

Forecast real revenue growth and regulated price paths

A review of the Commerce Commission Draft Decisions Paper: Reset of Starting Prices, CPI Adjustment and Other Amendments

Report to Wellington Electricity (Ltd)

22 August 2011

About NZIER

NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

NZIER is also known for its long-established Quarterly Survey of Business Opinion and Quarterly Predictions.

Our aim is to be the premier centre of applied economic research in New Zealand. We pride ourselves on our reputation for independence and delivering quality analysis in the right form, and at the right time, for our clients. We ensure quality through teamwork on individual projects, critical review at internal seminars, and by peer review at various stages through a project by a senior staff member otherwise not involved in the project.

NZIER was established in 1958.

Authorship

Prepared by: John Stephenson

Quality approved by: John Ballingall

Acknowledgements: Jean-Pierre de Raad & Qing Yang

8 Halswell St, Thorndon
P O Box 3479, Wellington
Tel: +64 4 472 1880
Fax: +64 4 472 1211
econ@nzier.org.nz
www.nzier.org.nz

NZIER's standard terms of engagement for contract research can be found at www.nzier.org.nz.

While NZIER will use all reasonable endeavours in undertaking contract research and producing reports to ensure the information is as accurate as practicable, the Institute, its contributors, employees, and Board shall not be liable (whether in contract, tort (including negligence), equity or on any other basis) for any loss or damage sustained by any person relying on such work whatever the cause of such loss or damage.

Contents

1. Summary	1
2. Electricity demand forecasts	1
3. Inconsistencies between forecasts	6

Figures

Figure 1 GDP growth: actual and expected	2
Figure 2 Electricity demand: actual and expected	2
Figure 3 Real GDP per capita	3
Figure 4 Updated GDP forecasts	4
Figure 5 Forecast NZ electricity demand growth	4
Figure 6 Updated real revenue growth vs. Commission results	5
Figure 7 GDP per PJ of energy consumed	7

Tables

Table 1 Real revenue growth by EDB with updated GDP forecasts.....	5
--	---

1. Summary

The Commerce Commission has published a draft decision resetting the default regulated price quality path (DPP) for Electricity Distribution Businesses (EDBs) for the period from April 1 2012 to March 31 2015.

The Draft Decision has been based on current and projected profitability of each EDB. This report provides our views on the method used by the Commission to determine future profitability and how this will be implemented in a new DPP.

Our review has focussed on identifying whether there are any inconsistencies or potential biases in the Commission's approach.

We believe the Commerce Commission should review and revise the calculations in its Draft Decision because:

1. The Commission's projections of real revenue growth and EDB profitability are based on out-dated forecasts of electricity demand. The projections are probably too high as a result.
2. The use of out-dated electricity demand forecasts is inconsistent with the use of up-to-date forecasts of GDP growth in determining real growth in capacity-based charges.

In the following we discuss the reasoning behind these two findings.

2. Electricity demand forecasts

GDP forecasts to generate revenue volume growth are out of date

The Commerce Commission has used forecasts of electricity demand produced by the Electricity Commission in 2009 to model growth in revenue volumes related to throughput charges. Those forecasts and the inputs used to create them are now out-dated. The Electricity Commission forecasts incorporate actual electricity demand and economic data up to March 2008 and forecasts of GDP and population growth completed in early 2009.

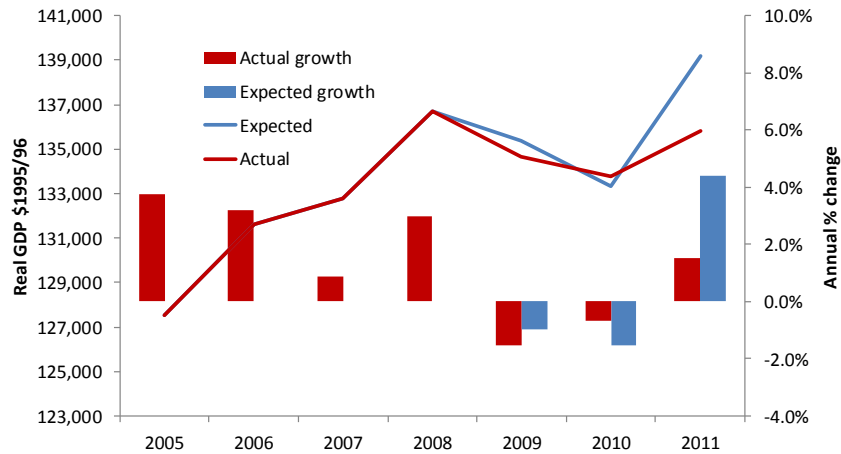
Subsequent global and local events have altered the outlook for the New Zealand economy since those forecasts were produced. In particular, economic growth is not expected to rebound as robustly as previously envisioned. Indeed this has been highlighted in recent GDP results compared to forecasts used by the Electricity Commission in 2009.

The economy is recovering slower than expected in 2009

Economic activity is presently some distance below where it was expected to be in 2011 and is lower than it was in 2008. Figure 1 charts the GDP growth forecasts used in the Commission's 2009 demand forecasts against what actually transpired.

Figure 1 GDP growth: actual and expected

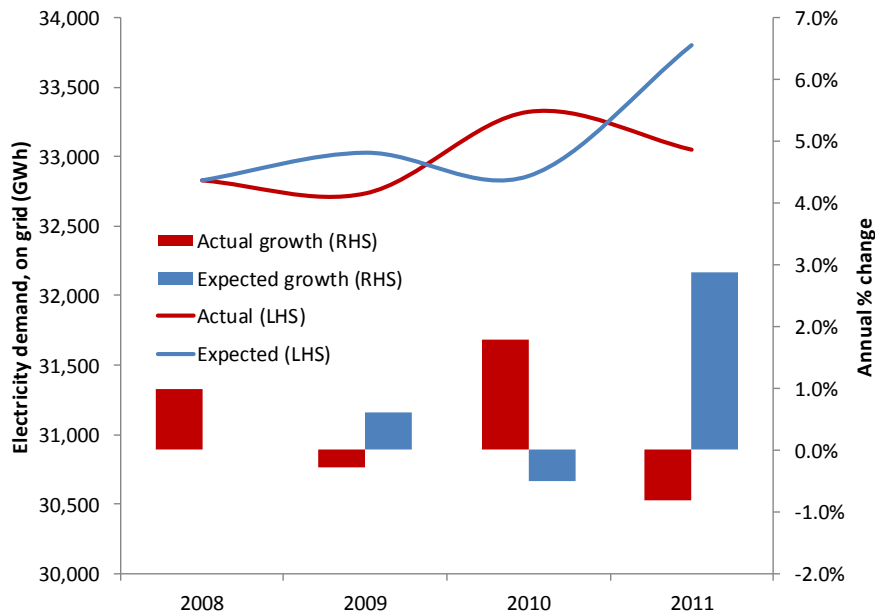
March year real annual gross domestic product



Source: NZIER

Figure 2 Electricity demand: actual and expected

Demand in national grid excluding energy delivered to Tiwai



Source: NZIER

The forecasts used by the Electricity Commission did include a slump in GDP growth in 2009 and 2010 and this was reflected in their electricity demand forecasts. There was, however, an expectation that both GDP and electricity demand growth would rebound in 2011 to 2015 return to trends of the past.

As it happened, electricity demand growth slumped further in 2009 than expected (see Figure 2).¹ Conversely, the contraction in GDP in 2010 was not as deep as expected. The strong rebound expected for 2011 did not take place.

¹ This was in part due to a slump in demand at Tiwai point, due to an outage. However, even after excluding Tiwai from the annual demand figures, national electricity demand was 0.3% lower in

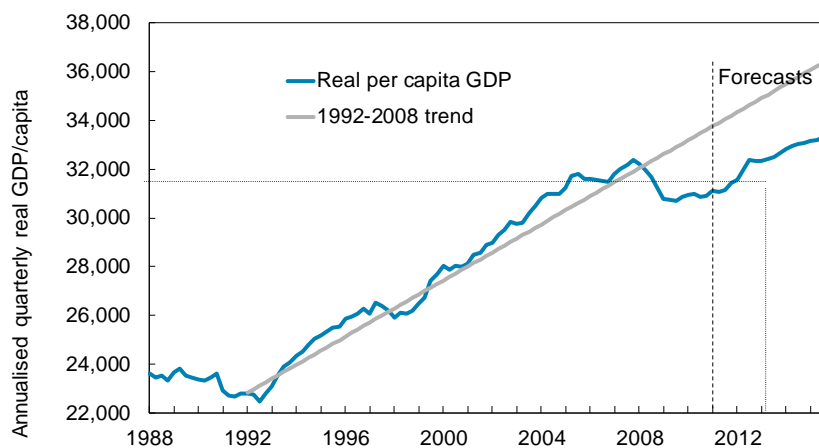
This new actual information can, and should, be reflected in the Commerce Commission’s real revenue growth forecasts.

There has been a structural shift down in the GDP outlook

Furthermore, the lower than expected growth in 2011 is reflective of a structural downward shift in economic activity in New Zealand; a shock that will persist for some time if not indefinitely (see Figure 3). Economists have lowered their forecasts of GDP to reflect this. This view of the “new normal” also reflects a deeper appreciation of the extent of deleveraging taking place in New Zealand and around the world than was understood in early 2009.

The Commerce Commission has only partially taken account of this in its modelling of EDB profitability. The GDP forecasts used to project real growth in capacity-related charges *have* been updated to account for this shock. The electricity throughput forecasts *have not*. The implications of this for the Commerce Commission’s forecasts are significant.

Figure 3 Real GDP per capita



Source: Statistics NZ, NZIER

Source: NZIER

This materially affects the real revenue growth calculations

We have reproduced the Electricity Commission’s 2009 forecasts to determine if revisions to GDP and GDP forecasts are material to the Commerce Commission’s analysis and how large the impacts may be for projected EDB profitability.

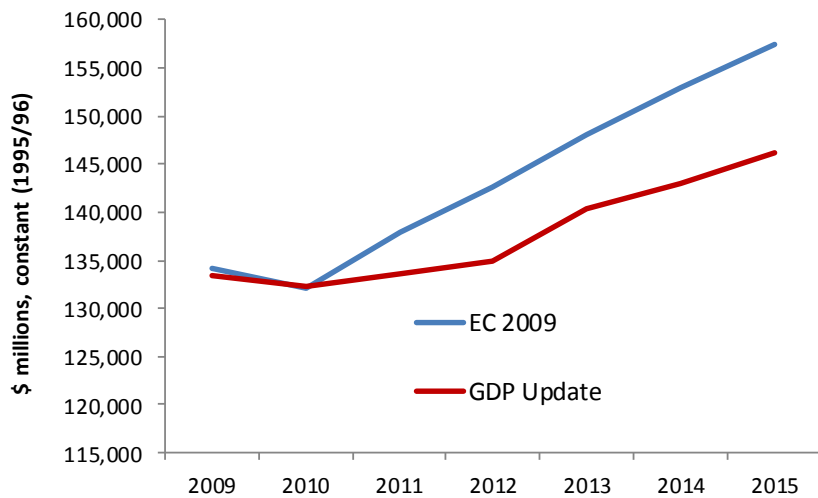
We find that updating the GDP forecasts in the Electricity Commission’s demand forecasting model results in significantly lower real revenue growth projections.

Figure 4 charts NZIER’s forecast of GDP from 2011 to 2015 which underpins the regional GDP growth forecasts in the Commerce Commission’s price reset model.

2009 compared to 2008, compared to a forecast increase of 0.6% (implying a forecast error of 0.9%).

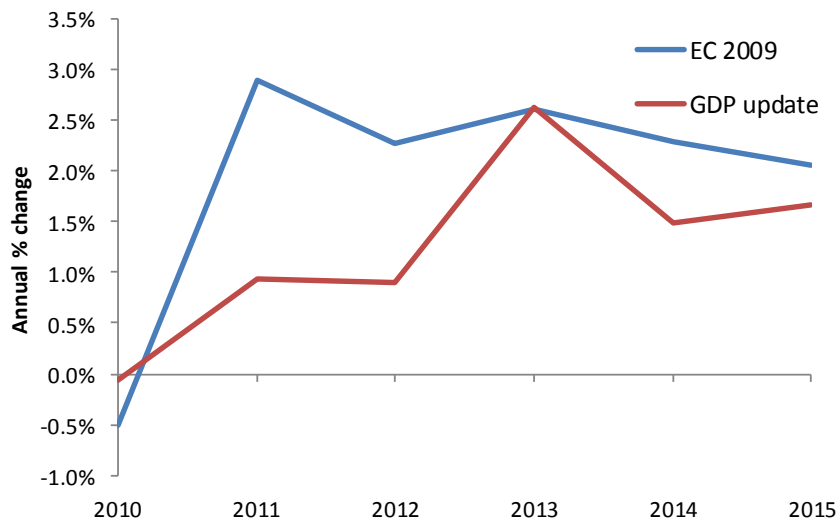
The GDP forecast used in the Electricity Commission’s 2009 forecasts is charted alongside.

Figure 4 Updated GDP forecasts



Source: NZIER, Electricity Commission 2009

Figure 5 Forecast NZ electricity demand growth



Source: NZIER

Introducing the updated (“revised”) GDP forecast into the Electricity Commission’s forecast reduces average demand growth for 2011-2015 from 2.4% in the original 2009 forecasts to 1.5% (see Figure 5). A significant change is also observed at the regional level.

Average real revenue growth falls from 2.4% to 1.5% across all EDBs

The effect of these changes on projected real revenue growth is substantial, although it varies across EDBs – depending in part on the extent to which EDBs rely upon variable revenue charges. Table 1 details the updated real revenue growth projections after taking account of the updated GDP forecasts.

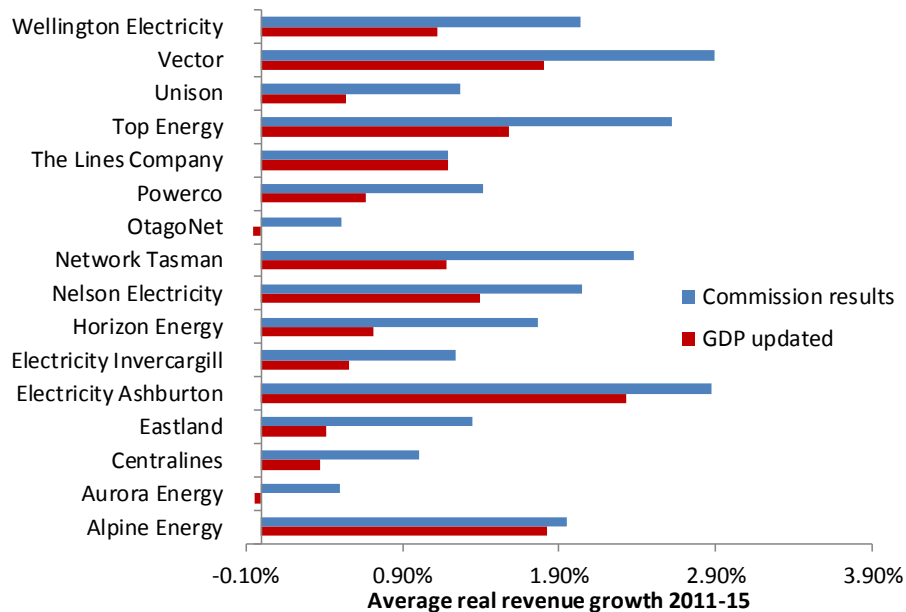
Table 1 Real revenue growth by EDB with updated GDP forecasts

Reproduction of Table 3.1 in the Draft Decision Paper

EDB	2010/11	2011/12	2012/13	2013/14	2014/15	Average
Alpine Energy	1.80%	1.75%	2.03%	1.70%	1.83%	1.82%
Aurora Energy	0.62%	-0.65%	0.63%	-0.88%	0.08%	-0.04%
Centralines	0.18%	-0.13%	1.38%	-0.39%	0.84%	0.37%
Eastland	0.12%	-0.32%	1.89%	-0.72%	1.09%	0.41%
Electricity Ashburton	2.24%	2.05%	3.20%	1.81%	2.35%	2.33%
Electricity Invercargill	1.38%	-0.21%	1.40%	-0.50%	0.70%	0.55%
Horizon Energy	0.52%	0.12%	2.17%	-0.24%	1.03%	0.72%
Nelson Electricity	1.46%	1.27%	2.43%	1.03%	0.79%	1.39%
Network Tasman	1.30%	0.95%	3.08%	0.51%	0.06%	1.18%
OtagoNet	0.63%	-0.69%	0.65%	-0.94%	0.07%	-0.06%
Powerco	0.48%	0.13%	1.76%	-0.16%	1.12%	0.67%
The Lines Company	1.19%	1.19%	1.19%	1.19%	1.19%	1.19%
Top Energy	1.23%	0.91%	3.25%	0.46%	2.04%	1.58%
Unison	0.35%	0.04%	1.62%	-0.24%	0.92%	0.54%
Vector	1.50%	1.20%	3.28%	0.80%	2.24%	1.81%
Wellington Electricity	0.85%	0.48%	2.43%	0.12%	1.76%	1.13%

Source: NZIER

Figure 6 Updated real revenue growth vs. Commission results



Source: NZIER, Commerce Commission

These results have been produced using the model published by the Electricity Commission at the same time as its 2009 forecasts were published. We have changed only the GDP forecasts which are inputs into that model.² Figure 6 charts

² Other inputs should be updated for a “full update” of the forecast model. However, this would make it difficult to discern the impact of the GDP forecast change as the Electricity Commission

the impact on projected real revenue growth relative to the Commerce Commission's Draft Decision.

3. Inconsistencies between forecasts

The Commission uses three forecast drivers of real revenue growth to determine EDB profitability:

- (i) energy throughput or demand
- (ii) GDP growth
- (iii) population growth.

These three drivers are all related. However, because the Commerce Commission has used the Electricity Commission throughput forecasts, based on 2009 GDP data and forecasts, there is a disjuncture between the three forecasts which is hard to reconcile.

Decomposing demand growth into its drivers shows the problems associated with using outdated GDP

This disjuncture is most pronounced in the implications of the Commerce Commission's projections for aggregate changes in electricity demand. Electricity demand is a function of income or GDP growth and population growth with some residual remaining to account for, amongst other things, changes in energy efficiency. Accordingly, it is possible to compare the three growth rates used by the Commission to see what they are implying about electricity demand growth and to check whether the forecasts add up in a reasonable way.

We have done this by subtracting regional GDP and population growth rates (the capacity and connection revenue volume drivers) from the electricity demand growth forecasts used by the Commission in order to examine whether population and income more or less explains the expected electricity demand growth.³

It implies *reductions* in energy efficiency, which is unrealistic

Our analysis suggests that implicit in the Commission's forecasts is a view that only around half of the forecast energy demand growth can be explained by population growth and income growth (on a per capita basis). It is hard to think what might account for the remaining growth.

In the case of Wellington Electricity, for example, the forecast for electricity throughput growth is around 0.3 percentage points higher (per annum) than one would expect given forecast income and population growth.

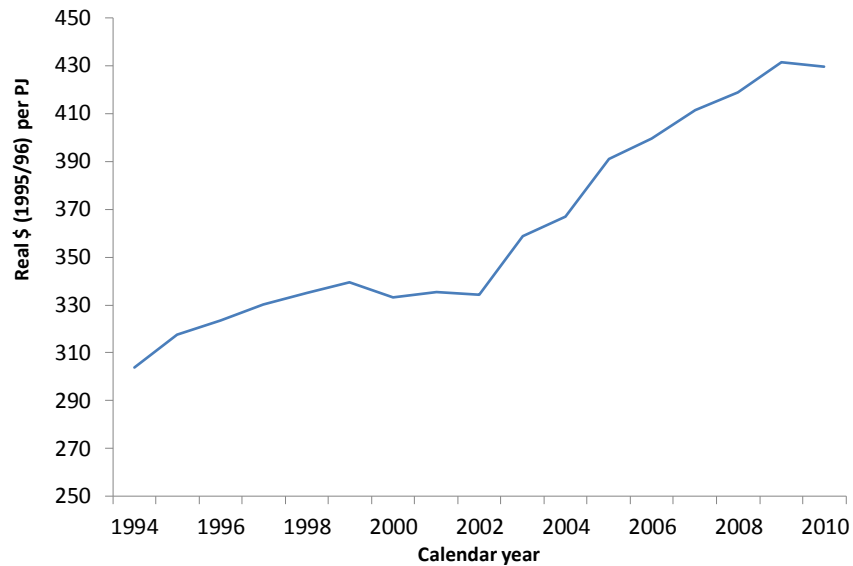
model will, by default, re-estimate many of its key parameters if new actual/historical data is introduced.

³ In practice we convert GDP forecasts into GDP per capita so that we do not count population growth twice given that population growth is an important part of GDP growth.

These results stand in marked contrast to observed efficiency improvements in the New Zealand economy (see Figure 7). This is almost certainly a function of using a mixture of up-to-date and old GDP forecasts.

Figure 7 GDP per PJ of energy consumed

Excluding the transport sector



Source: NZIER, Ministry of Economic Development, Statistics New Zealand
