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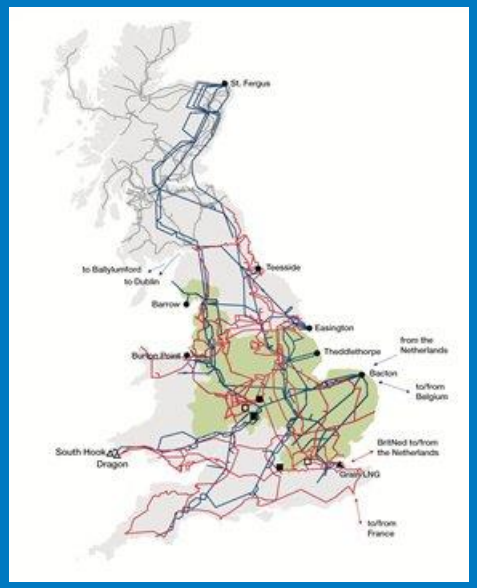
GSR022-WS1:
Security Required Transfer Conditions



Update to the SQSS Review Panel

Bieshoy Awad

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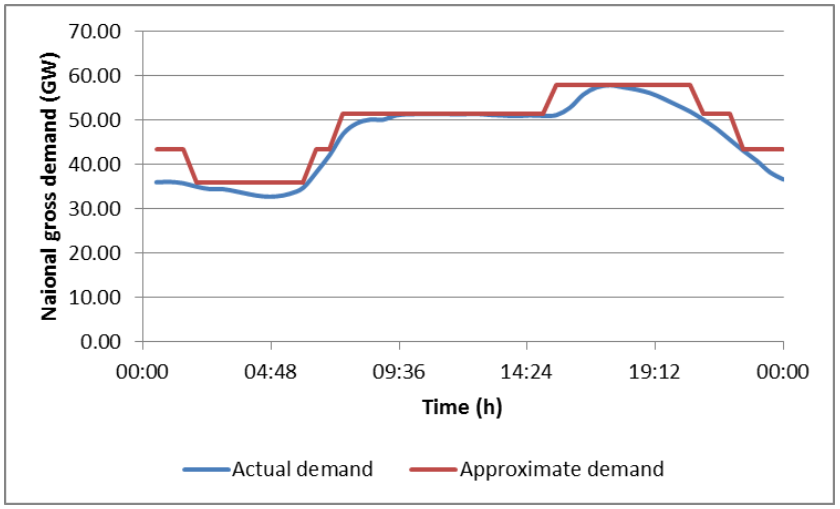
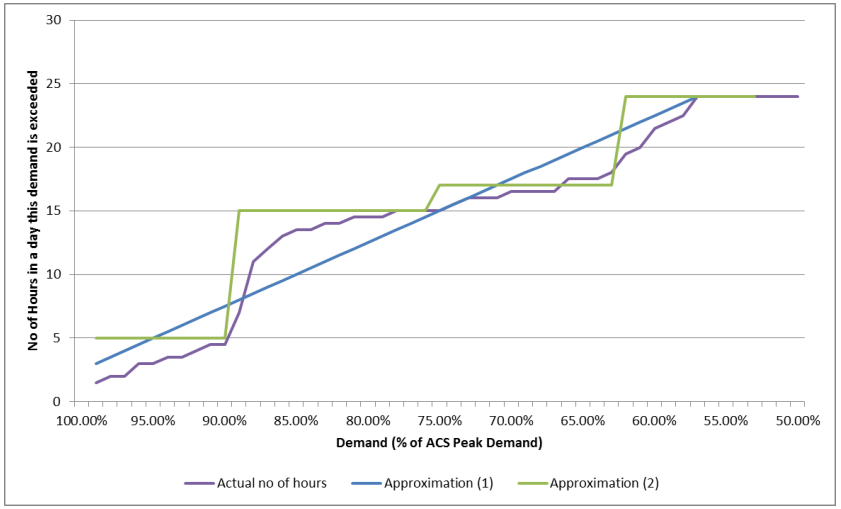
Contents

Storage Assumptions

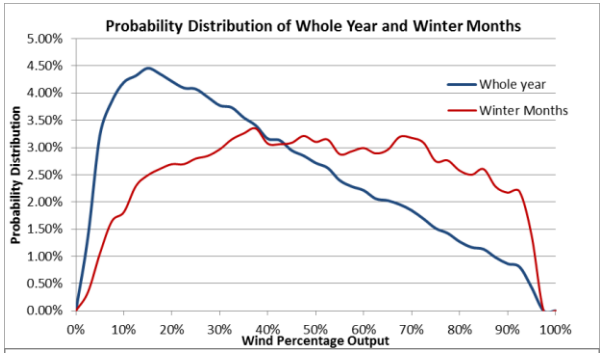
- Storage should be able to sustain its MW output for as long as it is deeded.
- Proposal is to base the storage availability factors on
  - the duration it is needed for (5 hours and 15 hours)
  - Its storage capacity
- Potentially introduce a cap on total storage to ensure recharging is feasible within the day

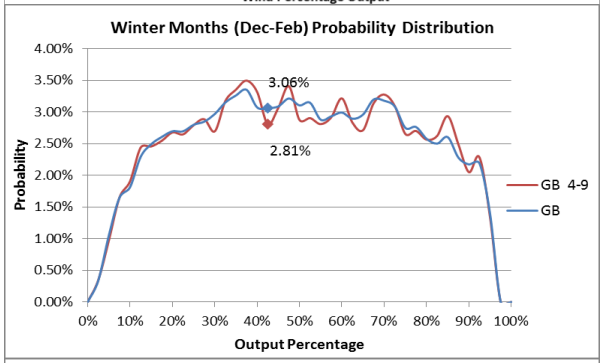


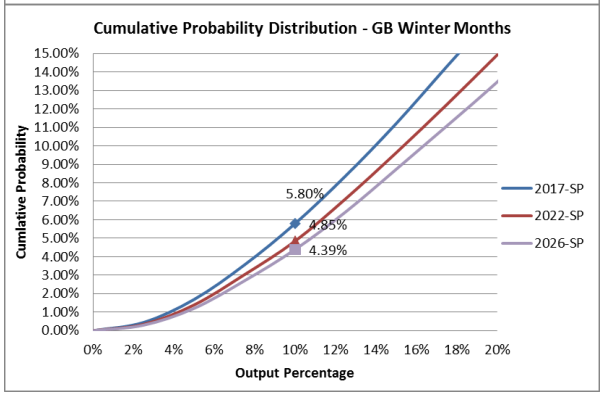


Wind Generation Assumptions

- Seasonal variations are significant but time-of-the-day variations are negligible
- More wind generation ➔ Lower availability – although by not much
- Central view is SP2022 (based on FES 2016 data)
- Wind output will be less than 5% for 1.39% (30h) of the winter time and less than 10% for 4.9% (106h) of the winter time



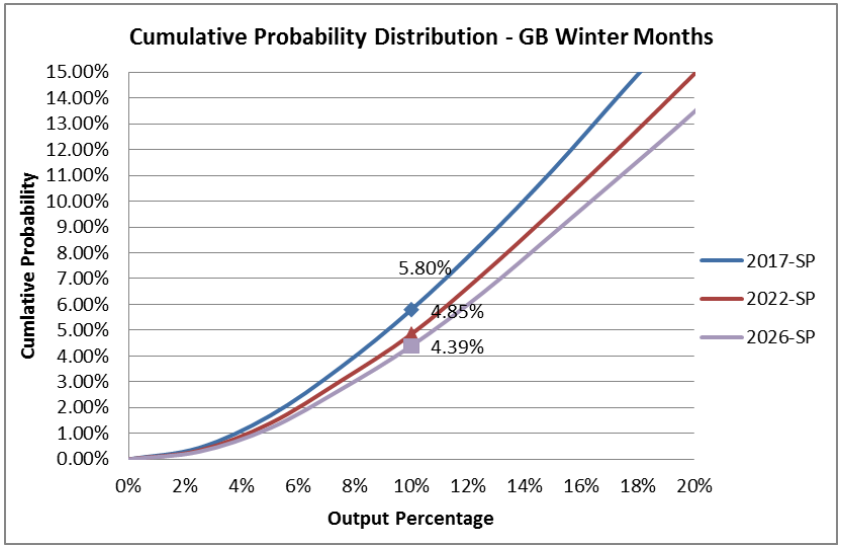




Wind Generation Assumptions

- Concept of “Equivalent Firm Capacity” might not be suitable for the SQSS

- Wind availability factor could be
  - Zero (status quo)
  - Zero unless there is capacity shortage
  - A value based on the cumulative probability distribution
  - A value based on the convolution between wind probability distribution and load duration curve (probability that demand-wind generation exceeds a certain level)



Interconnector Assumptions

- Methodology

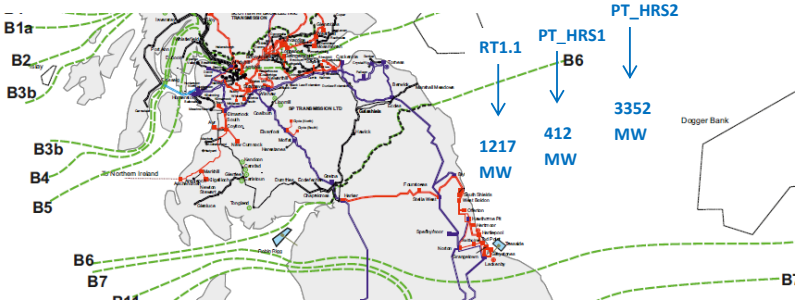
- Reduce the generation margin in GB and check interconnector flows
- Reduce the generation everywhere else and see if the flow has changed.
- Check for sensitivities
- Try to draw conclusions

- Preliminary observations

- Prices drive flows
- When margins are tight, GB is a net importer. However, this does not apply on each interconnector individually
- Further analysis are necessary to allow the specification of generic rules

Straight Scaling Technique - Issue

- Generation “availability factors” may result in generation deficit.
- To balance the system, we need to make certain assumptions
- If the future is different to these assumptions then we will have either
  - Invested in unnecessary capacity, or
  - Risking losing demand
- Two extreme cases



Straight Scaling Technique - Risks

Risks	Scenarios with the highest risk (for each boundary)
Stranded Capacity The assumptions force an investment in a capacity that will not be required in the future.	High Risk Scenario 1 All new generation appears on one side of the boundary under consideration
Lost Load The assumptions does not provide enough capacity for future generation to meet the demand.	High Risk Scenario 2 All new generation appears on the other side of the boundary under consideration

Straight Scaling Technique – Options

Comparable level of risk

Significantly high risk level

	Where generation is	Where demand is	In the smaller zone	In the smaller zone	In the importing zone	In the exporting zone
Scale generation up	Current position					
Scale demand down		Lowest investment				

Does the risk mitigated justify the additional investment?

We are currently checking the methodology and the results for consistency so the views here are not final!

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Discussion