Network DSM Defers Major CQ-NQ Transmission Augmentation

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Introduction

- Powerlink is a Transmission Network Service Provider (TNSP) within the NEM.
- We do not buy or sell electricity and are not a market participant.
- Powerlink operates its transmission system to allow the reliable transfer of power between participants within the NEM.
- As a TNSP, Powerlink is a regulated monopoly business, with revenues set by the Australian Energy Regulator (AER).
- The Powerlink network is predominantly 275/110kV and extends 1700km from Cairns to the NSW border.
- To satisfy the requirements of the NER, highly reliable Network DSM measure(s) of large magnitude are required to avoid major augmentation.

Local Government Policy and AER

- The Queensland Government has appointed Powerlink as the Jurisdictional Planning Body for Queensland.
- In that role, we assess the capability of our transmission network to meet forecast electricity load growth and capability to transfer electricity to and from other States connected to the national electricity network.
- When we identify emerging limitations in our network, we consult with market participants and interested parties through a transparent process to identify network and non-network solutions.
- As required by the AER's Regulatory Test, an economic solution is selected and implemented.
- A non-network option which satisfies the technical requirements, is committed and delivers greater market benefits than a transmission augmentation then a Grid Support contract may be arranged, provided it satisfies the Regulatory Test.

Example of DSM Implementation

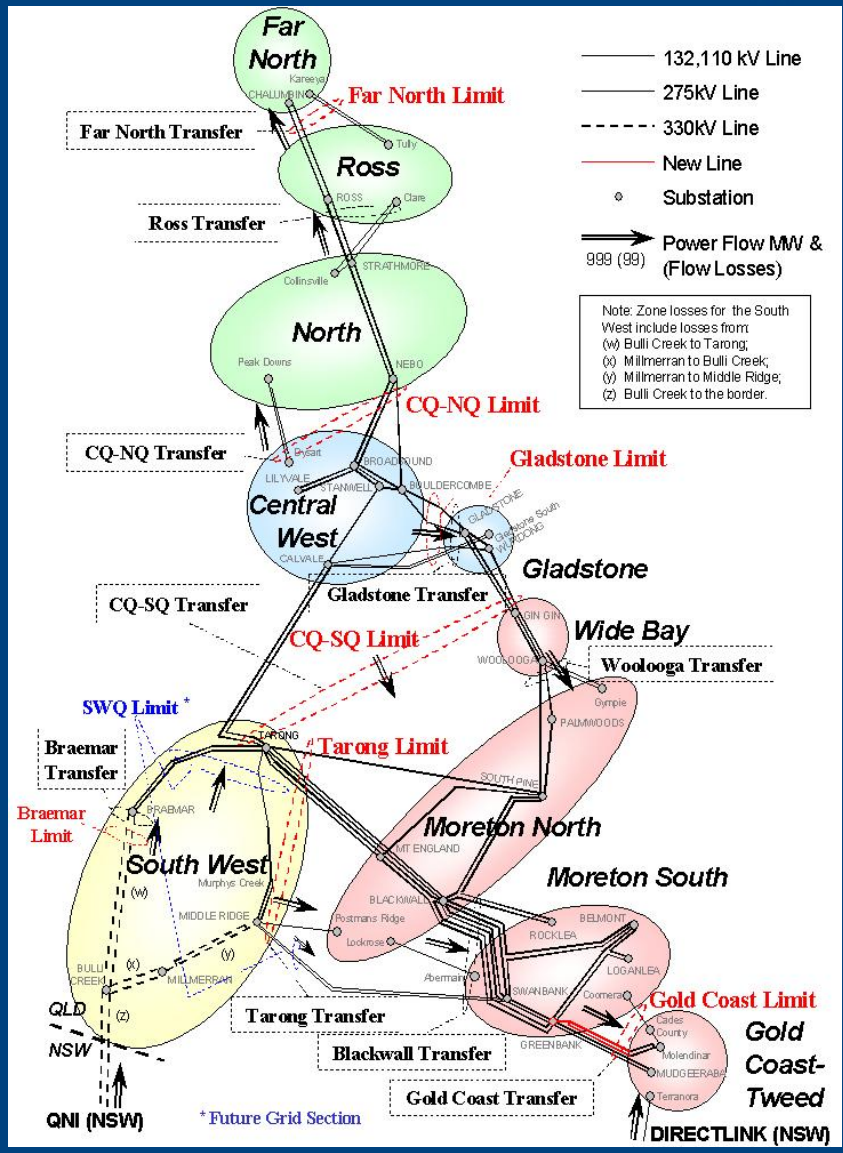
Review identifies emerging network limitations and constraint equations which need revision:

- Derivation of the constraint equation establishes its significant variables and the sensitivity of the limit to these variables.
- Establishes the operational requirements to avoid limitations on power transfer along that cutset and hence directly addresses the capacity and type of arrangement required.
- Powerlink's CQ-NQ Transfer Limit management scheme integrates several Network DSM measures via Grid Support Contracts.

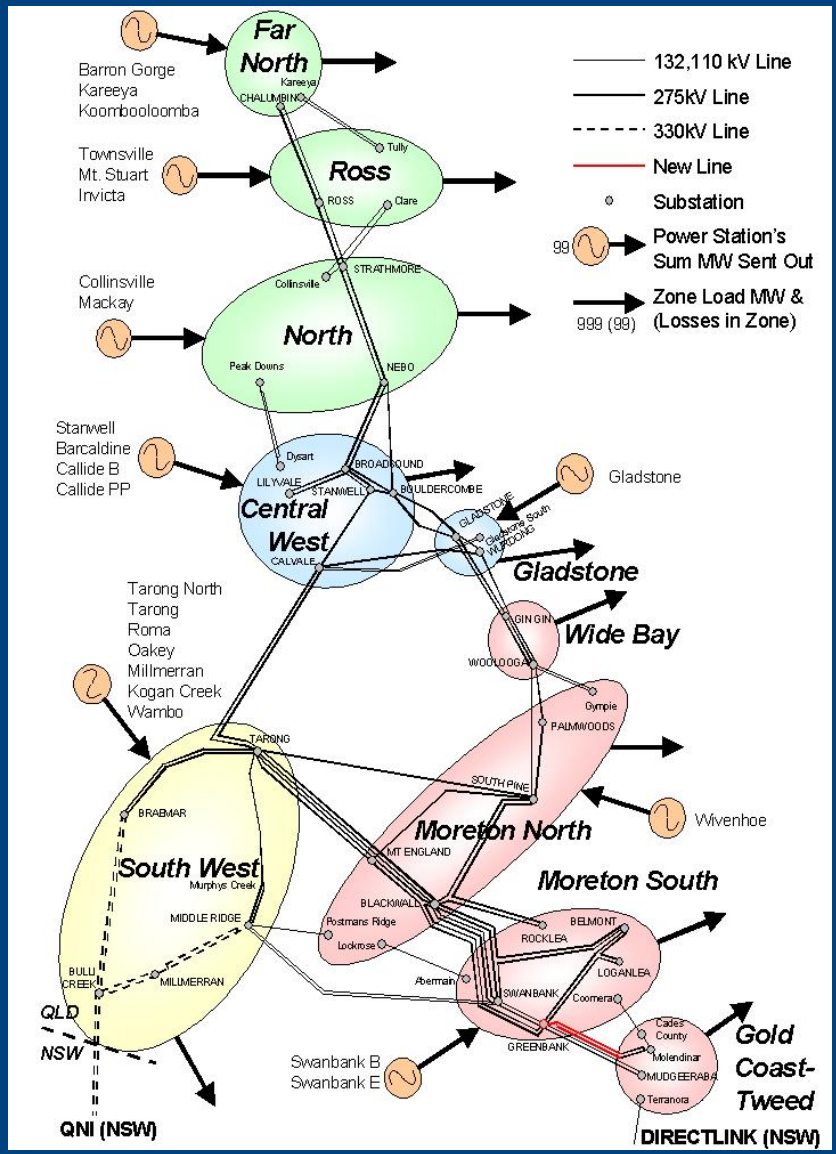
CQ-NQ Network DSM is a combination of:

- Energy efficiency (different sources – coal, gas, water)
- Standby generation (peaking units)
- Load reduction

Example of DSM Implementation (continued)



Example of DSM Implementation (continued)



Example of DSM Implementation (continued)

Features of CQ-NQ Transfer Limit management:

- Broad peak (from 9am to 9pm)
- Local generation during peak is essential due to network limitation preventing support from the remote network.
- Gas turbine peaking units may be expensive to run.
- Water turbine peaking units may have limited storage.
- Co-generation may not have sufficient reserves at the time.
- Support diversity required.

Estimation of Value

1. Participant Test
2. Ratepayer Impact Measure Test
3. Total Resource Cost Test
4. Societal Test
5. Program Administrator Cost Test

External Success factors

1. Government Policy – currently no obligations imposed but network DSM projects are to be evaluated on equal basis as per AER requirements.
2. Regulatory Regimes – AER requires non-network options to be evaluated on equal basis as network options.
3. Market Structure – supports the creation of Grid Support contracts
4. Commitment by Project Proponent – participants are committed via contract
5. Technology Availability – uses existing controls to increase generation and reduce load
6. Commercial Consideration – AER Regulatory Test requires the option with lowest total NPV be selected.
7. Public Relations Benefits – provides improved relations with the local, State and Federal Government and the AER and practices joint planning (e.g. Directlink).

Internal Success factors

Project Objectives:

- Are well defined via the consultative process – issuing Requests for Further Information, Application Notices, Final Recommendations.

Target Market:

- Specific to the local area by reviewing the significant and sensitive constraints.

DSM Measures Used:

- Assured of achieving the objective provided the reliability criterion is met

Internal Success factors (continued)

Barriers Addressed:

- Not applicable as the DSM measures do not require a long term change in energy use.

Outreach and Marketing

- Project is initiated by a public consultation process – international and invited if specific proponents envisaged.
- Limited developments practical in the time frame required, due to the magnitude thus only a small number of support contracts are required and hence not critical to the success of the project.
- Direct community feedback provided on project related issues.

Internal Success factors (continued)

Participation Process and Customer Service

- Initiation via RFIs.
- Due to the limited small number of potential proponents communication is direct and targeted.

Delivery:

- Participants of Grid Support contracts are bound by the contract to provide the defined services.
- Financial and other penalties for non-compliance.
- Financial and other rewards for compliance.
- Operations and Planning groups and tools provide real-time management.

Summary – CQ-NQ DSM

Success Factors	Network Driven DSM Measures									
	Distributed Generation	Energy Efficiency	Fuel Substitution	Integrated DSM	Load Management				Power Factor Correction	Pricing Initiatives
					Load Shifting	Direct Load Control	Interruptibility	Demand Response		
External Success Factors										
Government Policies										
Regulatory Regime										
Market Structure										
Commitment by project proponent										
Technology availablity										
Commercial considerations										
Public relations Benefits										
Internal Success Factors										
Project objectives										
Target market										
Demand-side measurements used										
Market barriers addressed										
Outreach and marketing										
Participation process and customer service										
Delivery mechanisms										

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Summary – CQ-NQ DSM (continued)

- The CQ-NQ network DSM measures deferred major transmission augmentation for several years and was the more economic option.
- The CQ-NQ network DSM measures were effective due to its wide application of internal and external success factors.
- Questions?