Power Potential
Regional Market Advisory Panel

Outcomes, 14th June 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
	Alice Fourrier	BEIS
	Alastair Martin	Flexitricity
	Andrew Robbins	Innogy
	Ian Larive	Low Carbon
	Louise van Rensburg	Ofgem
	Alex Howard	Origami Energy
	Sammy Blay	Reactive Technologies
	Fernando Morales	Highview Power for Renewable Energy Association
Representing National Grid	Claire Spedding	Head of Business Development, System Operator
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 Commercial Workstream Lead UK Power Networks Project Lead RMAP Secretariat

Panel discussion, actions and project team responses to date

Agenda Item	Panel Members	Panel comments and questions (with project team response in bullets)
2 – Review of actions	**AH**	Will each site have a UKPN box? • Yes, each DER (already) has a UKPN RTU and each DER's controller will be able to communicate with the RTU to communicate with DERMS. However, the project is open to other routes (see next point).
	AL	For aggregators, will an additional interface be required? • It depends, UKPN is engaging with each interested aggregator on the most appropriate solution. From engagement to date with an aggregator, they wanted their DER to receive their instructions locally, but there could be a solution where the aggregator's system connects to DER and to DERMS to send and receive instructions, rather than instructions being sent via the RTU. • A web interface will also be available for allowing both individual DERs and aggregators (if they wish) to bid into the market. • Also, note that wider work (beyond the project) is ongoing on aggregator APIs
	AR	DUoS – confirmation of decision that any additional charges will be logged as project learning, but not charged to DER; is the detail documented in the Market Procedure? • **Action**: Project team to clarify where this will be reflected (decision not to apply charges) within the Market Procedure or Framework Agreement

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2 – Review of actions (continued)	**AR**	Market Procedure change control process – need for a consultation period prior to implementation of any changes requested. • **Action**: project team to consider this in finalised framework agreement & market procedure
	AM	Is this a trial? The firmness in the contracts is fine for business as usual balancing services, but not as suitable for a trial. Preference for no lock-into the trial period. NG & UKPN need to take on the risk, with all trial participants receptive to experimenting • This is a trial. **Action:** Project team to review decision to align change control process with STOR contracts approach.
	AB	• AB & BS confirmed that the current level of DER interest, subject to contract, would be sufficient quantity of participants and volume to meet the project objectives.
3 – Project plan & progress to date	**LvR**	Where is the value to UK Power Networks and how is this being considered in the assessment? • The original project bid envisaged that Power Potential will provide additional network capacity to UKPN. Transmission voltage constraints in the future were anticipated to prevent future DER connections on the distribution network. Dynamic voltage control would provide National Grid more options to manage these constraints, resulting in UK Power Networks being able to connect more DER. The bid related to the costs to the transmission and distribution network of managing transmission voltage,
4 – update on commercial proposition	**AM**	Acknowledge that the current trial set up isn't going to work where power isn't the core business of the DER. Specific issues included: • Signal cable – not received answer on whether there is any spare capacity on the existing communications cable to UKPN (on-the-ground team not provided answer to support the innovation project) – minor point but can reduce the costs • **Action**: RS to follow-up the communications cable feedback • Control system – Power Potential is using voltage control signals. CHP use Power Factor (PF) and wouldn't PF be more logical in a stiff network? Also, much easier to find UK maintenance support contractors for control system for this control mode. Recognise this is an issue for their plant type, but huge step to be ready for Trial in 6 months. – Can the project review this? • Voltage control is fundamental to the Power Potential approach with DERMS • **Action**: Project team to follow-up with AM on the control system approach (voltage control versus Mvar control) • Payment – the proposal looks like it will only cover half of the expected CapEx costs for this plant, and that is before other costs are considered • Trial risk – As this is a trial there is a risk that costs (on CapEx) will not be recovered if this does not convert to an ongoing service.
4 – update on commercial proposition	**SB**	Is the Active Power service open to intermittent generators? • Yes, DER need to submit their expected operating level, maximum and minimum operating level, and price for MW up and MW down services. The expected operating level and actual operating level for the hour prior to the instruction will be used to baseline for settlement. Payment is utilisation only, for MW's delivered. No penalty structure or availability payment. What existing service is it competing with? • Transmission constraints management services and the balancing mechanism

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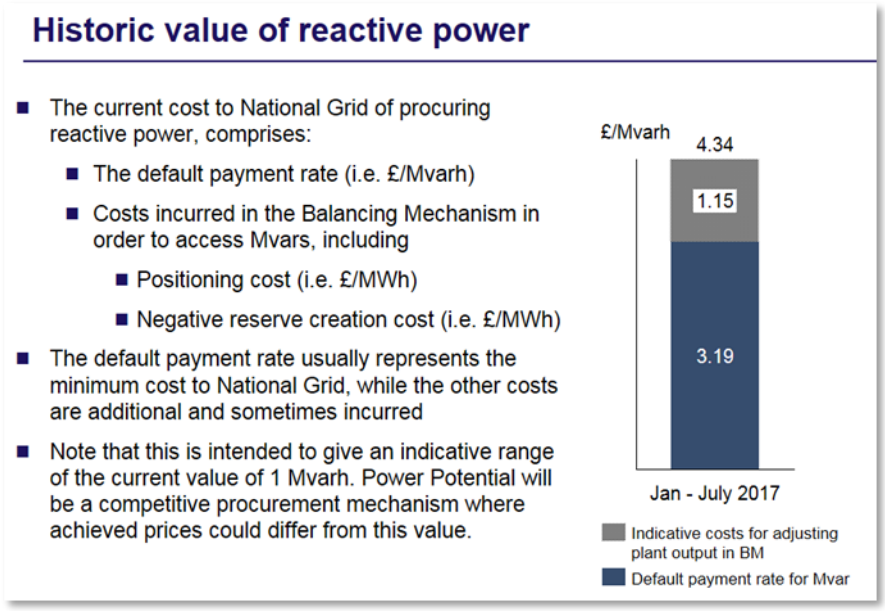
4 – update on commercial proposition (continued)	**HdR**	How was the wave 1 payment determined? And can this be revisited? What about unspent budget? Some potential participants won't come on board unless they can resolve the risk that their costs may not be covered. • The proposed participation was drawn from the average cost estimated by DER in previous consultation (of £25,000) • These points are part of the current consultation and open for review. **Action**: Project team to review. • Unspent funds – could be used for increasing trial hours for wave 2 to gather more learning for the project
	HdR & SB & AH	Historic prices – request to be more transparent on the details of this. • See the slide below from the project team, shared at previous webinars • At present reactive power requirements are met by transmission connected generators through the mandatory reactive power service, with little to no participation in the commercial reactive power market. • The cost of procuring reactive power through this route comprises of the default payment which is standard across all generators and possibly a positioning cost, if a generator's output needs to be adjusted in order for them to deliver the service. • The average price paid for this service between January and July 2017 is shown in the chart, as an indication of the historic price of reactive power in the project area. • These figures should not be interpreted as guaranteed prices for the Power Potential trial, or possible maximum or minimum payments – they are presented as an illustration of historic value, to be used as a starting point for cost-benefit analysis, but recognizing that DER bids would be compared against the marginal transmission alternative rather than the average.  • Panel noted that once effectiveness is factored in, this value could be very small if low effectiveness. Whether a DER price is attractive to the transmission operator will depend on both the DER's effectiveness and the cost and effectiveness of the marginal available transmission alternative. • **Action** – project team to provide further information on historic costs. • Post-meeting note: Historic utilisation charts have been published on the project website (See the 'Related documents section at: https://www.nationalgrid.com/uk/investment-and-innovation/innovation/system-operator-innovation/power-potential)

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4 – update on commercial proposition (continued)	**SB**	Power Potential in danger of not getting the participation and therefore results that the project is seeking if the wave 1 participation fee is not generous enough and DER costs are not covered. Cashflow risk in timing of wave 1 payment. So far payment is not incentive for them to participate. Need enough to enable them to participate given this is not an established market. **Action:** Project team to consider
	AR	Lack of utilisation fee in wave 1 is a concern. In particular, it will not encourage DER to present their full capability in wave 1. Request for project team to think about this. **Action:** Project team to consider
	IL	For wave 2, are there in effect four markets (at each GSP) or one market across all four GSPs? Will DER know where the constraint is that they are bidding to provide a service to address? • This depends on the voltage constraint and where the system need is **Action:** Project team to provide further details & reflect in market procedure
	IL	Would DER with lower sensitivity be accepted if they bid lower? If there's a transmission generator far away which is half as effective as a DER, the DER could bid twice the mandatory price. Will DER be aware of their effectiveness and others' effectiveness? • Effectiveness is being shared with DER in 1-2-1 meetings • Project team also reviewing what market information is published. The Panel felt that publishing effectiveness information would be valuable (though different views were expressed whether DER names should be presented or anonymised). It was also stated that the closest market to this is the Balancing Market, where BOAs (Bids and Offers Accepted) are published. **Action:** project team to consider this when designing market information reports.
	LvR	Market procedure reads well, well done.
	SB	Risk to participants if the trial doesn't proceed, only get wave 1 participation, nothing for loss of opportunity in wave 2/3 but wave 1 doesn't cover costs. • If the Power Potential trial does not go ahead, Providers will receive 80% of the total Participation Payment that they would have been eligible for, subject to successful commissioning. • Action: Project team to review eligibility and thresholds for receipt of participation payments
	SB	Availability payments for wave 1 require 24hour availability, but DER have not appreciated this and won't be able to achieve this (e.g. PV who can only offer reactive power services at night). Can the project amend the approach to availability? • Noted that the technical trials intend to be ready to respond to a dynamic event, so availability is required and each hour is valued equally. **Action** – project team to consider this in finalised trial design
	SB	Can Power Potential project team consider paying for a reduction in active power as an option to deliver the reactive power service? • A key principle of the project is to access reactive power without compromising active power.

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4 – update on commercial proposition (continued)	**AM**	The optional hours seem to be the only way to get money. Are you defining the market windows? If so this is not a barrier we can surmount, to bear the cost of conversion then even the risk that the 6 weeks chosen might not coincide with production schedule. So even the money that's secure is at risk. The market calendar could be critical to participation and participation cost recovery (e.g. how it aligns to DER maintenance schedules etc.) This may prevent DER signing up. Can a more flexible approach be adopted? (e.g. EFCC offered a more flexible approach, there was an upfront amount to ensure fixed costs covered and a number of additional hours agreed with the customer to give the upside to participation.) A trial is not about cost reduction/ optimisation – it's about getting people to try. • **Action** – project team to consider this in finalised trial design
	SB	Customers don't take bets on trials
	HdR	What will the requirement for this service look like in the future? Is it likely to increase? As outlined in National Grid's reactive roadmap the requirement for Reactive Power absorption has consistently increased for the last 10 years and our forecasts show this will continue. The reasons for this and the actions we intend to take to ensure we can take economic actions to manage this are set out in our Roadmap which we invite the panel to read: https://www.nationalgrid.com/sites/default/files/documents/National%20Grid%20SO%20Product%20Roadmap%20for%20Reactive%20Power.pdf Follow up note following meeting from project team: details of the future reactive requirement can be found in National Grid's System Operability Framework, 2016. Page 137, Figure 4.28, Figure 4.29 and Figure 4.30 of the document describe the zonal maximum reactive power requirement by region in 2016/17, 2020/21Slow Progression and 2020/21Consumer Power. The results show the total post-fault reactive power requirement, inclusive of voltage regulation. The requirements for post-fault containment and recovery increase over the period as the support available from synchronous generation declines. https://www.nationalgrid.com/sites/default/files/documents/8589937803-SOF%202016%20-%20Full%20Interactive%20Document.pdf
	GS	Imperial College – From the modelling, which procurement approach is the most efficient? • Half-hourly LR comment on Imperial's work was that market power and signalling of availability were particularly important. FW asked for GS view on commercial proposition. GS – sympathetic to individual sites circumstances on availability whilst emphasising system needs i.e. the SO needs this service all of the time; 99% of the time the worst won't happen, but if it does, they need to be able to act.
	FW	• **Action:** team to share final Framework Agreement and related documents, when available
7 - Findings to date from Imperial	**FW**	• **Action:** Share link to Imperial College report, when available
8 - Wrap-up and close	**FW**	• **Action:** Reconsider the commercial proposition, and consider when to hold the next RMAP • **Action:** Provide more information on DERMS/ the technical workstream (WS1) in future RMAP
	BS	Mentioned plan for a PP event with academics and international interest later in year. GS confirmed international interest e.g. ENTSO-E and tension in Europe between TSO and DSO. FW asked if DER would be involved in event.