

# Dealing with New Zealand's Energy Markets

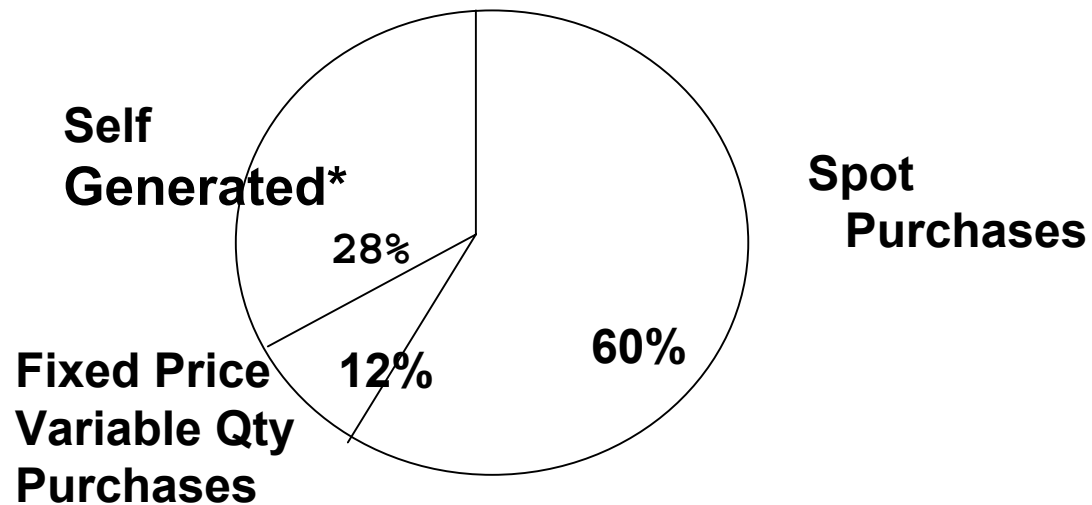
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8 October 2002

N Z Energy Federation &  
Sustainable Energy Forum Conference

# Carter Holt Harvey

We consume : >1200 GWh pa electricity  
and 6PJ pa of gas

*of which*



\*co-gen fuelled by biomass and nat gas

# Outline

- What are the Risks in the NZ Electricity Market?
  - Short term (Spot Market performance)
  - Long term ( Investment -Grid, Generation, Exploration)
  - Industry Governance
  - Political Strategy
- Are they manageable?
- Could they be lessened?
- Key Takeaways
- Conclusions

# Risks in Electricity Market (1/2)

1. **The Rules** - Supply side capture of the EGB and Rules
2. **Hydrology** - Drought or deluge
3. **Gas** - availability and price in future, downtime in present.
4. **Transmission Constraints** - modelled and actual - both  
can create extreme price excursions
5. **Rentals** -Who gets L&C rentals - and in what proportion - & FTRs
6. **Plant Failure** - major thermal Generator failure or HVDC link
7. **Asymmetry of information** - Transmission and generation

# Risks in Electricity Market (2/2)

7. **Spot Price** - LRMC vs Generator view of price (water Values)

8. **Availability of Risk Mngmnt products** - Primary Hedge liquidity

9. **Transmission pricing methodology**

- distributed Generation and
- grid investment

10. **Kyoto**

at \$NZ 25/T CO<sub>2</sub>

- CCGT adds 0.95 c/kWh to cost

- Coal fired condensing adds 2.2

c/kWh

*By 2008 assume tax impost is:*

*~ \$1.5 c/kWh on all electricity and \$1.32/GJ on all Gas*

*Cost to the WPI is ~\$62M pa unless NGA negotiated*

**Note: NGA immunity depends on proving 'competitiveness at risk'**

# Nodal Price

The Nodal price is the **short term signal** to do what?

Reduce load or shut mill for 2 hrs to 24 hours.  
(regardless of your hedge position)

*What do you need to know?*

- Length of time high price will persist and
- Is the cost (Price x Time) high enough to react to?  
And preferably what is causing the problem  
- Gen failure, Grid constraint & where)

*For a Mill the wrong decision can be an expensive one*

*and COMIT is far from fool-proof*

## Does Nodal price signal accomplish 'least cost to economy'? - Structural Issues (1/2)

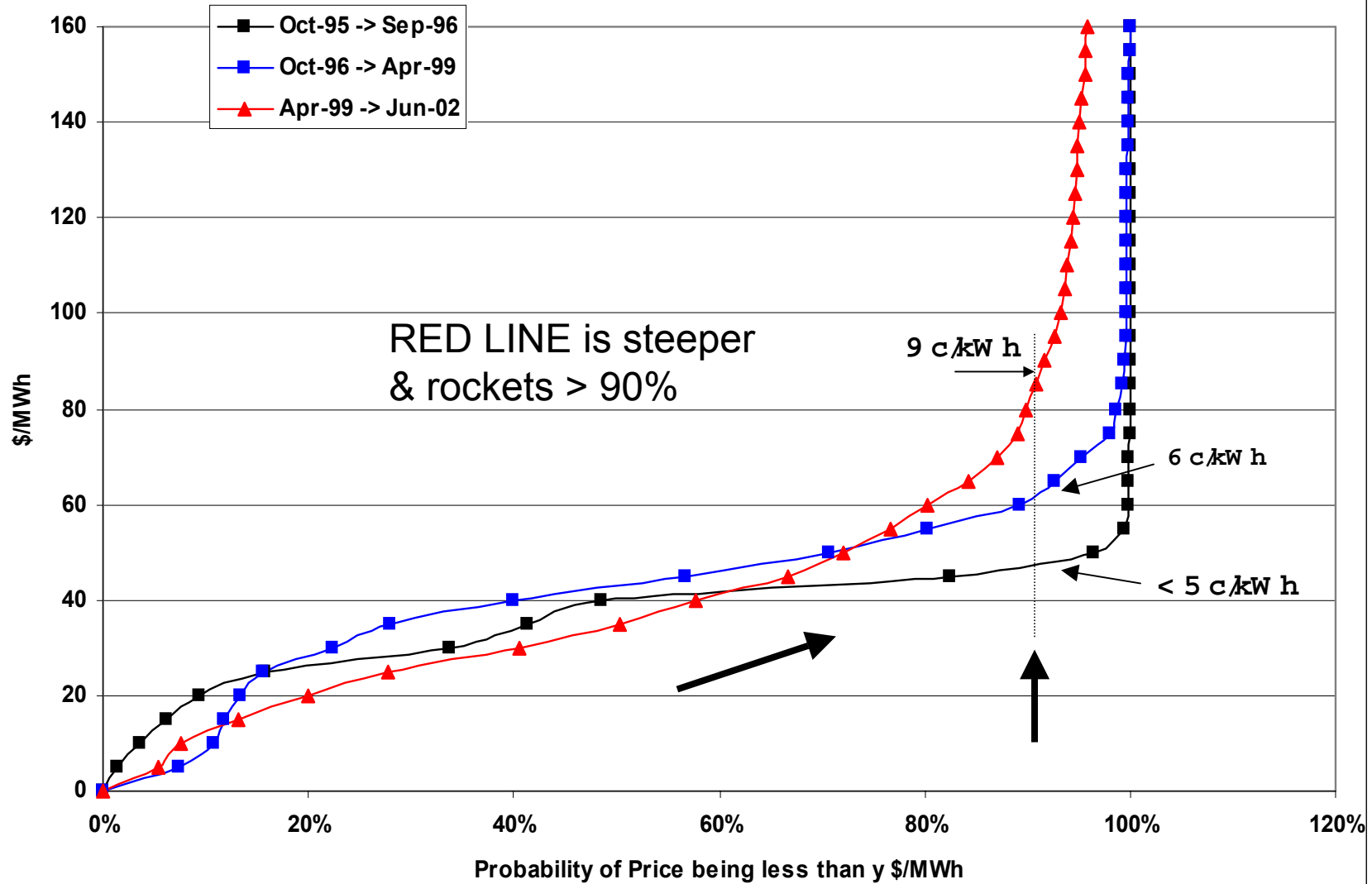
- modelled grid constraints can create dominant generators (*no cap on price - one day cost extra \$8M to CHH&Norske*)
- No incentives on transpower to reduce constraints
- Vertical integration has reduced competition (*regionalisation*)
- national averaging system for return of constraint rentals (*further subsidises non-constrained area, exaggerating differential for constrained area*)

# Does Nodal price signal accomplish least cost to economy? - Structural Issues (2/2)

- illiquid hedge markets (*makes manufacturing costly*)
- 85% of end-consumers immune from spot market (*leading to lack of demand side participation*)
- 2hr rule for demand bids also reduces Demand Side Participation

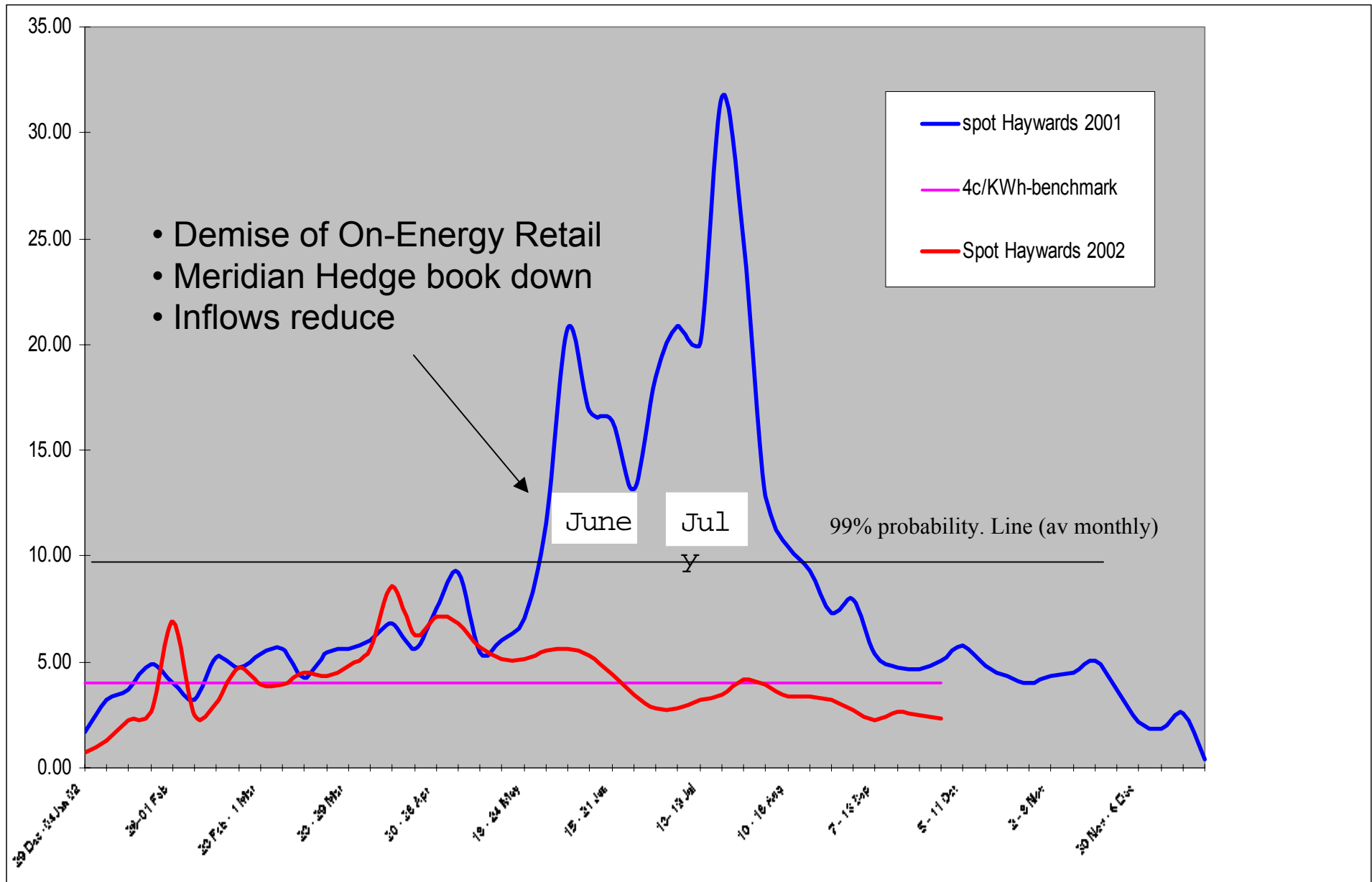
***Nodal price signals are stronger/more volatile/less predictable/more punitive than is necessary to achieve the desired consumer behaviour (to drop load when the system really needs it)***

### Haywards Price Duration Curves Oct 1995-Jun 2002

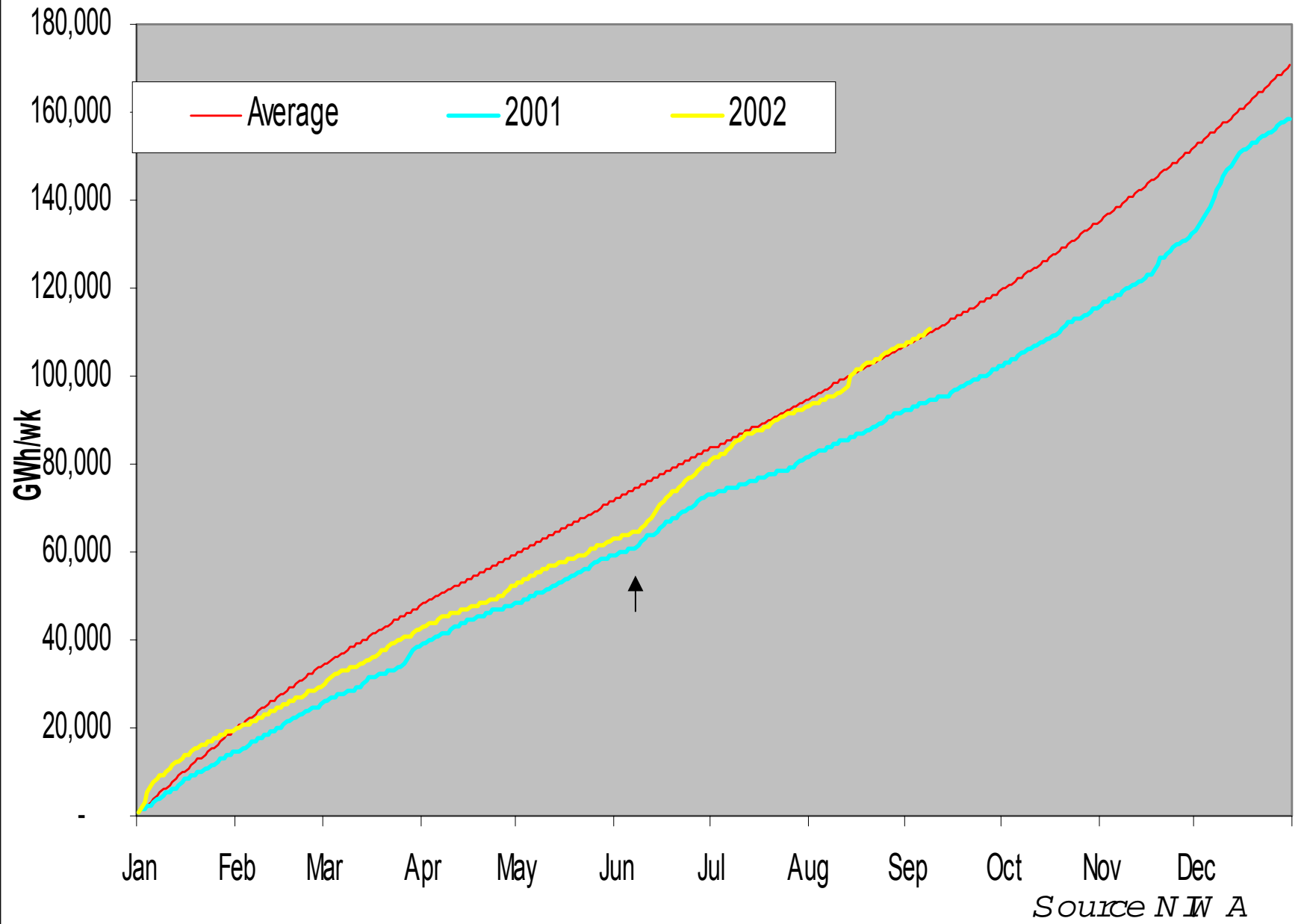


Source: Phoenix Energy

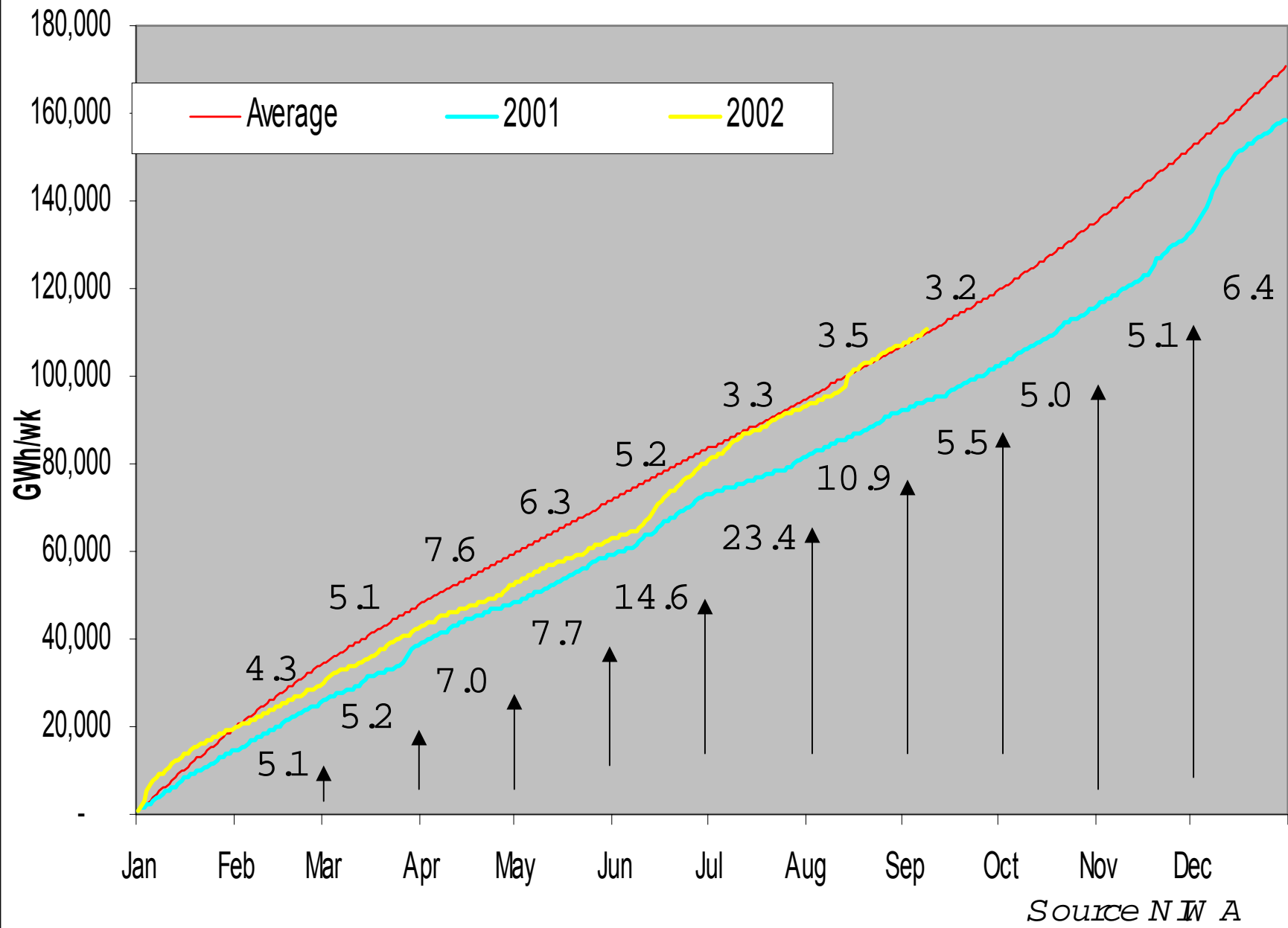
# Haywards Av spot 2001&2002



# Cumulative National inflows

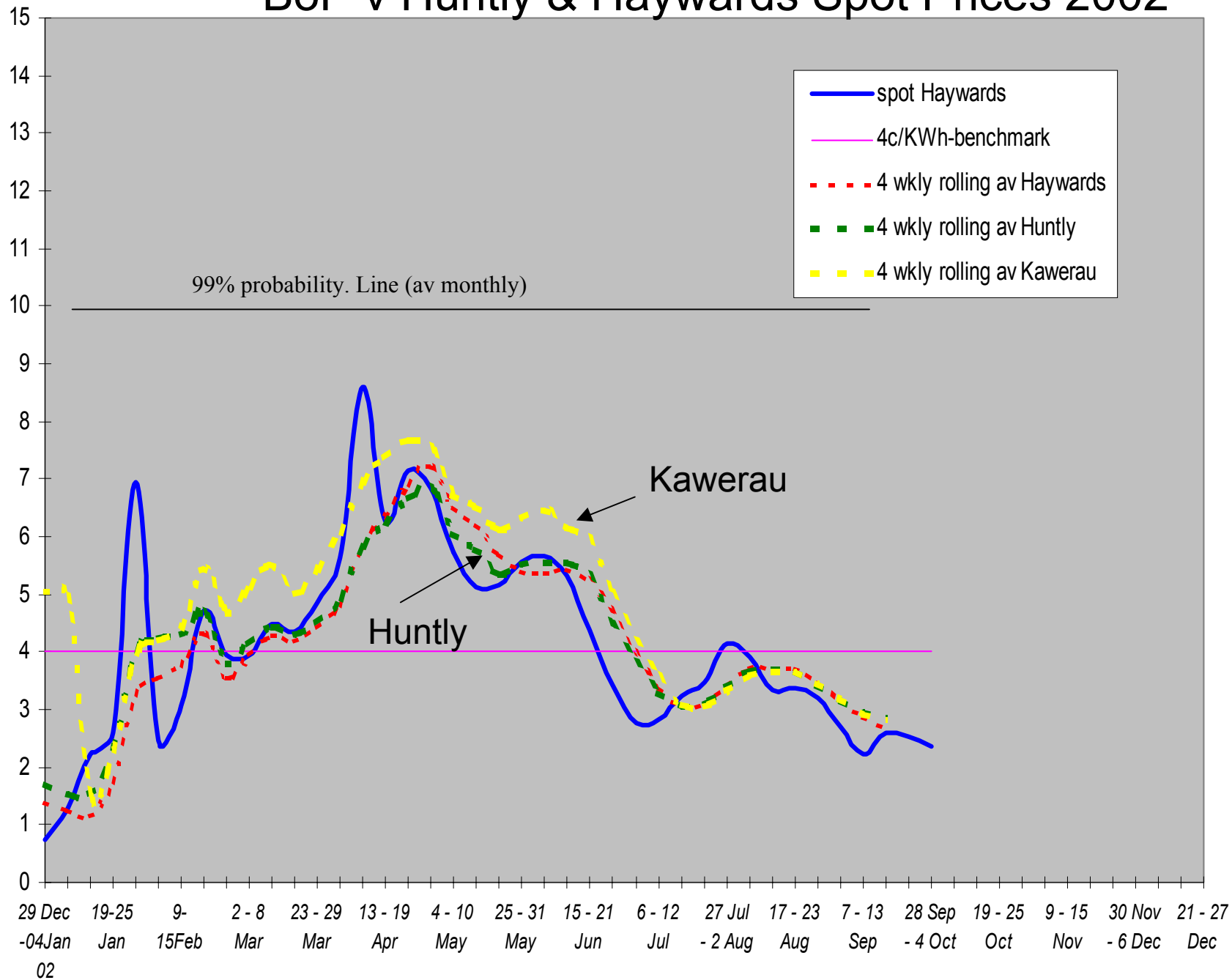


# Cumulative National inflows

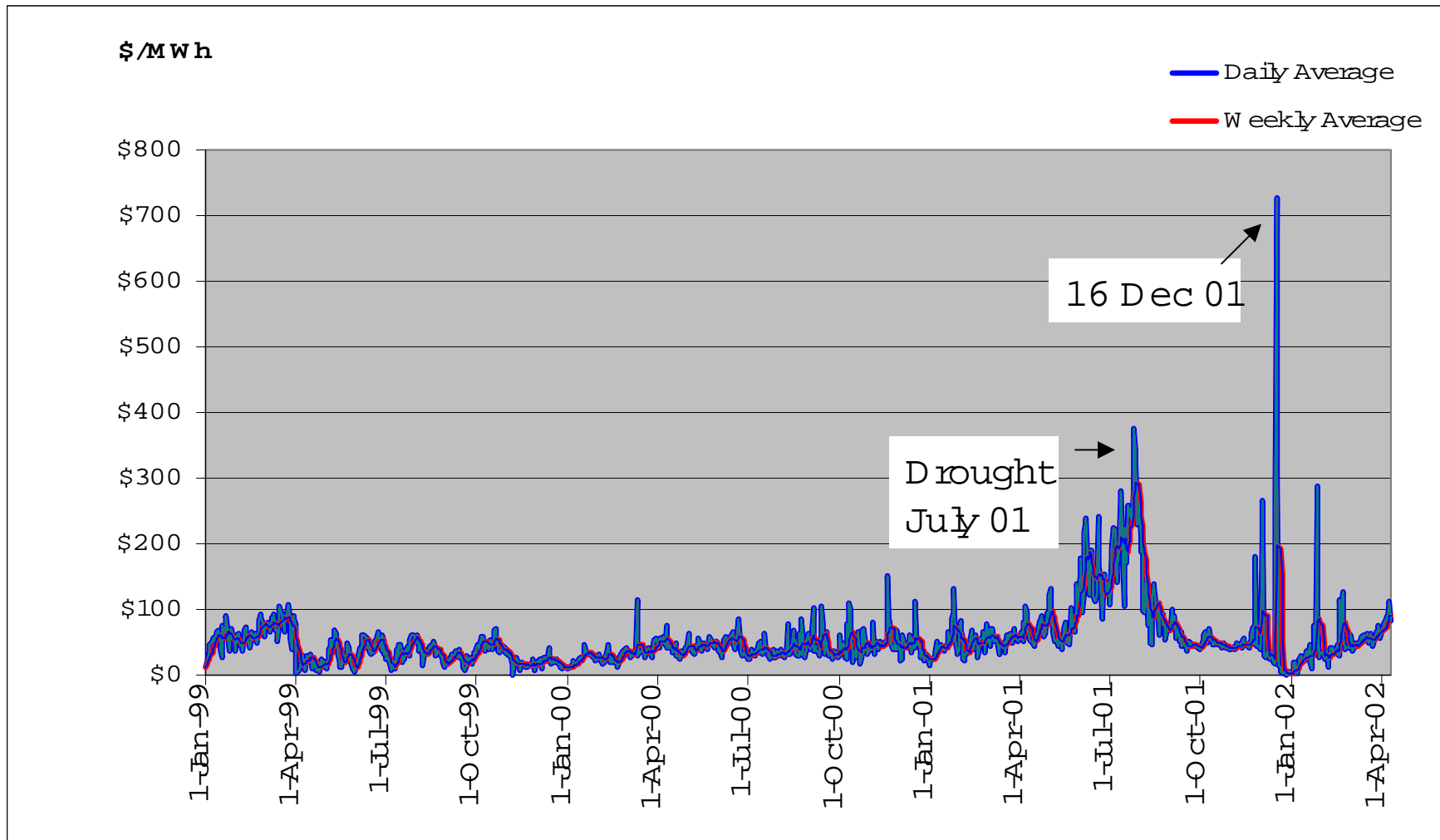


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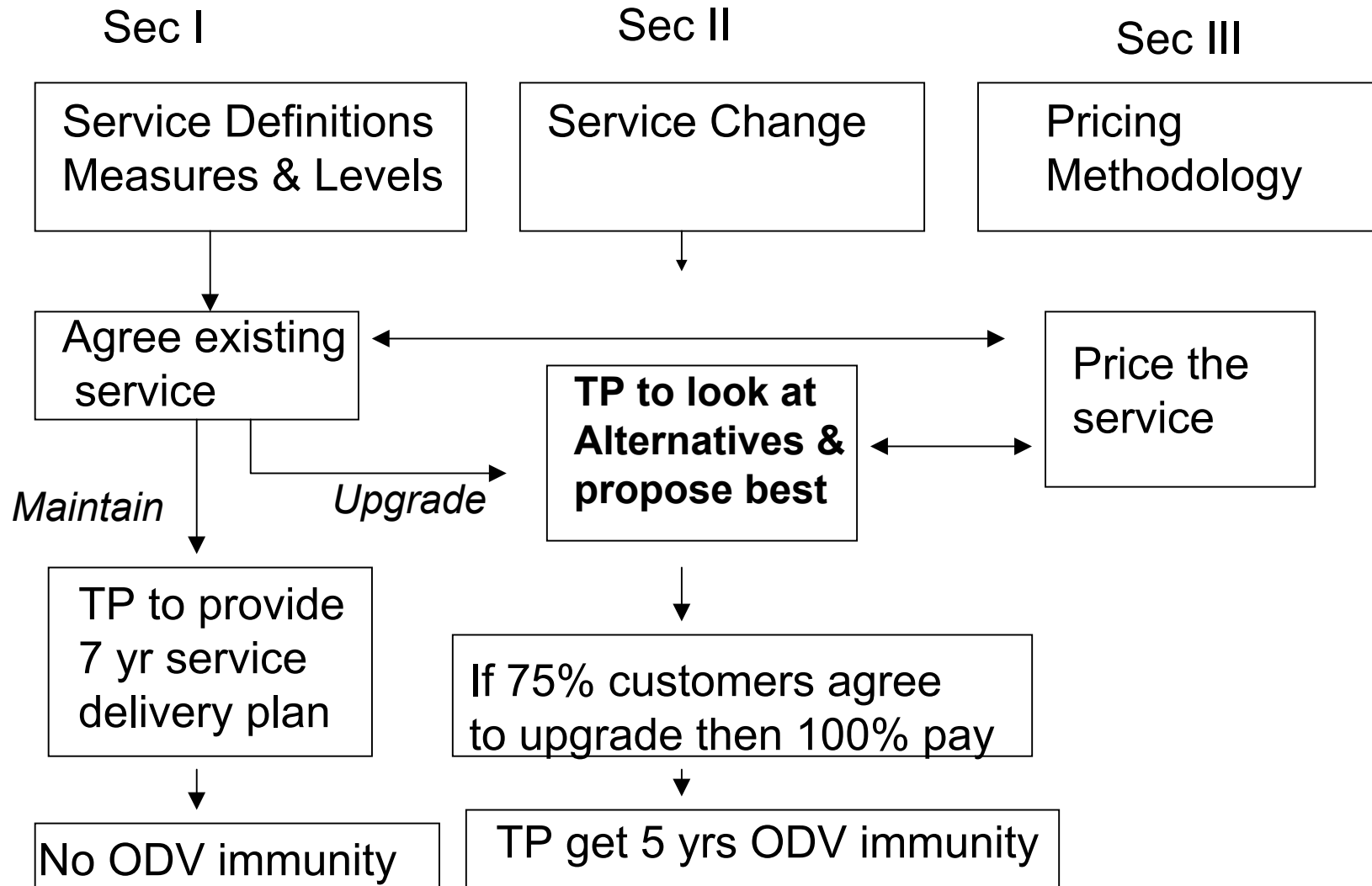
# BoP v Huntly & Haywards Spot Prices 2002



# Bay of Plenty Spot Prices (over 3yrs)

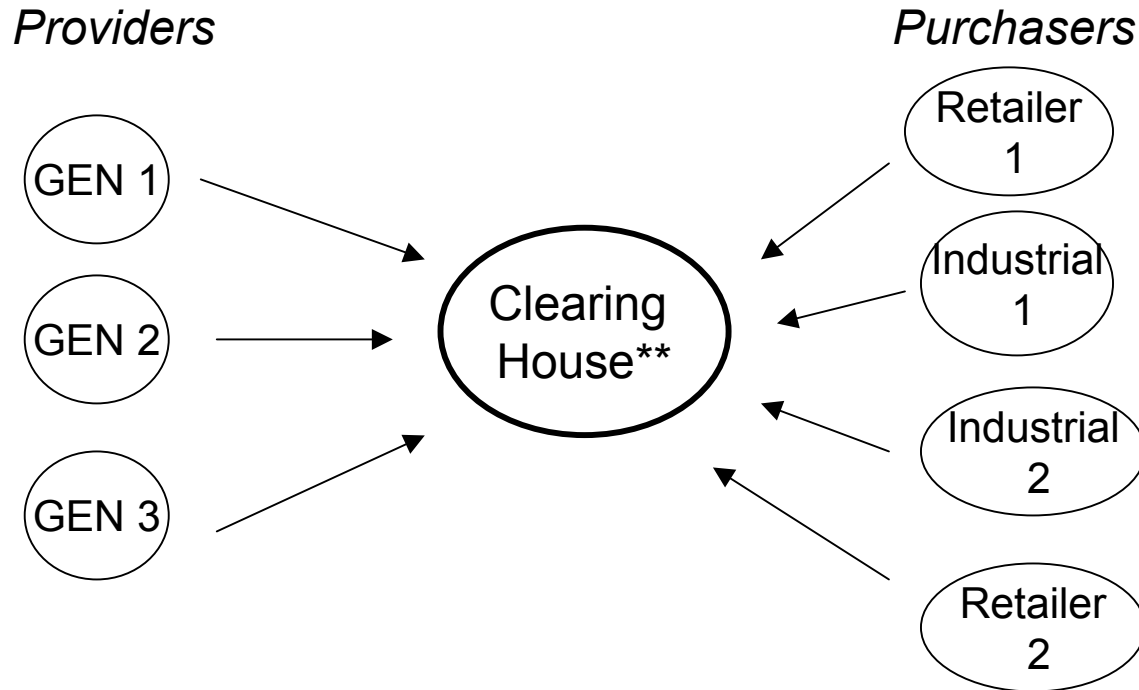


# Part F of new rules (*Output Performance Focus*)



# Mandatory Gross Hedging

(Alternative to combat Vertical Integration)



- All primary hedges offered thru CH - (Quantity, Locatn, Term, Price, >say min 80% out 1yr)
- Purchaser cannot see Provider name
- Hedges transacted on first come first served basis -willing seller/willing buyer
- On going process - independently audited

\*\* Blind but Transparent - allows for cross insurance, basis hedges sub for T-hedges

# Key Takeaways 1/3

- Need Transpower to respond with a sense of urgency to requests for Grid investment proposals. Grid is key to a competitive market.
- Need to reduce the volatility and strength of the nodal pricing signals (improve competition, minimise constraints, regional rebating, more consumers seeing spot)
- RMA - Needs to get a better balance between development and the environment (Dobson)
- Serious concern that Govt renewables strategy is to let prices escalate to make renewables feasible instead of a least cost mechanism cf RECs

# Key Takeaways 2/3

- Vital that new Generation is installed at >120MWpa (lead times)
- After Huntly CCGT (380MW), may see a coal fired station at Marsden. Coal will play an increasing part in next 5 years
- Probably 400MW of feasible new Geothermal and 1600MW of Hydro (including 700MW of Aqua) post 2009.
- We are short of dry year reserves - even more reason to encourage *post-contingent support* (vs modelled constraints) to manage security on river chains
- Gas supplies/price are likely to be insufficient to sustain required/desired new Generation. (5-10 yr lead times)

# Key Takeaways 3/3

- FTRs become unnecessary if Loss&Constraint rentals are returned to the region in which they are derived. Risk of Generator manipulation of nodal differentials if they own the FTR's
- Vertical integration and its effects on primary hedge markets needs improving -  
a Mandatory, Gross, Blind & Transparent hedge system could work
- The EGB must have executive decision rights if supply side rule capture is to be avoided. (Preferable to have had balanced rules before EGB established). The Chapter voting system is the problem.  
(2001/2002)
- Average annual spot prices should lie between SRMC and LRMC (8.4/3.8??)

*energy cost is one of NZ's comparative advantages  
we need to keep it to offset other disadvantages and  
retain and create as much value adding in NZ as possible*