SWIS potential operational/Market issues resulting from new connections

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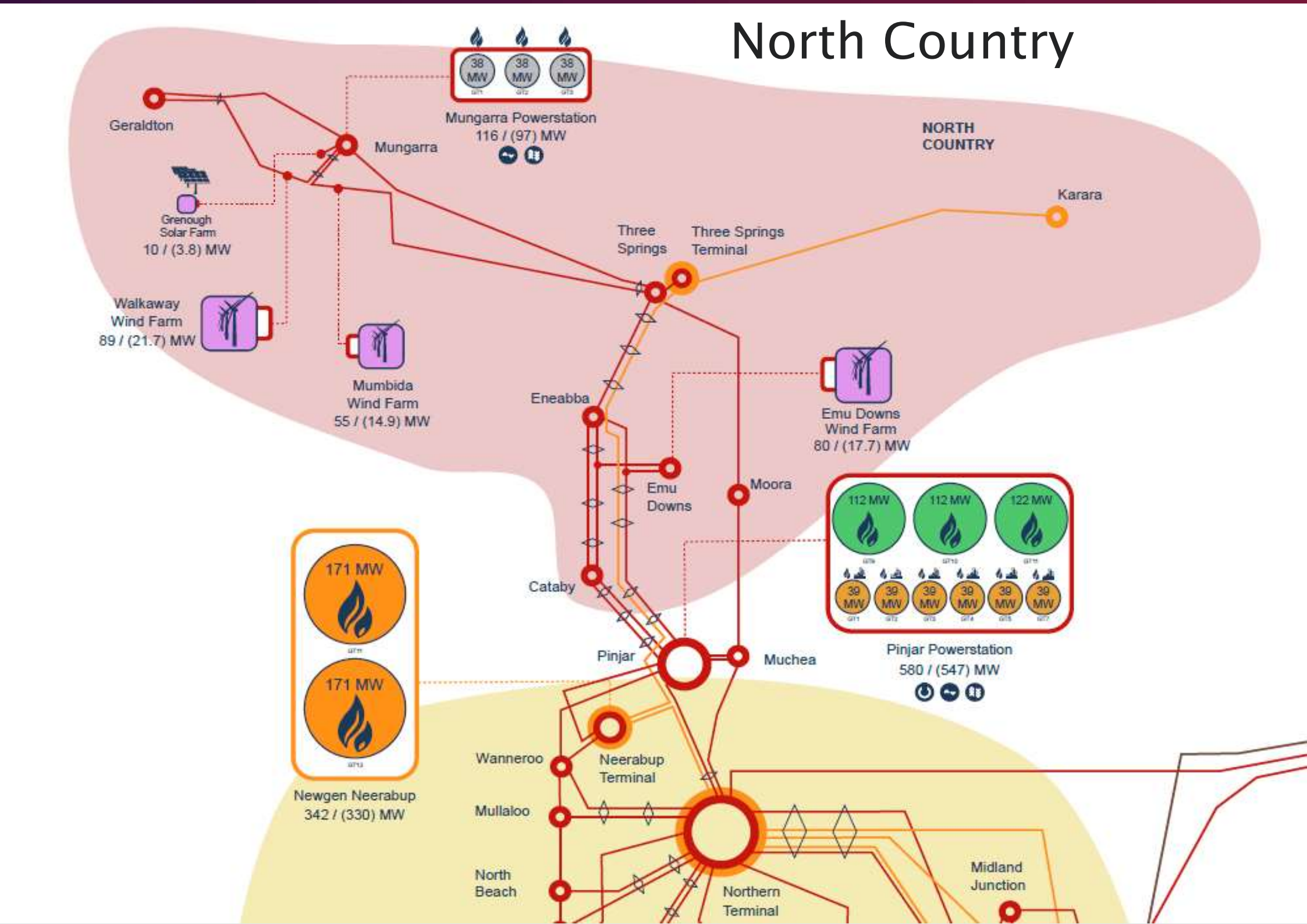
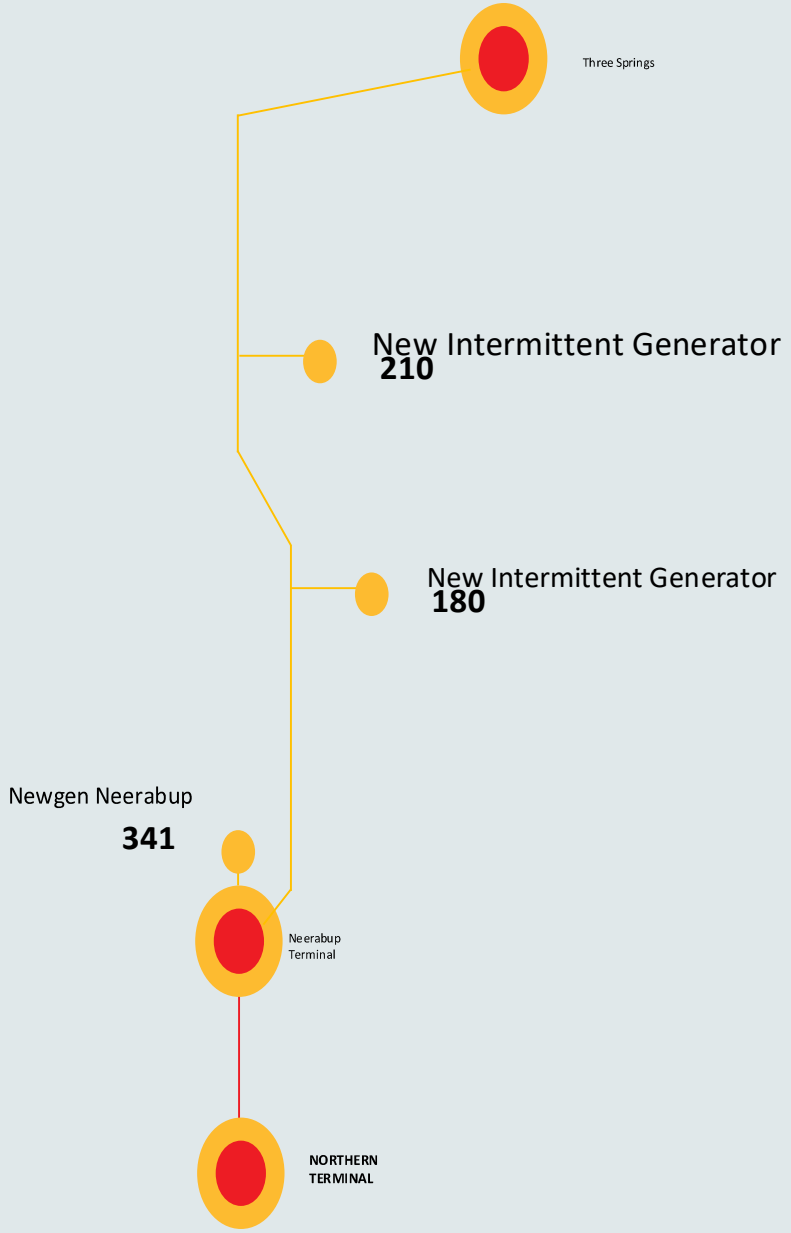
North Country



Scenario

- Connection of two new intermittent generators on the single 330 kV line between Neerabup Terminal (NBT) and Three Springs Terminal (TST)
- A network fault between NBT–TST will trip both generators
  - This will become the largest SWIS generation contingency
  - Will occur when the combined output of both generators is in excess of the output of the largest single generator (340 MW at peak or 200 MW off peak)
- In certain outage conditions, a network fault between Northern Terminal and NBT will also trip Newgen Neerabup



Spinning Reserve Requirements and dispatch outcomes

- Spinning Reserve Requirement currently set at 70% of largest Generator
  - Spinning Reserve payments are based on peak and off-peak margin values and quantities set by ERA
    - 2017/18 average spinning reserve capacity peak is 221.8 MW and off-peak is 190.2 MW
    - Any Spinning Reserve requirements is excess of these values is provided by Synergy without further remuneration
- Depending on circumstances, a contingency > largest generator may present a challenge
  - As such, the new generators may have to be curtailed for security
    - Constrained-off payments would apply

Possible Immediate Corrective Actions

- Schedule additional SR
  - **How?** rule change, or under the current rules?
  - **Risks**: Synergy compensation, System Security
- Limit the size of the largest contingency by curtailing generation
  - **How?** Under a High Risk Operating State?
  - **Risks**: increased constrained-off compensation borne by Market Customers
- Both corrective actions have **costs.**

Possible Long-term Corrective Actions

- Network augmentation
  - Need to use the impact as a signal to remove the constraint
- Co-optimised energy and ancillary service markets
  - To allow the dispatch engine to identify whether it is cheaper to procure additional SR or to dispatch higher-cost energy (in place of curtailed low-cost energy)
- Market Design
  - Should there be consideration of explicit non-network System-related constraints in RCM?
  - How cost to the market should be allocated?

Other implications

- Reserve Capacity implications
  - Currently non-network constraints do not explicitly form part of the Certified Reserve Capacity assignment process
  - This may require a review
- Future implications
  - Connection of further generators in the North Country without network reinforcement will only exacerbate the situation
    - WEM Reform to allow constrained network access will not vary the situation, but will make connection of further generators more likely

- Discussion encouraged