Asset values and regulation

presentation to Fabian Society

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Revaluations are income

- Assets are wealth
- An increase in the value of someone's assets is an increase in wealth, which is a form of income – the increase can be spent without leaving them worse off
- Hicks defined income as "the maximum value that a man can consume during the week and still expect to be as well off at the end of the week as at the beginning" (*Value and Capital* p.172).
- That means that capital gains – increases in wealth that come simply from holding an asset over a period as the determinants of its value change – are income
- This is nowadays accepted as a matter of course by the Commerce Commission, but it took a decade for the light to dawn on NZ politicians, officials and regulators
- During that decade the excess monopoly profits grabbed by deregulated electricity networks, gas pipeline owners, airports, ports, etc were crystallised as revaluations of their fixed assets
- At present the asset values of electricity gentailers and airports are in the spotlight, but they're just symptomatic of a wider problem with NZ accounting practices (GAAP)

Some basic theory 1: perfect competition

- Under perfectly competitive conditions, a firm faces the need constantly to match the prices others are prepared to offer for the same product, since otherwise it loses market share
- The competitive price dictates the revenue the firm can earn, and out of that revenue it has to pay for all its operating costs, leaving a residual that represents the return on the firm's investment in fixed assets – capital equipment, buildings, and land
- Operating costs are determined by the competitive market prices of all the variable inputs the firm uses: rented land, hired labour, hired equipment, purchased materials
- Then the value-in-current-use of the fixed assets the firm owns (that is, assets in which it has invested) is determined by the net income that the firm gets from possessing them
- If another firm can make better use of those assets (can secure a larger net income from possessing them) then it can offer a price greater than the assets' current book value to their current owner; so under competitive market forces (i) the assets will be sold to the other firm, and (ii) this process of trading the assets will increase their value

That means that the value of fixed assets becomes divorced from their original cost

- When a reproducible capital asset is first created, the initial investor pays the cost of making it, and that sets its initial value, which under perfect competition will be the capitalised stream of the net income that its possession makes available to the initial investor
- If another firm can get more net income from the asset, once it exists, then the asset will be sold for a price that is higher than original cost and in the process its book value will depart from cost, in an upward direction
- Non-reproducible fixed assets ("land") don't have an original cost but competitive bidding for them (i) moves them into the possession of those who can make most profitable use of them; and (ii) in the process sets their value
- If market conditions turn unfavourable so that the expected net income from holding any fixed asset falls (and if this happens across all firms so that the asset can't be unloaded to a willing buyer at its current book value) then the asset's value falls and its owner faces a write-down – a decrease in wealth which represents negative income.
- This is how "fair value" works in principle under competitive conditions
- To say that competition is "workable" rather than perfect amounts to saying that the above story works well enough…

So when competition prevails in at least workable form, asset values rise and fall in harmony with market forces

- The process of calculating fair value requires use of a market rate of return as the discount rate with which one can convert the stream of cash income into book value – so once the "fair value" has been taken onto the books, the rate of return on the revalued assets will be, by definition, the market rate.
- If the market rate of return later falls, the asset value is (in theory) written down (marked to market) to bring the realised rate of return back to the competitive rate
- SO, if you are doing PR for any firm that looks as though it might be exploiting a position of market power at consumers' expense, and booking the excess profits into asset revaluations, and then lamenting a low "rate of return on assets", your first line of attack will always be to insist that the market is very competitive and that therefore the rising asset values are totally legitimate … [see, e.g., recent Electricity Authority pronouncements]

Two big summary points to this stage

- The economic value of an asset is the value of its **transfer earnings** – that is, its value in the best alternative use

- Competitive markets in theory bid all asset values to this level as a by-product of the process of allocating the assets optimally across the economy

What if fixed assets are specific?

- Some capital equipment lacks any alternative productive use.
- Then their best alternative use is to scrap them and recover "scrap value", which means their economic value (value of transfer earnings) is pretty low
- But although they have very low transfer earnings, they are socially highly valuable in their specific dedicated use. To persuade firms to install and maintain them they must earn enough net income to make them attractive investments
- Assume competitive conditions and no barriers to entry and exit of firms to the industry
- "Fair value" then is driven to match actual cost, <u>if demand is rising over time</u>:
  - The price of the product cannot stay above the competitive level for long because the above-market rate of return induces new firms to incur the cost of entering and installing more of the specific assets to serve the market
  - Then fixed asset values are all anchored to the cost of new ones
- If demand is falling, some specific assets become 'stranded' and their value is written down below original cost

Now what if specific fixed assets are lumpy and long-lived?

- Think wharves, airport runways, hydro dams, gas pipelines, the Cook Strait cable, telephone lines, electricity distribution networks……
- New entry to the industry involves high initial costs of installing assets with no alternative uses and slow depreciation, i.e. exposure to market ups and downs over a long period
- And lumpiness means economies of scale: a new entrant has to start big to compete with the incumbents if the market allows space for more than one player
- In many cases the market is a natural monopoly with room for only one
- That’s where competition vanishes and the regulatory conversation begins

Basic theory II: a regulated monopoly

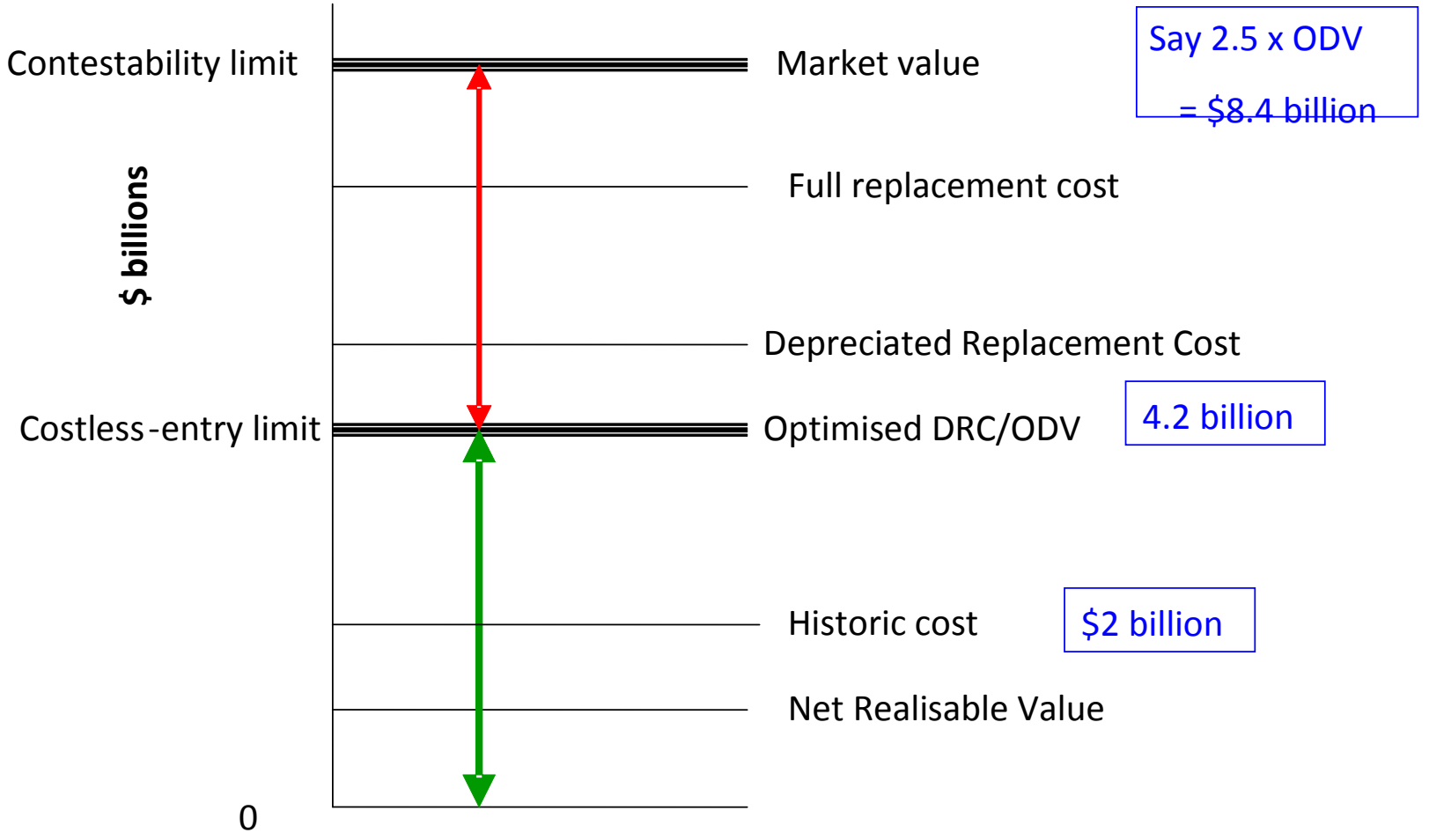
- Suppose we have a natural monopoly providing an essential service
- Then whatever firm gets in first has the market sewn up and can use its market power to extract monopoly rents from captive customers
- There are two ways to protect consumers' interests:
  - Nationalise this sector and run it as a state service, pricing on a socially-determined basis (e.g. NZED's average-cost pricing to cover all cash costs, with household prices kept lower than industrial and commercial)
  - Introduce price or revenue regulation to prevent the firm from earning above the competitive market return on its assets
- If one goes the second route, the first question is the value of the assets.
- "Fair value" absolutely doesn't work under monopoly, because using the market cost of capital to discount a stream of monopoly profits just produces an asset value that includes the value of the monopolist's market power
- Allowing a market rate of return on a monopoly's fair-valued assets simply reproduces the monopoly price and revenue with no protection for consumers
- So the regulator's first task is somehow to set a value for the Regulatory Asset Base, on which prices can be set

Here are some of the options with rough consequences of using them:

- **Scrap value** (then there will be no new investment, and existing capital will be allowed to deteriorate)
- **Historic cost**: all past, present and future investment recovers a market return, including inflation adjustment, on the actual money cost of putting the assets in place (but gives incentive for the installation of excess capital – Averch-Johnson Effect)
- **Indexed historic cost**: asset value adjusted for inflation, with no inflation allowed for in the regulated rate of return (still Averch-Johnson)
- **Depreciated replacement cost**: current cost of replacing the existing assets by buying-in second-hand ones of equal age and quality (but no economic reason why this is a sensible story given that the supply system actually exists and the hypothetical replacement isn't going to happen)
- **Optimised depreciated replacement cost ODRC** (as above but adding in all the complexity of double-guessing how a replacement investor would configure the system)
- **Optimised deprival value ODV** (as above but adding even more judgmental adjustments to write down the value of assets that can't earn a market return on ODRC; now the future value of assets becomes highly uncertain, depending on where the market goes and what future regulators allow)
- **Full replacement cost**: the amount it would cost today to replace the whole set of assets from scratch
- **Monopolistic "fair value"**: whatever the market will bear with monopolist's power fully exercised

The only one of these that has a solid economic grounding in objective market outcomes is scrap value. The rest are matters of social convention, requiring a social contract – often called a regulatory compact .

The orders of magnitude are big. Here are my estimates for electricity lines networks about a decade ago:



Implications for consumers

- Imagine the regulator allows “a fair return on assets” when setting the allowable prices/revenues
- For rough illustrative purposes suppose this results in the following “capital costs:
  - Return **of** capital (depreciation/amortisation) 5%
  - Return **on** capital (e.g. WACC) 8%
  - Total 13%
- Then each $1 billion of extra asset value allowed translates to

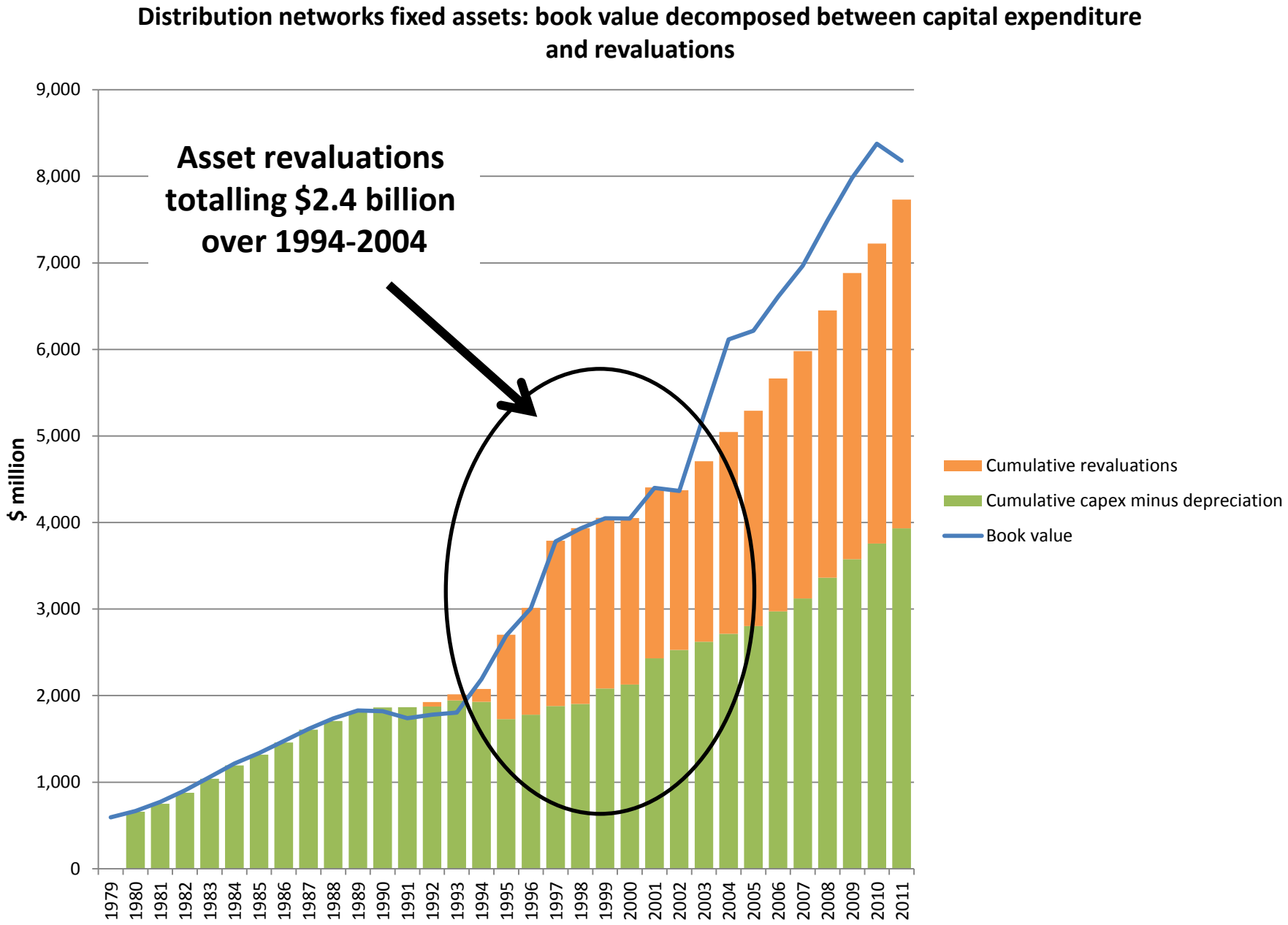
  $1 billion x 13% = $130 million
- So the stakes are high!

The industry will obviously be pleased to pick and choose the valuation methodology that gives them the highest allowed revenues

- Every time the regulator allows a change in methodology that does this, a wealth transfer takes place from consumers to the monopoly supplier(s)
- In electricity lines businesses, for example, the Government initially said that the pre-corporatisation book values at 1994 (historic cost) were to be used as the RAB, which meant $2 billion
- But Government required the firms to undertake ODV valuations for information disclosure purposes
- The firms then pushed the envelope by failing to cut prices as they drove their costs down; their rising margins then gave them excess returns on historic cost but looked reasonable as a return on ODV
- The Commerce Commission came into the picture only in 2001 with a "thresholds" regime (basically price surveillance with no enforcement) and finally moved on to regulation in 2004. The industry persuaded the Commission to accept its ODV values, by now $5 billion, as the RAB – and secured a new regulatory compact that allowed the 2004 ODV values to be "deemed" to be historic cost
- Then in the next round in 2009 the industry tried to push for its assets to be further valued up towards replacement cost; the Commission baulked, and all parties settled down to use IHC starting from the 2004 values (see the 2010 "Input Methodologies")
- Once ODV had served its purpose of driving the RAB up, and allowable profits with it, the industry was more than happy to drop it overboard (and the gas pipelines businesses (GPBs) agreed, having played the same valuation pick-and-mix since the mid 1990s):

"…apart from urging the Commission to allow them to use ODV one 'final' time to establish initial RAB values, **the majority of EDBs and GPBs do not advocate applying ODV ever again in future**. Many agree with the Commission's reasoning concerning the advantages of IHC over ODV going forward"

Commerce Commssion, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons paper* December 2010 http://www.comcom.govt.nz/assets/Pan-Industry/Input-Methodologies/Final-Reasons-Papers/EDB-GPB-Input-Methodologies-Reasons-Paper-Dec-2010.pdf p.354 paragraph F3.20


Distribution networks fixed assets: book value decomposed between capital expenditure and revaluations
Asset revaluations totalling $2.4 billion over 1994-2004
$ million
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
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1979
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2005
2006
2007
2008
2009
2010
2011
Cumulative revaluations
Cumulative capex minus depreciation
Book value

Implication for consumer prices:

- If 13% gross return on assets is built into pricing, then that $2.4 billion of revaluations resulting simply from shifting the goalposts of the RAB, from historic cost/vesting value to ODV, translates to an annual excess charge on electricity consumers of $312 million per year going forward – in other words, a permanent annual levy to reward the industry for successfully manipulating “the regulator” (first MED, then Commerce Commission)
  - Sensitivity: at 10% the levy is $240m; at 15% it’s $360m

- The second goalpost-shifting, from ODV to “deemed historic cost”, put a firm floor underneath the asset values – for under ODV, a move to tighter regulation such as serious CPI-X could have forced write-downs under ODV, whereas “deemed HC” locks-in the elevated RAB and assures the industry that the regulator will authorise its pass-through to consumers.

How are other natural monopolists doing?

- Well, airports have featured lately.
- The assets were transferred to new corporate entities back in the early 1990s and the upward gaming of their asset values, landing charges, parking charges, and use of their favoured situations as retail locations, has been going on ever since.
- The Commerce Commission back in 2002 recommended regulation but Lianne Dalziel (the reponsible minister) said no, on advice from her officials.
- The regulatory regime currently is information disclosure, still justified on the same basis as the totally ineffective 1990s regimes for gas and electricity and telecoms.
- A central debate is about asset valuation.

Here's WIAL's latest

Table E4: Assessment of forecast regulatory investment value for PSE2

($000s)	2013	2014	2015	2016	2017
Rolled forward disclosed asset base	423,906	437,588	455,404	460,868	459,971
Pricing asset base	502,220	518,219	538,419	546,547	544,740

Source: The roll forward of the 2012 disclosed RAB and the pricing asset base are based on calculations provided in the Commerce Commission's final s56G review technical calculations for Wellington Airport.

ComCommerce Commision **Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport Section 56G of the Commerce Act 1986** 8 February 2013
http://www.comcom.govt.nz/assets/Airports/s56/WIAL-Final-report/Wellington-International-Airport-Limited-Final-s56G-Report-8-February-2013.pdf

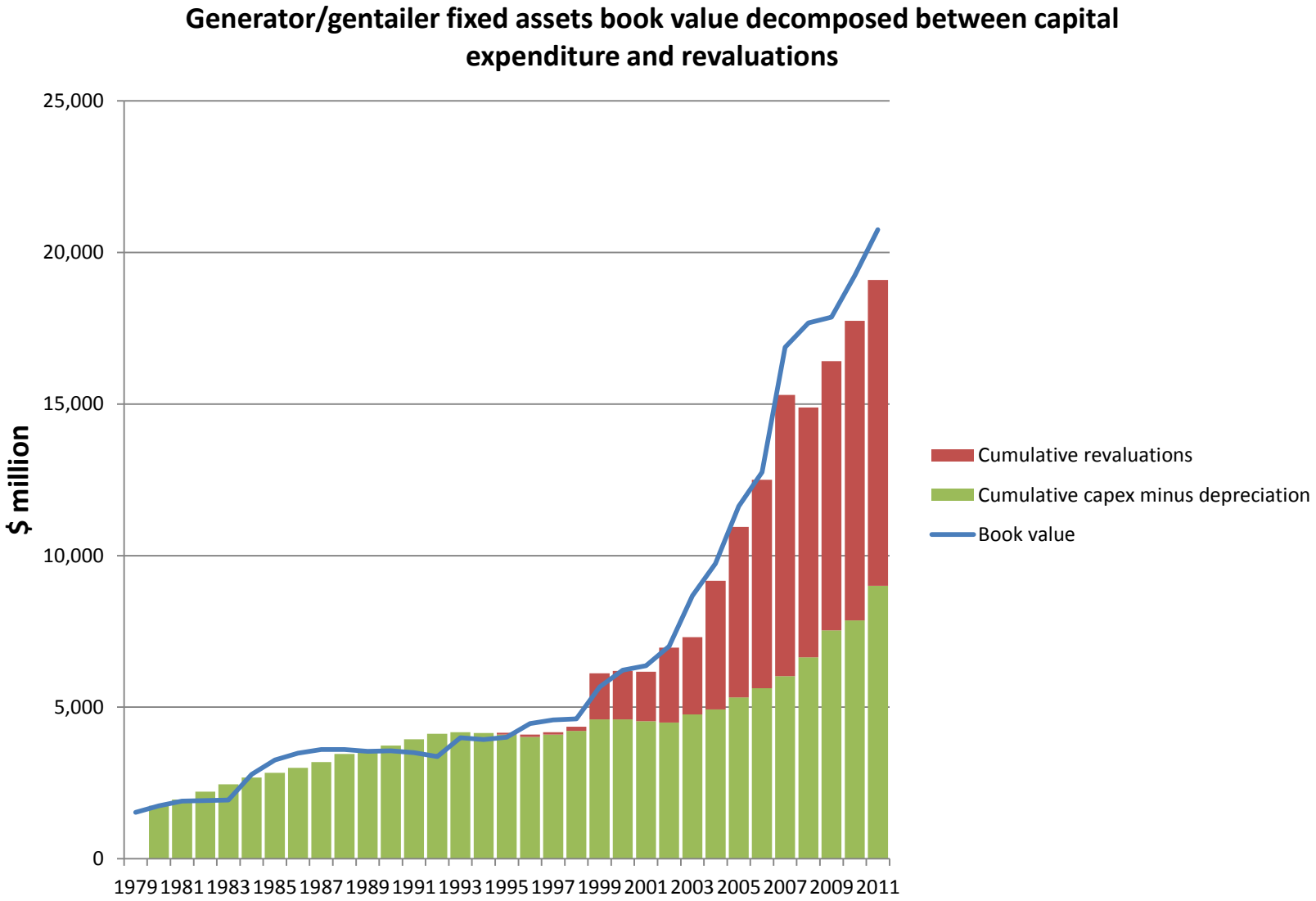
- So the airport company is pricing on the basis of an asset valuation that is roughly $80 million higher than the RAB, which in turn is based on a starting point where assets had been revalued upwards before the Commerce Commission came into the picture.

- Compared to the billions in electricity and gas this $80 million might seem minor, but in terms of the Wellington economy it's part of a conspicuous exercise of market power that transfers wealth from airlines, passengers, and the local economy, while treating the supposed regulator with (rather well justified) contempt

Basic theory III: In between

- Suppose you have an industry which is neither competitive (so fair-valued assets include the present-value of monopoly power) nor natural monopoly (so it's not automatically caught in New Zealand's feeble regulatory net)
- Suppose there are five vertically-integrated suppliers with a lock on the market (barriers to entry are prohibitive; generation assets are lumpy, specific, and long-lived; a cartel can operate by winks, nudges and other implicit signalling combined with constant press statements about how prices have to rise)
- With no regulation, the cartel members have been free to price-gouge and then present-value the resulting excess profits into their asset valuations as "fair value"
- The policy response to date has been to keep saying the market is or ought to be competitive, and jawboning the companies to be nice

In this situation the rising value of fixed assets has nothing to do with efficiency or special attributes (all five have been moving in lockstep)



As of 2012 the revaluations totalled over $10 billion

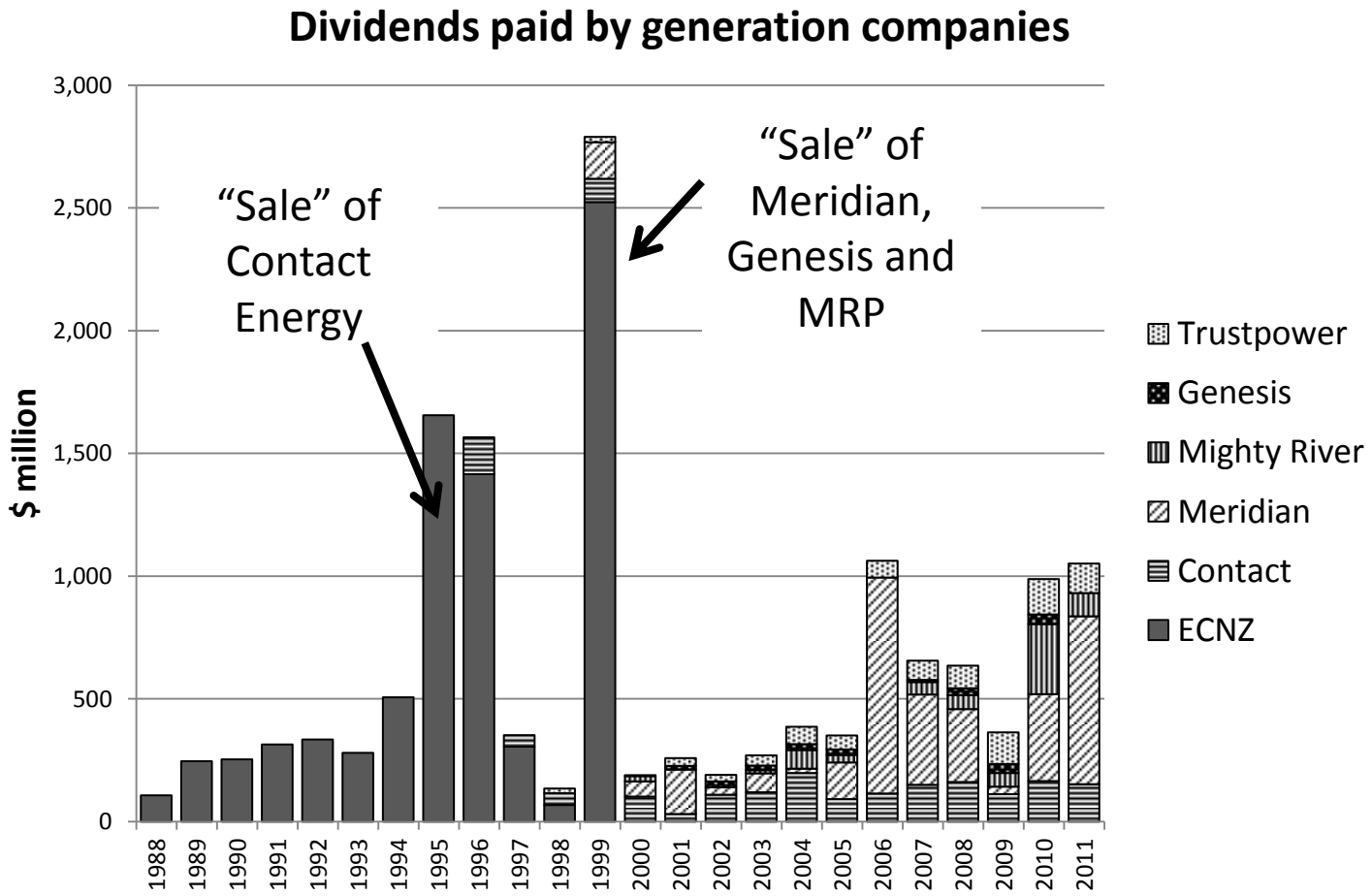
- Not justified by competitive edge or special advantages (all five have moved in lockstep, no marginal firm with zero excess profits)
- Entirely due to the ability to capitalise excess profits secured from price-gouging, mainly of residentials but also small industrial and commercial
- Where would a regulator start?
- First question: what should be the RAB?

First off, was there a regulatory compact of some sort?

- In the UK, for example, “vesting values” provide a starting value to which IHC can be applied going forward
- The authority of vesting value is established by the arms-length open-market transactions when the companies were privatised
- From vesting onward, price regulation has been RPI-X with five-year or seven-year resets at which the RAB is recalculated forward from the vesting-value start by adding new investment, taking off depreciation, and adjusting for inflation (the IHC model)
- Companies that have raised prices and revalued assets away from the vesting basis have been cut back retrospectively – MMC decision on British Gas plc

In New Zealand, the generation assets were transferred to the newly-established SOEs in what amounted to a within-firm transfer

- This did not have the arms-length impersonal authority of an open-market transaction; the Government sold to itself at its own preferred valuation and pocketed the difference in cash (borrowed by the newly-established SOEs)



IRD is currently looking closely at this sort of arrangement

Proposal: Asset uplift

4.62 We propose that when the total asset value of a New Zealand or worldwide group increases as the result of **the sale of assets between associated persons**, the increase will be ignored for thin capitalisation purposes.

4.63 The intention of the proposal is that **it will not be possible to revalue assets upwards by means of an internal reorganisation**, unless a straightforward revaluation of that asset would be permitted under generally accepted accounting practice. At least for tax purposes**, it should not be possible to circumvent normal restrictions on revaluations by buying and selling entities or assets within a commonly controlled group**.

4.64 An exception might be made if the sale of assets took place as part of the sale of the entire group to a previously non-associated party, and the increased asset value reflected the fair value of the assets to that party, as determined under generally accepted accounting practice. In this case, the sale to an external party has a cost which can be used as a reliable basis for determining underlying asset values. Whether or not such an exception is practical will depend on the ability to write a sensible rule for determining when the sale of assets is linked to the sale of the entire group.

IRD and Treasury, Review of the thin capitalisation rules: *An officials' issues paper, p.15,* *http://taxpolicy.ird.govt.nz/publications/2013-ip-thin-capitalisation/overview*

One could argue that in fact the appropriate starting point for HC or IHC would be the pre-corporatisation book value of ECNZ, based on the 1987 vesting of NZED

- But there's no official statement back then to support that, and plenty of official statements that the asset-value hike at corporatisation was a deliberate policy outcome

- There was never, however, an explicit statement that excess profits could be taken and capitalised into asset revaluations. On the contrary, there was lots of rhetoric pointing the other way.

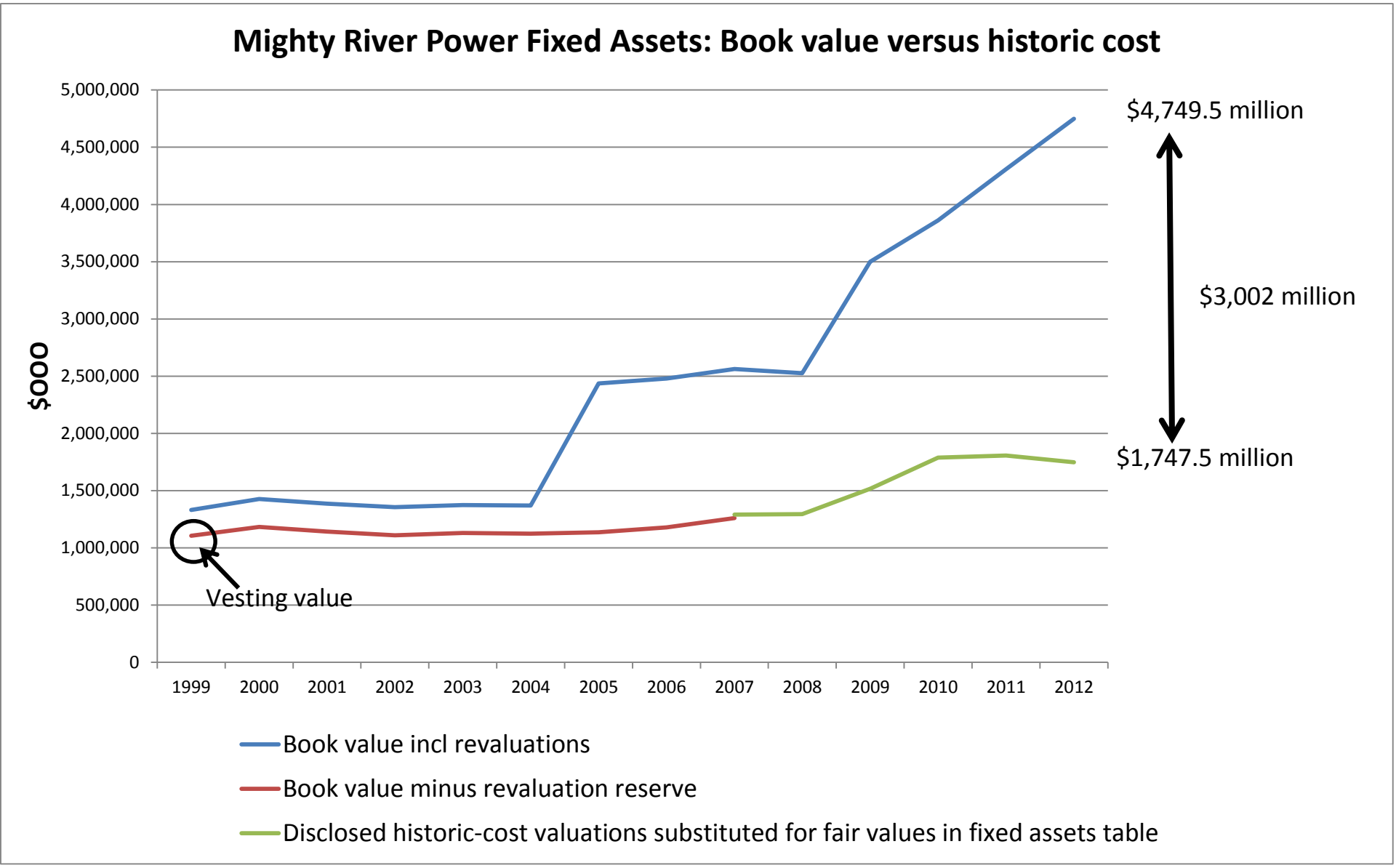
Take, e.g. the Labour Government's *Energy Policy Framework* Oct 2000

Two of the five points:

- Costs and prices to consumers which are as low as possible, while ensuring that prices reflect the full costs of supply including environmental costs", and
- Fairness in pricing so that the least advantaged in the community have access to energy services at reasonable prices.

No signal there of price-gouging and fair-value' revaluations…

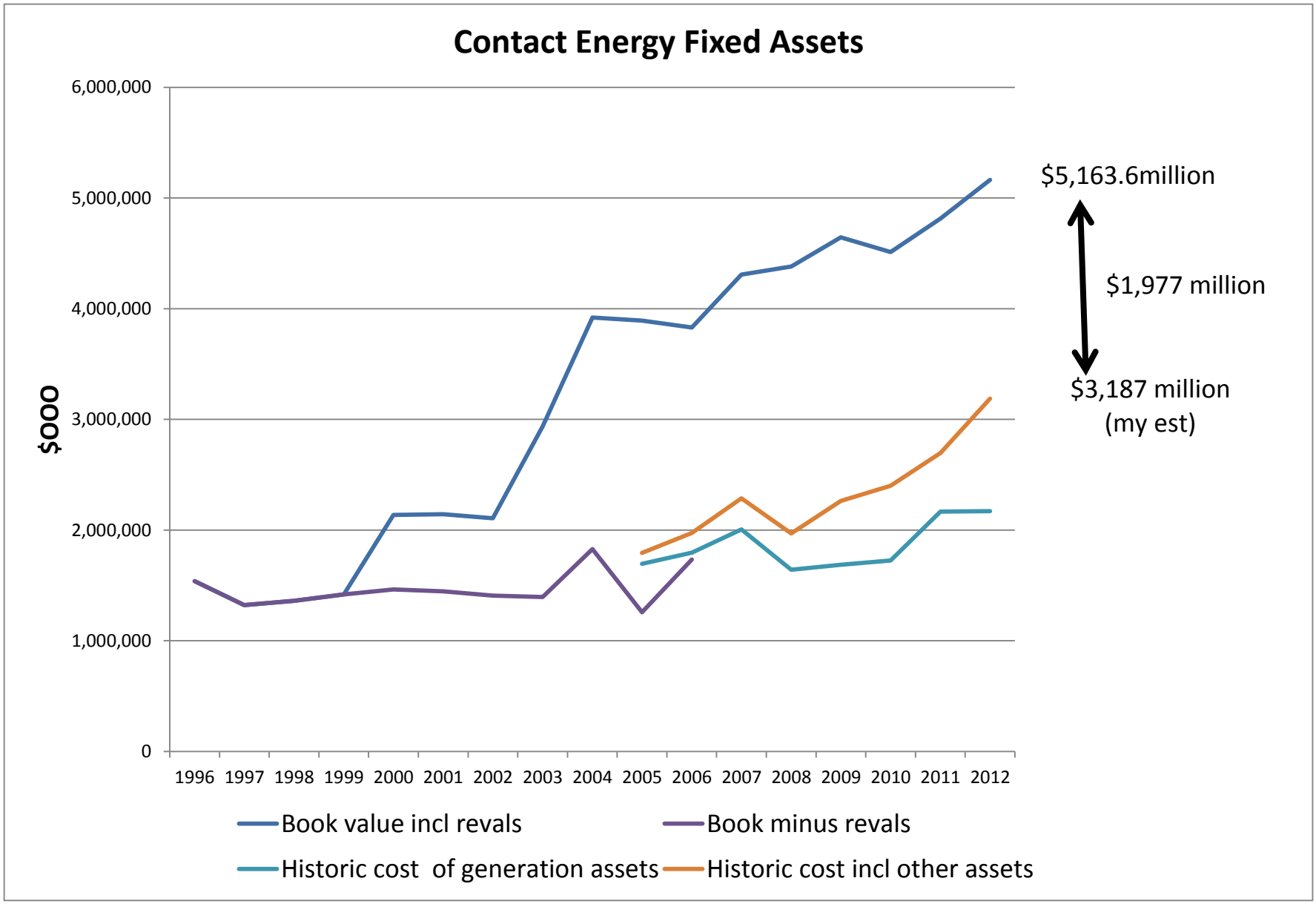
Suppose we trace asset values since the 1999 corporatisation (vesting?) for Mighty River:



Writing down to historic cost based on vesting values?

- Shareholder equity in 2012 was $3.0 million
- Non-current liabilities were $2.2 billion, of which just under $1 billion were long-term loans
- An RAB based on vesting value would be $1.7 billion
- Because the scale of the write-ups has been so great, the write-down implied by traditional rate-of-return regulation based on vesting value is fairly dramatic
- But there is no regulatory compact sustaining “fair value”, so *caveat emptor*

How about Contact?



Recall, $10 – 11 billion of gentailer revaluations 2000-2012 = $1.3+ billion of excess charges to consumers

- Getting gentailer assets back to HC or IHC would easily finance my 300kWh per month free allocation to households
- Neither gentailers nor their bankers/bondholders would be enthusiastic, obviously
- But this is the sort of thing that happens to fair values in real-world markets, and under real-world regulators