

Minutes of meeting to:

Distribution Code Review Panel (DCRP) P2 WG P2
Review Monthly Meeting 9

Copied to:

David Spilliet DCRP P2 WG
NERA attendees
Imperial College attendees
DNV GL attendees

MoM. No.:

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From:

DNV GL

Date:

23/09/2015

Prep. By:

Colin MacKenzie

DCRP P2 WG P2 Review Project

Time/Place: 10:30 – 14:00, ENA conference room 4.

Participants:

Steve Cox (Electricity North West) (Chair)	SC
Kieran Coughlan (Energy Networks Association)	DS
Alan Boardman (UK Power Networks)	ABo
Andy Beddoes (Scottish Power Energy Networks)	ABe
Suzanne Huntley (Northern Ireland Electricity)	SH
Joe Duddy (RES)	JD
Mark Kilcullen (DECC)	MKK
Peter Aston (Western Power Distribution)	PA
Colin MacKenzie (DNV GL)	CMack
Richard Druce (NERA)	RD
Alan Creighton (Northern Powergrid)	AC
Will Monnaie (Scottish Southern Energy Power Distribution)	WM
Goran Strbac (Imperial College London)	GS
Ben Marshall (National Grid)	BM
Saeed Ahmed (GTC-UK)	SA

Appologies:

Chris Marsland (AMPS)	CM
Peter Twomey (ENWL)	PT
Gareth Evans (Ofgem)	GE

P2 Review Working Group Monthly Meeting 9

1. Meeting objectives

The main objectives of the meeting were to:

- Confirm/update status of outstanding actions.
- Brief update on progress to date and progress issues.
- DCRP P2 sub working group activity and progress.
- Update from Imperial on analysis work with a focus on additional work areas.
- WS2.7 update from NERA on WG member feedback.

Agenda

1	Introductions welcome to ENA and housekeeping (<i>Fire Procedure etc. for those attending in person</i>)	SC/DS	10:30
2	Statement on aim of meeting and key agenda items	C MacK	10:40
3	Review of actions from last meeting.	C MacK	10:45
4	Brief update on progress to date and progress issues.	C MacK	11:10
5	DCRP P2 sub working group activity and progress.	C MacK	11:35
6	Update from Imperial with focus on CBA	G Strbac	11:50
7	WS2.7 update on WG member feedback.	R Druce	12:50
8	Break		13:00
9	AOB	SC	13:30
10	Summary review of new actions	C MacK	13:50
	Next Meeting – 27 October 2015		14:00

2. Statement on aim of meeting and key agenda items

C Mack outlined the items on the agenda and introduced the updates from NERA and Imperial College.

3. Review progress on actions from the last meeting.

CMacK went through the summary list of actions outstanding from the previous meetings. Any amendments or updates to the outstanding actions are noted below in the red text.

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.

Action Description	Action/Responsible/Due Date
<p>11 DCRP P2 WG is to advise any other party that they would wish to peer review the modelling inputs and out puts in anticipation of a public consultation on proposals that may be justified (in part) by evidence produced using Imperial’s techno-economic model.</p>	<p>DCRP P2 WG/DS/ by 23 Feb 2015.</p> <p>Outstanding (agreed on 27/3/2015 to leave this open for further discussion with Ofgem who raised this item) (Meeting 6) SC to discuss this with Gareth Evens of Ofgem. (Meeting 7) SC has spoken with GE, action is on GE to advise if they wish a peer review. SC noted that GE may be happy with plans for DCRP P2 WG to review IC’s analysis inputs and outputs which has started based on a review of GS’s presentation material from webinar on 20 July 2015. (Meeting 8), noted that the P2 sub group formed and agreed at meeting 7 is now carrying out the peer review function of data inputs, assumptions and modelling output conclusions. Steve Cox of ENWL has taken a lead role in this review process supported by WPD and NPG.</p> <p>GS/CMack/17 July (Meeting 7) Outstanding action on GS. (Meeting 8) Outstanding action on GS. See new action 8.4.</p> <p>GE/DS/ 3 July (Meeting 8) Outstanding action, DS to chase GE for a response. (Meeting 9) Actions on DS and GE still outstanding.</p>
<p>6.4b Consortium to investigate if HILP event details are publically available from Ofgem.</p>	<p>GS/CMack/17 July (Meeting 7) Outstanding action on GS. (Meeting 8) Outstanding action on GS. See new action 8.4.</p>
<p>6.4c GE to confirm if Ofgem holds any details on HILP events from DPCR5 reports.</p>	<p>GE/DS/ 3 July (Meeting 8) Outstanding action, DS to chase GE for a response. (Meeting 9) Actions on DS and GE still outstanding.</p>
<p>New Action</p>	<p>Action/Responsible/Due Date</p>
<p>8.1 Agreed that C Mack should raise an action on the P2 sub group to provide GS with suitable mobile generation costs.</p>	<p>C Mack by 28 Aug. Completed by email on 27/8/2015.</p>
<p>8.2 GS is to provide a condensed list of operational costs required for his modelling to the WG.</p>	<p>GS by 1 Sept 2015. Meeting 9, action seperceded by events and closed.</p>
<p>8.3 Further Information relating to HILP events has been requested by GS, some already provided (via action 7.1) but more examples have been requested by GS.</p>	<p>All WG members to provide additional examples to Consortium members/4 Sept 2015. Meeting 9, a limited response was received, Imperial relitively happy with examples they now have. Action Complete.</p>
<p>8.4 GS to review Ofgem web site for sources for further HILP information, papers and reports.</p>	<p>GS 4 Sept 2015 (Post meeting 9 note, CMack carried out a</p>

Action Description	Action/Responsible/Due Date
8.5 Discussion relating to the use of P2/6 in the defence of potential legal challenges, SC to investigate with ENWL legal team how many claims are there per year where ENWL has used P2/6 to fight the claim and win.	search on the Ofgem web site on 24 Sept 2015 but could not find any reports on HILP events). SC to discuss with ENWL legal department and report back by 4 Sept. Meeting 9, SC still awaiting a response, action left open.
8.6 Feedback was sought by RD regarding the draft WS2.7 report circulated prior to the meeting and the summary presentation.	Feedback was requested from all WG members directly to RD by 9 September 2015. Meeting 9, since the Consortium did not receive feedback from some key stakeholders, the dead line was extended by two weeks and then a further 1 week to 29 Sept 2015 for SP, WPD.
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.
8.8 Slide pack presented by Imperial College was not circulated before the meeting – not all slides were presented during the meeting. GS to provide slide pack of the actual slides discussed during the meeting	GS to provide slide pack to all WG members/21 Aug
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 likelihood of the programme meeting this date.	Complete. DS distributed slide pack to WG via email on 3 Sept 2015. 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.

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

CMack presented a short verbal summary of progress to 13 Sept. The formal progress report was circulated to all WG members prior to the meeting (Email from DS on 20 Sept 2015). C Mack outlined the following:

- Sub WSs 2.0. To 2.7 are all nearing completion. The reporting for WS2.1 to 2.6 is underway at Imperial and GS estimates they need 2 to 3 weeks to complete the analysis subject to limited changes to input data from the P2 sub group review of the data inputs. The P2 sub group work

is discussed in agenda item 5, however, the P2 sub group DNO members plan to have agreed any input data amendments and to have forwarded these to Imperial by early next week.

- The outputs from Imperial's work were first presented on 20 July 2015 with a further presentation and slide pack at the DCRP P2 WG meeting on 19 August. Some additional studies work and updates are presented by GS at this meeting. So far the results and key findings have been included in slide packs circulated to the WG members. GS indicated that Imperial would be preparing a summary write up of the key conclusions from each area of work. It was agreed that it would be useful to the WG members for the outputs review if GS released these summary write ups as soon as possible. GS is to prepare these summaries over the next two weeks.
- CMack emphasised that it is key that the P2 sub group complete the data inputs review and outputs checks next week if the WS2 programme is to be kept to.
- KC asked if the consortium had a more detailed programme than the one in the progress report. CMack is to forward this to KC.
- Regarding NERA's WS2.7 report, DNV GL extended the deadline for comments from DCRP P2 WG members by two weeks as some key WG members had not commented. Ofgen and DECC have now commented during this extension. However, the deadline has been further extended by another week to Tuesday 29 Sept to allow NPg, WPD and SP to return comments. Both these extensions were made as the Consortium felt that the content of WS2.7 is fundamental to the phase 1 work, and the appraisal of the high level options in the WS2.7 report will be used as a starting point for the appraisal in the final options report to be developed as the phase 1 work progresses. Hence the consortium felt that as many key stakeholders in the DCRP P2 WG should feedback at this stage as possible.

In terms of potential issues and risks CMack indicated the following:

- There is still a risk to the programme during the P2 Sub group peer review process until this is completed and the DCRP P2 WG is happy that the WS2.1 to 2.6 Imperial data inputs are robust and the output key conclusions are accepted as correct and complete. CMack indicated that the P2 sub group was formed as a strategy to speed up the WG review of the Imperial modelling, however, while the sub group is undoubtedly progressing faster than the full DCRP P2 WG would have done, progress has been subject to delay as the sub group members work towards a consensus on any input changes. When the group finally agrees amendments to the input data, if these require significant re-running of studies by Imperial this will delay the WS2 and overall P2 review programme. Imperial need confirmation of data amendments from the P2 Sub Group within a week. The programme requires that the DCRP P2 WG and Sub working group peer review of Imperial's work be completed by the end of week commencing the 28 Sept.
- There is also a risk to programme in agreeing the options report conclusions and content during WS3 ready for release to the wider industry. CMack was asked to provide more detail on the WS3 programme. (Post meeting note: WS3 should commence following the release of the WS2.9 draft options report with a DCRP P2 WG workshop during the scheduled DCRP P2 WG meeting on 27 October. Issue to industry of the final agreed report is programmed for week commencing 7 December. An extract of the programme covering WS3 is shown below.) The DCRP P2 WG is to agree if the WS3 time scale is acceptable or whether this should be extended, pushing the remainder of the programme back and allowing the WS5 stakeholder engagement event to have a firm date set and organised.

Engineering Recommendation P2 Review

Project Plan - Phase 1	Week starting.		19/10/15	26/10/15	02/11/15	09/11/15	16/11/15	23/11/15	30/11/15	07/12/15	14/12/15
	Week 39	Week 40	Week 41	Week 42	Week 43	Week 44	Week 45	Week 46	Week 47		
Task item											
WS2.9 Options for future development of distribution network standard (Draft options report to go into WS 3 to finalise the P2/6 options Report).	[Red bar spanning Weeks 39-40]										
Work Stream 3 - P2/6 Options Report	[Red bar spanning Weeks 39-46]										
Stakeholder (DCRP P2 WG only) workshop. Presentation of draft options report coming from WS2.9 which will be developed to a final report in WS 3.	[Red bar spanning Weeks 40-41]										
DCRP P2 WG feedback on Options report	[Red bar spanning Weeks 41-42]										
Revise Options report	[Red bar spanning Weeks 42-43]										
Final agreement and issue report to Industry review (This will need regular calls between Consortium and DCRP P2 WG members to finalise and agree.	[Red bar spanning Weeks 45-46]										

5. DCRP P2 sub working group activity and progress.

CMack kicked off a short discussion of the P2 sub group activities.

The P2 sub group was set up to speed up the process of reviewing the imperial model data inputs and resulting outputs. Although it is noted that the tasks for the sub group have been more focussed on establishing data inputs that the DCRP P2 WG are happy to sign off, with the full group being involved in reviewing the key outputs from Imperial’s modelling and analysis.

The P2 subgroup consists of representatives from ENWL, NPg and WPD. The first task was to review the Imperial data inputs extracted from the RRP data provided by the six DNO members used to generate the Imperial results presented during the Webinar on 20th July. This was duly carried out predominantly by SC. Imperial took the new data into account in the revised results presented by GS at the WG meeting on 19 August. Imperial has since been working on a few new topic areas to complete the analysis including the impacts of reactive power on the NGET system due to larger cables at lower voltages; the potential to utilise standby generation in place of further redundancy in the network; the case for increasing transformer numbers in parallel above two to provide P2 compliance; and EHV and 132kV network case studies. The P2 sub group has been involved in reviewing and providing the data inputs for these additional studies.

SC from ENWL has taken a lead in reviewing the various data inputs used by Imperial with WPD and NPg now completing their reviews. ENWL, NPg and WPD are now in the process of finalising and agreeing any further amendments to Imperial’s data inputs. As discussed under item 4 the P2 sub group require to complete their work by end of week starting 28 Sept to keep the programme on track.

6. Update from Imperial on analysis work with a focus on additional work areas.

The main analysis topics presented at the meeting on the 19 August were:

- Economically efficient network design and operation;
- Handling of exceptional events (HILP) and robust network design;
- Security contribution from non-network technologies;
- Towards a “Smart Grid”, and
- Generator driven network design.

GS presented some further Imperial analysis results at this meeting in support of these areas including:

- Results from Automation analysis.
- Work on construction outages.
- Work on Reactive power impacts on NGET.
- Modelling of Pay Back.

Issues/comments raised and discussed during the presentation that are relevant to the analysis included:

- During the discussion on the automation results, AC noted that DNO's do not to use VOLL they use IIC when assessing the need for automation. SC indicated that IIS is VOLL after the sharing factor is applied; hence IIS and VOLL are consistent.
- During the discussion on construction outages, GS requested information from the WG on how to establish a cost to increase transfer capacity, or if this would require new 132kV cables. Imperial has used £100k for 80MWs of TC increase, is this realistic? PA/SC indicated that the cost is very case specific. £100k for 80 MW may be possible but is likely to be a very much larger cost if new 132kV cables are required. GS asked the DNO members for guidance on the cost of transfer capacity at the different voltage levels.
- Also relating to construction outages, it was noted that if the future standard promoted N-0 or N-0.5 redundancy then this may drive the requirement to consider construction outages more seriously.

7. WS2.7 update on WG member feedback.

RD provided feedback on the response to the draft WS2.7 report.

RD had received comments from UKPN, RES, ENWL, SSE, DECC, Ofgem and Energ but was missing comments from SP, WPD, NIE and NPg. RD required any remaining comments by Friday 25 Sept. (Noted that SP and WPD have agreed to provide comments by Tuesday 29 Sept).

RD indicated that there were 3 key areas of feedback:

1. The removal of P2/6 or a serious reform of P2/6 where legal risk increases were raised as a concern.
2. The cost of the above legal risk requires to be fed in somewhere.
3. The cost of implementing a move to a CBA based standard was also raised as a concern. RD asked WG members for any evidence of such costs.

The following actions were raised or discussed:

- SC to ask his legal and treasury people for an assessment of the impact on WACC (weighted average cost of capital) of not having P2/6 or an equivalent to protect against legal challenges.
- In response to a request for WACCs in other countries RD indicated that these would not be meaningful as a comparison.
- In terms of the high level option that the DCRP P2 WG can recommend, this will be subject to Ofgem approval. Hence there may be a decision dilemma without Ofgem coming to a decision on the suitability of some options such as removal of P2/6 altogether. RD is to draft a letter from SC to GE to seek some guidance from Ofgem.

7. AOB

No other business was raised.

Meeting was closed by SC

8. Summary Review of new actions.

	New Action	Action/Responsible/Due Date
9.1	KC asked if the consortium had a more detailed programme than the one in the	CMacK/CMacK/2 Oct 2015

	New Action	Action/Responsible/Due Date
	progress report. CMack is to forward this to KC.	
9.2	All data inputs to the Imperial model provided by Imperial to the DCRP P2 WG and P2 sub group are to be reviewed and any data amendments agreed and provided to Imperial by end of week commencing 28 Sept 2015.	P2 Sub group/ SC/2 Oct 2015
9.3	The DCRP P2 WG is to agree if the WS3 time scale (see extract from WS 3 programme recorded in the minutes for item 4) is acceptable or whether this should be extended, pushing the remainder of the programme back and allowing the WS5 stakeholder engagement event to have a firm date set and organised.	DCRP P2 WG/DS/9 Oct 2015
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.
9.5	GS asked the DNO members for guidance on the cost of transfer capacity at the different voltage levels.	P2 sub group/SC/9 Oct 2015
9.6	WS2.7, any WG members who have not provided their comments on the report are to provide these by Tuesday 29 Sept.	AB,PA,AC/DS/29 Sept 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
9.8	SC to ask his legal and treasury people to provide an assessment of the impact on WACC (weighted average cost of capital) of not having P2/6 or equivalent to protect against legal challenges. This is to be fed into the WS2.7 report via RD.	SC/SC/9 Oct 2015
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	RD/RD/2 Oct 2015 SC/SC/9 Oct 2015

Next Meetings

The programmed next meetings for the DCRP P2 WG are:

DCRP P2 WG Meeting No.	Date
10	Wednesday 28 Oct

	Provisionally moved to Tuesday 27 Oct, DS to confirm.
11	Wednesday 25 Nov. Tuesday 24 th November
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. I'm 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 it's 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. Ofgem's 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