BSSG - Interconnector Frequency Response Working Group meeting 2

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Aims for today

- Quick Recap from last time
- Discuss the actions from last time – mostly contained within the presentation
- Discuss any new issues
- Next steps

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Recap

- Issue 1: Does the CUSC facilitate interconnector's (ICs) to provide Frequency Response (FR)?
- Issue 2 Would ICs be disadvantaged through the settlement process by providing FR?
- Issue 3 Are the CUSC Payment Methodologies appropriate for IC providers?
- Issue 4 What if there are mandatory FR requirements by both system operator?

Issue 1 - Does the CUSC facilitate IC to provide FR?

- Is the Mandatory Service Agreement (MSA) and CUSC section 4 appropriate for ICs?
- National Grid to develop solutions under a Owner and User FR obligation model
- Owner Model;
  - As is the obligation under the Grid Code at the moment

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Issue 1 – Owner Model

- Problem – no reference to ICs or definitions including ICs within the relevant CUSC sections
  - Generating Unit(s) / Genset / Deload
- Suggested Solution
  - Principle include DC Converter where there is any reference to Generating Unit or Genset.
  - CAP169 WGAA3 to be implemented March 10 will resolve some of the reference issues
    - CUSC 1.3.3 / 4.1.1
    - Other necessary change will take the CAP169 lead
  - Within the MSA, use of Deload
    - Deload (Grid Code definition) does not include IC, therefore a potential Grid Code modification would be required

Issue 1 – User Model

- Is a User model feasible?
  - MSA required with each individual IC User
  - Substantial contract changes – Interaction between the Capability Matrices and apportioned volumes
  - Users have no control of delivery – Should they provide and be held accountable for the service
  - Commercial arrangements the other side are more likely to be directed to IC owner
  - Difficulties with pricing under this model – Individual pricing, National Grid would need to calculate the economics, Some parties may not want to participate (non physical parties?)

Action 2

- National Grid to clarify the FR obligation on ICs
- DC Converter – A Bi-pole / circuit
- DC Converter Station – May house multiple DC Converters
- The FR requirements are at the DC Converter level
  - CC.6.3.7
- Ancillary Service obligations are on the DC Converter Station Owner
  - CC.8.1

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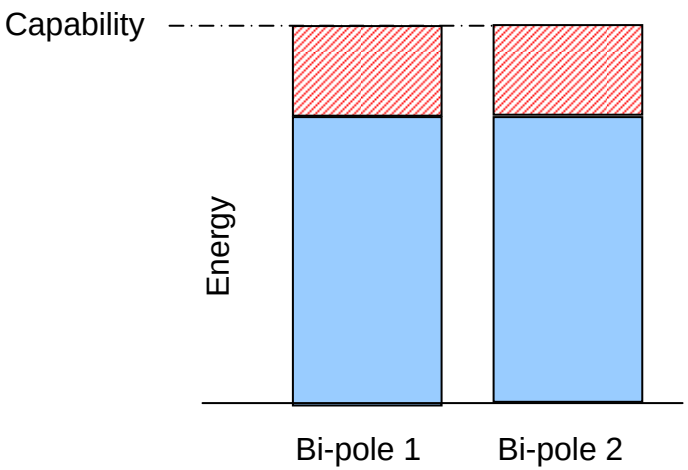
Problem – Under the current BMU setup

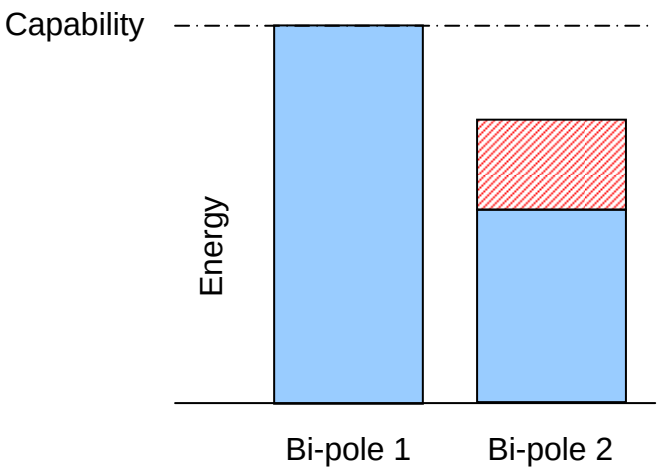
- Last time – We discussed who National Grid would contract with in the context of Users and the Owner - BMU
  - Under the Owner model logically the IEA
  - Further discussed the Production & Consumption issue in the context of the IEA under the settlement systems
- However under this scenario one BMU could contain multiple FR providing units

Problem – The BMU containing multiple DC Converters

Scenario 1 – Both poles part loaded



Scenario 2 – Poles 1 full load



Total energy is the same under Scenario 1 & 2

- Possible Solutions?
  - Reconsider whether BMU should be DC Converter Station or DC Converter
  - National Grid calculates response based on the known position of the individual DC Converters (for FR volumes National Grid treats the IC as separate BMUs provides and then sums)

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Issue 2 BSC Arrangements for Frequency Response **(John)**

- The intention of the BSC and ABSVD Methodology is that:
  - Frequency response delivered as expected has no impact on Imbalance Charges
  - Under-delivery or over-delivery leads to an Imbalance Charge
- To achieve this, the Applicable Balancing Services Volume (QAS) and the Metered Volume (QM) need to be allocated to the same Energy Account(s)

Issue 2 How would this work under the 'Owner' model? **(John)**

- Frequency Response does not need to be reflected in User's Expected Transfers
- SAA will automatically assign Frequency Response QM to one of the IEA's BM Units – which one depends on the direction of the overall Interconnector imbalance
- QAS must be allocated to the same IEA BM Unit as QM. The choice of BM Unit could be made by National Grid or by settlement (the SAA).

Issue 2 'Owner' Model – BSC Variant 1 **(John)**

- In this variant, **National Grid** assigns the QAS to an IEA BM Unit:
  - Arguably could be done within current BSC, although ELEXON legal team believes that a clarifying Modification would be preferable
  - Doesn't require a change to QAS interface (because volumes assigned to BM Units)
  - May need a process to deal with National Grid assigning volume to a BM Unit that subsequently proves to be the wrong one (leading to the IEA having Imbalances on both Energy Accounts)

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Issue 2 'Owner' Model – BSC Variant 2 **(John)**

- In this variant, **SAA** assigns the QAS to an IEA BM Unit:
  - Definitely needs a BSC Modification
  - Requires a change to the QAS interface (to report QAS volumes at Interconnector or DC Converter level instead of BM Unit level)
  - The advantage over variant 1 is that SAA can automatically assign QM and QAS to same BM Unit
- Variant 2 seems a more robust option?

Issue 2 How would it work under the 'User' model? **(John)**

- Presumably the intention is that Users (not the IEA) pick up any Imbalance Charges?
- So Interconnector User Metered Volumes would have to be adjusted for actual delivered Frequency Response. How? Presumably by IA, outside BSC governance?
- QAS must also be assigned to Users' Interconnector BM Units – but how, and under what governance? (ABSVD Methodology? BSC?)
- BSC implications unclear – need a better understanding of how it would work before we can assess

Issue 2 FR Volumes

- National Grid calculates the expected energy resulting from service providers of FR
- The differences between existing providers and IC are as follows
  - Physical Notifications
  - Maximum Export Level
  - Stable Export Level
  - Reference Programmes
  - Interconnector Transfer Limits
- Solutions;
  - National Grid can use existing data to calculate expected response
  - Obligate IC to provide MEL & SEL

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Action 4 – The IC allocation process

- Verbal Update

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Issue 3 Are the CUSC Payment Methodologies appropriate for IC providers?

- Discussion of responses

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Issue 4 What if there are mandatory FR requirements by both system operator?

- Action 9; National Grid to capture the risks/issues
  - Limited Frequency Sensitive Mode (BC3.5.2)
    - Each Synchronised Genset producing Active Power (and each DC Converter at a DC Converter Station) must operate at all times in a Limited Frequency Sensitive Mode (unless instructed in accordance with BC3.5.4 to operate in Frequency Sensitive Mode)
  - Limited Frequency Sensitive Mode
    - No variation of output when System Frequency is below 50.4Hz
    - 2% reduction in output for every 0.1Hz above 50.4Hz

Action 10 Control Arrangements for BritNed

- Verbal update

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Action 5

- Circulate BritNed Licence

http://epr.ofgem.gov.uk/document_fetch.php?documentid=13050

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Next Steps

- Are we in position to agree and recommend a preferred option?
- Can we start drafting legal text?
- How does the group feel we should proceed from here?
- Target dates;
  - ToR - Aim for May CUSC Panel (13th Paper day)
  - Finalise report by 10th May

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