

Ramp Rate and Dispatch Inflex Rule Change

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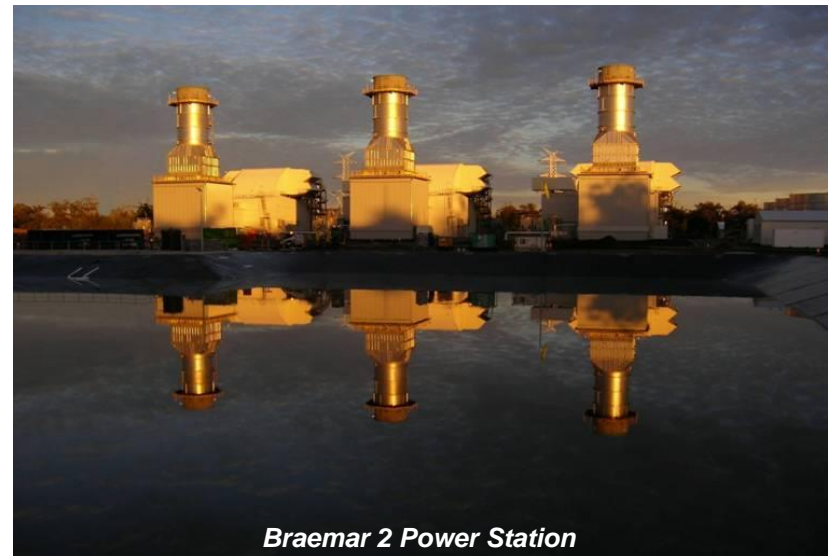
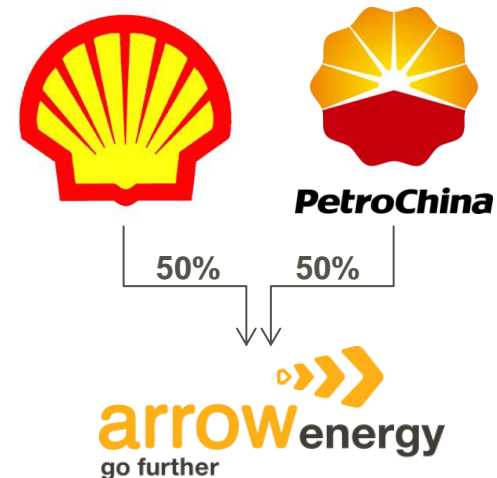


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ARROW ENERGY

WHO IS ARROW ENERGY?

- Owned by Royal Dutch Shell and PetroChina
- Owns and operates Braemar 2 Power Station (B2PS)
- 3 x 150MW Siemens Open Cycle Gas Turbine
- Max 173MW (ambient conditions)
- Ramp Rate ~10MW or 30MW



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FOCUS ON RAMP RATE

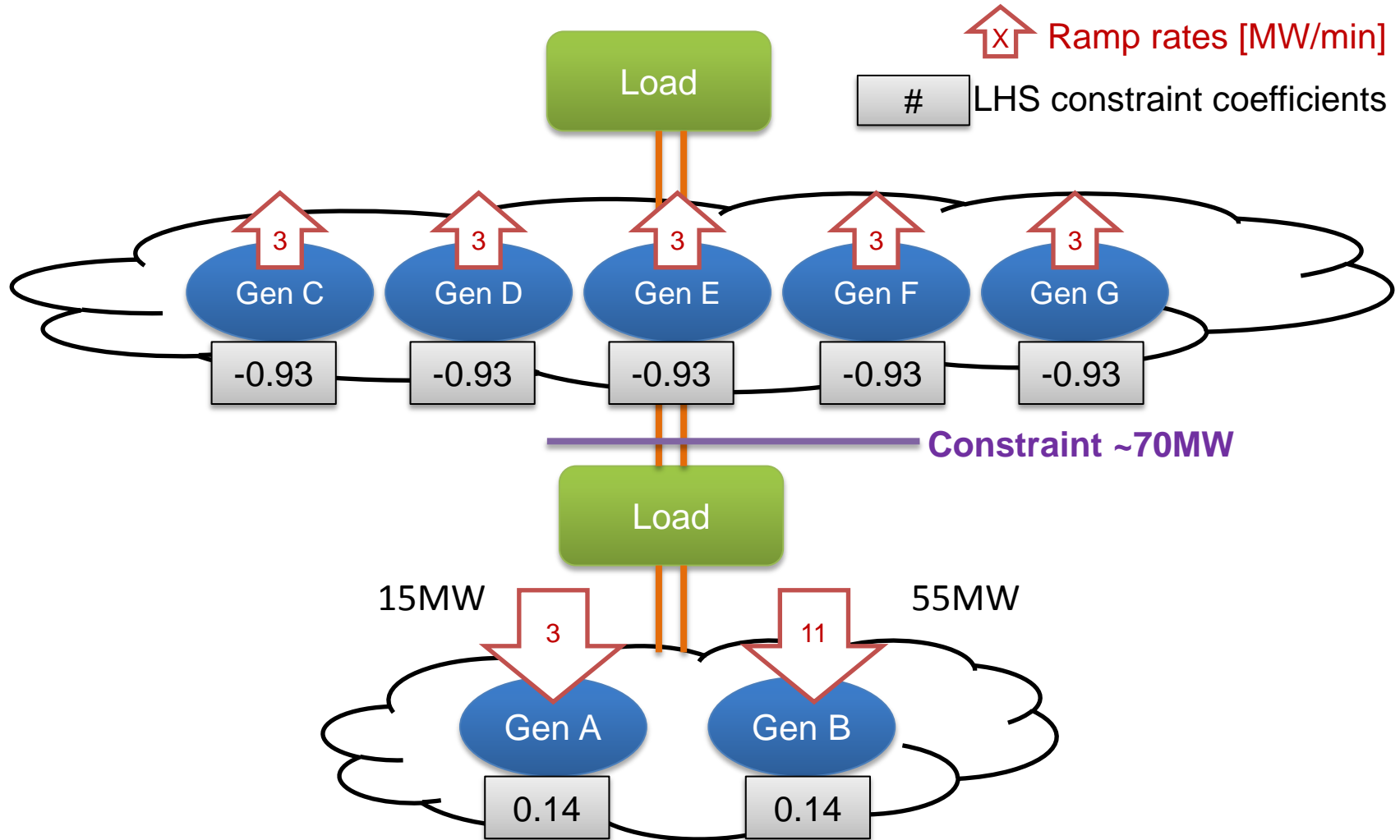
- Rule ~ maximum required technical capability
- Direct issues:
 - Max ramp varies
 - Modes
- Indirect issues
 - Disproportionate utilisation
- Unintended consequences
 - Units permanently de-rated
 - Investment bias
 - Forward market



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EXAMPLE OF CONSTRAINTS



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OTHER CONSIDERATIONS

- Market design
 - Gross vs Nett
 - Zonal vs Full Nodal
 - DI vs TI
 - Discrete DI
 - MCP
 - DSP
- Transmission
 - Investment criteria
 - Outage management
- Operation of constraints
- Impact of Portfolio



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IN SUMMARY

- Rule change holds issues
- Real risk of unintended consequences - as yet been unquantified
- Other more fundamental drivers
- Seems to be a transitory issue
- Accordingly, Arrow Energy does not support the rule change



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