Minutes of meeting to:		**MoM. No.:**	16011094/11
Distribution Code Review Panel (DCRP) P2 WG P2 Review Monthly Meeting 11		**From:**	DNV GL
		Date:	24/11/2015
Copied to:		**Prep. By:**	Colin MacKenzie
David Spilliet DCRP P2 WG NERA attendees Imperial College attendees DNV GL attendees			

DCRP P2 WG P2 Review Project

Time / Place:	10:30 – 14:15, ENA conference room 4.	
Participants:	Steve Cox (Electricity North West) (Chair)	SC
	David Spillet (Energy Networks Association)	DS
	Alan Boardman (UK Power Networks)	ABo
	Alan Creighton (Northern Powergrid)	AC
	Will Monnaie (Scottish Southern Energy Power Distribution)	WM
	Peter Aston (Western Power Distribution)	PA
	Mark Kilcullen (DECC)	MKK
	Bob Weaver (Power Con)	BW
	Peter Twomey (ENWL)	PT
	Gareth Evans (Ofgem)	GE
	Suzanne Huntley (Northern Ireland Electricity)	SH
	Andy Beddoes (Scottish Power Energy Networks)	ABe
	Ben Marshall (National Grid)	BM
	Colin MacKenzie (DNV GL)	CMacK
	Alan Birch (DNV GL)	AB
	Richard Druce (NERA)	RD
	Goran Strbac (Imperial College London)	GS
	Predrag Djapic (Imperial College London)	PD
Appologies:		
	Chris Marsland (AMPS)	CM
	Alan Collinson (Scottish Power Energy Networks)	AC
	Joe Duddy (RES)	JD
	Saeed Ahmed (GTC-UK)	SA

P2 Review Working Group Monthly Meeting 11

1. Meeting objectives

The main objectives of the meeting were to:

- To have a group discussion session on initial thoughts and feedback to the key conclusions from Imperial's WS2.1 to 2.6 report "Review of Distribution Network Security Standards", issued on 10 Nov 2015 to all WG members.
- Brief update on outstanding actions from the last meeting.
- Brief update on progress to date and progress issues.

Agenda

1	**Introductions welcome to ENA and housekeeping (*Fire Procedure etc. for those attending in person)***	**SC/DS**	**10:30**
2	**Statement on aim of meeting and key agenda items**	**C MacK**	**10:40**
3	**Group discussion session on initial thoughts and feedback to Imperial's WS2.1 to 2.6 report "Review of Distribution Network Security Standards", issued on 10 Nov 2015 to all WG members.**	**G Strbac**	**10:45**
4	**Break**		**13:00**
5	**Review of actions from last meeting.**	**C MacK**	**13:30**
6	**Brief update on progress to date and progress issues.**	**C MacK**	**13:45**
7	**AOB**	**SC**	**13:55**
8	**Summary review of new actions**	**C MacK**	**14:05**
	Next Meeting – 18 December 2015		**14:15**

3. Group discussion session on initial thoughts and feedback to Imperial's WS2.1 to 2.6 report key conclusions.

The WG went through the key conclusion summary from the report, section 1.14 on pages 66 to 70 which were displayed for all to see during the session. The following points were note:

General

- GS advised that based on initial comments from others any issues of language, grammar or spelling would be addressed in finalising the report.
- Section 1.14 covering the key findings should be moved to the front of the executive summary as this is the key summary in the report.
- The concept that the existing network assets are driven harder until there is an economic case for replacement and then replaced with a loss driven design needs to be explained clearly in the summary. Point also raised that new loss driven networks in one area would provide better security of supply service to customers that those on older networks being driven harder under a relaxed N-1 scenario. Does something need to be said about this in the summary?
- The report should not inadvertently criticise P2's past performance as this would clearly be unfair.
- BM indicated that demand size implications do not come out strongly in report. GS indicated that is there but will look at bringing out more clearly.
- GS was asked if network topology has an impact on conclusions. GS indicated that this was not the case.
- The WS2.9 report requires highlighting potential transition issues of moving to an alternative for of P2 standard.

Cost effectiveness of the present network security standard

- Bullet point 1, reference to the supporting tables to this finding should be added for ease of reference.
- Bullet point 1. Is there a health and safety risk of briefly overloading network assets during time taken to reduce the network loading post event. Need a bit more on any issues around load reduction process feasibility. This may be in the report at another location and should be referred to.
- Bullet point 1. Moving to say N-0.75 would need a different operational approach, a note on this should be added.
- Bullet point 1. A paragraph should be added to sate the modelling is based on VOLL and the credentials of the VOLL value used and any other key assumptions e.g. sensitivity work on VOLL value used.
- Bullet point 1. Can the impact on CI and CML of moving to the system with an £18b saving be indicated. (GS had advised that this appeared somewhere else in the report.)
- Bullet 4. Clarify what "larger group" and "higher" actually means. Also can the primary driver to this conclusion be indicated or the principals involved.
- Bullet 5. Load transfers are about built capacity in P2, interconnectors are presently treated as built capacity. Change to "other sources of capacity" in text.
- Bullet 6. Add reference to CI/CML impact figures.

Generation driven distribution network investment

- Bullet 1. With regards to the reference to the ability of the network to cope with a 1320MW loss of generation, BM, indicated that this is not always the case as now NG can experience inertia issues that limit the loss of generation to much less, as low as 500MW. Hence report needs to be careful regarding the statement made here. GS to add an appropriate caveat.
- Bullet 1. SC indicated that for CHP the loss of heat needs to be accounted for as this can be 2 to 3 times the loss of electrical energy.

Long-term optimal design of distribution networks

- Is there a contradiction point here with the present standard that requires to be brought out more strongly.
- There is a need for some context and a clearer explanation.
- Bullet 1. Add note regarding the issues of application e.g. who pays what has to be addressed. At present regulation does not incentivise DNO's based on true national value of losses. Cost of losses do not all sit with the DNOs.
- Bullet 2. Same conclusion for both DNOs and IDNOs. May need to develop a new standard around design for losses.

Value of automation

- Add reference to areas of report this conclusion is based on. Indicate voltage levels these figures apply to.
- Does modelling that indicates driving the network harder is more economic include the levels of automation indicated and what is the impact on CI/CML of these levels of automation. Some clarification on these points to be added.

Contribution of Distributed Energy Resources and Energy Storage to network security

- BM asked what data would be required in the future to assess the security contribution from DER and storage in a more tabular look up form for a future P2 standard. Can report state the key parameters that would need to be considered and how practical developing a look up table would be.

Enhancing network assets utilisation

- Bullet 1. Regarding the cost effectiveness of sacrificing asset life loss to reduce lost load due to outages, SC asked how the value of lost asset life was determined e.g. from a regulated RAV write off view or based on other economic factors. This should be indicated.
- Bullet 2. Indicated that the reference to proven capability in P2 covers this point.
- Bullet 3. Noted that the ENA now has a working group looking at the lowering of standard voltage levels as a follow on to an LCNF project. GS to add reference to this work. Noted that wording required correction in this bullet.

Impact of construction outages and asset replacement

- AC asked if a network is driven harder, how can N-1 be employed to facilitate a construction outage. GS indicated that these should be planned for periods of lower demand. Pointed out that forecasting periods for longer construction outages (up to 3 months) was get more difficult in some areas e.g. London where the pattern of annual demands was changing a would continue to do so. Also, future demand and generation would also add volatility that could make identifying a lower demand period of 3 months impossible to guarantee on a hard driven network without longer term DSM in place. This should be reflected in the report and to the summary of this point.

Distribution network resilience

- There was a view expressed that perhaps some form of low cost mitigations against HILP should be included in a new P2 standard, The imperial report suggested some possible mitigations e.g. provisions for connection of mobile generation. However, in general HILP is difficult to provide mitigation for based on economics as you cannot forecast the nature of a HILP event, where it will occur and when it will occur. Agreed by the WG that the way forward for HILP mitigation is not economically driven, and would need to be part of a wider industry debate outside of the P2 review. This aligns with the WS2.0 report conclusion.

Robust distribution network planning under uncertainty

- Bullet 1. Wording needs to be clearer.
- Note that in the WS2.9 options report comment will be required on the uncertainty of discount rates and time horizons of CBA analysis. Also that the present regulatory regime does not recognise uncertainty and hence may require changes. This would be a risk to how CBA's are done. RD to have a look at this issue for the WS2.9 Options report.
- The Imperial report should include a point here that we are heading into more uncertain times than the past in terms of network planning.
- Noted that Smart Grid Form WS2 looked at real option value modelling. RD to consider this for the WS2.9 options report.

Towards consumer choice driven network design

- SC indicated that locational pricing will not work as it is only applied to 2% of the overall price of electricity to the consumer and hence has very little consumer behaviour influence at present.

5. Review progress on actions from the last meeting.

There was not time to review the outstanding actions. CMacK advised that these were all in the Nov progress report and WG members should review and action these as necessary. A summary of the outstanding actions from the last meeting are also summarised below. Updates to the actions shown in red were added post meeting 11 by CMacK.

Summary of Amended Actions

	Action Description	Action / Responsible / Due Date
3	Consortium to consider impact of WS7 information provided by DCRP P2 WG on P2 review. WS 2 activity for NERA and Imperial.	GS, RD /Consortium PM/during workstream 2. **Ongoing**
	DCRP P2 WG to check with Ofgem how interactions with WS7 may be handled.	**Ongoing** (meeting 6) SC to check with Ofgem (GE) how the interactions with WG7 may be handled with the P2/6 review. (Meeting 7) SC has spoken with GE and GE is happy to act as link to WS7 works.
8.7	SC provided high level feedback to the materials presented to the review meeting on 20 July (SC's email was circulated to WG members on 31 July 2015 by CMacK, see Appendix A for SC's email) – other WG members were asked to review and agree that SC's comments cover their own organisations' view or provide their own feedback to Goran's presentation. To date most DCRP P2 WG members have not responded.	All DCRP P2 WG members to indicate their agreement that SC's feedback covers their own organisation's views or to provide their own feedback by 4 Sept 2015. Meeting 9. CMacK has not seen any evidence of this. SC to chase responses from other DNOs. Meeting 10, DS asked that CMacK circulate the SC comments to all WG members again and that if any WG members wish to add to or disagree with SC's comments they should send their responses to SC/DS/CMacK by Friday 30 Oct. A NIL repsonse will be taken as agreement with SC's comments. CMacK has recirculated SC's comments on 28 Oct 2015. **Action on WG members to respond by 30 Oct 2015.**
8.9	DS to consider when the drop dead date is to set the date for the WS 5 stakeholder event for week starting 18 January 2016 and check with C MacK closer to this date the liklihood of the programme meeting this date.	DS. Meeting 9. Discussed date for WS5 industry stakeholder event in January 2016 and the need for timely completion of the WS2.9 report and DCRP P2 WG agreement on WS3 final options report. This was discussed further under agenda item 4 regarding risks to the programme. KC indicated that for a January 2016 event, the ENA's events team should start planning this month. Meeting 10. Due to ongoing delays in delivery of reports by Imperial (this being impacted by Goran's recent accident) CMacK had been reluctant to confirm the date in the existing programme. Programme has slipped at present 3 weeks awaiting outputs from Imperial. Agreed that CMacK should provide two or three dates to get the ENA events team started. CMack to

	Action Description	Action / Responsible / Due Date
		provide dates to DS by 30/10/2015. **Action was completed.**
9.1	KC asked if the consortium had a more detailed programme than the one in the progress report. CMacK is to forward this to KC.	CMacK/CMacK/2 Oct 2015 CMack indicated the programme was being transferred from Excel to MS Project. This was complete but checks were required. C MacK to send to KC and DS by 30 Oct 2015. **Action completed.**
9.4	GS is to prepare the summary write ups for the key WS2 analysis areas and submit to the DCRP P2 WG as soon as possible to assist with the WG's review of the outputs.	GS/GS/9 Oct 2015. Meeting 10. GS is running late with these. The summaries of the WS2 analysis areas will be include in the Imperial WS2 report which should be issued by end of week commencing 2 Nov 2015. **Action completed with issue of Imperial's main report on 10 Nov 2015.**
9.7	The cost of implementing the move to a CBA based standard has been raised as a concern in the feedback to the WS2.7 report. RD asked WG members for any evidence of such costs.	DCRP P2 WG/DS/2 Oct 2015 Meeting 10. RD indicated that no evidence had been forthcoming. **Action left open until 6 Nov 2015. AC provided some guidance. Action closed.**
10.1	Follow on from action 9.9, "RD is to draft a letter from SC to GE to seek some guidance from Ofgem on the feasible high level P2/6 replacement option the DCRP P2 WG can realistically recommend subject the need for Ofgem's approval. SC then to finalise and send to GE". Based on the subsequent meeting SC had with Ofgem, Ofgem issued and email providing some guidance. This email was circulated by DS to WG members on 27 Oct 2015. All WG members are to advise any issues they see from the Ofgem guidance.	All WG members to respond to SC, copying in DS/CMacK/GS/RD by 6 Nov 2015. A NIL response will be assumed as there being no issues. **Action now complete.**
10.2	RD is to advise BW when he can release the WS2.7 report to his trade members.	RD as soon as feasibile. Meeting 11. Outstanding.
10.3	AB to contact BW and advise who at REA he discussed the questionnaire response with.	AB by 13 Nov 2015. Meeting 11. Outstanding.
10.4	SC suggested that a couple of conference call slots are arranged during the review process of the WS2.9 and Imperial supporting quantitative analysis report to allow members to compare notes. DS to conduct a doodle pole of members for a suitable date and time before and after the 24 Nov WG meeting. CMacK suggest that based on the expected dates for issue of the Imperial	DS/ by 6 Nov 2015. Meeting 11. Outstanding.

	Action Description	Action / Responsible / Due Date
	report and WS2.9 report that DS targets weeks commencing 16 Nov and 30 Nov.	
10.6	To assist the DNOs get an idea of the effort and resources required if adopting the CBA option to replace or amend P2, RD was asked to provide some guidance on what a possible CBA may consist of. This includes any probability analysis tools, trained staff etc.	RD/ 6 Nov 2015. **Only AC responded. Action taken as closed now.**
10.7	With regards to the WS2.7 report now clarifying the distinction between a deterministic standard that targets average reliability, and one that sets de minimis requirements, RD is to provide with more guidance on this difference.	RD/ 6 Nov 2015. Meeting 11. Outstanding.

6. Brief update on progress to date and progress issues.

CMacK presented a short verbal summary of progress to 15 Nov. The formal progress report was circulated to all WG members prior to the meeting (Email from CMacK on 21 Nov 2015). C MacK outlined the following:

- All WS2 sub tasks with the exception of 2.9 were complete or nearing completion with the draft WS2.1 to 2.6 Imperial quantitative analysis report issued on 10 Nov and the WS2.0 qualitative analysis draft report issued on 13 Nov.
- The WS2.9 report was now being developed taking in the key conclusions from the WS2.1-2.6, and WS2.0 reports and building on the options assessment started in the WS2.7 report. The WS2.9 draft report would require input of any material comments from the WG on the WS2.1 to 2.6 report and WS2.0 report.
- The programme had been revised since the Oct 27 meeting based on having the WS5 industry workshop at some point between 22Feb and 11 March 2016 (these dates had been advised to the ENA to arrange the event, the ENA has not started the event planning as yet). Based on the earliest date of 22 Feb for the workshop, the WS3 final options report agreed by the WG would require being ready by 29 Jan 2016 which means that material comments on the draft WS2.1 to 2.6 Imperial report and the WS2.0 draft report would be required by 30 Nov 2015. This is to allow the WS2.9 report to be issued by 7 Dec allowing the WG until 29 Jan 2016 to develop this into the final WS3 options report ready for circulation 3 weeks prior to the industry workshop in WS5.

The DNO WG members were not comfortable with providing material comments (comments that would influence the reports key findings and hence potentially the WS2.9 options assessment) by 30 Nov. SC asked that all DNO's advise by Friday 27 Nov 2015 when their organisations could return their comments by.

Based on the date agreed by the DNOs for completion of their draft report reviews and provision of comments to Imperial the programme will be further revised by CMacK and any cost implications advised to DS and SC.

7. AOB

No other business was raised.

Meeting was closed by SC

8. Summary Review of new actions.

	New Action	Action / Responsible / Due Date
11.1	Note that in the WS2.9 options report comment will be required on the uncertainty of discount rates and time horizons of CBA analysis. Also that the present regulatory regime does not recognise uncertainty and hence may require changes. This would be a risk to how CBA's are done. RD to have a look at this issue for the WS2.9 Options report.	RD/3 Dec 2015.
11.2	Noted that Smart Grid Form WS2 looked at real option value modelling. RD to consider this for the WS2.9 options report.	RD/3 Dec 2015.
11.3	The WG members are to advise SC when their organisations could complete their reviews and return their comments by on the draft Imperial report covering the quantitative analysis.	All WG members/SC/27 Nov 2015
11.4	Subject to the date agreed for return of comments on the Imperial draft quantitative analysis report, CMacK is to provide a revised programme.	CMacK/by next WG meeting subject to previous action.

Next Meetings

The programmed next meetings for the DCRP P2 WG are:

DCRP P2 WG Meeting No.	Date
12	Friday 18 December

1. All meetings will commence at 10:30 at the ENA unless advised otherwise.
2. Any material for circulation prior to the meeting should allow sufficient time for WG members to read prior to the meeting and as a minimum should allow 2 working days.

Appendix A

From: Cox, Steve [mailto:Steve.Cox@enwl.co.uk]
Sent: 20 July 2015 19:21
To: Strbac, Goran
Cc: David Spillett; Birch, Alan; MacKenzie, Colin
Subject: RE: P2/6 review project - internal workshop

Goran, Colin

First of all please accept my thanks for the pack you sent over. There is clearly a huge amount of analysis going on and I appreciate the difficulty you have in engaging the stakeholders in the key elements of the debate. Having read through most of it I m left with a few higher level observations. These may or not help but I thought it at least worth sharing them.

1. We should probably consider how best to establish in the mind of stakeholders a valid launch point for the analysis. Without this milestone being achieved we risk circling around the analysis discussion and questioning the start point. Im keen the project does this fairly soon. Perhaps one we can discuss at our next face to face?

2. The data set is large, complex and contains a considerable range for many elements.
   As discussed on the call I think the cost range on some of the assets is too large and whilst I appreciate the point about making robust conclusions around price points it may be helpful to bracket costs within a narrower range that would be seen as sensible by the regulatory stakeholders. This can be quite large say +/- 25% around the nominal price but at least provides a confidence range that isn't hugely subjective. It would also help people understand the tables you presented and the breakeven points. How could we do this?

3. As suggested by Alan its probably worth splitting HV into 66/33 and 11/6.6 – this may help whittle the costs ranges down and make it more intuitive.

4. The other key values: DSR, Generation, losses, VOLL all needed a similar agreed sensitivity range. VOLL is a particularly sensitive issue and we need to ensure Ofgem's thinking on guaranteed standards and IIS caps are taken into account. The former provides an interruption duration accelerator and the latter a societal cap on the cumulative frequency and overall duration. Visibility of how these factors 2 & 3 are taken into account will be important in getting this base assumption verified.
5. Optionality ie the value of deferment of the decision not just the deferment of asset investment is I guess is represented by the WACC however it would be useful up front to state assumptions in these areas.

6. In thinking back from our eventual recommendations we probably need to consider two periods – ED1 and after ED1. The latter is more important to the future use of the standard but if we don't consider ED1 we risk the work being stranded until 2023. This could take the form of no regrets decisions within ED1 with the values being set at current rates.

7. I'm keen we start to position the language of the findings in customer terms eg 'economically efficient' is from the perspective of GB customers. There are some very material differences between what is efficient for customers and for shareholders. Ofgems task is to align these but where the economics are not aligned that is a very significant barrier to ED1 implementation or

conversely a key focus for Ofgem in their preparation for ED2.
Equally this focus helps bring out the long term cost base implications and what should and shouldn't be allowed – this is very important in areas such as automation where capex investment is funded by short term incentive returns as opposed to long term recurring opex costs which are funded through allowances. At the heart of this is defining efficient but ensuring allowances follow this

8. On a presentational point it may be useful to follow you 'objectives and approach' slide with your 'findings and conclusions' then show the analysis and case studies. It just helps the audience (well me at least) hold onto the crumb trail of the analysis if they know the end point.

9. The challenge we will have in presenting all this work is getting buy in from stakeholders to the conclusions and recommendations.
We clearly need to dive in to the detail at this point but in parallel try and identify the key messages and conclusions we will need to sell.
It may be useful to discuss how to structure and collect our observations as we work through the programme.

Kind regards Steve