

GC166

Work group discussion

Background

- Market designed around self-despatch with BM use limited to resolving constraints and demand forecast errors etc. BM not the primary market , ESO “balancer of last resort”.
- Grid Code is a technical code principally to ensure the system is stable in terms of voltage and frequency and the ESO has ability to control system operation in BM timescales (60-90 mins ahead) . Grid Code planning codes allow ESO to plan the system further.
- Traditionally all generation/demand that operates in the BM has sufficient energy backing to fully deliver any BM instruction. This was the assumption at NETA go live.
- With the new generation of energy storage devices (BESS) this is no longer the case & as such the ESO has been pragmatically applying various “rules” to ensure their inclusion in the BM.
- In planning timescales (beyond BM) all parties have obligation to provide PNs & MELs (e.g. IPN obligation) these take account of any physical limitations so need to be “energy balanced” for storage.
- Elexon/BSC provides market information and settlement of the market. The various systems allows the market to see market information PN, Dynamic (MEL, SEL etc) and Bid and Offer prices. These information streams along with REMIT and other ESO reports allow the participants to actively engage in the market reflecting scarcity / surplus in their energy pricing in the various energy markets (BM, auctions and bilateral trades)

BSC (BM) and/or Grid Code ?

- Solving this issue for just the Grid Code generators, will be suboptimal given the relative size of BM with limited duration assets (LDA) that don't need to be GC compliant and limited duration assets (LDA) that only deliver in non BM markets.
- As the volume and number of limited duration assets increases this will become a major issue for the traded market as at some point LDA will significantly exceed the need/capability of the BM.
- The existing systems don't work well for limited duration assets, the ESO has to limit BM Bids and Offers to ensure they don't get "MEL'ed" out during delivery.
- There is no transparency of energy limitation in the market information provided by Elexon/BSC.
- Ensuring the traded market can access LDA with provision of market information will ensure that this type of plant can be used efficiently in the current market arrangements.
- This parameter should be principally in the BSC otherwise a significant part of the target audience will be missed.

Straw man

- The capability of limited duration assets needs to be understood by the ESO, BM providers and other markets to be economic and efficient.
- ESO needs this real time when parties cannot deliver fully in the BM [90 mins].
- Only “owners” can determine the asset capability via complex real-time algorithms..
- Suggested parameters
 - “estimated generation capacity” (EGC) how much energy is stored at point in time
 - “estimated demand capacity” (EDC) how much energy could be consumed at a point in time
 - “maximum stored energy” (MSE) maximum holding capability
- These should be delivered to the ESO every [30/60] mins by all BM participants irrespective of their Grid Code status.
- ESO can use PN profile, and current stored energy position in combination with these parameters to establish future energy position.
- Provider will update PN profile to take account of BM action at relevant PN submission times.
- No requirement to MEL to zero when EGC =0 or MIL to zero when EDC=0,
- Need to look at LDA differently going forward

Issue to resolve

- What are LDA ? What is the time cut off for the obligation. Plant that can't deliver fully in the BM (90 mins), 4 hrs 12hs, 48 hrs or something else ? Suggest 90 min is appropriate.
- How accurate can EGC and EDC be ? These are estimates, the actual output/input capability changes depending on a number of factors :-
 - temperature, how fast energy is withdrawn, steady state losses, remaining energy density rate at which energy is withdrawn/refilled e.g. part load will be less efficient than full load
 - EGC and EDC are estimates. Many Grid code parameters are absolute (fault ride through etc) LDS energy parameter must be based on "reasonable estimate" made by the owner.
 - Incentive to get it right will come from imbalance via BSC system.
 - Obligation on ESO to not instruct more energy than is notified in the EGC/EDC this removes the need for parties to reduce /change MEL/MIL i.e. if EGC is zero no generation should be instructed.
 - LDA can have Full MEL and MIL's but 0 EGC and high EDC this shows they are ready for import but have no export capability
- Minutes of offers /bids or other time derived parameters don't work as when unit is part loaded parameters are meaningless. Removing the need to change MEL/MIL and using the energy stored parameters will give clear benefits.
- Some storage has multiple BMUs connected to one storage source (pumped storage) how should this be dealt with as BMUs aren't linked in most systems.
- Including obligation on ESO to not instruct more energy from LDA in the BM than is available . This will need to be reflected in BSC settlement to drive imbalance.
- The GC is only applicable to a sub-set of BM providers, many/most will be not subject to GC requirements. How will non-GC BM providers be dealt with to avoid undue discrimination in both directions?
- Some BM LDA providers will be offered by aggregators how will they be included ?