacked would not oppose or prevent the delivery of another flexibility service to be stacked (unless permitted by the contract) or breach the contract conditions for any or the flexibility services; or
 - 1.3.2.3 it excludes flexibility services whose contract prevents stacking of flexibility services or requires exclusivity of delivery for that flexibility service.
- 1.3.3 Any unforeseen conflicts that arise from the stacking of flexibility services will be subject to Rule 5.

1.4 Minimising Costs for the Delivery of Flexibility Services

- 1.4.1 If the DSO no longer requires a flexibility service that has been procured or has been instructed to deliver, it should seek to minimise the total cost of such flexibility service. This may include terminating the flexibility service or the contract if this would reduce the total cost.

1.5 Active Network Management Schemes

- 1.5.1 Sites subject to Active Network Management (ANM) schemes will have a proportion of their capacity declared non-firm which may limit or prevent the participation of that DER to deliver flexibility services.
- 1.5.2 The non-firm capacity of a site can only be used by the DSO to resolve the relevant constraint and cannot be used as flexibility for use by the DSO at other times.
- 1.5.3 A site which is part of an ANM scheme can only deliver a flexibility service if it has firm capacity from one of the following routes;
 - 1.5.3.1 the proportion of its MIC or MEC that is firm under their **Connection Agreement**;

1.5.3.2 it has increased its firm capacity by purchasing MIC or MEC through a peer-to-peer contract for the time period the flexibility service is to be delivered.

2 Flexibility Market

2.1 Standard Flexibility Products and Flexibility Services

- 2.1.1 The flexibility market should be based on standard flexibility products and flexibility services where possible to reduce barriers to entry, enable opportunistic participation, increase market liquidity, and increase competition.
- 2.1.2 New flexibility products or flexibility services should be agreed through the relevant flexibility market.

2.2 Use of the Flexibility Market

- 2.2.1 All trades and transactions for flexibility should be conducted through the flexibility market wherever possible. This provides visibility of the type and range of flexibility services and highlights the value of the flexibility market.
- 2.2.2 All trades undertaken by Market Actors that occur on a flexibility market should provide the minimum data set for that flexibility market. Market Actors may request confidential data is not shared with the market but only in limited circumstances.
- 2.2.3 Flexibility buyers or sellers are able to directly approach other Market Actors if the flexibility market does not have suitable flexible bids or offers. In this instance, the buyer or seller should inform the market of the reason for such action.
- 2.2.4 DERs must be approved prior to first delivery of a flexibility service and buyers and sellers should consider this point in relation to DERs under development at the contracting stage.
- 2.2.5 A DER can be offered for the delivery of flexibility services across multiple markets to provide the same or different flexibility services at the same time.
- 2.2.6 If a DER is offered for the delivery of flexibility services across multiple markets, it should be removed from all other flexibility markets once a trade or transaction has been agreed, unless flexibility services on other markets permit flexibility service stacking and the delivery of flexibility services would not conflict or breach Rule 1.3.2.
- 2.2.7 Market Actors must not procure flexibility services which they understand (or could be reasonable expected to understand) will create a system security issue or exacerbate an existing network or system security issue that could threaten the local, regional or national electricity system.

2.3 Availability

2.3.1 Market Actors should only offer a DER in a flexibility market to deliver one or more flexibility service if the DER is expected to be available to deliver the flexibility service.

2.4 Selection of Successful Offers

2.4.1 When advertising an auction, buyers should disclose the selection criteria that will be used which may include;

- offer price of the flexible capacity;
- parameters of the DER and the flexibility service;
- the location of the DER;
- the flexibility of the DER compared to the flexibility service capacity being sought;
- the relative performance of flexibility service provider or DER(s) and the relative risk to the flexibility service;
- the basis on which DER(s) can be selected for the delivery of a flexibility service when otherwise out of merit; and
- any other reason the buyer deems relevant to provide transparency.

3 Peer-to-Peer Flexibility Services

This Rule 3 applies if Market Actors enter into a trade for a P2P flexibility service that comprises one or more transactions that covers a defined time period, e.g. 1600-1800 each weekday during July or 0900-1600 on 16 July.

3.1 Approval to exceed Maximum Import Capacity or Maximum Export Capacity

3.1.1 Peer-to-peer (P2P) flexibility services that involve a Market Actor exceeding their Maximum Import Capacity (MIC) or Maximum Export Capacity (MEC) require the approval of the DSO prior to delivery of such a P2P flexibility service.

3.1.2 The DSO should publish how approval for requests for P2P flexibility services to exceed MIC or MEC will be processed, including timescales for approval (if applicable).

3.1.3 A Market Actor who obtains approval from the relevant DSO for a P2P flexibility service to exceed their MIC or MEC should comply with the terms of such approval.

- 3.1.4 If a Market Actor involved in a P2P flexibility service exceeds their MIC or MEC without prior discussion with and approval of the host DSO, the terms and conditions of their connection agreement will apply. Regular occurrences will also be subject to Rule 5.

3.2 Enabling P2P Flexibility Services

- 3.2.1 P2P flexibility services can enable increased connection of renewable generation and other low carbon technologies that will support the delivery of Net Zero and this will create additional value to the owner and / or operator of the asset.
- 3.2.2 There will be a fee payable to the DNO for enabling P2P flexibility services which will be set by [TBC] and reviewed periodically.
- 3.2.3 P2P flexibility services should be enabled by the relevant DSO using a Last In First Off (LIFO) methodology:
- 3.2.3.1 P2P flexibility services should be enabled on a first come first served basis until there is insufficient or no capacity to enable further P2P flexibility services in full.
- 3.2.3.2 Should there be a reduction in available capacity at any time, the DSO should reduce the capacity of enabled P2P flexibility services using the LIFO methodology so that the last P2P flexibility service enabled is the first to be reduced.

4 Conflict Management

4.1 Priority of access

- 4.1.1 This Rule 4.1 applies only if there is a system security issue that threatens the electricity network (DNO or DSO) or electricity system (Transmission Operator or ESO) or a conflict arises where a DER is accepted to deliver a flexibility service in more than one market or to more than one Market Actor at the same time.
- 4.1.2 A system security issue takes precedence over market liquidity regardless of whether it affects the electricity network or the electricity system. If there is no system security issue but there is a conflict of access between the ESO and DSO, the market with the lowest level of liquidity has priority access over flexibility it has procured.
- 4.1.3 In the event of an unplanned issue that threatens the electricity network the DSO has priority access to DERs over the ESO and other Market Actors.
- 4.1.4 In the event of an unplanned issue that threatens the electricity system the ESO has priority access to items of flexibility capacity over the DSO and other Market Actors.

4.1.5 In the event that 4.1.3 and 4.1.4 coexist, priority of access will be given to the Market Actor that faces the most significant consequences. Generally, ESO issues have a higher priority than DSO issues which have a higher priority than other Market Actors.

4.2 Communication to avoid Conflict in Delivery of a Flexibility Service between ESO and DSO

4.2.1 The ESO and DSO should maintain regular communications regarding potential system security issues in the delivery of flexibility services or where there is a known system security issue which could create a conflict of delivery between the ESO and DSO.

4.2.2 The ESO and DSO should maintain regular communications regarding potential conflict where a DER is accepted to deliver a flexibility service to more than one market or Market Actor at the same time.

4.2.3 Where any Market Actor becomes aware (or could reasonably be expected to be aware) that the delivery of a flexibility service may impact the electricity network (in the case of the DNO or DSO) or the electricity system (in the case of the Transmission Operator or ESO), they should inform the ESO or relevant DSO of the issue and the circumstances giving rise to the issue.

4.2.4 The ESO and DSO should use Rule 4.1 to resolve the issue or seek to resolve the issue amicably if Rule 4.1 is not applicable.

4.3 Conflict in Delivery of a P2P Flexibility Service between Market Actors

4.3.1 The Rules should be used to address any conflict in the delivery of a P2P flexibility service between Market Actors that are not addressed by the flexibility services contract.

4.3.2 Any conflict should be addressed in accordance with Rule 5.

5 Dispute Resolution Process

5.1 Determining a Dispute

5.1.1 All disputes between Market Actors or in relation to these Rules should initially be addressed using the Rules.

5.1.2 If a dispute cannot be resolved using these Rules, then the parties will raise their dispute using the dispute resolution process managed by [TBC] .

5.2 Potential Outcomes of a Dispute

5.2.1 This Rule 5.2 applies to Market Actors who have been through the disputes process (Rule 5) and deemed to have either;

- regularly exceeded their MIC and / or MEC during the delivery of a P2P flexibility service without prior DNO approval (Rule 3.1.4);
- arbitrated between two or more flexibility service (Rule 1.2.3);
- determined to have used inside information or relied on market abuse (Rule 1.2.4);
- acted in bad faith in relation to the Rules; or
- breached one or more of the Rules.

5.2.2 Depending on the outcome of a dispute, a Market Actor may be subject to penalties or sanctions as determined by [TBC] which may include temporary or permanent suspension from one or more flexibility markets.

6 Revision of Rules

6.1 The Rules will be reviewed and iterated after each workshop or trial *period*.

Appendix 3 – Presentation for the STOR War Game 26 November 2020



**Agenda and Welcome
(Charlotte)**

1300
- 1 of 3 -
1310

- 13:00 – 13:10 Welcome and HSW Moment (Charlotte)
- 13:10 – 13:20 Overview and Purpose (Brian)
- 13:20 – 13:35 Where do conflicts exist? (David)
- 13:35 – 13:45 Introduction to Exercise (David)
- 13:45 – 14:40 Breakout session 1
- 14:40 – 14:50 Break (all)
- 14:50 – 15:45 Breakout session 2
- 15:45 – 16:10 Feedback on Exercises
- 16:10 – 16:25 Questions and Answers
- 16:25 – 16:30 Closing Remarks and End



Safety Moment (Charlotte)

1300
- 2 of 3 -
1310



A few tips to stay safe shopping on black Friday....



- Make sure shopping websites are authentic. Checking the address is spelled correctly. Fraudsters can set up convincing websites with very similar spelling to the authentic one.
- Ensure payment pages are secure. Check that addresses begin with 'https' ('s' is for secure) and there's a closed padlock in the address bar.
- Avoid counterfeit goods: they're of lower quality than the real thing and can even be dangerous as they may not meet safety standards. **If it looks too good to be true it probably is.**
- Amazon is one of the most popular BF shopping sites and has a good returns policy, but third party sellers don't necessarily have the same policies or delivery timescales so check before you buy.



Using Slido (Charlotte)

1300
- 3 of 3 -
1310

- We will be using Slido near the end of the session and would like to test this is working okay for you.
- Just put 'slido' into your search engine or browse to www.sli.do – you don't need to download anything. Now enter the code **STORGame**



- Answer the question and hit 'Send'



Origami Overview and Purpose
POWER OVER ENERGY (Brian)

1310
-
1320

Overview

- TRANSITION developed a set of Basic Market Rules that were iterated through a series of workshops in 2019 and in 2020
- Conflict management rules consider the latest position of ON-P

Purpose

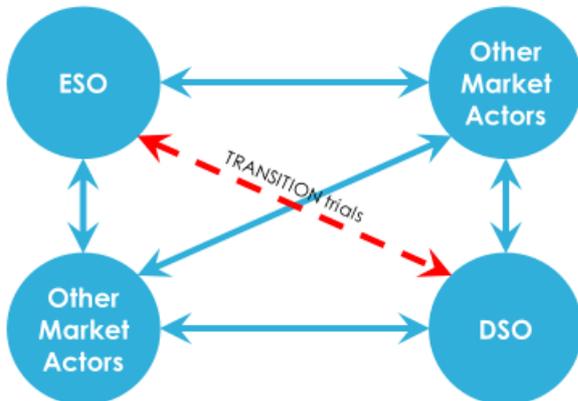
- To test the latest conflict management rules for the delivery of ESO / DSO services in a workshop environment
- Provide feedback on the completeness and robustness of the conflict management rules
- Provide a basis for development of the conflict management rules



5

Origami Where do conflicts exist?
POWER OVER ENERGY (David)

1320
- 1 of 2 -
1335



- Good communication will reduce the number and types of conflicts
- Conflicts could exist during the delivery of services between Market Actors
- Conflicts exist in the following areas;
 - delivery of services
 - exclusivity or prioritisation of access
 - between commercial opportunities
 - insufficient flexibility to meet DSO / ESO needs



6

Basic Market Rules

- 1 – General Rules
- 2 – Flexibility Market
- 3 – Peer-to-Peer Flexibility Services
- 4 – Conflict Management
- 5 – Dispute Resolution
- 6 – Revision

4 – Conflict Management

- 4.1 – Priority Access;
 - applies when there is a system security issue or insufficient flexibility (market liquidity)
 - whoever is affected most by the issue has priority
- 4.2 – Conflict in Delivery of a Flexibility Service between ESO and DSO;
 - communication to avoid or minimise conflict
- 4.3 – Conflict in Delivery of a P2P Flexibility Service;
 - work in progress; to be addressed later in TRANSITION

Overview

- Breakout sessions will consider two delivery scenarios and how identified issues could be addressed using conflict management rules;
 - Scenario 1 - asset is providing STOR to ESO
 - Scenario 2 – asset is providing Secure Constraint Management (pre-fault) to DSO

Format

- **One group remains on this call; other group dials in to separate session**
- Each breakout session will consider one or more of;
 - conflict of access
 - conflict of use
 - communication between ESO and DSO
- Facilitators will lead breakout discussions and provide feedback in group discussions

9

Status

- There is thunder and lightning and this has caused a fault on one of the nearby circuits.
- The DSO has reconfigured the local network to minimise the effect of the fault.
- The reconfiguration has resulted in a Distributed ReStart Zone (controlled islanding) that includes the site.
- The site had been instructed to deliver STOR and can no longer provide delivery.

Questions

- What conflicts do you see arising from this scenario?
- What are the impacts that need to be controlled or mitigated?
- What should happen next in accordance with the Basic Market Rules?
- Do the Basic Market Rules adequately address this situation? If so, how? If not, why not?

10



Who should have priority under this scenario and why?

1345
2 of 5
1440

Rule 4.1.3 (page 7) says, "In the event of an unplanned issue that threatens the electricity network the DSO has priority access to DERs over the ESO and other Market Actors."

Rule 4.1.4 (page 7) says, "In the event of an unplanned issue that threatens the electricity system the ESO has priority access to items of flexibility capacity over the DSO and other Market Actors."

Rule 4.1.5 (page 7) says, "In the event that 4.1.3 and 4.1.4 coexist, priority of access will be given to the Market Actor that faces the most significant consequences. Generally, ESO issues have a higher priority than DSO issues which have a higher priority than other Market Actors."

11



Should the ESO procure flexibility from service providers in the Distribution ReStart Zone?

1345
3 of 5
1440

Rule 2.2.7 (page 5) says "Market Actors must not procure flexibility services which they understand (or could be reasonable expected to understand) will create a system security issue or exacerbate an existing network or system security issue that could threaten the local, regional or national electricity system."

12





Could this scenario have been avoided? If so, how? If not, should it be and how?

1345
4 of 5
1440

Rule 4.2.1 (page 7) says, "The ESO and DSO should maintain regular communications regarding potential system security issues in the delivery of flexibility services or where there is a known system security issue which could create a conflict of delivery between the ESO and DSO."

13



Are there any other rules which should be added to BMR?

1345
5 of 5
1440

14





Break

1440
-
1450

15



Scenario 2 Secure Constraint Management (Pre-Fault)

1450
1 of 5
1545

Status

- The DSO has contracted with a flexibility service provider to provide Secure Constraint Management (Pre-Fault) by reducing demand during a planned maintenance.
- The planned maintenance overruns and the DSO needs an extension to the service window.
- During the extension, the ESO calls for the delivery of ODFM.

Questions

- What conflicts do you see arising from this scenario?
- What are the impacts that need to be controlled or mitigated?
- What should happen next in accordance with the Basic Market Rules?
- Do the Basic Market Rules adequately address this situation? If so, how? If not, why not?

16





Does the service provider have to inform both the ESO and DSO of the potential issue?

1450
2 of 5
1545

Rule 4.2.3 (page 8) says "Where any Market Actor becomes aware (or could reasonably be expected to be aware) that the delivery of a flexibility service may impact the electricity network (in the case of the DNO or DSO) or the electricity system (in the case of the Transmission Operator or ESO), they should inform the ESO or relevant DSO of the issue and the circumstances giving rise to the issue."

17



Can the scenario be avoided?

1450
3 of 5
1545

Rule 1.1.5 (page 2) says, "If a flexibility service is to be provided by a portfolio of DERs, the Market Actor can substitute a DER that was expected to deliver that flexibility service with another DER from within the portfolio, provided the substituted DER is approved to deliver that flexibility service and is in the same delivery area."

18





Can the scenario be resolved?

1450
4 of 5
1545

Rule 4.2.2 (page 7) says, "The ESO and DSO should maintain regular communications regarding potential conflict where a DER is accepted to deliver a flexibility service to more than one market or Market Actor at the same time."

19



Are there any other rules which should be added to BMR?

1450
5 of 5
1545

20





Feedback (David)

1545
-
1610

- Scenario 1: Delivering STOR to the ESO
 - Group 1 – 3 minutes
 - Group 2 – 3 minutes
- Scenario 2: Delivering Secure Constraint Management (Pre-Fault)
 - Group 1 – 3 minutes
 - Group 2 – 3 minutes
- General discussion

21



Questions and Answers (David)

1610
-
1625

22





Closing Remarks (Brian)

1625
-
1630

- Summary of the workshop
- Disseminating feedback to attendees
- Thanks

23



Thank you





Scenario 1 Delivering STOR to ESO

1345
-
1440

Caller

- This is Peter Fogg/Dorra Maddocks of Greendale/Follyfoot Farm and I want to complain about the ESO action to withhold payment under my STOR contract.
- I understand the DSO has informed the ESO that due to thunder and lightning the area of the distribution network I am in is at high risk of a fault.
- I have been informed that the ESO wishes to not use me to deliver the service.
- I am not happy about this as I am usually highly reliable and will lose revenue from this service through no fault of my own.
- Please can you advise why this is the case?

25



Scenario 2 Secure Constraint Management (Pre-Fault)

1450
-
1545

Caller

- This is Peter Fogg/Dorra Maddocks of Greendale/Follyfoot Farm and I want to complain about the way I am being treated.
- I won a recent auction to deliver the Secure Constraint Management (pre-fault) service on Monday to Friday between 0830 and 1400 and again between 1600 and 1900.
- I was happy with the arrangement and got income when I was used through a utilisation fee.
- I understand from one of my neighbours that this service will be needed later today but you have not told me.
- Can you please explain what is happening and why you have taken this action?

26



Appendix 4 – Visual Scribe Output for the STOR War Game 26 November 2020



STOR WAR GAME

OVERVIEW AND PURPOSE



STOR WAR GAME – BREAKOUT SESSION

SCENARIO 1



