Grid Code - Real-time data exchange with DNOs
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Purpose

• Describe the challenges UK Power Networks is facing in East Kent – Kent Active System Management (KASM)
• Explain the current real-time data exchange capabilities
• Explain how this data is used and what additional data we need
• Journey to date…options explored
• Proposed Grid Code change
• Questions/discussion
Challenges in East Kent – Heat Maps

- Significant areas of constrained network
- High cost for new connections
- Long lead time for new connections

By 2050 50% of generation could be distribution connected (FES 2017)
Overview of Distributed Generation - 2016

- Significantly more distributed generation capacity than demand
- Generation is largely intermittent
- As a result of the above, the power flows on distribution network are becoming increasingly dynamic

Graphs based on Canterbury North and Sellindge GSPs in 2016
Summary of Issues:

- Increasing number of wind / solar farms connected (Unpredictable power flows)
- Parts of the network reaching Reverse Power Flows limits (Export to Transmission Network)
- East Kent network requires 34 (known credible) contingency scenarios to be analysed
- Worst case operational and planning practices (Min Demand, Max Generation / No diversity)
- Long lead times and high cost for generation to connect
- Existing generators can be constrained up to 30% during outages
- Greater need for real-time analysis and short term forecasting capabilities (KASM)
Kent Active System Management (KASM) Overview:

Develop advanced modelling tools that can be used to run the distribution network closer to its limits

The benefits:

- Better understanding of system in real-time
- Release network capacity for new generation connections
- Reduce constraints on generators during planned outages

How we achieve this?

1. Real-time modelling tools
2. Short-term forecasting modules
3. Enhanced visibility of the transmission network
Current real-time data exchange capabilities

- ICCP – Inter Control Centre Protocol
- Enable real-time data exchange between control centres.
Data available in our Distribution Management System
Why do we need the data?

1. To improve accuracy of the real-time power flow modelling. Currently residual errors in the power flow are high on the transmission network.

2. Gaining confidence in the real-time power flow results will allow engineers to move away from worst case planning assumptions

As the UK transitions to a low carbon economy and the development of smart grids gathers pace there will be an increasing need for NG and DNOs to work more closely, including in respect of the sharing of information.
Journey to date…options explored

1. Request data points from National Grid, who suggest to contact generators to gain consent for sharing this data
2. Contacted generating companies to request consent
3. Several generating companies highlight concerns with REMIT regulation
4. Generating companies want Ofgem to confirm there is no breach of REMIT if they provide consent
5. UK Power Networks liaises with Ofgem who informally suggest a Grid Code change request might be the most appropriate method for addressing the issue

Note: In 2016, UK Power Networks submitted a previous Grid Code change (GC0092) to ensure that OC2 data shared with DNOs can be used for operational and planning purposes
Grid Code change

Initial thoughts:
• Add a clause to the Grid Code to highlight that operational metering data provided under CC.6.5.6 can be shared with Distribution Network Operators.

Question:
• What section would be appropriate for this change?
Questions/Discussion

• Is the Grid Code the appropriate regulation to facilitate this data exchange?

• Would you be supportive of a Grid Code change request?

• What governance process should be used for the proposed change?

• How long would you anticipate it takes to amend the Grid Code?