



**TransGrid**

## **TransGrid Annual Planning Forum 3<sup>rd</sup> August 2010**

Non-Network Alternatives :  
TransGrid's Approach and Experience

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# Outline

- ❑ Factors Driving Electricity Demand
- ❑ What is Demand Management for a TNSP
- ❑ TNSP obligations under the NER
- ❑ TransGrid's Approach & Experience
- ❑ Innovation DM
- ❑ Discussion



# Factors Driving Electricity Demand

- ❑ Population and Population Growth
- ❑ Community Expectations – lifestyles
- ❑ Available Fuel/Energy Sources and their relative cost
- ❑ Climate and climate change
- ❑ Wealth of the Country - Investment Capability
- ❑ Political Circumstance

# What is DSM, DM or DSR?

Eliciting demand side response in terms of reducing peak electricity demand, changing energy usage to other forms of energy sources and/or installing embedded generation to meet part customer peak electricity demand.



# What are Non-Network Alternatives? (1)

In broad terms,

non-network alternatives are those alternatives which address the emerging network constraint(s) being considered by providing network support from non-network sources and achieve *(more or less)* the same level of reliability as the network alternatives, thus allowing deferral or cancellation of network augmentation.



# What are Non-Network Alternatives? (2)

## Non-Network Alternatives consist of one or more of the following:

- ❑ Demand Management initiatives – shifting peak demand etc
- ❑ Demand Side Response (DSR) – deliberate curtailment by the users of demand at peak times, e.g. stopping production by large loads
- ❑ Embedded Generation – Standby generation, Gas Turbines (GTs), Wind Farms (?)



# What are Non-Network Alternatives? (3)

## □ Aggregated DSR –

This can consist of one or more of the above alternatives downstream at lower voltage levels which need to be aggregated to be meaningful in the context of transmission.



# Drivers Influencing TransGrid's Approach to DM

- Network Planning to reduce actual loading below ratings**  
[depends on development scenarios, operations constraints, availability and feasibility of non-network options]
- Corporate Social Responsibility**
- Community Expectations – eg, impact on new easements**
- Obligations under the NER**



# TNSPs Obligations in the NER (1)

- The National Electricity Rules (the Rules) require Transmission Network Service Providers (TNSPs) to treat non-network alternatives on equal footing with network alternatives



# TNSPs Obligations in the NER (2)

## □ Efficiency

Must be economically more efficient than other options ( Regulatory Test and Regulatory Investment Test – Transmission (RIT-T) )

## □ Prudence

- TransGrid has obligations to maintain supply reliability to its customers. Non-network alternatives must deliver same level of reliability (more or less) as network alternatives.
- Also, non-network alternatives must be feasible (must have a proponent or a likely proponent, able to be delivered when required)



# Mechanisms for Funding Network Support

## □ Pass-through

- To be approved by the AER on a case by case basis
- Test prudence and efficiency of expenditure

## □ Deferral value of capex

- To be approved by the TransGrid Board
- Must be commercially prudent



# TransGrid Approach to Non-Network Alternatives

- Publish Needs Statement and Annual Planning Report regarding emerging constraints
- For major constraints, publish request for proposals (RFP) for Non-Network Alternatives
- Seek Board approval if Non-Network options are efficient and prudent
- Negotiate with successful proponents a Network Support Agreement (NSA)

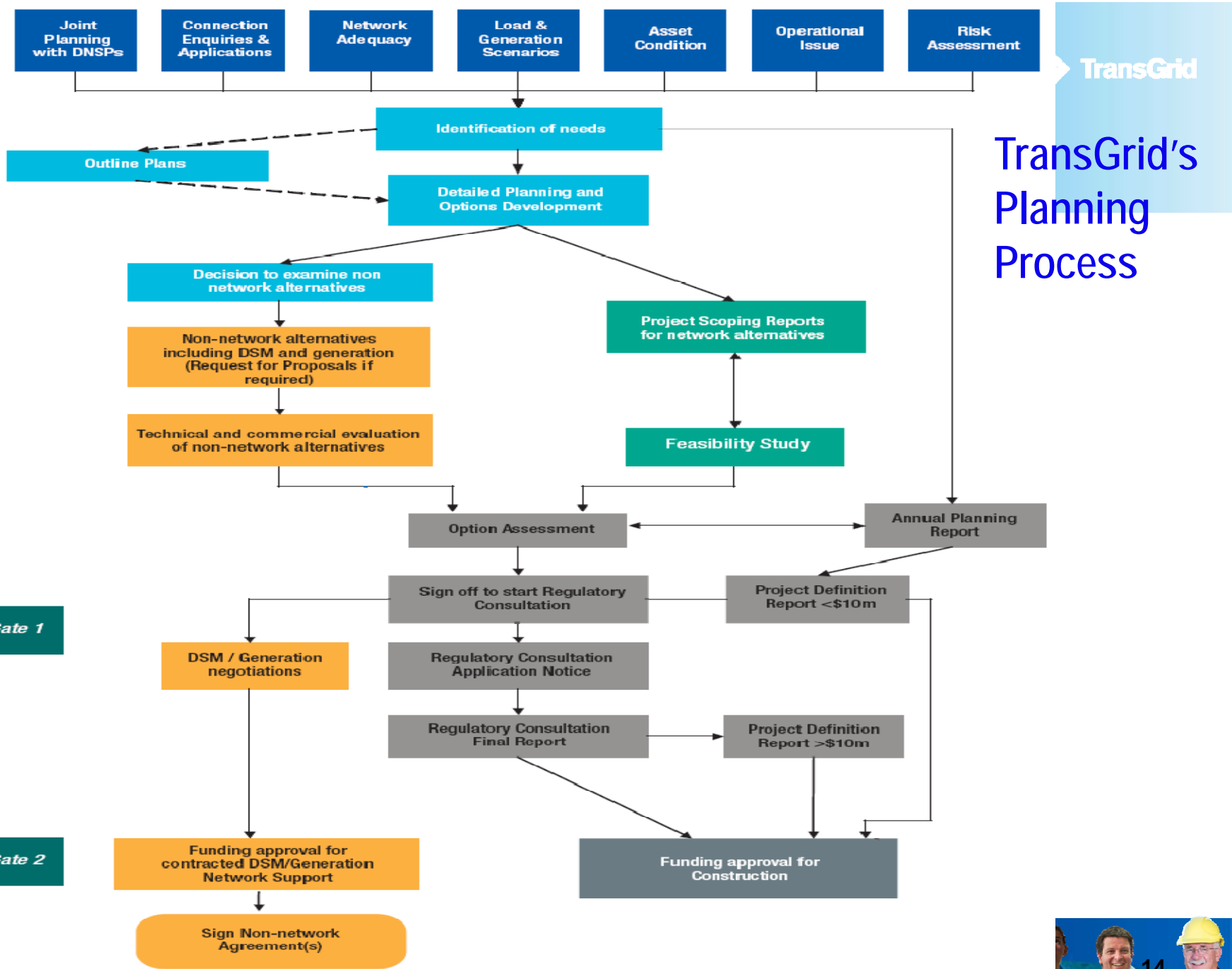


# Criteria to issue a Request for Proposal (RFP)

## Criteria takes into account:

- Size and location of the DM required
- Feasibility of delivering non-network alternative(s)
- On time, within budget delivery.
- Outcome of Joint Planning with DNSPs
- Capital investment to be deferred and its commercial value to TransGrid
- Length of achievable deferral
- The cost of work required to issue RFP, evaluate and negotiate proposals compared to cost of alternatives & benefits





# Non-Network Alternatives Requests For Proposals



## 2000-2009

No proposals received:

- Mid-North Coast of NSW
- Far North Coast
- South West Sydney
- NSW Central Coast

Proposals received but costly compared to savings from deferral

- West & Central West NSW (Wollar – Wellington)



# Non-Network Alternatives Requests For Proposals



## 2000-2009 (2)

### Successful responses:

- ✓ Newcastle-Sydney-Wollongong area (Western 500 kV)- complete
- ✓ Sydney Inner Metropolitan Area – contract under negotiation
- ✓ Network Support to the Far North Coast - offers being analysed

### RFPs under preparation :

- Reactive power for main system support
- Increased transfer capability from the south



# Non-Network Alternatives – Future Requests For Proposals

Currently assessing projects with the view of issuing RFP:

- Sydney East Substation
- Supply to the Lower Mid-North Coast
- Supply to Southern Sydney
- NSW to Queensland transmission capacity



# Demand Management Projects for Research & Development

- ❑ Sydney CBD Demand Management and Planning Project (DMPP)
- ❑ Demand Management Innovation Allowance

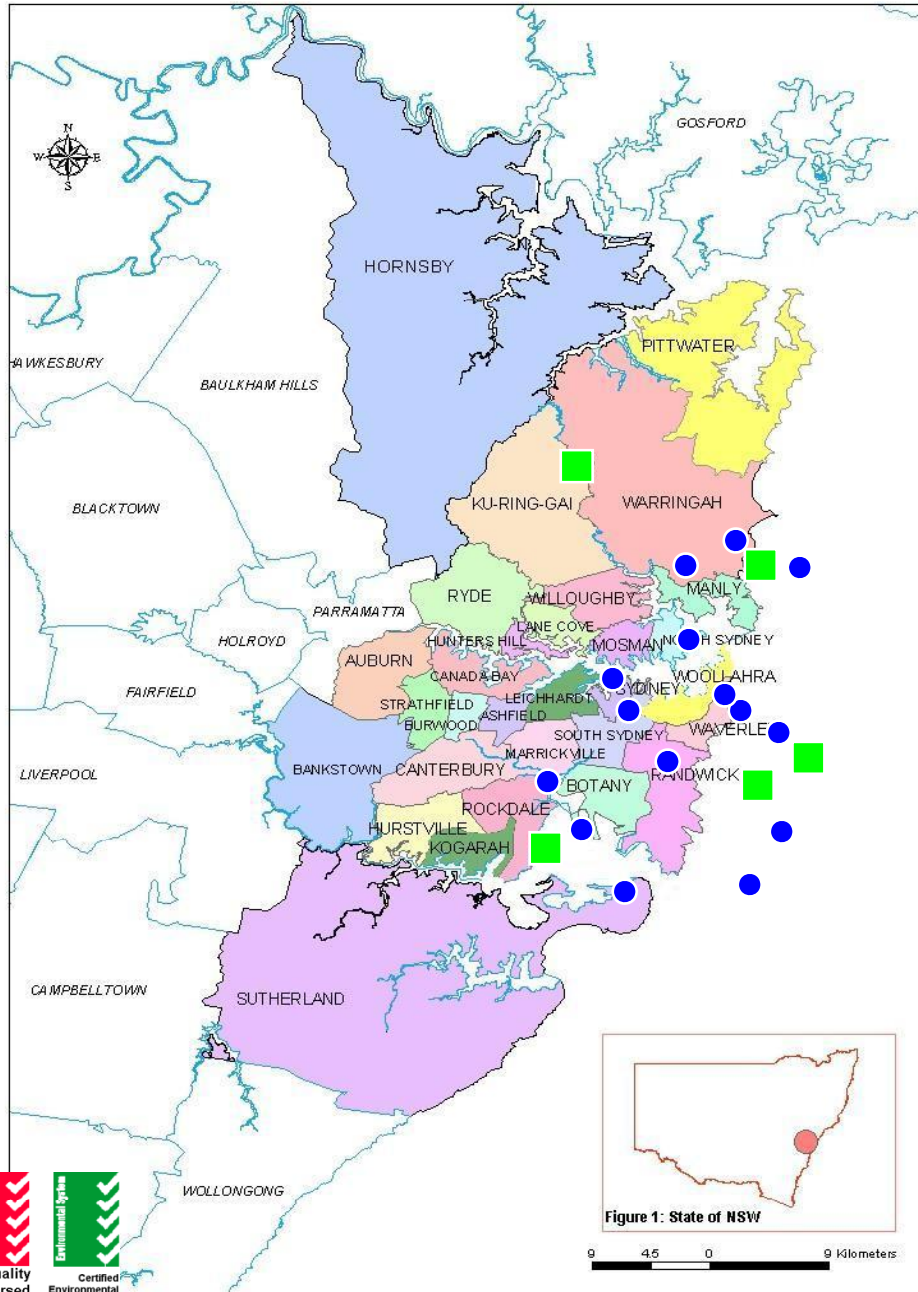


# The Sydney CBD DMPP Project (2003-2008)

- Joint Project -TransGrid, EnergyAustralia & NSW Dept. Planning
- Established in March 2002 as part of MetroGrid Project Approval
- Total funding = \$10M (\$1M per annum each TG & EA for 5 years)
- Objective - Potential for reducing demand in Sydney Inner Metropolitan Area
- Completed June 2008
- A lot of experience & knowledge gained which are documented on the project website
- A number of small demonstration projects in the inner metro area were supported including 2 co-gen projects in Sydney commercial buildings



Appendix 2: Demand Management and Planning Project Area



**5 TransGrid substations** ■

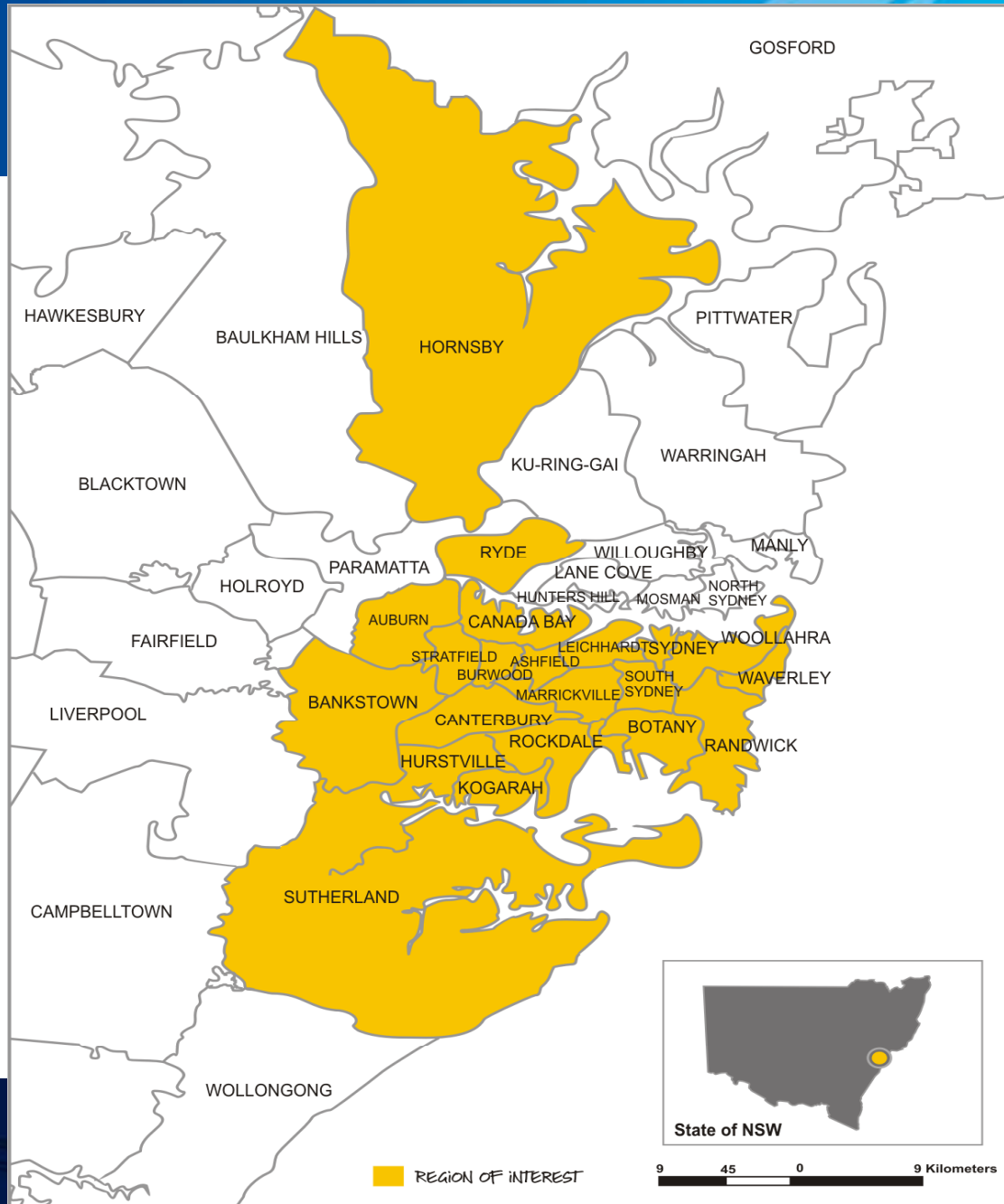
**15 EA subtransmission points** ●

**96 EA Zone substations** ■



# Non-Network Alternatives for Deferral of the next Sydney Inner Metropolitan Area Network Development





Energy Australia  
 TransGrid –  
 Sydney Supply Area where  
 DM needs to be  
 implemented in summer  
 2012/13 to manage  
 operational risks.



## Inner Sydney Metropolitan Projects (1)

- TransGrid & EnergyAustralia joint planning & development in the Sydney Inner Metropolitan area
- Complex project – transmission lines (overhead and underground) and associated substation works (Holroyd & Rookwood Rd)
- Project capital cost – around \$500 million
- TransGrid aims to secure network support to allow one or two years deferral



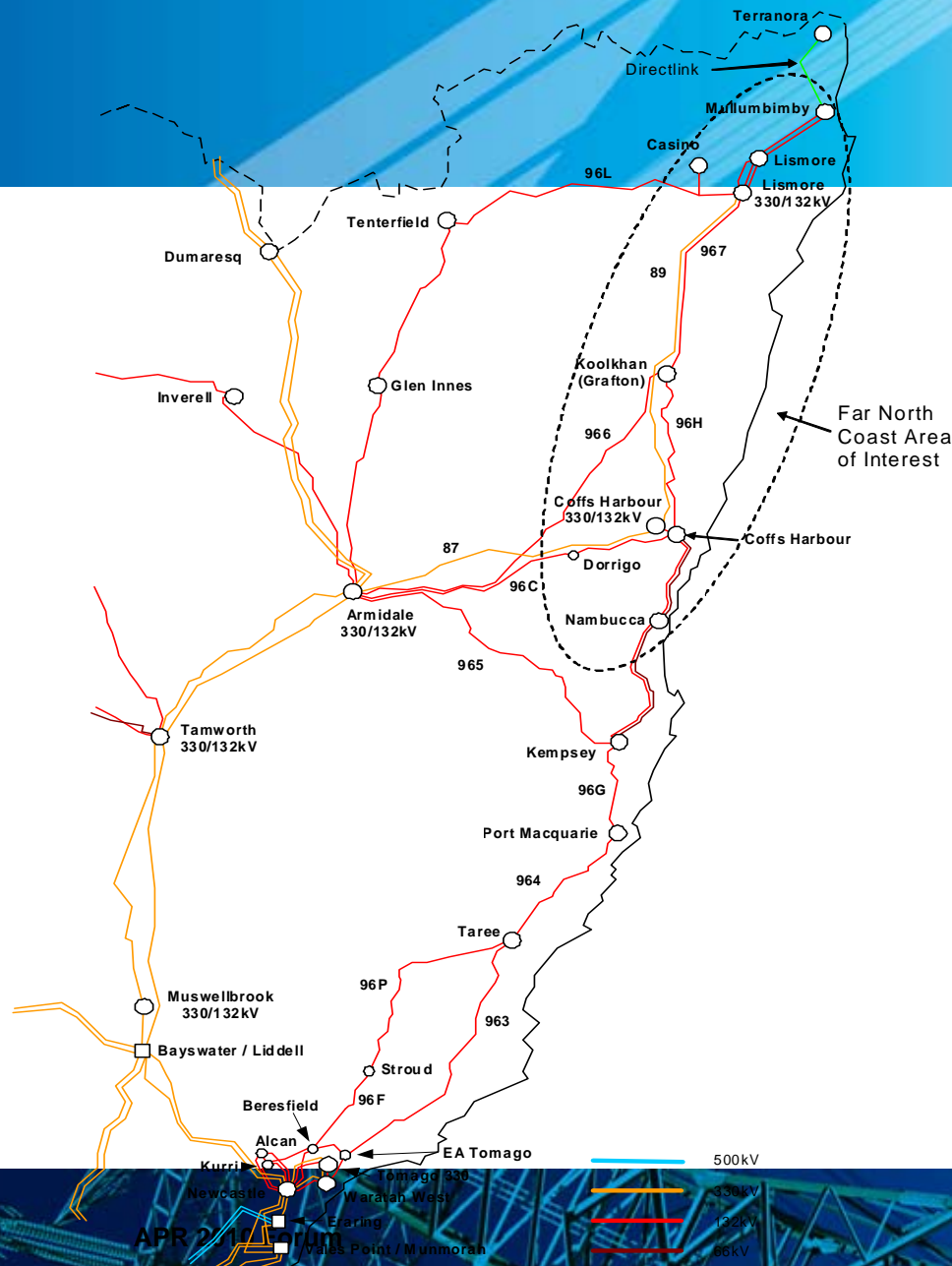
## Inner Sydney Metropolitan Projects (2)

- Commercial decision for TransGrid. Funded by savings from capital deferral
- Request For Proposals (RFP105/09) issued December 2009
  - 80MW for 2013/14
  - 170MW for 2014/15
- RFP closed February 2010
- Offers did not provide network support as sought
- Only network support received covers operational risk mitigation for summer 2012/13
- Network augmentation will be completed by summer 2013/14



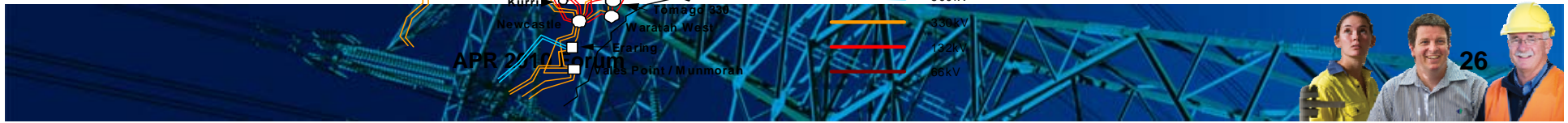
# Supply to the Far North Coast





# Transmission System Supplying the NSW Far North Coast

Far North Coast Area of Interest



## Network Support to the Far North Coast

The project: Lismore- Dumaresq 330kV T/L

Issued RFP seeking non-network alternatives to manage operational risks during summers 2010/11, 2011/12 and 2012/13 as well as for 2013-15.

Currently assessing responses.

# TransGrid's Innovation DM Allowance

# TransGrid's Innovation DM Allowance -1

- ❑ TransGrid has received a DM innovation allowance of \$1.0 million/year for the 2009-2014 regulatory control period
- ❑ TransGrid is working with the DNSPs in NSW/ACT and has signed MOUs with the four NSW & ACT distributors



# TransGrid's Innovation DM Allowance - 2

- ❑ Joint research DM project with RMIT (under ARC auspices) in the field of consumer behaviour – “Co-managing home energy demand- social practice & smart technology transition”
- ❑ Intention is to encourage innovative demand side response, encourage market to mature and elicit adequate responses to RFPs; and
- ❑ Implement lessons learnt from the DMPP and other new initiatives in partnership with distributors in NSW



# Summary

- Consideration of non-network alternatives is integral part of TransGrid's network planning process
- TransGrid implements Non-Network alternatives if prudent and efficient
- TransGrid works with the DNSPs in NSW/ACT to :
  - Encourage innovative DSR
  - Encourage market to mature
  - Implement lessons learnt from the DMPP & subsequent DM/Non-Network projects



# APR 2010 Forum



## Questions and Discussion

