





## Frequency Response Workgroup Update

Since the Workgroup was established in October 2008, there have been 22 Workgroup and 7 technical subgroup meetings. Over that time a number of commercial arrangements and technical requirements have been discussed and analysed by the Workgroup.

The final Workgroup meeting was held on 05 November 2012 where the 9 responses from the Workgroup Consultation (18 September 2012 - 30 October 2012) were reviewed. The Workgroup also agreed which of the commercial and technical options should be taken forward to be developed further. Below is a summary of the conclusions of the Frequency Response Workgroup.

Commercial Options	Consultation Respondents Support	Workgroup Conclusion	Recommended Further Development
Option A - Minimum capability obligation which is tradable with other providers	5 merits further investigation 3 unsupportive 1 no comment	A complex option that does not appear to be compatible with European Network Codes as units will have a European requirement to have capability which is unlikely to be tradable.	X
Option B - Minimum capability obligation which is shared on-site	3 merits further investigation 5 unsupportive 1 no comment	Whilst possibly less complex than Option A, it does not appear feasible with the current technology available. The Workgroup agreed that this should not be precluded from being developed in the future if new technology is developed.	X
Option C - Minimum capability obligation which is based on company portfolio	1 merits further investigation 7 unsupportive 1 no comment	An obligation that fluctuates based on a company portfolio would likely be difficult and costly to monitor whilst causing operational uncertainty for the System Operator. It was also agreed that this option would favour larger portfolio players with no discernable benefit to the wider market.	X
Option D - Minimum capability obligation which is based on generating technology	3 merits further investigation 5 unsupportive 1 no comment	Whilst possibly a cost effective option it may not deliver the appropriate mix of generation to meet system requirements. It would also require significant testing in order to determine the inherent frequency response capability of each unit and therefore does not seem to be a sensible solution.	X
Option E - Minimum capability obligation which is supported with incentives	5 merits further investigation 3 unsupportive 1 no comment	This could be the wrong way to incentive the right behaviour and achieve the desired outcome of frequency response from a wider range of sources. The numbers involved have to be significant to cause any change in behaviour or services available. The effectiveness of the solution may also be limited by the European Network Codes.	X
Option F - System Operator provides response	5 merits further investigation 3 unsupportive 1 no comment	Removing a capability requirement and having a single procurer would not encourage the most efficient solution. There was also concern that this option would not facilitate future innovation and could block new entrants from participating if long term contracts are agreed. It could also lead to difficulties in managing the system.	X

Commercial Options	Consultation Respondents Support	Workgroup Conclusion	Recommended Further Development
Option G - Day Ahead Auction	6 merits further investigation 2 unsupportive 1 no comment	Implementing a Day Ahead Auction was agreed to not be feasible at this point but the Workgroup did conclude that the existing commercial arrangements should be developed further to make frequency response tenders closer to real time and accommodate the Frequency Response technical recommendation. This would help to achieve the maximum benefit from existing products without introducing significant market changes.	
Option H - Minimum obligation for Supplier	1 merits further investigation 6 unsupportive 2 no comment	The level of infrastructure required to implement this option is not currently in place and it is unlikely to result in efficient procurement as the system is dynamic and based on a number of criteria that the System Operator is best placed to assess.	

Technical Options	Consultation Respondents Support	Workgroup Conclusion	Recommended for Implementation
Requirement for 5 second Frequency Response on asynchronous plant	4 supportive 4 unsupportive 1 no comment	There is a growing amount of asynchronous generation on the National Electricity Transmission System (NETS). To achieve the necessary frequency response provision in times of low demand and high wind asynchronous generation needs to have a requirement to provide frequency response in a shorter timescale to offset its lack of contribution to system inertia.	
Clearer Primary Response Requirements for synchronous plant	5 supportive 3 unsupportive 1 no comment	The Grid Code requirements should be reviewed and clarified.	

### Workgroup Recommendation

The Frequency Response Workgroup recommends that:

- (i) A mandatory 5 second 'rapid' frequency response requirement is developed for asynchronous generators (including HVDC Converters) required to provide frequency response. This development should take into account costs of implementation and the benefits in reduced curtailment of generation from renewable sources and other balancing costs. This work will continue under the Grid Code.
- (ii) The clarity of the frequency response commencement and delivery profiles from synchronous generating plant should be improved. This work will continue under the Grid Code.
- (iii) The existing CUSC-based remuneration mechanism for mandatory frequency response is developed to accommodate the rapid frequency response service from asynchronous plant (including HVDC Converters) and the additional clarity around frequency response commencement and delivery.
- (iv) The existing commercial frequency response arrangements are further developed to provide a weekly Firm Frequency Response (FFR) tender and accommodate a rapid frequency response product that will be available to both generation (both asynchronous and synchronous) and

demand providers ahead of the mandatory rapid frequency response requirement for asynchronous generators (including HVDC Converters).

It is proposed that National Grid begins development of proposals for items (iii) and (iv) to better understand the likely impact of changes and how existing systems could accommodate the changes. Following development of these proposals, they will then be brought to the Balancing Services Standing Group (BSSG) and Commercial Balancing Services Group (CBSG) for further discussion and development (subject to CUSC Panel approval).