Form of control

Input Methodology Review Forum

29 July 2015

Wellington Electricity Lines Limited

Overview

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- **Theory**
  - Spectrum of forms of control
  - Risks & Incentives & broader considerations
  - Risk mitigation
- **Australian experience**
- **UK experience**
- **Interaction with return on equity**

Theory

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Spectrum with varying risks & incentives

Pure Weighted average price cap (WAPC) – NZ DPP for electricity distribution

- Regulator forecasts volume to determine starting level of prices
- Actual revenue depends on outturn volumes – no correction mechanism

Hybrid 'Revenue cap' – NZ DPP for gas transmission

- Volumes used to set prices and test compliance based on actuals two year prior
- Actual revenue depends on outturn volumes – no correction mechanism

Hybrid - caps and collars – South Australia 2006-10

- Wash up of errors outside a range
- Can be applied to WAPC or revenue yield (revenue per kwh)

Revenue cap – Australia RCP2

- Business forecasts volumes to set prices
- Revenue under or over recovery is recovered/deducted through prices in subsequent years

Theory

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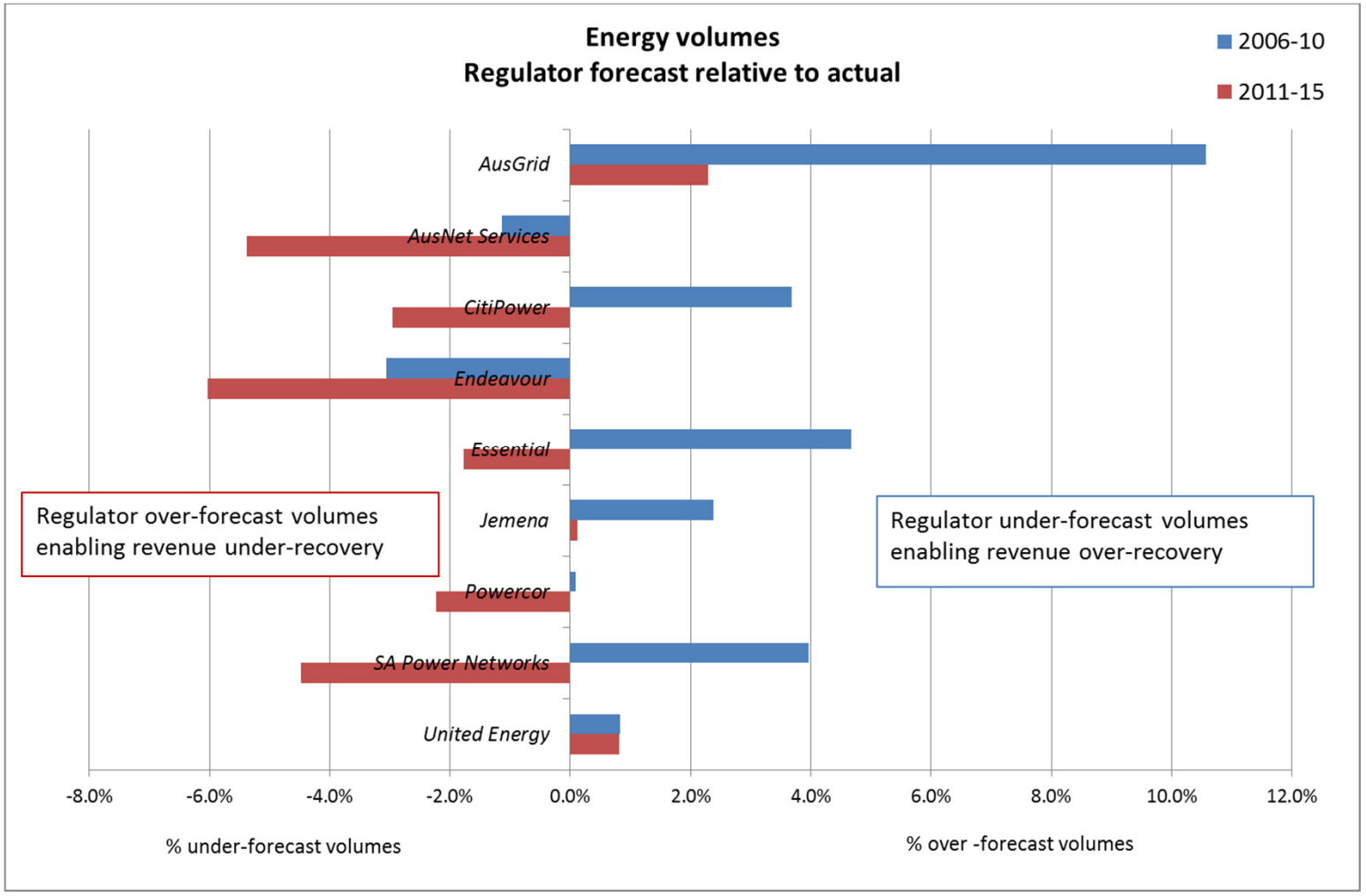
	Weighted average price cap	Revenue cap
Risks	Suppliers risk revenue under-recovery w.r.t energy volumes Consumers risk revenue over-recover w.r.t energy volumes	Risk neutral w.r.t energy volumes Supplier revenue reflects regulator allowances Incentive for suppliers to forecast accurately to mitigate cash flow volatility
Energy efficiency & demand side management	Disincentive for suppliers due to revenue exposure	Strong incentive for suppliers: • no revenue impact • opportunity to efficiently reduce or defer capex
Tariff structure	Incentive for suppliers to set tariffs to reflect relative customer demands Efficient tariffs relies on access to price sensitivity information, freedom from constraints, retailer pass through and informed consumers	Suppliers are incentive neutral w.r.t revenue Opportunity to move toward cost reflective tariffs that promote efficient use of the network and non-network alternatives Sends efficient price signals for consumers w.r.t disruptive technologies
Price stability	Within period stability overall but potential for instability for individual customers due to tariff rebalancing Higher likelihood of between period instability if large revenue corrections needed	Within period price instability manageable by: • Use energy forecasts to set revenue profile • Annual limits on pass though of overs and unders Lower likelihood of between period instability
Admin costs	Regulator needs to develop forecasts Small forecasting errors lead to large revenue implications with no correction mechanism	No Regulator volume forecast required Supplier develops internal forecast to set tariffs, errors corrected in subsequent years.

WAPC risks under & over-recovery

- Energy forecasting is difficult – even when business specific forecasts are available
- Revenue impacts are significant – even when forecasting errors are small



Risk mitigation options under WAPC

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In theory there are opportunities to mitigate risks under a WAPC by:

- rebalancing tariffs toward customer groups with stronger growth or inelastic demand
- rebalancing tariffs toward more fixed or capacity based charges

AER found that distributors under WAPC were able to outperform revenue allowances both in circumstances of energy volumes exceeding or falling short of regulator forecasts

> ***"Historically distributors have benefited from revenue up-side under the WAPC but consumers have not received the compensating benefit of efficient tariff structures"***

In New Zealand Low Fixed User Regulations significantly limit rebalancing options:

- For Wellington Electricity 56% of total customers are eligible for low fixed user tariffs

Theory

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Australian experience

State	RCP1	RCP2
Victoria	WAPC	Revenue cap
South Australia	WAPC	Revenue cap
New South Wales	WAPC	Revenue cap
ACT	Revenue yield	Revenue cap
Queensland	Revenue cap	Revenue cap
Tasmania	Revenue cap	Revenue cap

AER reasons for revenue cap

"We consider that a revenue cap will result in benefits to consumers through a higher likelihood of revenue recovery at efficient cost, better incentives for demand side management, less reliance on energy forecasts and better alignment with the introduction of efficient prices."

Efficient cost recovery

"We consider that a revenue cap provides a high likelihood of efficient cost recovery. We consider that because costs for distributors are largely fixed and unrelated to energy sales, revenue recovery should also be largely fixed and unrelated to energy sales."

"We consider that a WAPC does not provide a high or even reasonable likelihood of efficient cost recovery."

"Inaccurate volume forecasts have implications for customers under a WAPC distributors can receive revenue above forecast and inaccurate forecasts apply for the five year regulatory period"

Australian experience

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Incentives for demand side management

"Under a revenue cap, a distributor's revenue is fixed over the regulatory control period. Distributors can therefore increase profits by reducing costs and ***this creates an incentive to undertake demand side management projects that reduce costs****."*

"…where demand side management under a revenue cap reduces capital expenditure, consumers benefit in future regulatory control periods from lower prices due to lower regulatory asset bases."

"Under a WAPC, a distributor's profits are directly linked to the actual volumes of electricity…Under these conditions, distributors have a disincentive to undertake demand side management projects, if doing so results in lower energy sales."

Efficient tariffs

"The AER considers the benefits of a WAPC rest on a theoretical argument that it provides an incentive to set efficient prices.

We consider the WAPC's theoretical advantages have not eventuated in practice because they rely on assumptions that do not apply to electricity distributors.

Based on analysis of pricing in the current and previous regulatory periods, we do not consider the WAPC has generally resulted in, or created an incentive for efficient pricing."

Price stability

"We consider ***price instability can occur under all forms of control mechanisms****."*

"We consider the WAPC can increase overall price stability within the regulatory control period compared to a revenue cap.

However, a WAPC is unlikely to lead to increased price stability or predictability for individual tariffs or customers."

UK experience

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Revenue cap is employed by UK network regulators:

- **Ofgem for electricity distribution**
  - 2010-15 moved from revenue yield to straight revenue cap:
    - Revenue drivers (energy & customer no.) do not adequately capture relationship between growth and costs, particularly with growth of Distributed Generation
    - Energy driver discourages demand-side management and non-network alternatives
    - Also allowed some 'flex' in allowances for network connections and general augmentation (not customer specific) at highly loaded substations s.t. demonstrating demand side management insufficient
  - RIIO ED1 – retained revenue cap
- **Ofgem for gas distribution**
  - 2008-13 & 2013-21 - Revenue cap with reopener for large load connections
- **Ofwat for water and sewage companies**
  - 2010-15 - Price cap with revenue correction in next period
  - 2015-20 - Revenue cap

Interaction with return on equity

- Not aware of evidence that the form of control materially influences the systematic risks faced by businesses or asset betas of regulated businesses
- CEG (2013) statistical analysis of US regulated utilities found that the regulatory environment has no impact on asset beta
- Under IMs, asset beta is set with reference to a sample of national and international businesses which have a mix of forms of control

Regulatory precedent

- AER applied same approach to return on equity in RCP1 irrespective of the form of control applied to the distributor (a range of control mechanisms were applied in various States including WAPC, revenue cap or revenue yield)
- AER's Rate of Return Guideline, to be applied in RCP2, applies the same methodology for estimating the return on equity and, in particular the equity beta, irrespective of the form of control which is set ex post
- Ofgem made no adjustment when moving to revenue cap for electricity distribution

Conclusion

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Revenue cap better promotes long term benefits for consumers

- Revenue recovery reflects efficient costs
  - aggregate energy volumes do not drive costs and should not drive revenue
  - energy forecasting is difficult but errors have significant revenue impacts leading to inefficient outcomes for both consumers and suppliers
- Promotes incentives for energy efficiency, demand side management & non-network alternatives
  - secondary schemes to offset revenue losses do not offset disincentive under WAPC
- Enables move towards more efficient/cost reflective tariffs
- Promotes incentives for efficient investment deferral
- Reduced admin costs consistent with low cost form of regulation