Why Have a Regulator?

Roy Hemmingway, Chair
Electricity Commission
August 2006

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To protect the consumer's interest

What is the Consumer's Interest?

What is the Consumer's Interest?

- Reliable supply
- Lowest price

What Creates Reliable Supply?

- Timely investment in generation and transmission
- Operation of generation and transmission when needed
- Quality system operation

What Creates Lowest Prices?

- Investment only in needed and lowest cost generation and transmission
- Limited profits
- Dispatch of lowest cost generation

Regulator's Job

The regulator's job is to balance reliable supply against lowest prices.

Businesses in the Electricity Sector

- Natural monopolies
- Activities that could be subject to competition

Natural Monopolies

Businesses we don't want more than one:

- Transmission
- Distribution
- System operation

Activities Subject to Competition

Businesses which are not natural monopolies:

- Generation
- Retailing (selling)

Industry Patterns

- Some industries mix natural monopolies and competitive businesses in same company (e.g., NZ Telecom, or U.S. electricity utilities)
- New Zealand separated monopoly and competitive businesses in electricity sector

New Zealand Electricity Sector

Monopolies

- Transmission company (Transpower)
- Lines companies or “networks” (28)
- System operator (Transpower)

Competitive businesses

- Generator-retailers (Genesis, Contact, et al.)
- Independent generator (Mokai)
- Independent retailers (R.I.P.)

Two Models of Regulation

- Monopoly regulation
  (limit prices or profits)

- Market regulation
  (set and enforce market rules)

Monopoly Regulation

In U.S., almost all regulation is done by limiting rate of return on investment (limiting profit) through *building block* approach

- Expenses + depreciation + taxes +

  (assets x allowed rate of return) = revenue

Monopoly Regulation

- In New Zealand, regulation is through limiting prices by allowing companies to raise prices only by CPI – X

- If price threshold is violated unreasonably, then Commerce Commission may take control and use building block approach to limit profits and set prices

Monopoly Regulation

Monopoly Transpower also must get approval from the regulator (Electricity Commission) for

- New transmission investments
- Pricing methodology
- Grid reliability standards
- Contract terms

What Does the Electricity Commission Do?

- Sets market and system rules
- Enforces market and system rules
- Hires system operator (Transpower) and market operators
- Regulates Transpower (previous slide)
- Provides information
- *Provides dry year reserve*
- *Conducts efficiency programmes*

Good Regulation

- Good regulation:
- Relies on good information and sound analysis (respects evidence)
- Involves broad consultation
- Is open and transparent in decision-making
- Responds quickly
- Is conducted ethically
- Sets clear rules for treatment of investment
- Is consistent and 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.

How Do We Know Regulation is Working?

- Adequate supply
- Low prices

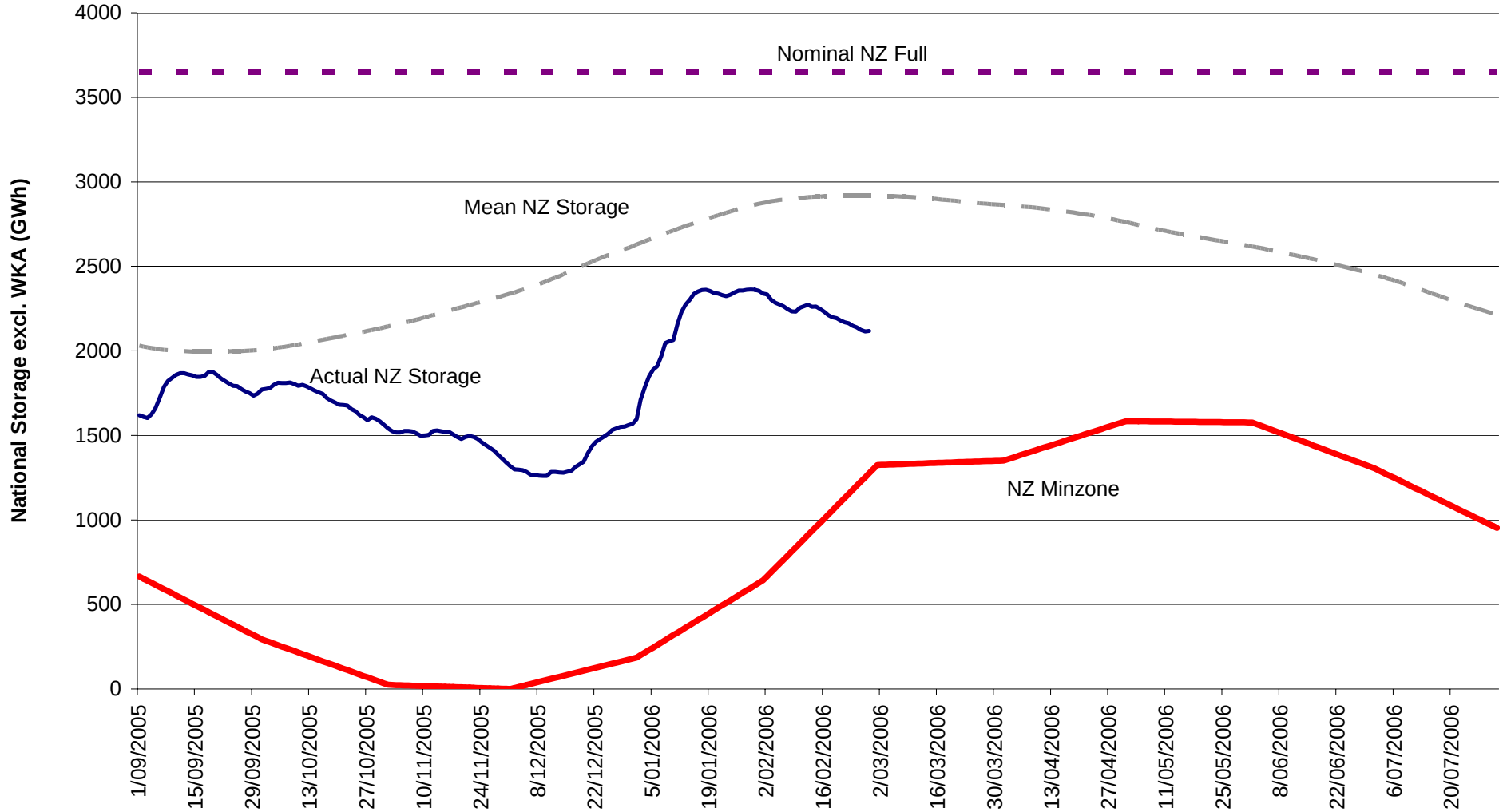
Case Study #1
Winter Electricity Supply

- Winter 2006 looked like it might have low hydro storage
- Many suggested it was time for conservation programme
- Electricity Commission resisted, because analysis said problem was unlikely

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

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

26 February 2006



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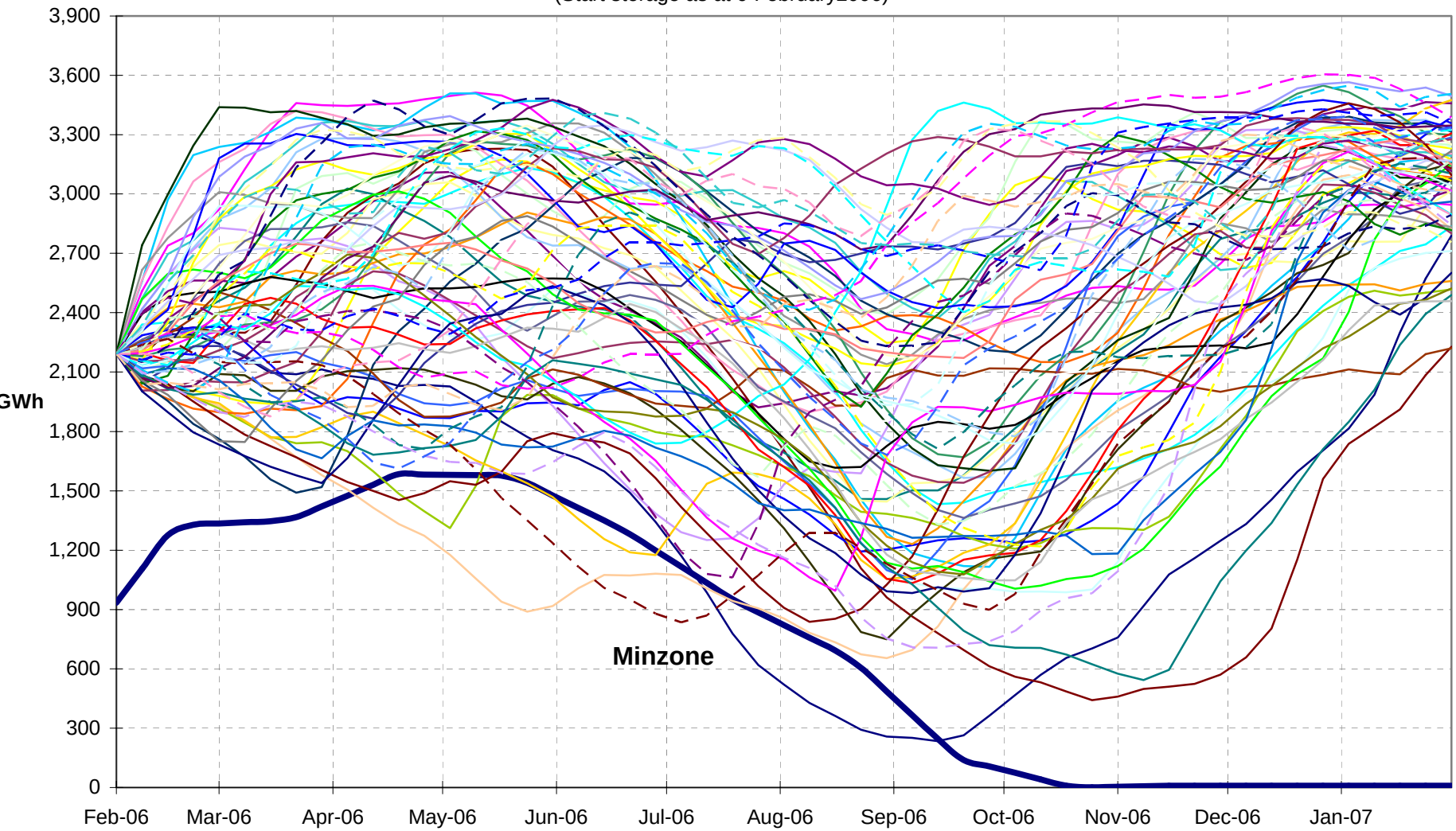
NZ Storage Trajectories over all 74 Inflow Years
(Excl Waikaremoana, Tongariro, Wanaka and Wakatipu)
(Start storage as at 9 February2006)



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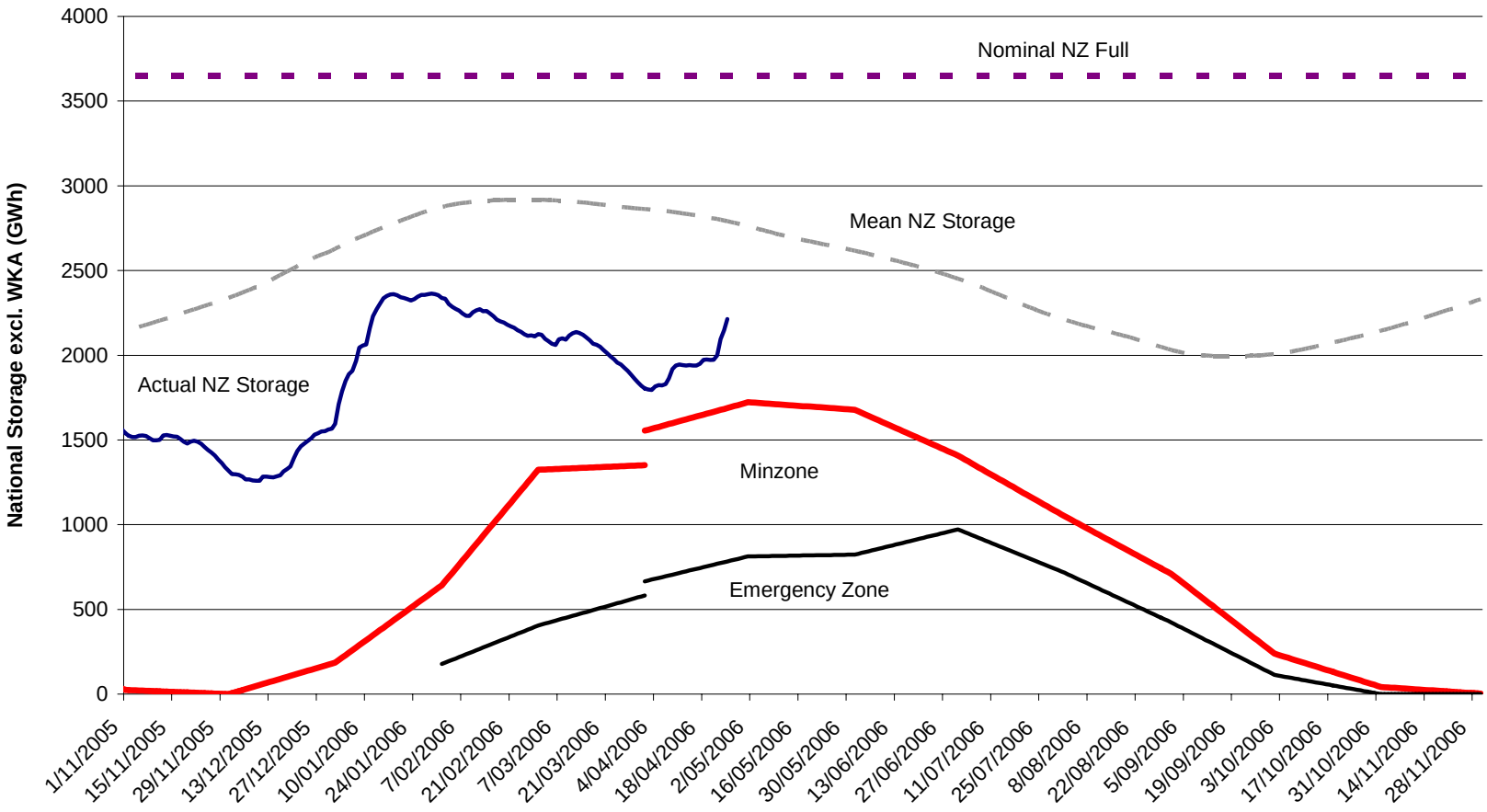
NZ Minzone Guideline for Nov 2005 to Nov 2006 (Incl Whirinaki)

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

25 April 2006



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Case Study #2
Transpower 400kV line

- Transpower applied for approval of 400kV line through Waikato to Auckland
- EC analysed alternatives and concluded alternatives were cheaper and offered equal capacity
- EC draft decision turned down Transpower proposal

Commission process - 400kV proposal

- Began wide consultation on transmission alternatives (May 05)
- Transpower submitted 400kV proposal (Sep 05)
- Community, iwi and industry briefings (ongoing 05/06)
- Analysis of proposal and alternatives (early 06)
- GIT analysis of 4 transmission-based alternatives and 400kV proposal (early 06)
- Commission's work internationally peer-reviewed (May 2006)

GIT analysis results

	400kV 2010	400kV 2017	220kV 2017	HVDC 2017	400kV 2021
	2010 dollars (millions)				
Mean capital cost (A)	775	495	400	493	607
Mean O&M costs (B)	15	6	3	10	3
Mean reliability benefit (C)	0	5	15	13	15
Mean relative loss cost (D)	0	76	118	74	109
Mean capacity benefit (E)	5	0	0	0	0
Mean terminal benefit (F)	31	30	6	15	45
Mean NPV cost (A+B-C+D-E-F)	**754**	**541**	**499**	**549**	**658**

Sensitivity analysis results

Sensitivity	400kV 2010	400kV 2017	220kV 2017	HVDC 2017	400kV 2021	Biggest Difference
	2010 dollars (millions)					
Reference Case	0	-213	-254	-205	-96	**-254**
Capital Cost +10%	0	-241	-293	-233	-113	**-293**
Capital Cost -10%	0	-185	-216	-177	-79	**-216**
Hydro or renewable 50%	0	-196	-217	-193	-69	**-217**
Gas scenario 50%	0	-247	-316	-237	-154	**-316**
Coal scenario 50%	0	-217	-268	-205	-99	**-268**
Reduced demand scenario 50%	0	-208	-255	-196	-86	**-255**

Sensitivity analysis results (2)

Sensitivity	400kV 2010	400kV 2017	220kV 2017	HVDC 2017	400kV 2021	Biggest Difference
	2010 dollars (millions)					
Fuel Cost + 20%	0	-198	-223	-192	-73	**-223**
Fuel Cost - 20%	0	-228	-285	-218	-118	**-285**
No carbon tax - cost of losses 12% less	0	-222	-272	-212	-109	**-272**
Discount rate 9%	0	-272	-320	-273	-148	**-320**
Discount rate 5%	0	-142	-166	-119	-31	**-166**
Alternative project costs +20%	0	-114	-176	-107	-26	**-176**
Easement costs inflated at 3% per annum	0	-194	-241	-194	-74	**-241**

(Reference case biggest difference -254m)

Sensitivity analysis results (3)

Sensitivity	400kV 2010	400kV 2017	220kV 2017	HVDC 2017	400kV 2021	Biggest Difference
	2010 dollars (millions)					
Cost of Unserved Energy $30,000 per MWh	0	-216	-262	-212	-103	**-262**
Cost of Unserved Energy $10,000 per MWh	0	-210	-247	-198	-88	**-247**
Transpower Capital Costs for Proposal	0	-113	-154	-105	+5	**-154**
Transpower Capital Costs for Alternative Projects	0	-216	-227	-145	+123	**-227**
Use LRMC for loss benefits	0	-200	-225	-197	-77	**-225**

(Reference case biggest difference -254m)