

Minutes

Meeting name	Demand Control Workshop
Meeting number	2
Date of meeting	23 rd May 2012
Time	10:00am – 13:00pm
Location	National Grid, Wokingham

Attendees

Name	Initials	Company
Tim Truscott	TT	National Grid
Robyn Jenkins	RJ	National Grid
Steve Heather	SH	National Grid
Steve Brelsford	SB	National Grid
Bernie Dolan	BD	National Grid
Pavinder Babra	PB	National Grid
Yogesh Nakarja	YN	National Grid
Ian Smith	IS	Western Power Distribution
Sarah Owen	SO	Centrica
Alan Creighton	AC	Northern Power Grid
Richard Devenport	RD	EDF Energy
Andy Kelsall	AK	EON
Mike Rawlins	MR	Frontier Power
Andy Dixon	AD	Scottish Power Energy Networks
John Knott	JK	Scottish Power Energy Networks
Dan Randles	DR	Electricity North West

Apologies

Name	Initials	Company
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1 Main points of meeting

1. TT presented slides introducing transmission system balancing, Grid Code Section OC6 and demand control.
2. The slides detailed information about the event in May 2008 and February 2012 where the NGET control room issues demand control instructions. TT explained that during both events the response to the demand control instruction was not as was expected or required and could have led to further system issues.
3. TT's slides proposed 3 possible solutions to the problem:
 - Modify the Grid Code to Reflect Current Status;
 - Improve SCADA/ Voltage Control Schemes; or
 - Accept that Demand Control will involve Demand Disconnection.
4. The current wording in OC6 allows the network operator to decide how demand control is delivered, most operators choose to issue the first two stages as voltage reductions and the third stage is generally demand disconnection.
5. Control engineers always need to secure the system when this type of extraordinary event occurs. They may have a choice of actions but need to know the size and speed of response of each to enable them to make the best choice.
6. The first suggestion was to investigate what control engineers need to happen when they issue demand control, regardless of the current grid code wording.
7. One option would be to separate voltage reduction and demand disconnection into separate instructions, giving the control engineers the choice over which to instruct depending on the type of response required.
8. Taking voltage reduction on its own, the results experienced in May 08 and Feb 12 were not compliant with the grid code and as such, did not deliver the reduction expected within the necessary timescales. Currently not enough is known about the effectiveness of voltage reduction to provide certainty over what it can deliver. When examining voltage control, consideration needs to be given to the suppliers. The main advantage of choosing voltage control over demand disconnection is that customers are not disconnected. The costs of disconnecting customers are not known. The workgroup wondered whether it would be better for the UK consumer to tolerate demand disconnection on these rare occasions to avoid costly upgrades to equipment.
9. The DNO's suggested many of the problems with experience with voltage reductions are because of the SCADA system rather than the electrical plant. Bottlenecking occurs when instructions are sent.
10. Suggestion to aid these issues include skipping the 3% first stage instruction and either broadcast a 6% reduction to half of the transformers and then a further 6% reduction instruction to the remaining transformers at stage 2; or skip the first stage 3% reduction completely and ask for a 6% reduction across all transformers at stage 1.
11. The workshop attendees debated whether demand control could also be managed through commercial contracts with several options discussed.

12. DNO's entering into commercial contracts where demand could be interrupted in certain areas was discussed but it was decided that this would not provide the required results. A further suggestion was to increase the number of STOR contracts, especially if the cost of this was less than the cost of upgrading SCADA systems or disconnecting customers. Smart meters and appliances were mentioned with the question whether smart networks undermine the abilities/benefits of demand control?
13. The workshop attendees discussed that everything so far has been based on two rare events. SB and SH explained that the system is planned around an event like this happening on 1 in 365 days and so far this has been exceeded as there have only been two in the last four years, and the last event before that is not known. In both of the events the system has been secured despite demand control not working as expected.
14. Demand control is generally used in conjunction with other types of response and reserve. Following the events in 2008 and 2012 NGET have changed the mix of response and reserve they carry on the system, but demand control is still required otherwise low frequency relays may start to trip, or they could fail and cause plant damage/system collapse.
15. Much of the discussion and suggestions at this stage are based on assumptions as little or no testing has taken place. The demand control response has never been formally tested (as black start is) it has only been used when required. The workshop attendees suggested that more analysis and testing of demand response speed is needed to assess the capability of this type of response. Investigation is needed into whether the issues with demand control are technical or because of lack of training.
16. Before any grid code changes are proposed, the DNO's and NGET need to collaborate, review experiences, and test the systems to work out where the problems lie.

3 Suggested ways forward

17. Cross industry training exercise (similar to black start), possible Tier 1 exercise.
18. Separate voltage reduction and demand disconnection, allowing the control engineers to choose demand disconnection when they need a guaranteed level of response immediately. This would be a relatively quick win as it only requires code and procedure changes.
19. Use voltage reduction earlier, in conjunction with STOR, rather than wait for other reserve types to run out.
20. Investigate use of demand control/demand disconnection as a commercial service which can be tendered for.
21. Joint DCRP/GCRP working group to investigate issues with demand control.
22. Develop a work stream for further investigation under the Electricity Task Group.