

The Crisis That Isn't – Myths and Truths About New Zealand's Electricity System

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Electricity Commission

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Myths

- There is not enough supply for winter
- There is not enough generation being built
- There is a high risk Auckland will go black this winter
- There is a high risk Auckland will go black in 2010
- Regulation is harmful to investment

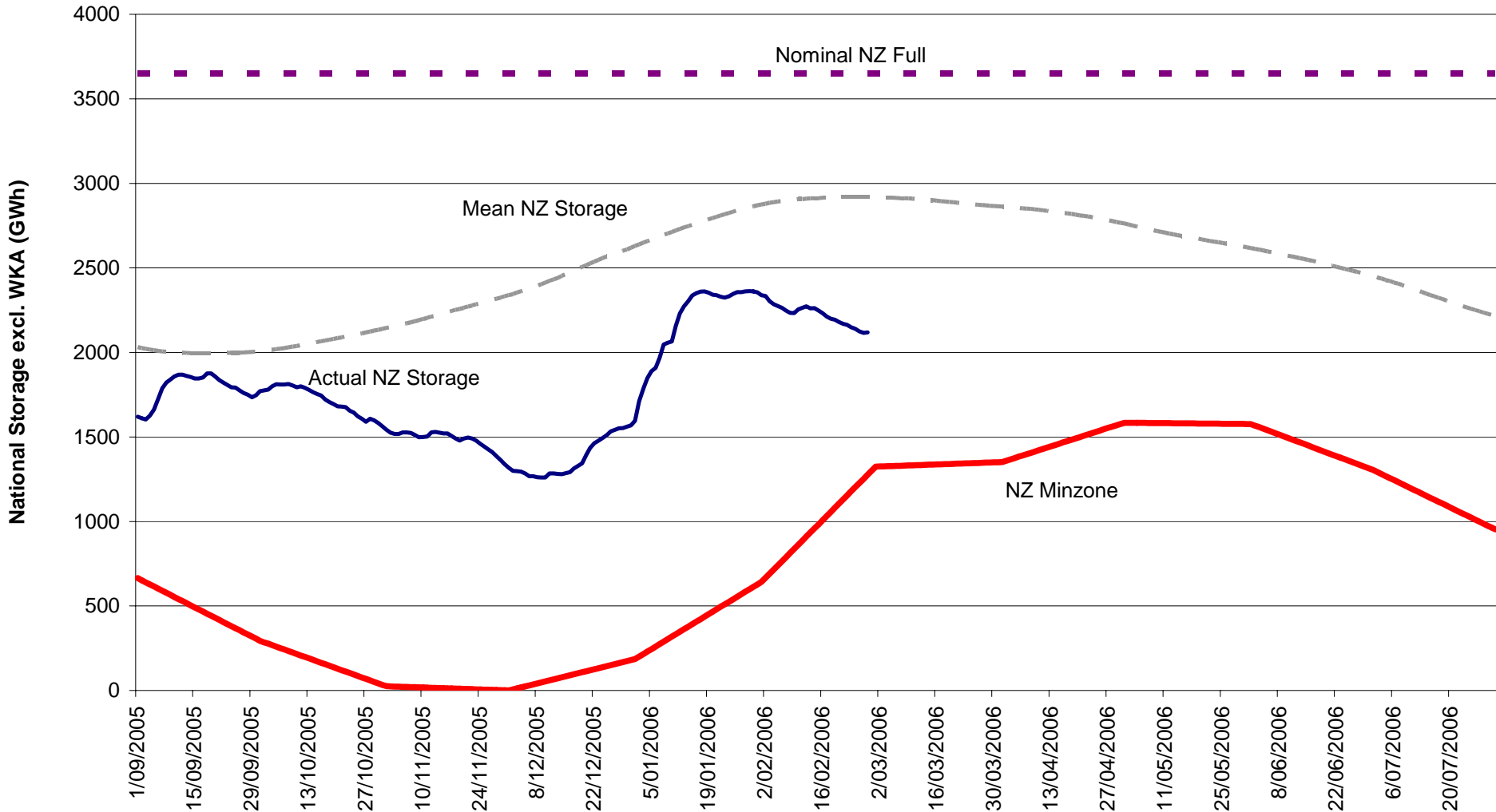
Myth #1

There is not enough supply for winter

NZ Minzone Guideline for Sep 2005 to Aug 2006 (Incl Whirinaki)

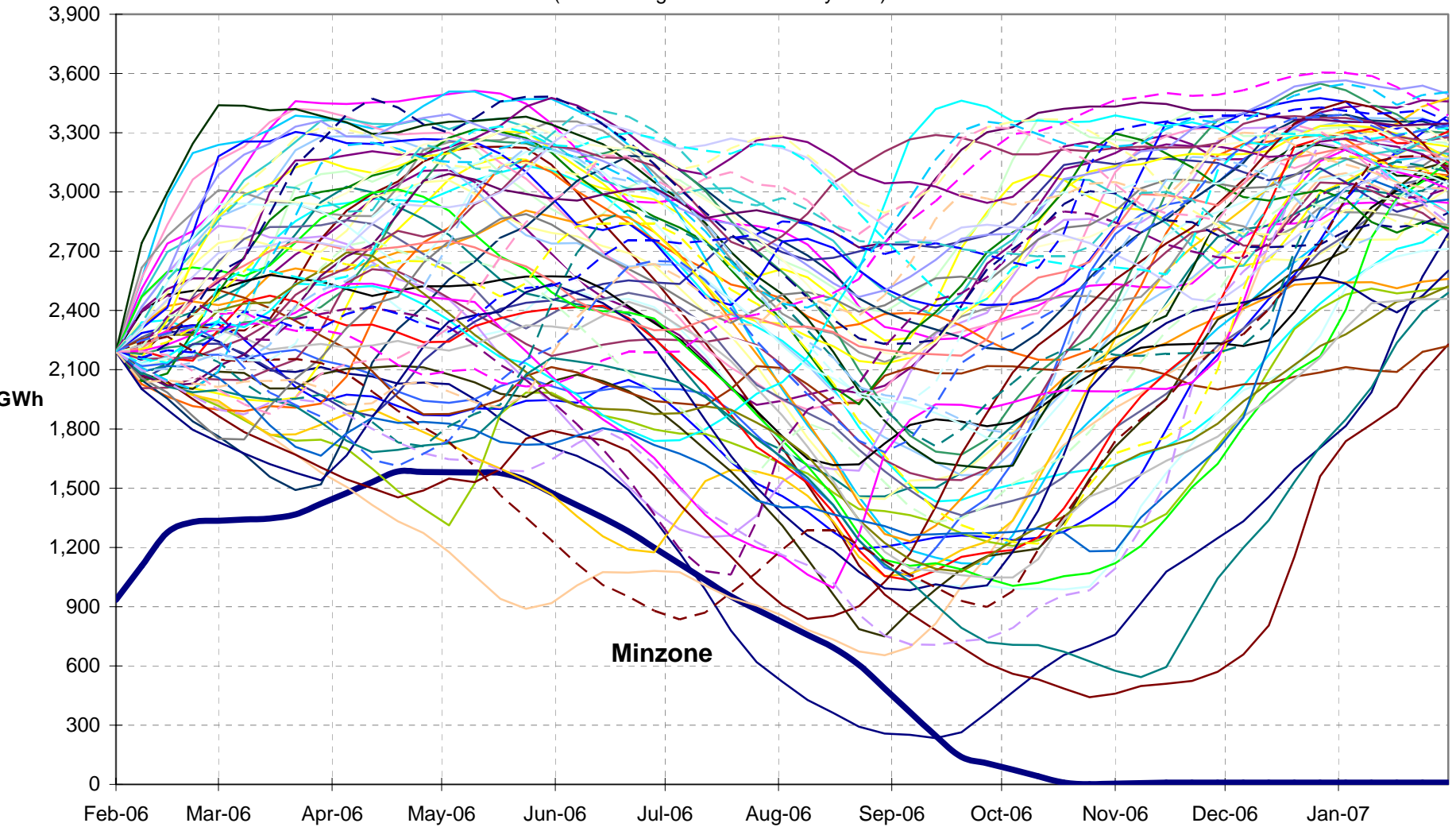
Taupo, Tekapo, Pukaki, Hawea, Te Anau & Manapouri

26 February 2006



NZ Storage Trajectories over all 74 Inflow Years (Excl Waikaremoana, Tongariro, Wanaka and Wakatipu)

(Start storage as at 9 February 2006)



Myth #2

There is not enough generation being built

New Generation

Consented (some under construction):

- Awhitu wind
- e3p gas
- Otahuhu gas
- Poihipi geothermal
- Tararua III wind
- Te Pohue wind
- Te Rere Hau wind
- Titiokura Saddle wind
- Waipori enhancement hydro
- Whareroa expansion
- White Hills wind

New Generation

In consultation or consenting phase:

- Awakino wind
- Dobson hydro
- Gowan hydro
- Hawea hydro
- Kawerau geothermal
- Lake Rochfort hydro
- Makara (Westwind) wind
- Marsden B coal
- Mokairau wind
- Onekaka wind
- Pahiatua Track wind
- Puketiro wind
- Rangitata Diversion hydro
- Te Rere Hau II wind
- Te Waka wind
- Wairau River hydro

New Generation

Feasibility studies:

- Ahipara wind
- Arnold River hydro
- Auckland city gas
- Auckland south gas
- Belmont Hills wind
- Buller coal
- Harihari hydro
- Horehore wind
- Kaukapakapa gas
- Kaipara Harbour wind
- Long Gully wind
- Mahinerangi wind
- Mangakino geothermal
- Maniatoto wind
- Mohaka hydro
- Mokau River hydro
- Pelamis tidal
- Seddon wind
- Southland coal
- Waitaki tunnel hydro

Myth #3

There is a high risk Auckland will go black this winter

Upper NI Winter 2006

Expected Winter 2006 limits with Otahuhu CCGT out of service:

- Voltage 2115MW, (+6% above 2005 peak of 1997MW)
- Thermal 2080MW, (+4% above 2005 peak of 1997MW)

Additional specific measures to be considered:

- Regional daily management to flatten evening peak (\approx 30MW)
- Optimise Waikato Generation for UNI transfer (\approx 40MW)
- Post Event Load Shedding at Bombay (\approx 50MW)
- AUVLS, if required (\approx 40MW)
- Others as proposed by stakeholders

Courtesy of Transpower, System Operator

Myth #4

There is high risk Auckland will go black in 2010

Intermediate investments

Intermediate investments for supply security into Auckland past 2010:

- New switching station at HLE (Huntly East) connecting OTA – WKM Line C;
- Upgrading OTA – WKM Line A and B by re-tensioning (246MVA to 323MVA);
- Adding 2 x 100MVAR capacitors at HLY to provide further reactive support; and
- Installing Phase Shifting Transformers on the 110kV network (ARI – PAK, ARI – BOB, HAM – WES – BOB)

Transmission alternatives

Analysis suggests many transmission options of similar cost, but a 'short short-list' of four representative options selected:

- **T1** – duplexing the WKM-OTA 220kV A and B lines, then installing **400kV** between WKM and OTA in **2021**
- **T2** – installing **220kV** between WKM and OTA in **2017**
- **T3** – installing **HVDC** between WKM and OTA in **2017**
- **T4** – installing **400kV** between WKM and OTA in **2017**

Myth #5

Regulation is harmful to investment

Good Regulation

Good regulation:

- Sets clear rules for treatment of investment
- Produces predictable results
- Challenges companies to become efficient
- Reduces risk of later political intervention.

Good regulation protects consumers *and* investors, because in the long run their interests are the same.

Truths

- There is uncertainty about gas supply and price
- There is uncertainty about climate change policy
- There is uncertainty about future load, especially NZAS
- There is debate about how much new transmission is needed
- New Zealand is very dependent on limited hydro storage
- There is debate about how to absorb wind into system

But fundamentally the electricity system is sound and well-managed, and will be for the foreseeable future.