

## Power Potential Regional Market Advisory Panel

Outcomes, 12<sup>th</sup> September 2018

### Participants:

Panel Chair	Dame Fiona Woolf	Chair, Regional Market Advisory Panel and Partner, CMS Cameron McKenna
Panel Members	Hanaé de Rochefort	Association for Decentralised Energy
	Doerte Schneemann	BEIS
	Alastair Martin	Flexitricity
	Andrew Robbins	Innogy
	Ian Larive	Low Carbon
	Frank Gordon	Renewable Energy Association
	Alex Howard	Origami Energy
	Sammy Blay	Reactive Technologies
	Fernando Morales	Highview Power
Representing National Grid	Claire Spedding	Head of Business Development, National Grid Electricity System Operator (ESO)
Representing UK Power Networks	Sotiris Georgiopoulos	Head of Smart Grid Development
Power Potential project team attendees	Dr Biljana Stojkovska Amy Boast Dr Rita Shaw Mike Robey	Project Lead, National Grid ESO Commercial Workstream Lead, National Grid ESO Project Lead, UK Power Networks RMAP Secretariat, for National Grid ESO
Guest	Dr Karim Anaya	EPRG, Cambridge University
Apologies	Louise van Rensberg	Ofgem

### Panel discussion, actions and project team responses to date

Agenda Item	Panel Members	Panel comments and questions (with project team response)
3 Commercial Update	Ian	Has the timetable shifted?  Project team: Trials starting in March 2019 continues to be the project timeline at present. Reference to summer and winter has been removed for simplicity in the market calendar in the Power Potential Market Procedures Document
3 Commercial update (slide 14)	Andy	During the mandatory Active Power technical trials, you will pay £150/MWh – Is this for bid and offer?  Project Team: Yes, for MW up and MW down delivery
3 Commercial update (slide 14)	Alistair	Clarify the approach to ‘underwriting’ DER costs  Project Team: If the trials do not proceed, but a DER has signed up to the Framework Agreement and successfully completed commissioning and testing, the project team has committed to reimburse the DER CapEx costs incurred (subject to open book provision), up to the maximum value of the wave 1 participation payment of £45,000. Post meeting note - See clause 4.1 of the Framework Agreement

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Commercial update (slide 14)	Ian	<p>How will availability be determined?</p> <p>Project team: This is described in the Framework Agreement / market procedure document. DERMS will check availability through a system handshake protocol to confirm the DER is in voltage control mode.</p> <p>Post meeting note: For the purpose of determining hours achieved in wave 1, a DER Unit will be deemed to have been available for each Settlement Period:</p> <ul style="list-style-type: none"> <li>• If non-synchronous, when it is online with an active communications link as indicated by the DERMS Monitoring, in voltage droop control mode, and has submitted to the DERMS Web Interface an Expected Operating Level for active power (which could be zero, but for which the associated reactive power volume available would be non-zero.).</li> <li>• If synchronous, when it is online with an active communications link as indicated by the DERMS Monitoring, in voltage control mode, and has submitted to the DERMS Web Interface an Expected Operating Level for active power (which could be zero, but for which the associated reactive power volume available would be non-zero).</li> </ul>
Commercial update (slide 14)	Doerte	<p>How frequently will this be – second-by-second?</p> <p>Project team: This will be assessed per half hourly settlement period</p>
	Sammy	<p>Can you clarify communication to DER sites? Is this via a UKPN RTU at DER sites?</p> <p>Project team: Yes, DERMS will communicate with an RTU at the DER site which will signal to the DER site controller</p> <p><b>Action: Project team to improve clarity of the diagram at section 2.5.1 of Technical Requirements</b></p>
Commercial update (slide 16)	Alistair Claire	<p>I like the approach to use a primary and secondary list to manage the participation payment budget; will site visits be used to confirm site progress? Will DER be self-certifying their progress or will we be witnessing the testing for commissioning?</p> <p>Project team: Yes, agree that witnessing at site is important to confirm each DER is really making progress. The project will have a test engineer attend each site for commissioning and using a standard checklist will judge DER pass/ fail against each commissioning criterion, and what action is required. The project team will hand-hold DERs through the process. There will also be an invitation to participating DER to come to UK Power Network's Nelson Street (east London) laboratory to undertake pre-site tests.</p>
Commercial update (slide 16)	Sammy	<p>Is there a timeline for commissioning?</p> <p>Project team: A bespoke approach will be taken with each DER according to their needs. There is not a fixed deadline, but having the priority list of the first 11 DER provides an incentive for making early progress. The availability thresholds for receipt of the wave 1 participation payment further incentivise early progress in commissioning by DER, but we welcome participants throughout the trial duration.</p>
	Hanae	<p>How will this work for aggregated units?</p> <p>Project team: The Framework Agreement defines the eligibility for DER participation payment as a participant having one connection to UK Power Networks system. The project team is keen to keep talking to aggregators to understand how their participation can be facilitated.</p>

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3 Commercial update (slide 16)	Ian	<p>Is there a step before signing the Framework Agreement whereby an eligibility letter is issued?</p> <p>Project team: Yes, UKPN will confirm DER eligibility.</p>
3 Commercial update (slide 16)	Sammy	<p>Clarify the sign-up process. Print, sign and return?</p> <p>Project team: Schedule 3 of the Framework Agreement does need dialogue with UK Power Networks regarding DER-specific plant capability and consideration of connection agreement.</p>
3 Commercial update (general)	Ian Fiona	<p>Can the project team clarify who DER should be talking to?</p> <p>And ensure these contacts are well briefed and have authority.</p> <p><b>Action: Project team to clarify who in UK Power Networks and National Grid is the appropriate contact for key issues. Share with RMAP and DERs</b></p> <p>Project team: Kellie Dillon (UK Power Networks) and Kameesh Phillips (National Grid) are the project's account managers overseeing engagement with DERs and facilitating access to the right sources of expertise.</p> <p><b>Action: Project team to clarify the process for query management (i.e. are Kellie and Kameesh directing queries to the relevant people or should DER contact the relevant people?)</b></p>
3 Commercial update (slide 16)	Sammy  Fiona          Sammy	<p>Please clarify the response times and are these a contractual obligation?</p> <p>Project team: 2 minutes for active power, 2-5 seconds for reactive power (90% response in 2 seconds, 100% in 5 seconds). This is stated within the Technical Requirements document, which is referenced in the Framework Agreement. The response time achieved will be tested during the mandatory test phase. The clock starts on the 2 seconds when the DER receives the signal.</p> <p><b>Action: Project team to confirm this requirement and where it is located within the published documents.</b></p> <p><b>Post meeting note:</b> Sections 4.4. and 2.1.1. of the Framework Requirement confirm that DER must comply with the DER Technical Requirements, and demonstrate this at commissioning. Section 3.4 of the DER Technical Requirements covers time of response to voltage set point in the reactive power service (excerpt below).</p> <p><i>... the Trial must include DER who expect to be capable of achieving 90% of the possible change from full lead (importing reactive power) to full lag (exporting reactive power) within 2 seconds. However, the Project is interested in engaging with all DER who would like to participate in Power Potential.</i></p> <p>Schedule 3 of their Framework Agreement with the expected response time, and this will then be verified/ updated at commissioning.</p> <p>For the active power service, the 2-minute response time is set out in clause 7.2 of the Framework Agreement:</p> <p><i>The <b>Provider</b> must procure that the <b>DER Unit</b> responds to this instruction within 2 minutes of receiving the instruction.</i></p> <p>There remains a concern that this has not been tested yet and there is an ongoing risk until commissioning is complete that assets could be stranded.</p> <p><b>Action: Project team to review the timing of site commissioning and project readiness for trials and how to mitigate the risk to participants during commissioning.</b></p>

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3 Commercial update (slide 19)	Alistair	<p>Please clarify Lead and Lag – to whom? I.e. is this consuming or producing Mvar?</p> <p>Project team: Lead is absorbing and lag is (producing) injecting Mvar</p> <p><b>Action: Project team to clarify within documentation and in project visuals/diagrams</b></p>
	Karim	<p>Can Power factor be less than 0.95?</p> <p>Project team: Initially no, but yes, if that's within the acceptable range stated in Schedule 3 of the Framework Agreement and a variation of the connection agreement. Generators do not have to provide an exact P and the project team will take the risk on the accuracy of this.</p>
3 Commercial update (slide 20)	Ian	<p>When is the Go / No-go point?</p> <p>Project team: At the end of January 2019. Linked to the completion of System Integration Testing before going live</p>
4 Technical update (slide 22)	Sammy	<p>Will the DER web interface have an API?</p> <p><b>Action: Project team to clarify and check security considerations</b></p>
4 Technical update (slide 22)	Ian	<p>Will daily input be required from participating DER?</p> <p>Project team: It will be possible to enter bulk days in advance on the DER Web interface (and then tweak by 2pm day ahead, if required)</p>
4 Technical update (slide 22)	Sammy	<p>Will the DER web interface show reporting data too?</p> <p>Project team: It won't show payments information, that will be via a monthly statement</p>
	Sammy	<p>Will DER get visibility of RTU monitoring data – it would be helpful to see how the site performs</p> <p><b>Action: UKPN to investigate this.</b></p>
	Sammy	<p>Can RTU control the DER without a DER gatekeeper?</p> <p>Project team: It is possible to follow an aggregator route to participate. We've not had strong interest in this approach yet, but yes, the project can do this and we see a future in following an aggregator route.</p> <p><b>Action: UKPN to follow up how the approach via an aggregator will work</b></p>
	Sammy	<p>And consider how the aggregator route impacts on the 2-5 seconds' response time.</p> <p><b>Action: Project team to investigate</b></p>
5 Project plan (slide 29)	Alex	<p>Is the end of 2019 completion date fixed? If schedules slip, will the project gather enough insight?</p> <p>Project team: There are challenges ahead, but the project team is fully committed to delivering 2019 trials that cover the particular summer network scenarios. The wave lengths have been developed to ensure sufficient data is captured to achieve the project objectives (wave 1 approximately 15 weeks, wave 2 approximately 11 weeks) and there is some flexibility in the trials calendar that would allow us to compress e.g. wave 2 is currently a week of trials, a week without trials. The trial could extend beyond 2019 as part of a planned non-material change, but we are not proposing that at the moment.</p> <p><b>Action: Project team to provide updated plan to RMAP at the end of September</b></p>

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5 Next steps (open discussion)	Sammy	<p>Active power – how will the baselining approach work for solar?</p> <p>Project team: To incentivise accurate active power forecasting the project team will review the output of the DER an hour prior to any instruction to deviate from their P (MW) output to deduce if their actual output was equivalent to their forecast output. The variation in this forecast against outturn will be assumed to apply for the remainder of the service window, and used to establish a baseline for which settlement will be based upon for payments for the active power service. This is set out in part 1 of schedule 2 of the Power Potential Framework Agreement.</p>
	Sammy	<p>Bidding for Active power – are bids to a reference index accepted?</p> <p>Project team: No, not during the trials, prices are locked in at 14:00 at the day ahead stage</p>
	Sammy	<p>Can the project accept Active Power bids in just one direction?</p> <p>Project team: Yes</p>
	Karim	<p>Recommend that the project team share and compare approach with New York.</p>
	Fernando	<p>Will this be stackable with Frequency Response?</p> <p>Project team: Yes</p> <p><b>Action – project team to share table showing stackable services with Fernando</b></p>
	Ian	<p>In Business as Usual, will the National Grid Control Room need to be policed?</p> <p>Claire: Power Potential would be integrated into National Grid Electricity System Operator’s Platform for Ancillary Services, therefore the prices offered will appear in an overall stack of service providers. As the Electricity System Operator, we have licence obligations requiring us to take the most economic and efficient actions.</p>
	Ian	<p>What about the locational benefit, will this be included?</p> <p>Claire: National Grid’s Control Room does this optimisation and the market information is published for transparency. This provides data for stakeholders to challenge why National Grid selects one provider over another, for example. These challenges do happen and National Grid also uses these queries in forums to provide further clarity on how decisions are made.</p>
Sammy	<p>Will the project share effectiveness with DER?</p> <p>Project team: Yes. An effectiveness factor range will be shared with DER before the Wave 1 Trial, and DER will be informed of any change as network conditions and modelling improves the wave 1 trials will determine this for use within the wave 2 and 3 trials</p> <p>Post-meeting note: Since effectiveness will eventually be calculated by DERMS, the final values are not available at the time of signing the Framework Agreement.</p>	
7 Cambridge University update	Fiona	<p>Recommend that Cambridge University team keep abreast of new plans emerging in Australia</p>
7 Cambridge University		<p><b>Action: Share updated RMAP slides and Cambridge University’s slides</b></p>