



MAJOR ELECTRICITY  
USERS' GROUP

# North Island Grid Upgrade Proposal

Presentation to the  
Electricity Commission Conference  
22 May 2007

# Outline

---

- MEUG introductory statement
- Commission's assessment
- Our concerns:
  - Addressed
  - Remaining
- Others' submissions

# MEUG introductory statement

---

- Concern that last minute issues not properly resolved or consulted on
- High risk the Environment Court will find detriments of 400 kV relative to 220 kV > \$11m GIT difference
- Remaining unresolved issues largely tend to close or reverse the \$11m GIT gap

# MEUG introductory statement

---

- On the whole, including GIT assessment and likely Environment Court process, 220 kV is the better option
- MEUG recommend EC should decline 400 kV and Transpower should resubmit new GUP for 220 kV

# Commission's assessment

---

- Satisfied that Transpower's amended proposal meets grid reliability standards
- Satisfied that Transpower has complied with relevant Rules processes
- Grid investment test:
  - Three commissioners conclude it meets the GIT
  - One commissioner considers it doesn't – alternative option meets grid reliability standards at lower net market cost

# Our concerns – addressed

---

- Commission's assessment addressed a number of our concerns about Transpower's amended proposal

# Our concerns – addressed

---

- Rejected Transpower's use of solely higher growth scenario demand forecasts:
  - Used 2005 initial SOO demand forecasts
  - Lower demand scenarios from draft 2007 SOO in sensitivity analysis
- Allowed for uncertainty in demand growth rates and generation
- Used extended variant of “low demand” market development scenario from 2005 initial SOO

# Our concerns – addressed

---

- Engaged PBA to scrutinise Transpower's capital cost estimates
- Indicated intention to approve amount sought or actual costs, whichever is lower
- Confirmed the capacity figures for Otahuhu to Whakamaru A and B circuits were subject to a typo

# Our concerns – addressed

---

- Modelled analysis period of 20 years + terminal benefits
- Applied discount rate of 7%, 4-10% in sensitivity analysis
- Adopted unserved energy value of \$20,000/MWh

# Our concerns – addressed

---

- Disregarded alleged business confidence benefits of effects on foreign direct investment and economic growth

# Our concerns – remaining

---

- Likelihood of sufficient surplus generation to require proposed additional Whakamaru to Auckland transmission capacity?
- Any operating expenditure included in \$27 million investigation costs sought?

# Our concerns – remaining

---

- Opportunity benefits under some options through ability to adopt future new technology?
- Impact on analysis and preferred option of including reasonable allowance for demand-side management in non-transmission alternatives?
- Technical and operational issues in series compensation and decommissioning of 110kV Arapuni to Pakuranga line?

# Our concerns – remaining

---

- 400kV amended proposal vs. 220kV alternative option
- Higher cost – Commission Pinnell's alternative NPV calculations show:
  - Amended proposal is the higher cost option (by \$39-45 million) up to 220kV capacity until around 2050
  - Without any cost advantage in lower costs future development options

# Our concerns – remaining

- Management of outages – vulnerability to infrequent but significant events:
  - Single 400kV line – may not meet good electricity industry practice
  - Highly likely that second 400kV line would be required before acceptable to energize first line at 400kV capacity
- Option value – 220kv alternative option allows for new technology providing lower cost future development options

# Our concerns – remaining

---

- Environmental costs:
  - Likely to be significantly higher for amended proposal
  - Likely to outweigh small alleged economic advantage of amended proposal and unquantified benefits
  - If amended proposal rejected under RMA, reconsidering and re-consulting on options would further delay approvals process
  - Recommend against approving at this stage a proposal which would almost certainly not be granted RMA approval

# Our concerns – remaining

---

- Commencement date:
  - In response to original proposal Commission suggested new lines should be constructed from 2017 and this was a low-risk decision on timing
  - Commission now proposes to accept a proposal with new line construction in 2013
  - Reason for change in view not clear
- Duplexing option:
  - Warrants further consideration
  - Technically sound solution
  - Defers need for major line construction

# Others' submissions

---

- Genesis:
  - Supports exclusion of costs and benefits of conversion to 400kV on grounds they are too uncertain and distant
    - We suggest Commission needs to ensure that it is not discounting real options the 400kV will forestall but which the alternative allow
  - Argues GIT requirement for option with lowest NPV – too constraining
    - Sensitivity analysis is designed to deal with uncertainty; an ad hoc fudge factor should be viewed with caution

# Others' submissions

---

- Meridian:
  - Argues that due to GPS, gas availability and carbon charges future generation development will see more renewables, less gas and sees renewables as largely coming from the south. It argues this justifies major transmission investment
    - Underlines the urgent need for the TPM to send the right locational signals to generators now
  - Argues that for environmental reasons we should minimise the number of additional transmission lines needed
    - Is this not an argument for duplexing, which Meridian dismisses?

# Conclusions

---

- Very important decision, large sums at stake
- The submission process underlines to us the urgent need for the TPM to send the right signals to generators now
- Amended proposal:
  - Higher cost option up to 220kV capacity around 2050, in addition 220kV offers option of new lower cost future development
  - May not meet good electricity industry practice, highly likely that second line would be required before acceptable to energize first line at 400kV capacity
  - Higher environmental costs, likely to outweigh small alleged economic advantage of amended proposal and unquantified benefits (some of which are dubious) – almost certainly will struggle to be granted RMA approval