

Summary of Meeting and Actions

Meeting Name	Frequency Response Working Group
Meeting No.	6
Date of Meeting	Tuesday, 27 th October 2009
Time	10:00am – 3:00pm
Venue	Conference Room 10, National Grid House, Warwick

This note outlines the key action points from the sixth meeting of the Frequency Response Working Group.

1) Apologies for Absence

Apologies were received from Mark Baker (Scottish Power), Dan Jerwood (GDF Suez), Christopher Proudfoot (Centrica), Mick Chowns (RWENpower), John Welsh (Scottish Power Systems), John Norbury (RWE) and Bridget Morgan (Ofgem)

2) Minutes from Previous Meeting

The draft minutes of the Grid Code/BSSG Frequency Response Working Group meeting held on 1st September 2009 were approved and are accessible from the National Grid Code Website.

3) Review of Actions from previous meetings

TI presented the revised Terms of Reference which took into account the post offshore Go-Active nomenclature. TI agreed to further confirm whether NETS SQSS or SQSS was the preferred term.

Action: TI

The Working Group discussed whether the effect of diversity of wind has an effect on the SQSS model. CM to investigate whether wind pattern data can be distributed amongst working group – ongoing.

Action: CM

Working Group members were invited to develop and present alternative Frequency Response straw men models for discussion – Invitation reiterated.

Action: All

MP to provide high level overview on Option 2 (Frequency Response obligations by portfolio) & Option 3 (FR obligations differ by generation technology) – ongoing.

Action: MP

4) Future Interconnector Frequency Response Issues

TI informed the Group that National Grid had recently been contacted by BritNed, the Owner of the UK – Holland HVDC interconnector, which is currently under construction. A number of commercial and code issues had been identified associated with their ability to provide their Grid Code obligated Frequency Response capability. TI continued that, such item appeared to fall under the remit of this Working Groups Terms of Reference and therefore, it was proposed that the issue be added to the agenda and a representative from both BritNed and the French-UK interconnector attended the meeting to provide some expert advice from two of the existing and future Interconnector Owners.

RS gave a brief overview of the expected commercial agreements for the interconnector with National Grid and what the perceived issues with the codes were. RS confirmed that the Interconnector had the technical capability to provide rapid Frequency Response to the GB Transmission System although such actions will put the Interconnector Owner at risk of imbalance in the connected market, where the market is cleared on a 15 minute frequency. In summary the CUSC has not caught up with the development in the application of system interconnection.

Summary of Meeting and Actions

The representatives highlighted the items below as their main concerns with the Industry Codes:

- a) The CUSC does not allow an interconnector to be compensated appropriately for being short in another market as a result of Frequency Response provision in the UK
- b) The interconnector does not submit Final Physical Notifications and therefore does not have an ability to receive instructions from the TO, in response to frequency excursions.

The group also discussed the control functions of the interconnector and whether it had the obligation to provide response when exporting from the UK (and therefore acting like demand). RS reiterated that technically response could be provided while both exporting and importing, over and above the Grid Code obligations although this would be a commercial rather than mandatory service. The Group agreed that this was a future prospect and the initial aim was to ensure that mandatory response could be permitted.

FL gave the example of another European HVDC link that might provide a comparative reference. Corsica and Sardinia are connected by a DC link with the demand on Sardinia around ten times larger. Consequently, for aspects such as response, the Corsican system is dominated by the other. This was thought to be roughly analogous to the UK and Europe.

[Post meeting note: FL clarified that the link between Corsica and Sardinia is a 150kV AC link. There is a DC link providing Frequency Response but it is connected between Italy and Sardinia. Corsica, however, benefits from this Italy-Sardinia DC frequency sensitive link via the AC link which connects it to Sardinia. A frequency variation in Corsica is then compensated via the Sardinia AC link, itself partly loaded by the power coming from Italy via the DC Link.]

The discussions moved on to the regulations surrounding the DC link, it became apparent that there was no contractual mechanism for the interconnector in the energy market as they were not operating physically in the GB market, which was essential and needed to be looked at. The contractual arrangements would need to consider compensation schemes and charging methodologies for the consequences from being long or short in the European market. RS commented that the Dutch TSO (Tennet) was considering putting an obligation on the link to provide frequency response at the Dutch terminal.

The question was raised whether a solution could be developed that would work for all future interconnectors and be codified, or whether a bilateral approach was more appropriate. VH stated that for each interconnector it is likely that the commercial requirement would differ and the various remote Transmission System Operators (TSO) also have very different markets. For example, commercial arrangements for the France-Britain link would be between the Interconnector Owner, UK System Operator, French TSO (RTE) and a French generator.

The group discussed imbalance and risks, MA suggested whether there was a need to arrange this in the codes or in the contracts itself. WH suggested a code change would be more suitable option however the representatives conveyed a contractual arrangement would be more appropriate for them, reflecting their unique situations.

The group sought understanding how the EU market manages a tripping event and how compensation is processed and RS informed the group such events rarely happen. RS explained how across interconnected Europe a total of 3000MW of primary reserve is held, which is apportioned by country. Each state then dictates how it is divided amongst specific generators and it is not thought there are any financial penalties for non delivery of response but a process of naming parties was a deterrent. The position for each generator is taken at a number of snapshots in time and this 'tide line' is cleared on a monthly basis.

A member highlighted that the EU technical system is somewhat larger than the GB system therefore any imbalance which occurred would be barely noticed.

Summary of Meeting and Actions

The Group sought to understand how the imbalance risk could be handled by an interconnector. FT stated that a UK based generator must price Frequency Response services to reflect risk and that the cost of remote imbalance was similar to this, in other words holding cost was analogous to imbalance risk. RS stated that energy/ fuel cost risk is not relevant to BritNed and therefore the existing compensation arrangements are not appropriate. It was suggested that the interconnector could contract with a continental generator in order to mitigate its imbalance risk.

MA sought to understand what needed to be changed in the codes to allow the participation of Interconnectors in the UK. RS informed the group the main changes would be to the CUSC and the BSC. RS agreed to summarise the code issues identified so far and pass onto National Grid to circulate to the Working Group.

Action: RS

TI proposed to the Group that these issues should be taken to the next CUSC Panel, on 30th October to seek approval for a way forward. The Working Group decided that although the issue met the Terms of Reference, it was perhaps more urgent and relating to shorter timescales than the more holistic topics that had been discussed to date and therefore the Balancing Services Standing Group may be a more appropriate forum. TI agreed to raise the issue with the CUSC panel and highlight the discussion held within the Working Group meeting.

Action: TI

5) Frequency Response Obligations Development

AJ presented a paper on future Frequency Response Requirements. The paper illustrated the effect on Frequency Response requirements for a range of generator inertias, speed of delivery and wind response effectiveness under the Gone Green Scenario. It concluded that the primary response requirement as a proportion of TEC ranged between 6 and 20%. TI agreed to distribute the paper to the group.

Action: TI

AJ agreed to determine the likelihood of the "Gone Green scenario" in the future.

Action: AJ

It was stated that for a response level of 20%, around 40% of plant would have to be constrained back. In addition, HVDC interconnectors were identified as having no inertia although they would be able to react extremely quickly. Several characteristics were identified that significantly changes the effectiveness of the provision of Frequency Response:

- Speed of starting response and rate of increase
- Generator inertia
- Maximum level of response

Can all such characteristics be relatively valued in a market so that generators are rewarded for over meeting an obligated level? The Working Group questioned what the speed and inertia characteristics are for future technologies. It was thought that both factors were far lower than that provided by existing generation. An obligation for a deminimus inertia was proposed as long as it was introduced slowly before future investment decisions were made. WH agreed that incorporating such features as additional response capability has been far easier to achieve historically when it was anticipated and not implemented retrospectively. It was proposed that an adjustment to the Grid Code obligations should be considered with the introduction of such physical characteristics/ parameters.

6) High Level Options Development

MA gave two presentations on Option 1(b) and Option 4, which are show on the Working Group webpage on National Grid's Code website.

1(b) Under this option each generating unit still had an obligation to provide capability although it can be contracted out to a third party. It was mentioned whether a need for

Summary of Meeting and Actions

accreditation should be provided to plants who were providing frequency response in lieu. This would significantly reduce the developing and capital investment cost for those technologies who cannot currently provide such services. The actual obligation to provide response would be dynamic but obligations would be across all currently exporting generation i.e. 6MW of response per 100MW export. If insufficient response was available, National Grid would procure the residual response from elsewhere and those parties that are not meeting their obligations would fund such actions. Measurement of provision could be complicated

4: Technically it would be hard for the System Operator to distinguish action for Frequency Response out of all other SO actions. Currently actions are taken for response reasons in the Balancing Mechanism but this option divorces the two.

TI gave a presentation on Option 5 on establishment of a Full Response Market. A member thought that under this option there was thought to be a risk that a small number of market participants would emerge each with a very large Response capability which may lead to a fuel type risk or an inefficient market. Another member stated that most parties should have some capability to provide a level of response which should lead to a healthy market. A concern was also raised that if FR obligations were totally removed, a gap may be generated in capability which could result in loss of demand. The Working Group discussed that as long as sufficient timescales were allowed, investment could be made in future plant to ensure continued provision. A sufficient and stable signal would be needed to ensure provision.

Prior to the meeting CP had provided a spreadsheet looking at the potential provision of response from demand using Smart Meters. The Working Group noted that the potential response levels shown were significant and that it was a sensible, issue worth pursuing and that National Grid may be the right party to do so.

National Grid agreed to clarify the high level options and look at whether they can be consolidated. MA commented that each option could be subdivided into a defined counter party and obligations.

Action: National Grid

6) Next Meeting

The next meeting of the Working Group is scheduled for 2nd December 2009, commencing at 10am at National Grid House, Gallows Hill, Warwick.

Summary of Meeting and Actions

Appendix 1 – Working Group Attendance

Members Present:

Tom Ireland	TI	Working Group Chairperson
Kabir Ali	KA	Technical Secretary
Malcolm Arthur	MA	National Grid
Stephen Curtis	SC	National Grid
William Hung	WH	National Grid
Antony Johnson	AJ	National Grid
Damian McCool	DM	Scottish Power Renewables
Chris Hastings	CH	Scottish-Southern
Francois Luciani	FL	British Energy
Jonathan Atyeo	JA	GDF Suez
Bob Nicholls	BN	E.ON
Raoul Thulin	RT	RWE

Apologies:

Mark Baker	MA	Scottish Power
Chris Proudfoot	CH	Centrica
Dan Jerwood	DJ	GDF Suez
John Welsh	JW	Scottish Power (DNO Representative)
Bridget Morgan	BM	Ofgem
John Morris	JM	British Energy
John Norbury	JN	RWE
Claire Maxim	CM	E.ON

Industry experts present for agenda item on Interconnectors:

Rob Smith	RS	BritNed
Hannah Morgan	HM	National Grid
Vince Hammond	VH	Interconnector France Angleterre (IFA)