



NEW ZEALAND INSTITUTE FOR THE STUDY
OF COMPETITION AND REGULATION INC.

Using Regulation to Resolve Investment and Pricing Issues in Transmission: Round 1

12 April 2006

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**Richard and I debate the merits of regulation
vs ownership with focus on the grid**

**There is much to be debated: but I shall
confine myself to the grid-generator
competition/coordination game**



The Grid

- Has the function of transporting (large amounts of) electricity
- Has the characteristics of
 - Very large long-lived investments that are sunk
 - Uncertainty represented by changes of demand and generation in total and at locations
 - Poorly defined property rights rendering external effects
- In most jurisdictions there is a grid and it is regarded as a natural monopoly yet it has competition from
 - Generation locating next to fuels, next to populations
 - Gas pipelines & discoveries



The Game

- While the grid does not generate electricity it
 - Affects costs by affecting energy losses and congestion
 - Affects the availability of energy to any location by capacity provided for transport
 - Provides generator options to utilise a range of fuel sources
- The Grid and Generation are both
 - Substitutes for each other
 - Complements with each other
- There is thus a game about whether to expand the grid, transport of other fuels, and/or invest in generation at particular locations. These may all (more or less) be sources of competition at a location



What is so Special About this Game?

- The network effects of the grid-generator game are little different from the hardware store/supermarket game: it too has poorly-defined property rights
- The grid game differs in extent with
 - lumpiness of investment,
 - irreversibility of investment and therefore the uncertainty and risk borne by generators and the grid
 - specific-asset complementarities between grid and some generation
- There is also the natural monopoly status of the grid.
- It calls for some (ring fenced) centralised control/cordination



The Regulatory Answer!

- The regulation of a profit seeking, often publicly owned, firm, by a stand-alone body.
- It includes the regulation of prices and approval of (major) investment plans
- It is an approach to be found in various guises in the UK, Australia and many countries in Europe (including Germany, Spain, Finland), but not (on various dimensions) in NZ



The Regulatory Answer (con't)!

- The grid becomes a leader in the game: one that anticipates other players' strategies that in turn anticipate the grid's strategies
- It has the effect of changing the game, arguably, to one of commitment to grid plans that reduces uncertainty and risk leading to a more coordinated outcome of the grid-generator game, albeit one where the grid is the first mover (RMA willing).
- The process may admit competing merchant investment



The Regulatory Institution

- Stand alone regulatory organisation confined to the responsibility of grid investment planning/commitment and pricing.
- It requires profit seeking firms and ideally government separation from dual roles of owner - regulator
 - Provides knowledge of the firm's objectives
 - And potentially rewards good decisions
- Provides oversight that holds the grid to its committed plans



Regulatory Process and Settings

The form of regulation ideally

- Should support the investment and maintenance actuality and plans
- Should enable appropriate risk sharing:
 - being the leader affects risk
 - the form of regulation determines risk
- Should have incentive for efficiency and appropriate investment



Regulatory Forms

Guthrie (2006)

Rate of return

Price cap

Form of price restriction

All prices fixed

Price of a basket of goods capped

Frequency of reviews

Variable

Fixed period

Next hearing held when either party requests one

Costs to be recovered

Actual costs

Costs incurred by hypothetical efficient firm

Cost pass-through

often allowed

sometimes allowed

Firm Risk

low

high

Customer Risk

High

Low (if reg. works)



Optimised (Depreciated) Replacement Cost (Incentive) Regulation: as applied to date

1. ODRC revaluations induce stranding and extra systematic risk on the firm
2. ODRC revaluations are wise after the event and do not mimic the decisions of (competitive) firms
3. ODRC valuations under-estimate the cost of incremental investment and replacement

Implies, particularly with any, economies of scale in investment that the firm must be allowed a very high rate of return for incentive regulation to work



The Quandary

- Incentive regulation is desirable
 - it can allow competition where possible
 - it provides incentive for efficiency
- But incentive regulation cannot work under ODRC regulation unless rates of return are significantly bigger than have been allowed to date: perhaps even bigger than an unregulated firm would go for
- Rate of return regulation
 - shifts (most of) the risk to consumers
 - has weak incentives for cost saving
 - Does not admit viable competition



Background

- The present ODRC approach will (continue to) materially inhibit investment as it will be assigned too low rates of return
- Alternative is to set a price/revenue path that allows
 - the firm to be viable looking forward
 - investment plans to be implemented
 - prices on some historical cost basis but for a period (and mechanisms) that incentivise efficiency and performance gains
- No scheme will approximate perfection



The Regulatory Approach

- Preserves the tension of the grid-generator game, albeit with the grid as leader
- Assists investment
- Enables competition for grid ownership, public ownership and the efficiencies that attend listing.
- Limits the extent of regulation (unless the regulatory net is arbitrarily extended) to where the key coordination benefits lie: in taming the grid generator game
- This might best be termed the European model



Thank you



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