snowy hydro Limited

renewable energy

AEMC Presentation
Southern Generator's proposal

5th September 2006

Today's discussion

- We are concerned that we did not communicate the context
- Communication clarification
  - Reliability in NSW
  - Reliability in VIC
- Discussion on problem
  - LYMMCO's (Southern Generator's) proposal removes 1200MW of Murray generation
  - Problem has been significantly worsened by Eucumbene storage level
  - Summer reliability threat has only crystallised at end of August
  - NEMMCO is not practically able to manage the risk
- Questions and general discussion

Reliability in NSW

➢**Snowy statement that there is no reliability issue related only to NSW reliability**

Submission to Snowy Hydro's Re-orientation proposal dated 7th July 2006:
In the following section,
7 Power system security and reliability
We agree with the AEMC's conclusion that the Southern Generators' proposal will not materially affect reliability ***of supply to NSW****, and consider this also applies to the reorientation proposal.*

Reliability in Victoria is however now of greater concern

- The Victorian reliability issue is public knowledge because it has been discussed with NECA, ACCC, NEMMCO and on public forums in 2004 and 2005 (as well as with number of jurisdictions)

- Conclusion of previous discussions was that the issue was not material. It would only be a problem if extreme low storage/low inflows are encountered. (Eucumbene was then 20m higher than today)

- Please note that this was the assumption made by the southern generators (diversion rate based on wrong Eucumbene level) in their submission of 4/9/06

- Issue of reliability in Victoria was not discussed during AEMC LYMMCO consultation due to level of Eucumbene in summer 2005/06 and outlook at that time

- Eucumbene level is now the lowest recorded and given August inflows the summer situation has become critical

Inflows for July (received in early August) and August (received just before submission)

August, September and October are major inflow months!!!

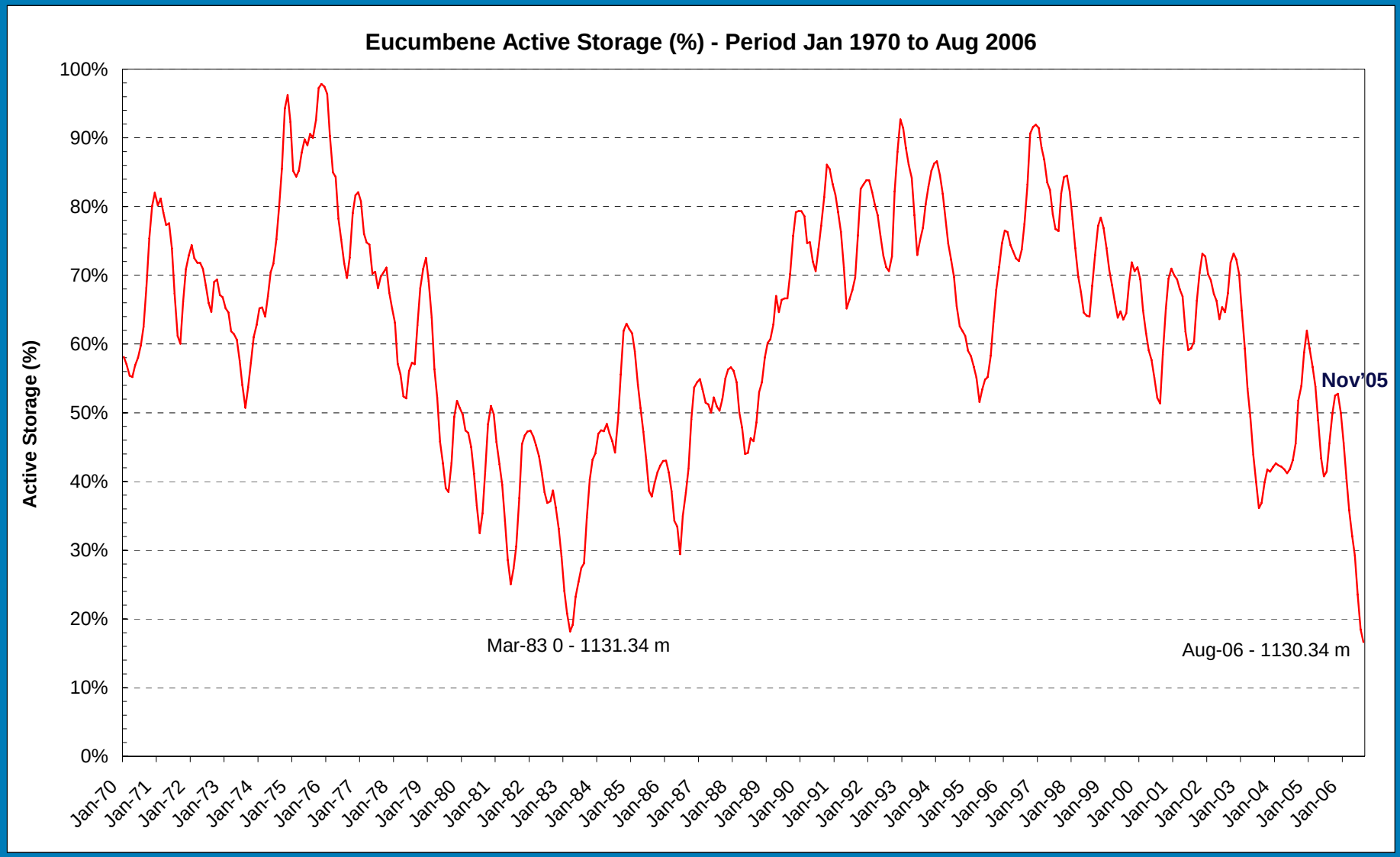
July average (over last 105 years) 273Gl
This July – 67Gl
Only lower July on record 1965, 1967 and 1982

August average (over last 105 years) 345Gl
This August – 87Gl
Only lower August on record 1982

Prediction for next period very low due to little or no snow cover!!!

Information was factually available to us only end of August!!!

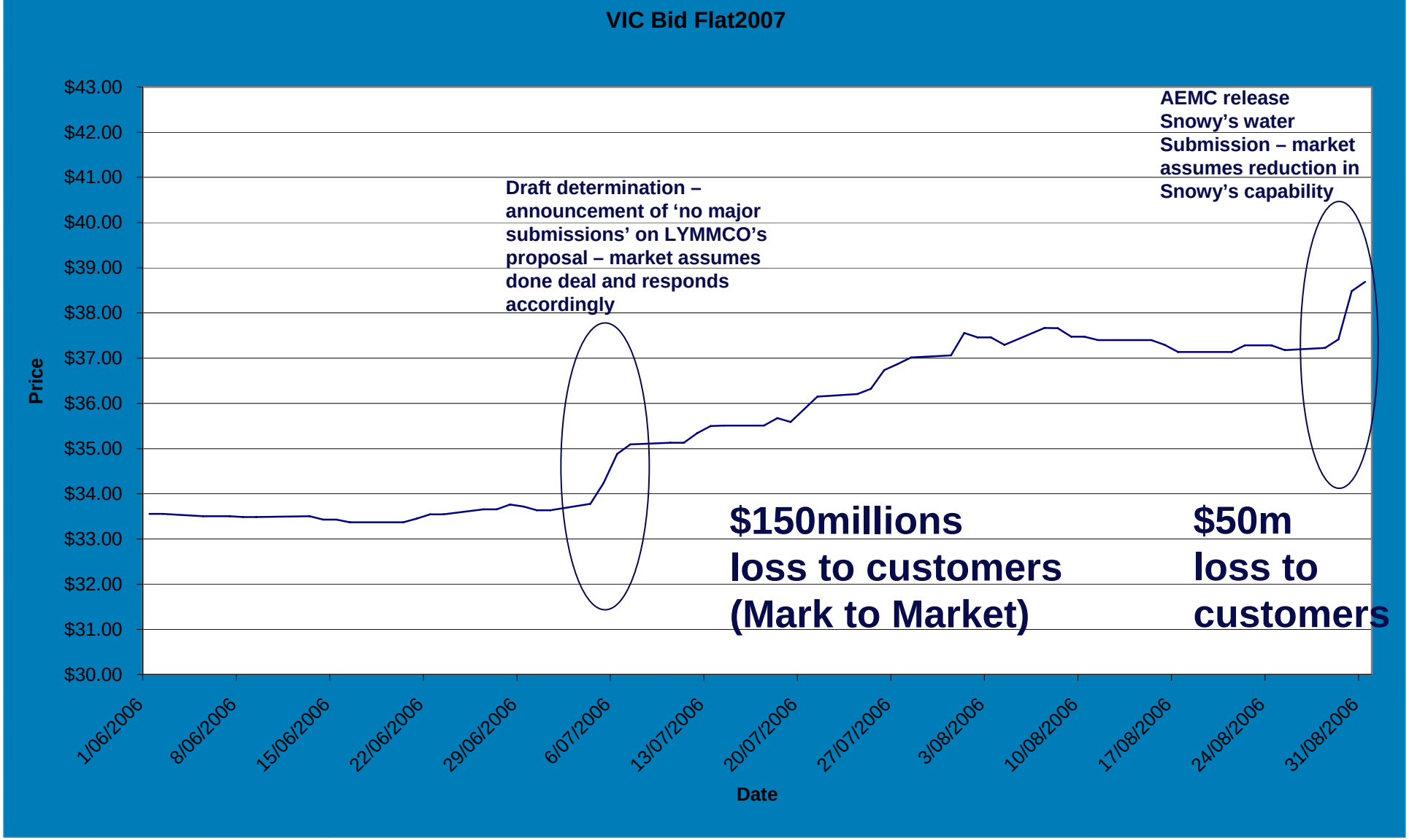
Eucumbene storage level continue to fall contrary to history and expectation



Continuous disclosure

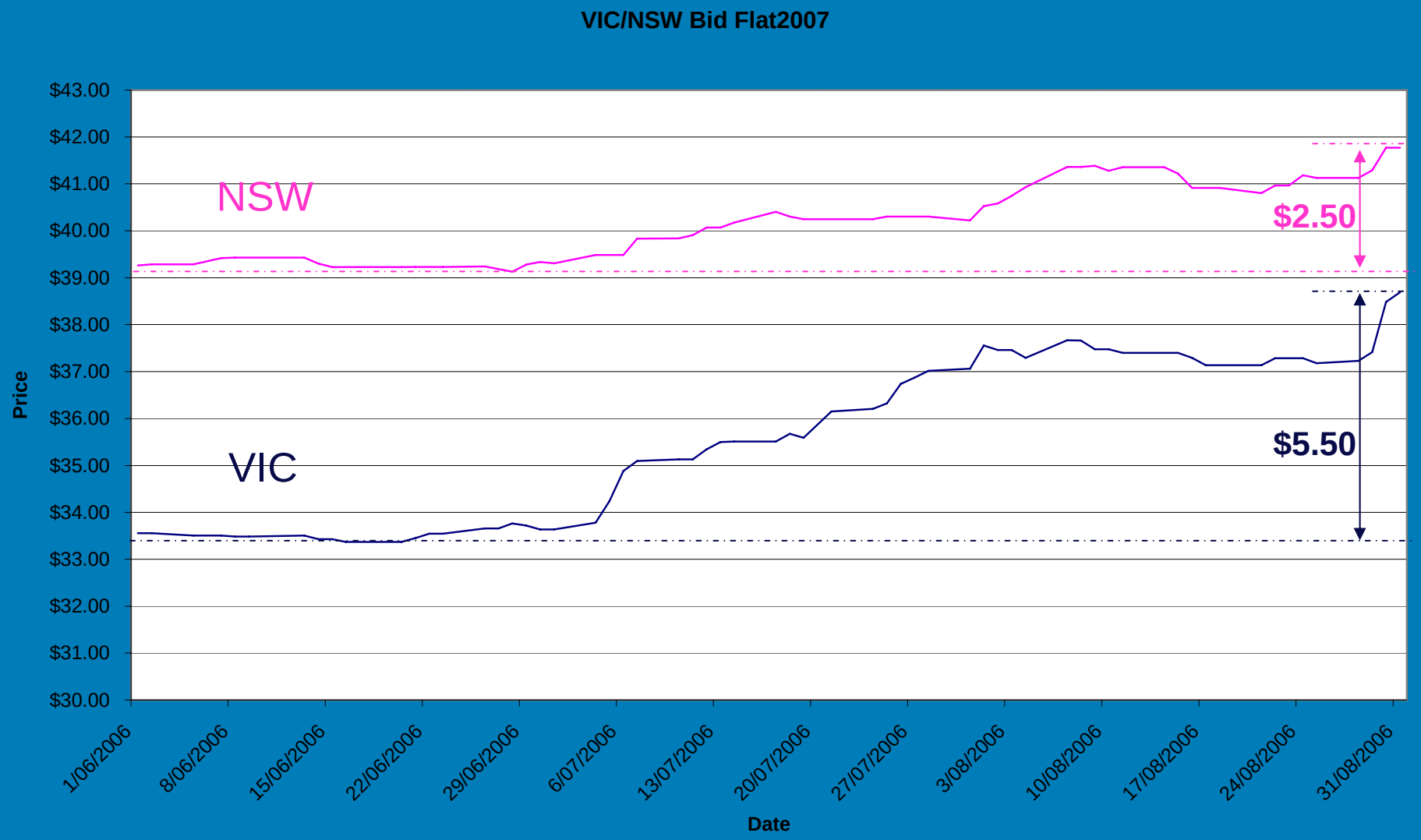
- Snowy Hydro has informed the Commission of material additional information as it arose during the process
  - Example: we sent information in early August which had significant empirical data about future Victorian price after draft determination of AEMC on this issue
  - Water information as soon as it was available end of August
  - Both pieces of information have had significant market impact…

Both information have had material market impact



Reality check (comparison with NSW price)

Victorian price moved more than NSW
NSW price went up, not down as predicted



Scheme design and capability implications

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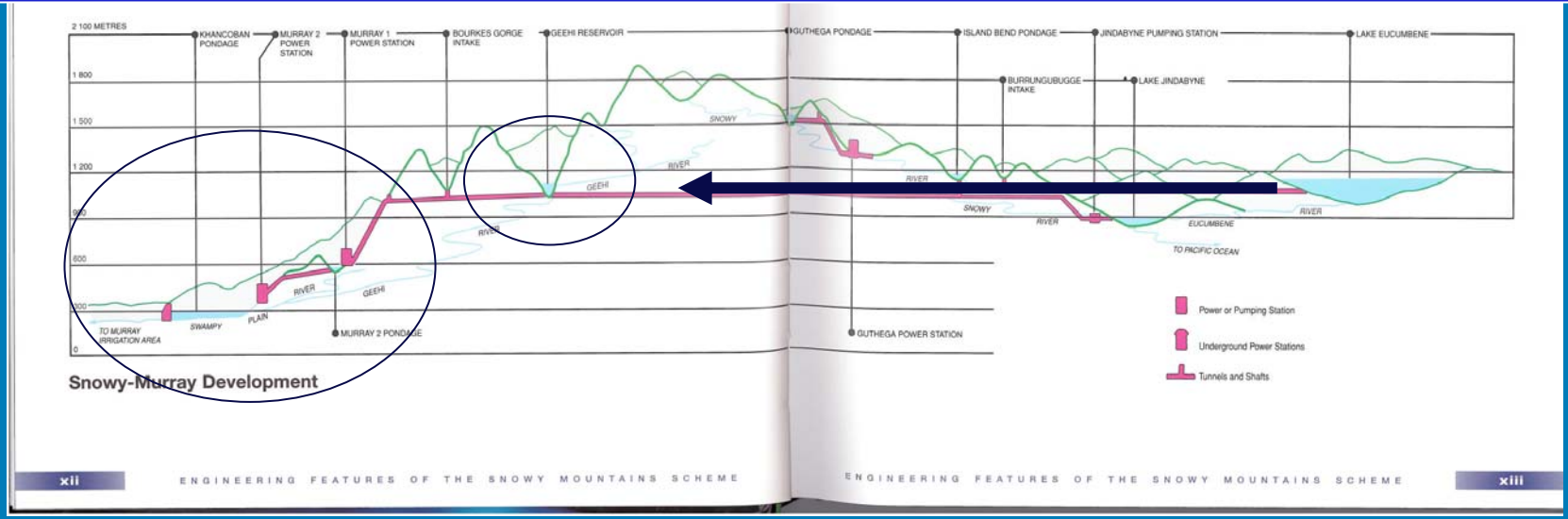
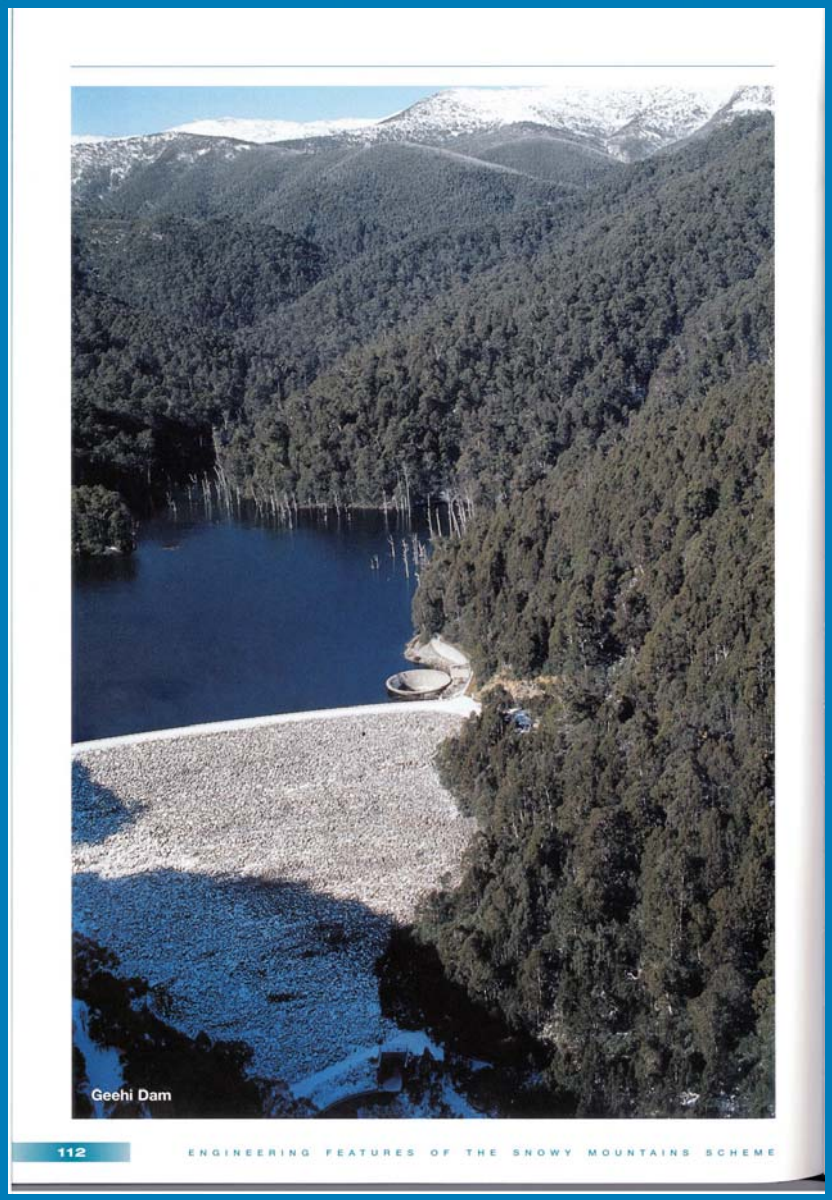
Cross-sections of the Scheme

1. Geehi is head pond for Murray generation (1500MW)
2. Water is transferred from Eucumbene to Geehi
3. Eucumbene level determines transfer rate to Geehi
4. Geehi storage is small storage (16 hours)

- Geehi storage quantity is the critical resource for Murray generation
- AEMC SG determination impacts Geehi levels and thus Murray generation

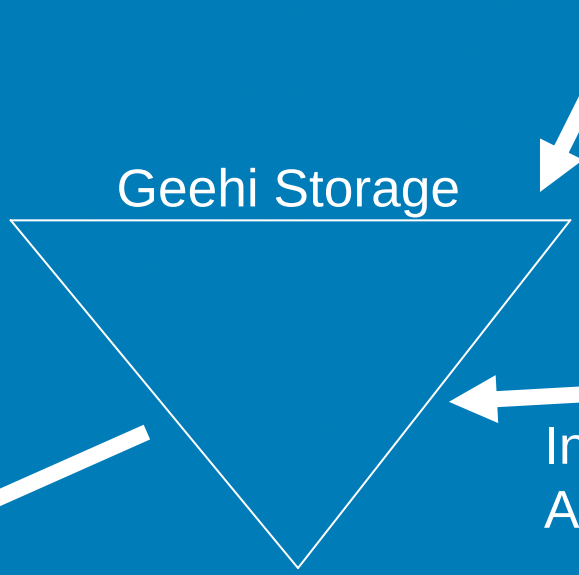


Geehi cannot be allowed to spill – due to environmental damage in National Park



- Managing Geehi dam operations is difficult because it is a small storage that cannot be allowed to spill
- For environmental reasons, it requires avoidance of spill at all cost
- Avoidance of spill requires low storage level and/or ability to generate Murray stations at high level during times of high inflow events (‘forced generation’)

Equation is simple



Power output = Storage + Inflow + Eucumbene transfer

Implications of the equation

Currently, we aim to keep Geehi storage high(60-80%) to maximise generation capability

Storm risk requires that we be free to generate at high levels or else we must keep the storage low

LYMMCO's proposal creates negative price risk for Murray generation (we will be forced to pay to generate)

As a consequence we will choose to keep the storage low (30-50%) rather than pay to generate

As a consequence Victoria will have less certain reserves (at the time when Murray becomes Victorian generator of last resort - 600MW can be supplied only by Murray, because of network limitations)

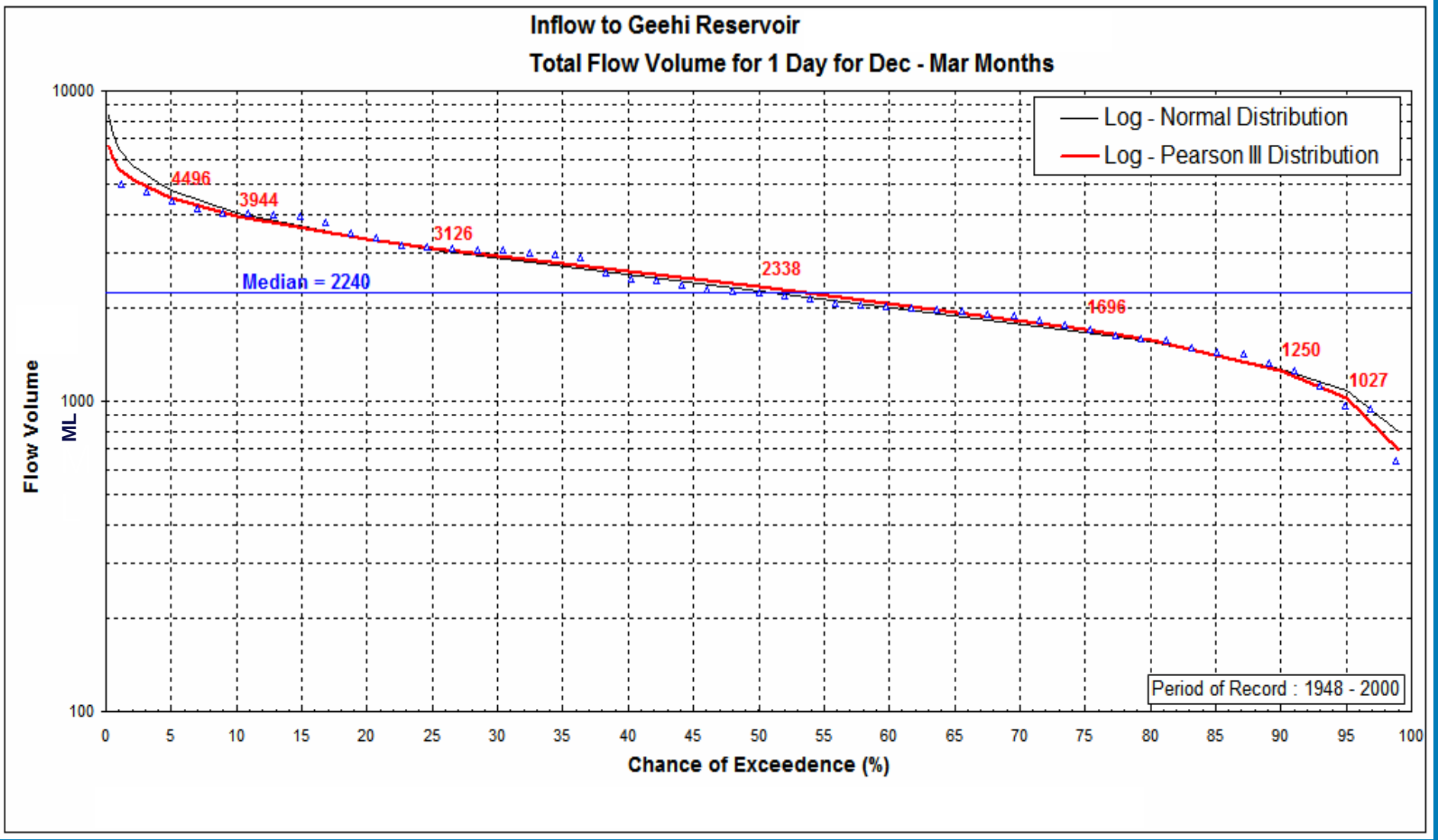
Geehi summer inflow risks

The 90% confidence (10% POE) inflow in a day for the summer period quantity risk for Geehi catchment is 3.9 Gl – refer to next slide

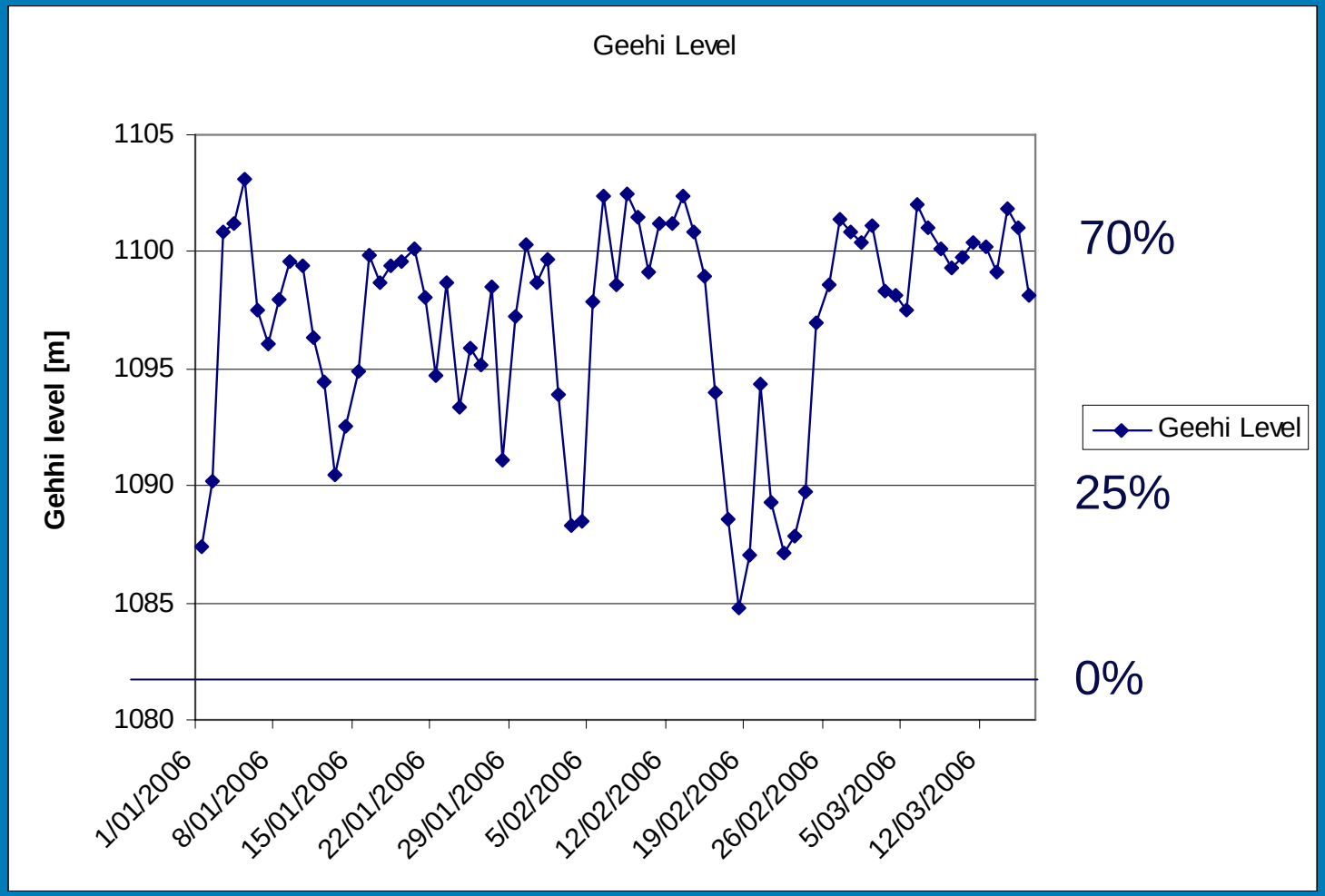
3.9 Gl inflow quantity is approximately 30% of Geehi active storage.

Hence the LYMMCO proposal incentivises Snowy Hydro to reduce target storage levels from 60 to 80 % to 30 to 50%.

Geehi summer inflow risks



Storage reduction will cause unavailability on a number of days, assuming the same pattern as last summer



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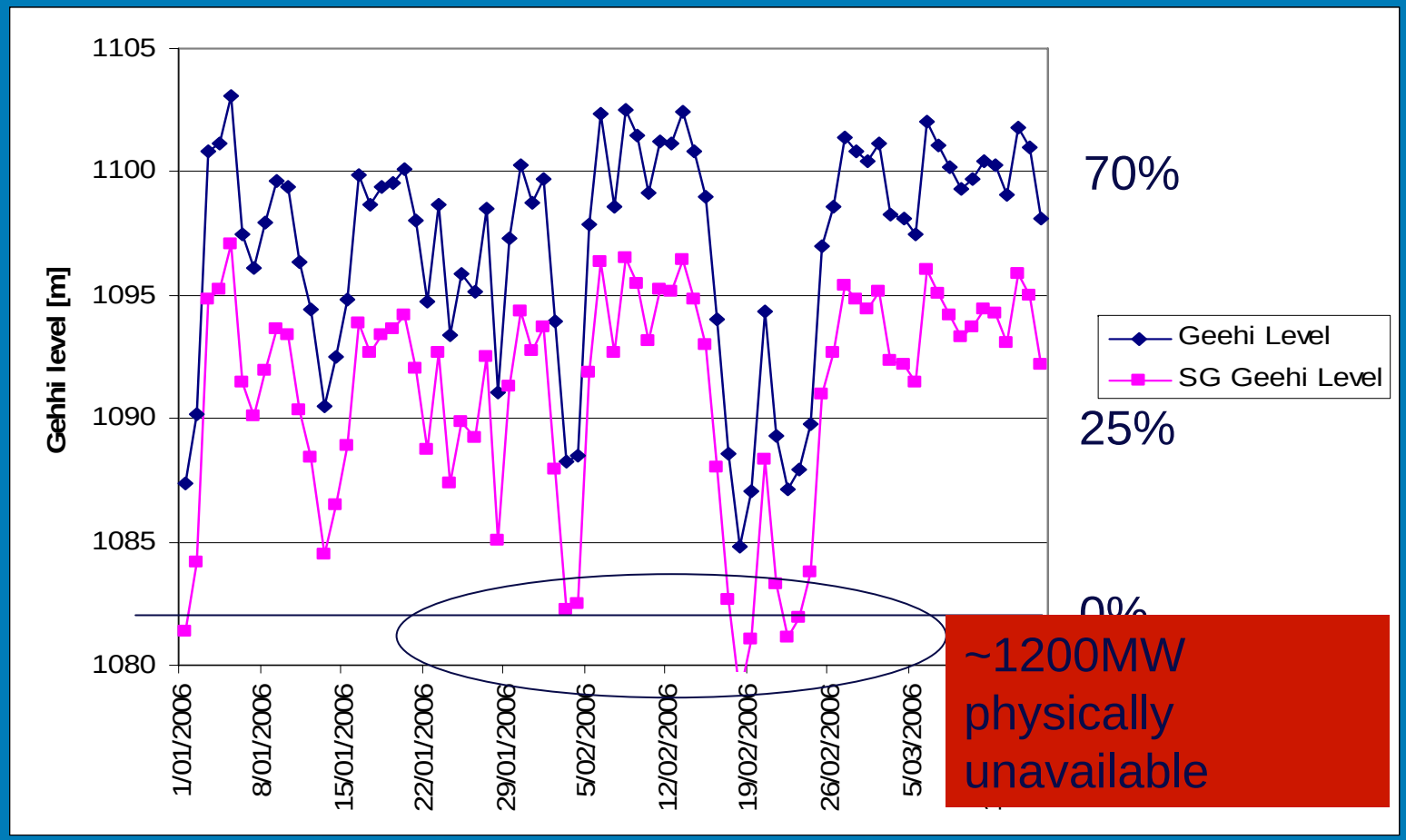

Further implications

- Due to reduced generation capability there will be times that we cannot bid our generation due to its physical unavailability. This will have reliability implications and will have market price implications (price for Victorian customers)

- Due to reduced generation capability Snowy Hydro is incentivised to withhold its lesser quantity of available generation in anticipation of future higher price periods (higher opportunity cost)

- These will lessen competition confronting Southern Generators

- Empirical evidence exist in previous slides related to future contract market

NEMMCO issue raised because the only perceived solution to reliability under LYMMCO is NEMMCO's intervention

- If LYMMCO's proposal is endorsed the only way to manage projected Victorian reliability issue is to assume that NEMMCO will intervene by way of DIRECTION

- It is inconsistent to introduce a rule that requires direction (intervention) when the aim is to replace existing rule to avoid intervention

- Potential NEMMCO's direction will not ease ongoing market impact

- DIRECTION WILL NOT WORK IN PRACTICE.

- NEMMCO will not have information before it is available to Snowy Hydro. And thus it will be too late to issue effective direction.

- An order in advance will not work in a practical sense, because it will create conflict between direction and subsequent dispatch instruction (would require full NEMMCO's control of Murray assets over summer)

Summary

- We believe that we have presented three very important pieces of new information
  - Potential reliability risk in Victoria
  - Empirical evidence of increased cost to Victorian customers
  - Further increased potential cost to customers due to reduction in storage and capacity during critical demand periods