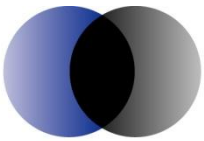
Confidential

Aurora new customer connections forecasts

Prepared for Aurora Energy

January 2012



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1 Introduction

To assist in the budgeting and planning process, Aurora Energy requires forecasts of the number of new network connections extending for a period from 2011-12 to 2016-17.

ACIL Tasman has undertaken to produce forecasts of new customer connections for each of the following groups:

- New residential connections
- New commercial connections
- New irrigator connections
- New residential subdivisions (number of lots)

For each of these customer classes, ACIL Tasman has produced disaggregated forecasts across three distinct regions:

- North
- North West
- South

In addition, a further split is made between overhead and underground connections for new residential and commercial customer connections.

It is important to note that the forecasts do not include new connections that require only a simple service connection. This is true for all customer classes.

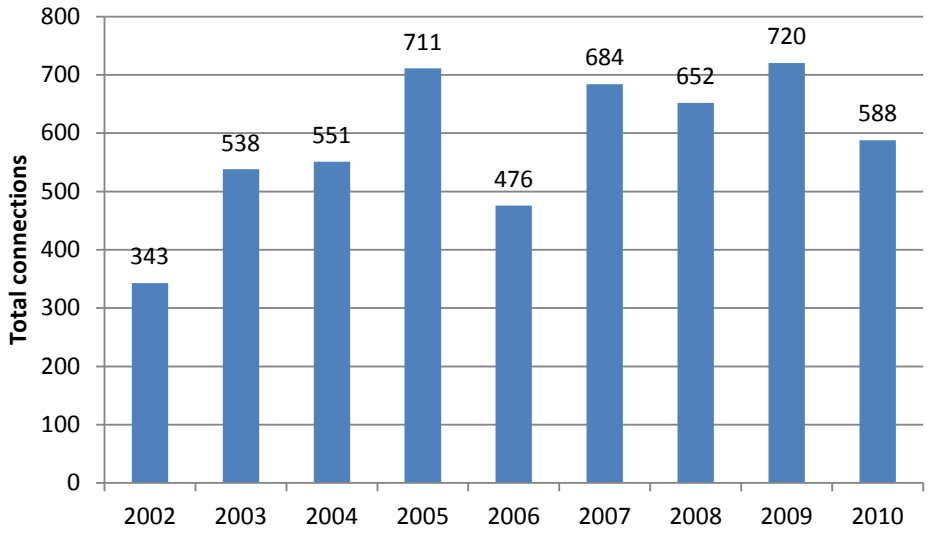
This report is structured as follows. Section 2 describes the stylized facts of the customer classes to be forecast. Section 3 maps out the methodology to be applied to the process and Section 4 presents the forecast results.

2 New customer connections

2.1 Residential connections

The number of new residential connections in each financial year from 2002-03 to 2010-11 for the whole of Tasmania are shown in Figure 1 below.

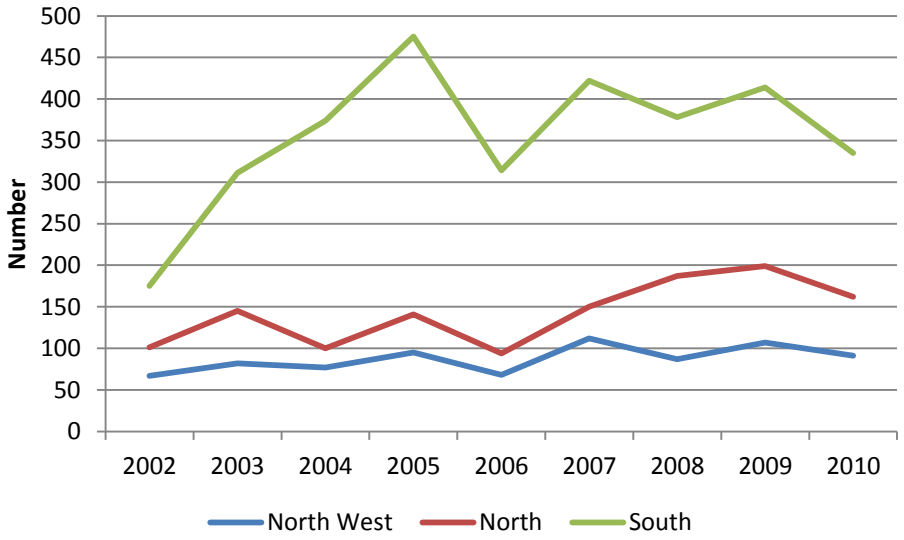
Figure 1 **Total new residential connections, 2002-03 to 2010-11**



Data source: Aurora Energy

The data are characterised by a pattern of cyclical movements around a rising trend. New residential connections have risen steadily from 2002-03 to reach 588 by 2010-11.

Figure 2 **Total residential connections by region**

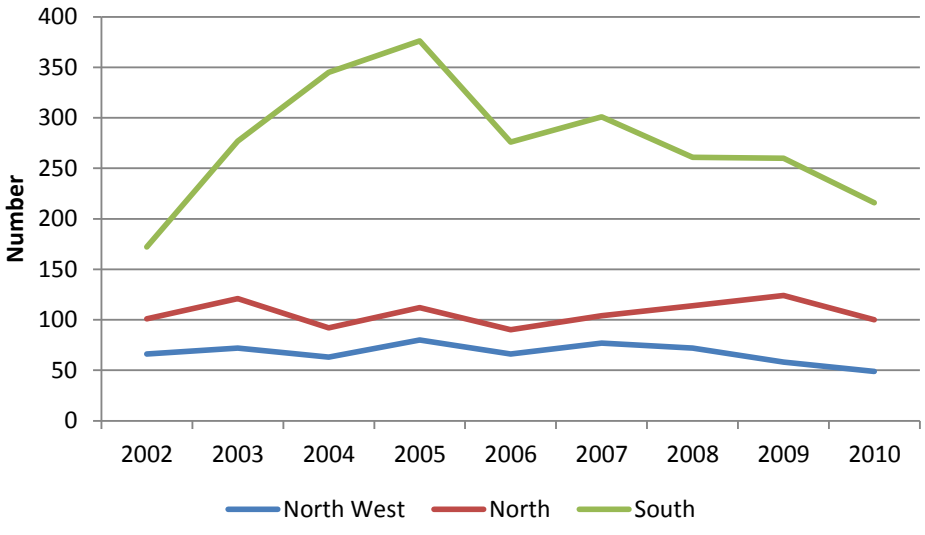


Data source: Aurora Energy

A breakdown of total new residential connections by region is shown in Figure 2. The figure shows that the majority of new residential connections occur in the Southern region, followed by the North and North West.

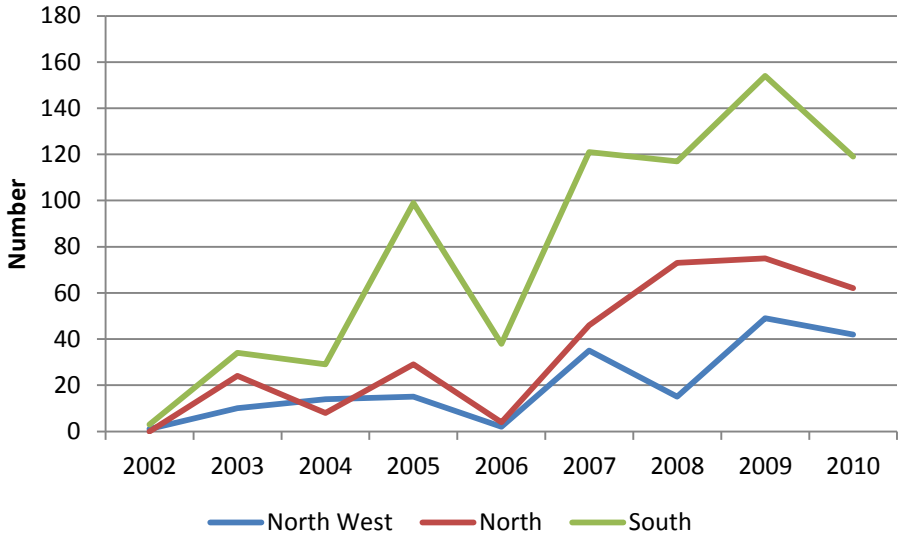
Figure 3 and Figure 4 show the number of overhead and underground connections for each of the three regions. It can be seen that there is a trend away from overhead connections towards underground connections. This is true for all three regions.

Figure 3 **Overhead residential connections by region**



Data source: Aurora Energy

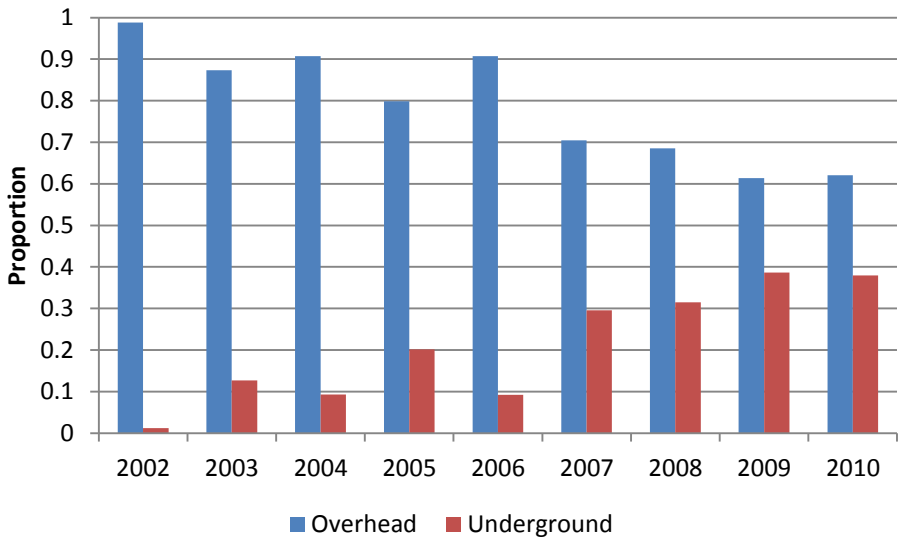
Figure 4 **Underground residential connections by region**



Data source: Aurora Energy

The trend away from overhead connections can be seen more clearly in Figure 5 which shows the proportion of each connection type for all new residential connections. The figure shows that in 2002-03 the number of underground connections made up only just over 1% of all connections, while by 2010-11 this figure had reached nearly 40% of all new residential connections.

Figure 5 **Proportion of new residential connections by type**

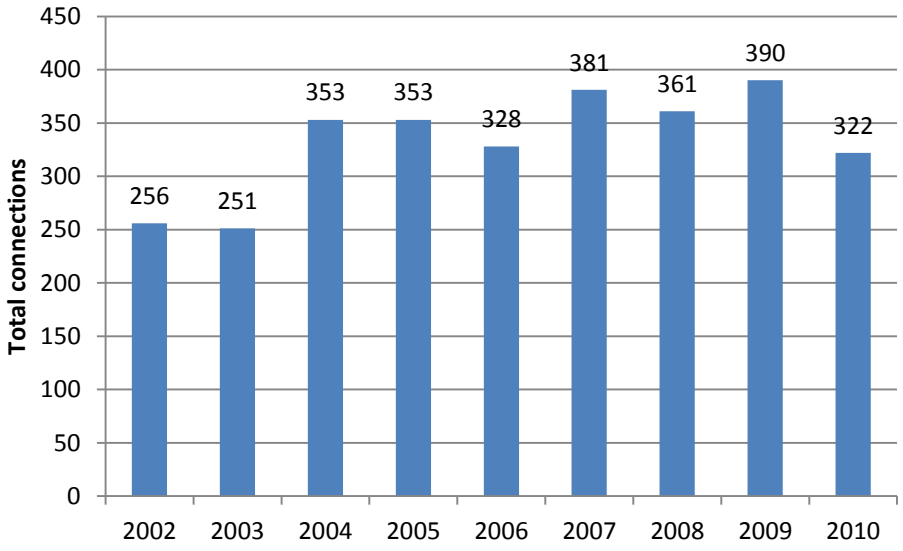


Data source: Aurora Energy

2.2 Commercial connections

Figure 6 shows the number of new commercial connections across Tasmania. As in the case of residential connections, the number of new commercial connections are characterised by a rising trend with some cyclical variation around this trend. By 2010-11 the number of new commercial connections had reached 322 across Tasmania.

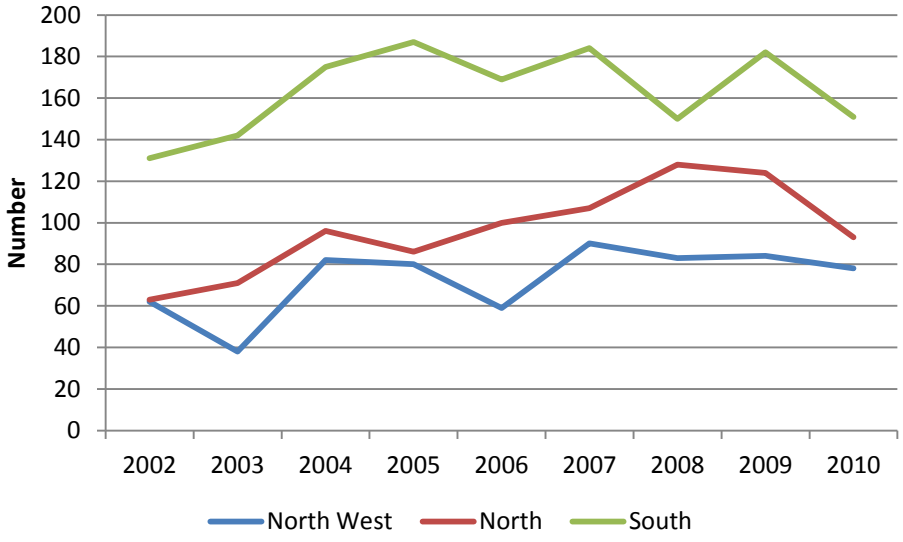
Figure 6 **Total commercial connections, 2002-03 to 2010-11**



Data source: Aurora Energy

The number of new commercial connections by region is shown in Figure 7.

Figure 7 **Total commercial connections by region**

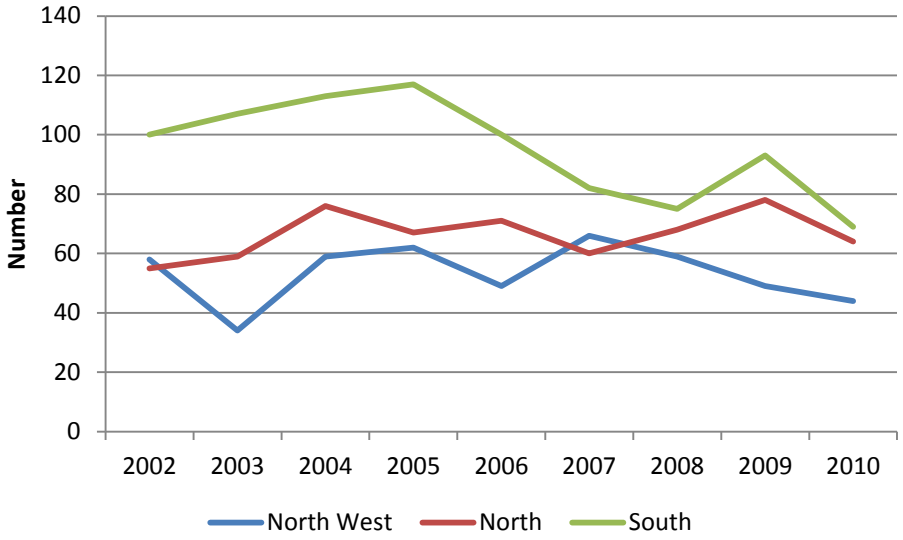


Data source: Aurora Energy

The figure shows that a similar uptrend is evident across all three geographic regions, with some declining years.

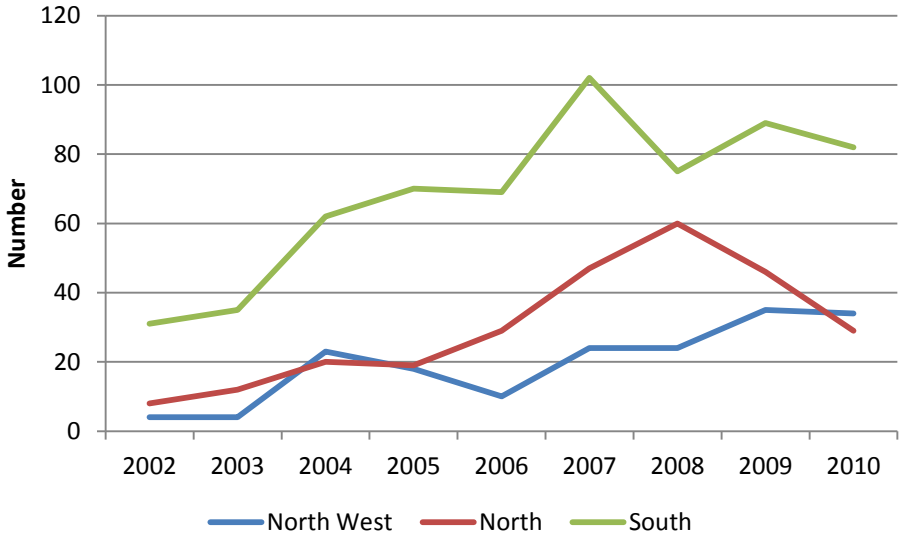
Figure 8 and Figure 9 show the regional break down on new commercial overhead and underground connections. As in the case for residential connections, there is a marked trend away from overhead towards underground connections.

Figure 8 **Overhead commercial connections by region**



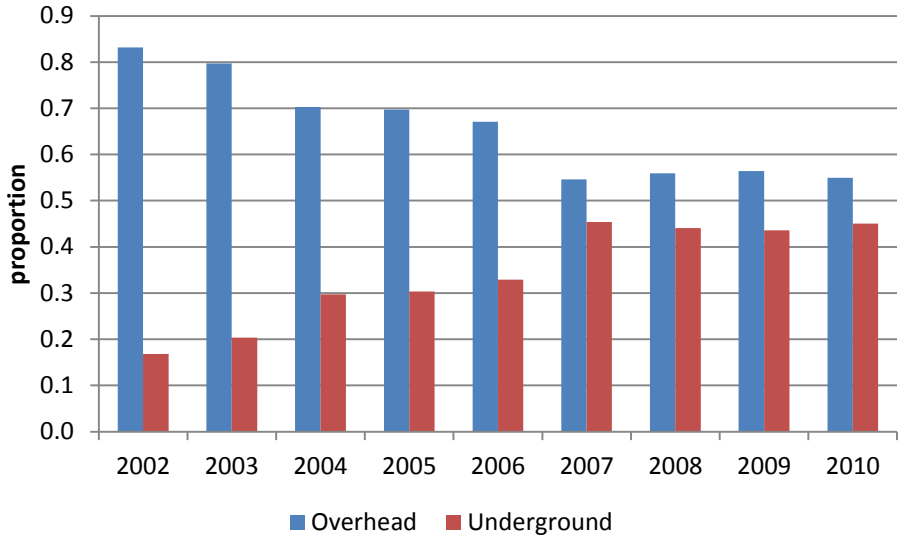
Data source: Aurora Energy

Figure 9 **Underground commercial connections by region**



Data source: Aurora Energy

Figure 10 **Proportion of new commercial connections by type**

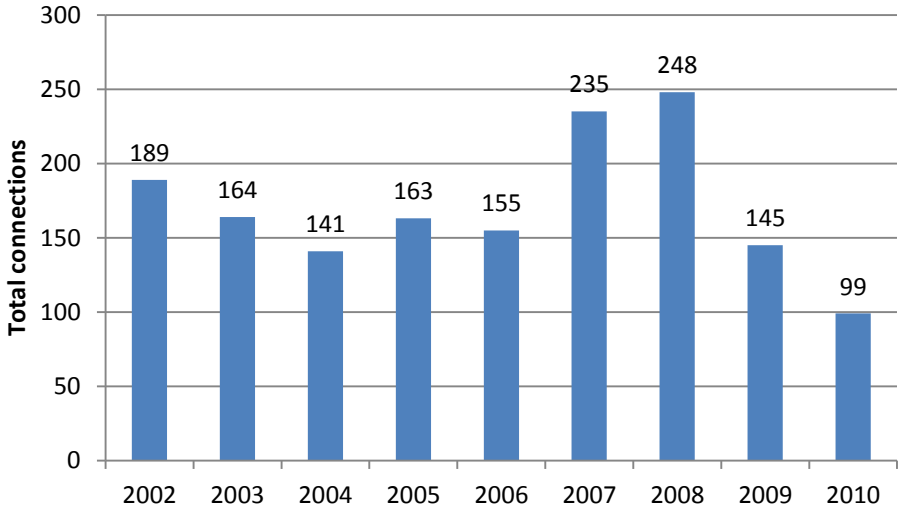


Data source: Aurora Energy

2.3 Irrigation connections

The number of new connections to the Aurora network for the purposes of irrigation declined between 2002-03 and 2006-07, before jumping substantially to 235 connections in 2007-08 and 248 in 2008-09. They then declined sharply to 145 in 2009-10 and 99 in 2010-11 (see Figure 11).

Figure 11 **Total irrigation connections**

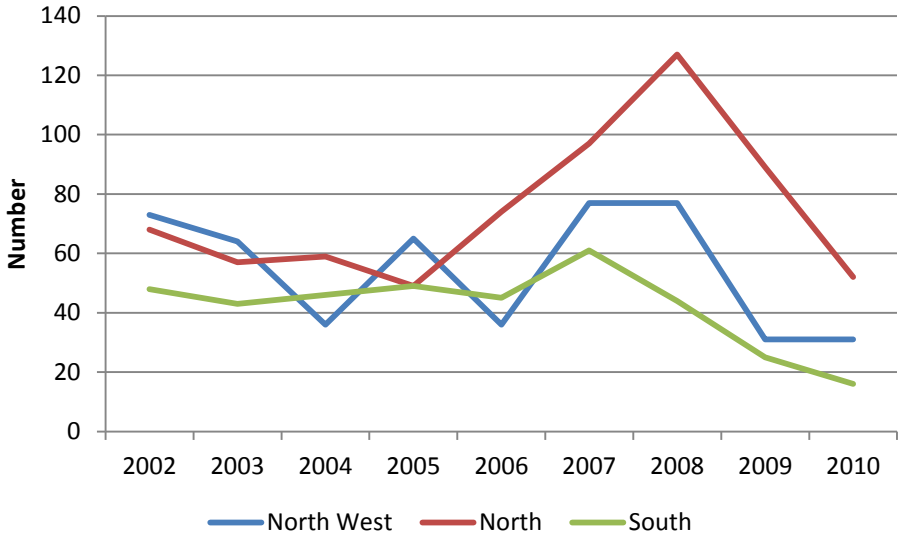


Data source: Aurora Energy

Figure 12 shows the regional breakdown of new irrigation connections. The figure shows that while the number of new connections in the North West and South has declined over time, there has been a sharp increase in the number of

connections in the North up to 2008-09 before a sharp reversal in 2009-10 and 2010-11.

Figure 12 **Total irrigation connections by region**

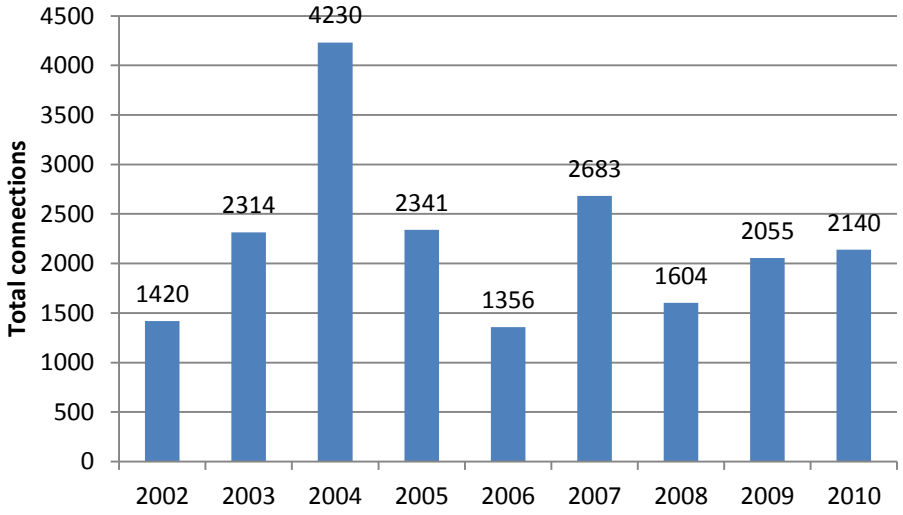


Data source: Aurora Energy

2.4 Residential sub divisions (lots)

The number of new residential lots arising from sub-divisions is shown in Figure 13 below. The number of new connections follow a cyclical pattern, peaking at 4230 in 2004-05 before declining to a cyclical low point of 1356 in 2006-07. By the end of the 2010-11 year the number of new lots connected had reached 2140.

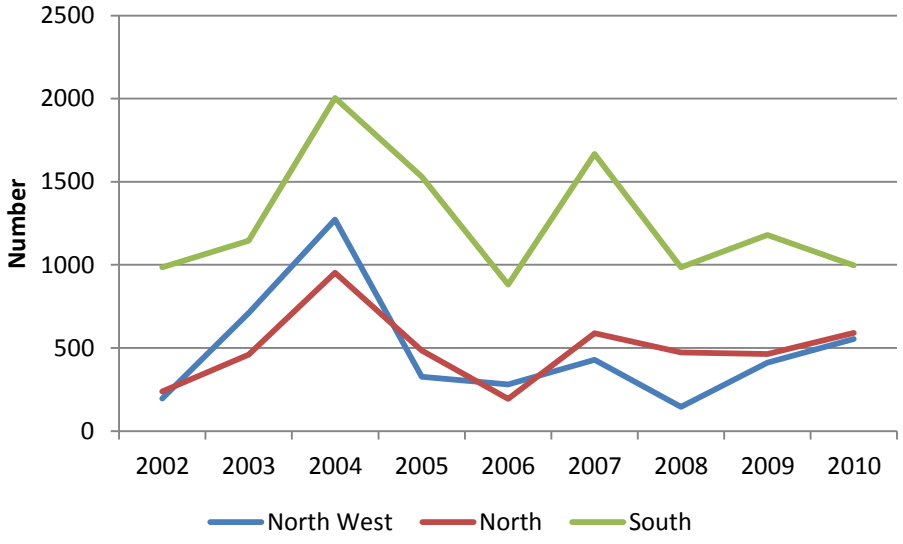
Figure 13 **Total residential sub-division (lots) connections**



Data source: Aurora Energy

Figure 14 shows the number of historical subdivision (lots) connections by region.

Figure 14 **Total residential sub-division (lots) connections by region**



Data source: Aurora Energy

3 Forecasting methodology

ACIL Tasman has opted to apply an econometric methodology to forecast new customer connections in the Aurora network. This approach requires the estimation and testing of statistical relationships between the number of new connections and the underlying drivers that influence the number of new connections.

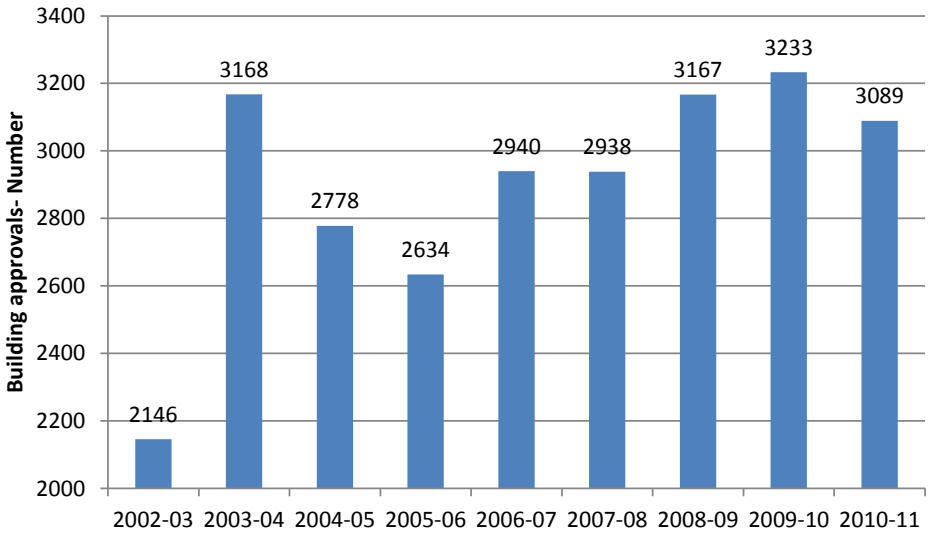
3.1 Potential explanatory variables

In the case of new residential and commercial connections the most obvious driver is the number of new buildings. The number/value of dwelling commencements can therefore be regarded as a suitable proxy for the level of building activity.

The best publically available data related to building activity are the ABS Building Approvals series (Catalogue number 8731.0) and Building Activity series (Catalogue number 8752.0) which is updated monthly and provides data for Tasmania.

The number of residential dwelling approvals in each year from 2002-03 to 2010-11 is shown in Figure 15 below.

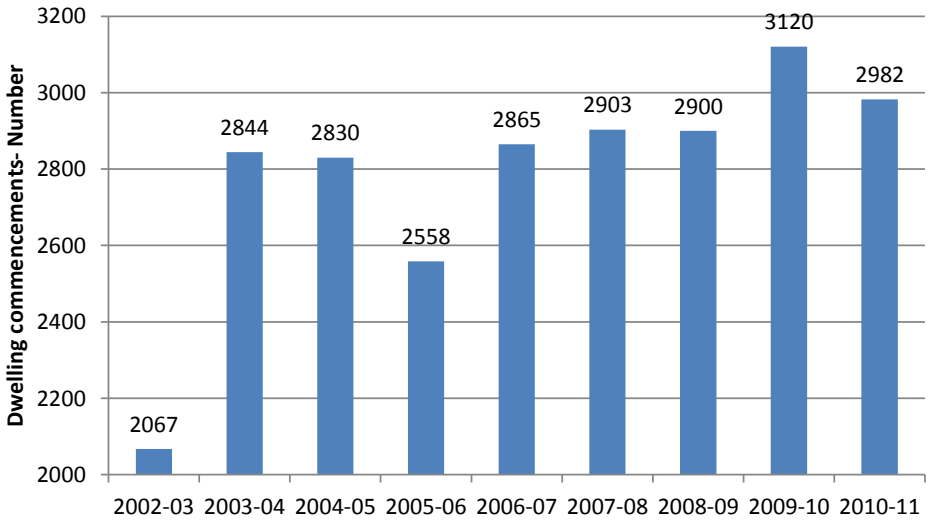
Figure 15 **Tasmanian dwelling units approved, original number, 2002-03 to 2010-11**



Data source: Australian Bureau of Statistics, 8731.0 Building Approvals, Australia

The actual number of residential dwelling starts is shown in Figure 16 below.

Figure 16 **Tasmanian dwelling units commenced, original number, 2002-03 to 2010-11**

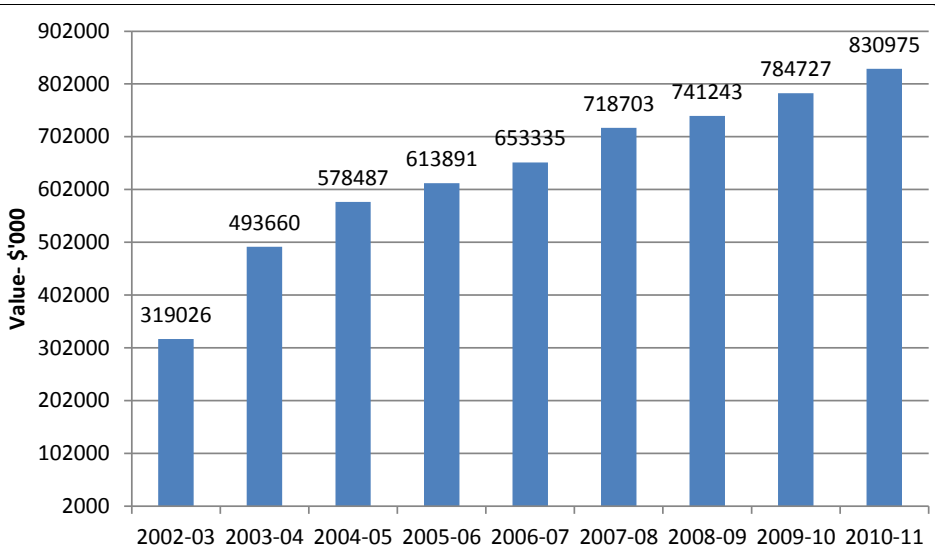


Data source: Australian Bureau of Statistics, 8752.0 Building Activity, Australia

Both series show a steady upward rise in the number of annual residential dwelling commencements/approvals, apart from a sharp dip in 2005-06.

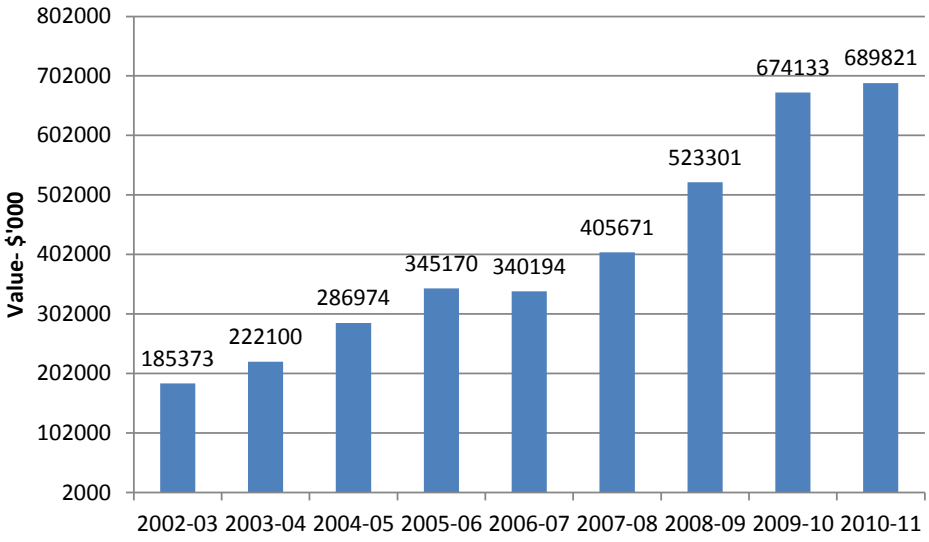
Figure 17 and Figure 18 show the value of Tasmanian residential and commercial construction respectively from 2002-03 to 2010-11.

Figure 17 **Tasmania Value of residential construction, 2002-03 to 2010-11, $'000**



Data source: Australian Bureau of Statistics, 8752.0 Building Activity, Australia

Figure 18 **Tasmania Value of non-residential construction, 2002-03 to 2010-11, $'000**



Data source: Australian Bureau of Statistics, 8752.0 Building Activity, Australia

3.2 Projections of building activity

As mentioned in the previous section, the econometric approach entails establishing a relationship between the number of new connections and building activity. This historical relationship is then used to forecast new customer connections based on projections of building activity for the forecast period.

Unfortunately, the ABS does not project building approvals/activity. However, there are a number of reputable organizations that provide forecasts of building activity across Australia.

3.2.1 Housing industry association (HIA)

The HIA is one potential source of residential construction activity forecasts.

The HIA's Economics Group regularly collects, analyses and presents a range of facts, figures and forecasts relevant to Australia's Housing and Renovation industries. HIA has over 42,000 members who account for 85 per cent of Australian residential activity and regularly survey their members to provide localised on-the-ground intelligence.

Over a number of years, the HIA economics unit has built a detailed forecasting model of housing starts. According to the HIA, their forecasting model takes inputs related to:

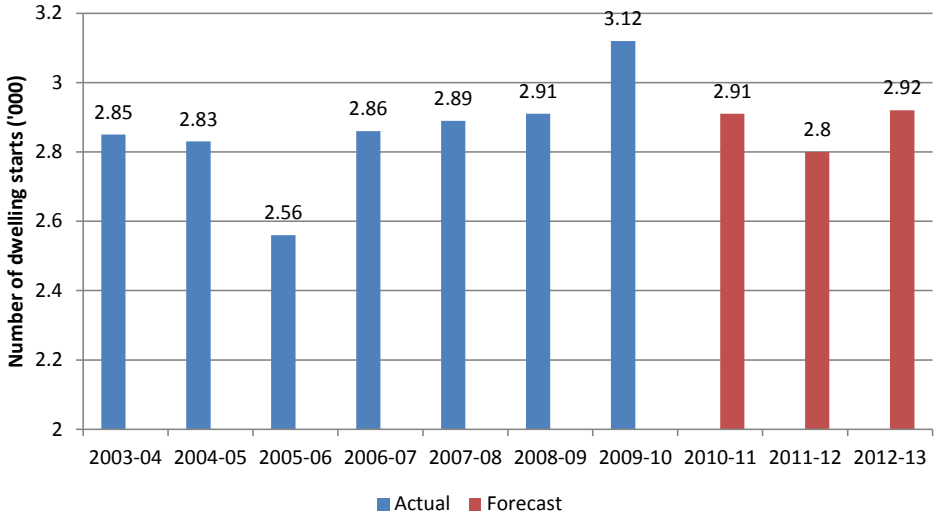
- Economic Growth
- Interest Rates

- Employment Growth
- Consumer Confidence
- Level of Oversupply or Pent-up Demand for Housing
- Interstate and Overseas Population Movements
- Household Formation, and
- Land Availability

The forecasting model produces forecasts for new housing, renovations, non-residential building and engineering construction for each state.

Unfortunately, the HIA only produces forecasts for up to 3 years in advance. Figure 19 shows HIA's forecasts of residential dwelling commencements for 2010-11, 2011-12 and 2012-13. They predict a decline in the number of new commencements in Tasmania to 2.8 thousand in 2011-12 before increasing to 2.92 thousand in 2012-13.

Figure 19 **HIA forecasts of Tasmanian housing starts/dwelling commencements ('000)**



Data source: Housing Industry Association

3.2.2 Construction forecasting council (CFC)

Based on ACIL Tasman's research, one of the best sources of investment projections are those available from the Construction Forecasting Council (CFC). The CFC was established by the Australian Construction Industry Forum (ACIF) with support from the Department of Industry, Tourism and Resources with the mission '*to create a better compass of the industry's direction for decision makers*'. The CFC provides:

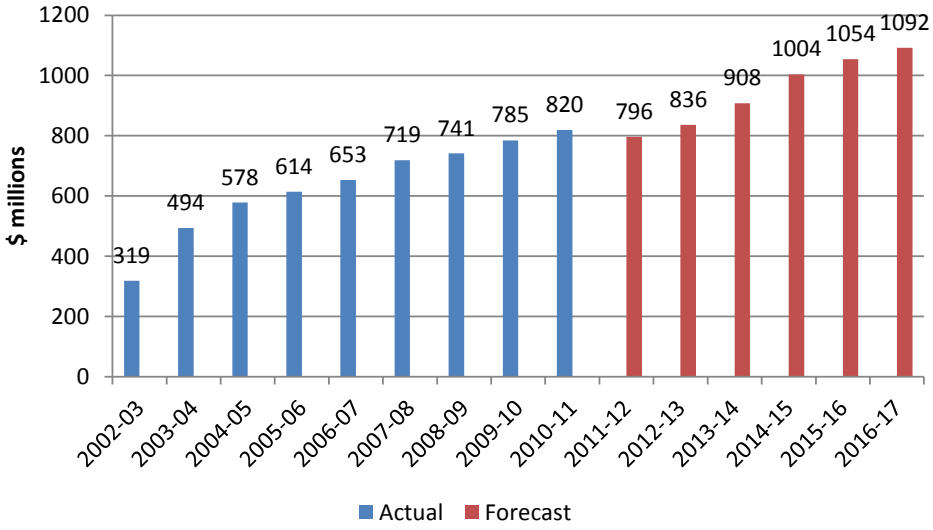
- regular short and long term forecasts of the construction and property sectors

- profiles of national construction activity for major non-residential building and engineering projects across Australia
- analysis of the factors driving supply and demand and economic scenarios that underpin the forecasts and sensitivity analysis.

The forecasts distinguish twenty categories of construction activity in each state and territory. As best as possible, the forecasts take into account current (and expected) economic fundamentals along with detailed current and forthcoming activity data published by the ABS and Reed Data Construction, combined with industry intelligence from CFC members. More information regarding the forecasting methodology and current projections are available at CFC's website (www.cfc.acif.com.au).

Figure 20 and Figure 21 show the CFC's current forecasts for the value of residential and non-residential construction activity.

Figure 20 **Construction forecasting council- Forecast of Tasmanian residential construction activity, $ million**



Data source: Construction forecasting council

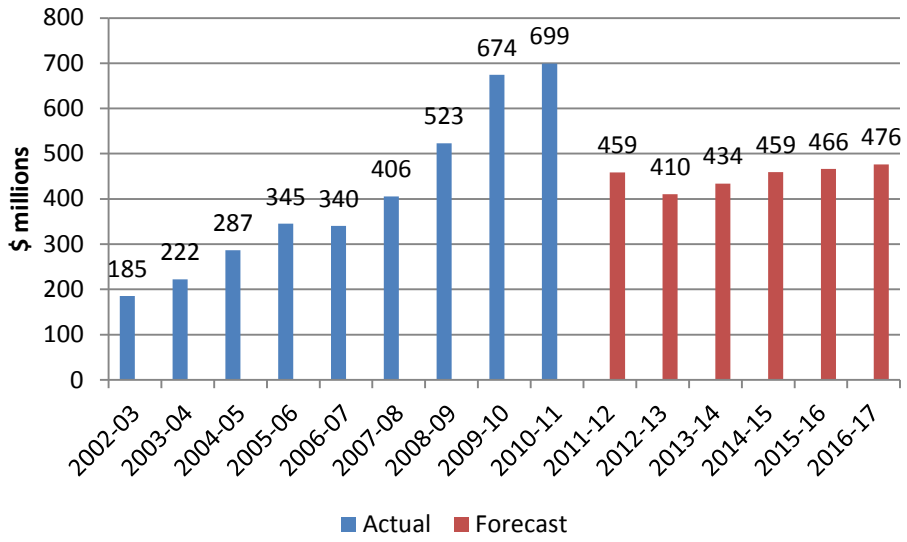
According to the CFC residential construction activity is projected to decrease in 2011-12 before resuming an upward trajectory from 2012-13 onwards, reaching $1092 million by 2016-17.

Commercial/non-residential building activity is expected to experience a decline from 2010-11 to 2012-13, before stabilising and resuming an upward trajectory. It is expected to reach $476 million by 2016-17.

A key advantage of the forecasts produced by the CFC is that they extend up to and beyond 5 years which makes them suitable for the purposes of forecasting new customer connections in Tasmania.

ACIL Tasman found that the real value of building construction activity provided the strongest explanatory power of new connections for both residential and commercial, against a range of alternatives, including building approvals and the number of dwelling commencements.

Figure 21 **Construction forecasting council- Forecast of Tasmanian non-residential construction activity, $ million**



Data source: Construction forecasting council

3.3 Forecasting irrigation connections

For the purposes of forecasting the number of new irrigators connected to the Aurora network ACIL Tasman examined a range of explanatory variables. In particular ACIL Tasman considered historical time series of irrigation activity from the ABS publication "Water use on Australian Farms" (Cat: 4618.0), and looked for any statistical correlations that might exist between the number of new irrigation connections and changes in the total area of irrigated land and the volume of water applied. ACIL Tasman was not able to identify any statistically significant correlations.

For this reason the approach taken to forecasting the number of new irrigation connections is to fit a historical time trend to the data as well as an additional autoregressive term to the model errors to capture some of the dynamics around the upward trend.

3.4 Regional disaggregation

Econometric models relating new connections to real building construction activity and the CFC forecasts are used to generate forecasts at the Tasmania

level for both residential and commercial new connections. As mentioned in the previous section, in the case of irrigation, a simple time trend is applied.

In order to disaggregate the forecasts generated across the whole of Tasmania into three separate geographical regions ACIL Tasman have chosen to apply a continuation of the historical trend in the share of total connections across each region. We do this by estimating a time trend regression for the share of total connections within each region for each of the customer types. These are then extrapolated into the future based on the time trend regression and these forecast shares are used to allocate the total forecast customer numbers across each of the three regions.

3.5 Allocation between overhead and underground connections

For commercial and residential connections, the split between the number of underground/overhead connections is determined by estimating separate time trend regressions of the proportion of new connections that are overhead- for each of the three regions under consideration. Based on these trends the proportion of overhead versus underground connections for each region is projected into the forecast period.

4 Forecasts of new connections

Output from the estimated statistical models which forms the basis of the forecasts is presented in the appendix.

In the case of new residential connections (including subdivisions) a regression was estimated with the real value of residential construction used as an explanatory variable. For commercial connections, the real value of non-residential construction was the main explanatory variable.

The new connection forecasts were then generated by applying the forecasts of residential and non-residential construction published by the Construction Forecasting Council (CFC) to the fitted models.

In the case of irrigation, the main driving variable was the historical time trend.

Additional terms were added to the models to capture the dynamic behaviour of the forecast time series.

4.1 Total connections

Forecasts of the total number of connections across the whole Aurora network by customer type are shown in Table 1.

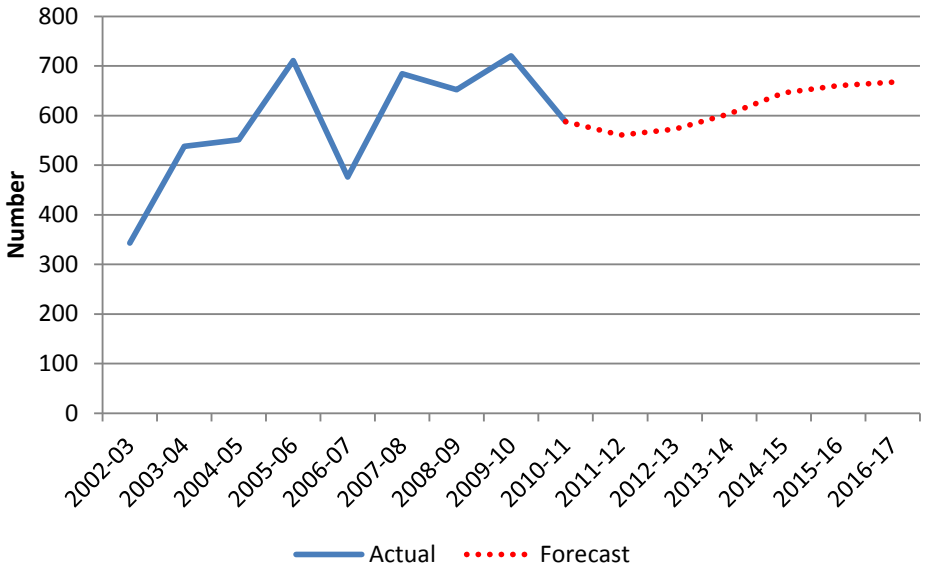
Table 1 **Total new connections by customer class**

Year	Residential	Commercial	Irrigation	Residential subdivision (lots)
2002-03	343	256	189	1420
2003-04	538	251	164	2314
2004-05	551	353	141	4230
2005-06	711	353	163	2341
2006-07	476	328	155	1356
2007-08	684	381	235	2683
2008-09	652	361	248	1604
2009-10	720	390	145	2055
2010-11	588	322	99	2140
Forecast				
2011-12	560	283	152	2102
2012-13	573	274	155	2119
2013-14	603	276	159	2161
2014-15	646	278	162	2220
2015-16	661	277	165	2240
2016-17	667	277	169	2249

Data source: ACIL Tasman

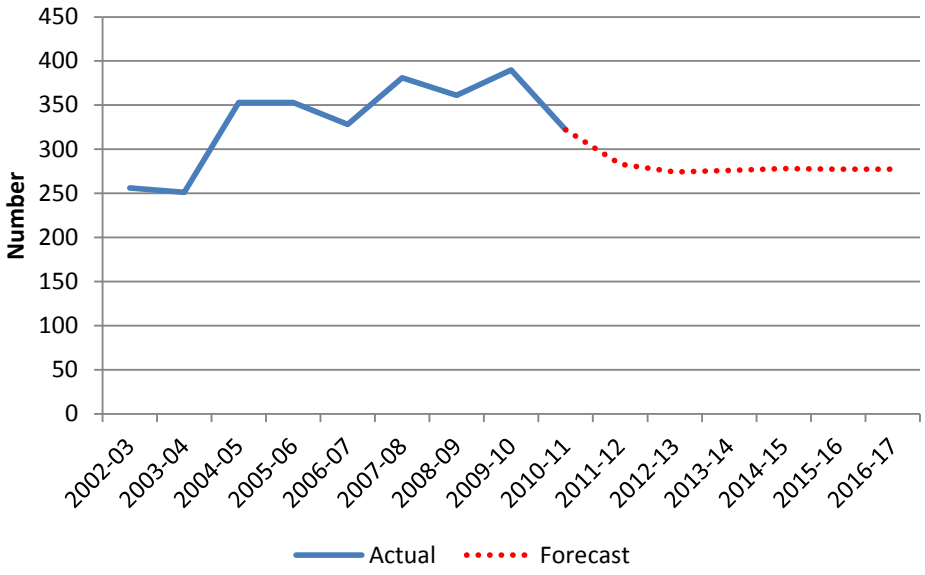
The forecasts are also presented graphically in the 4 figures that follow. New connections are forecast to increase over time for all customer types except commercial, reflecting the more pessimistic outlook for Tasmanian non-residential construction in the CFC's forecasts.

Figure 22 **New residential connections, Tasmania**



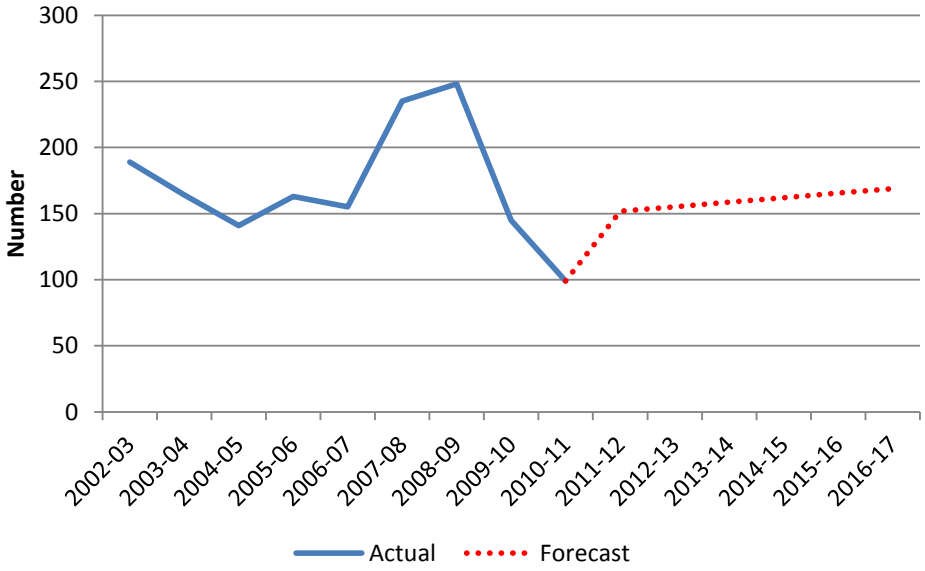
Data source: ACIL Tasman model

Figure 23 **New commercial connections, Tasmania**



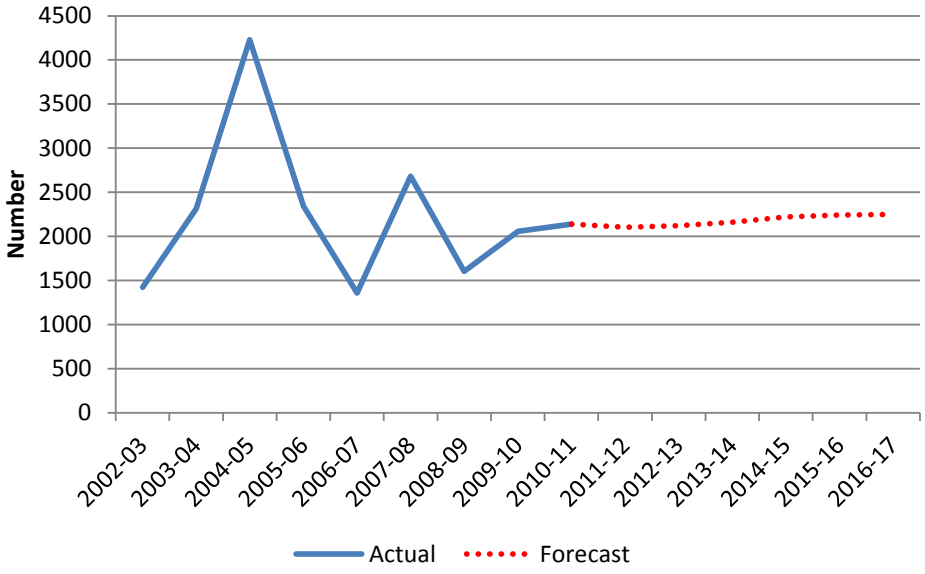
Data source: ACIL Tasman model

Figure 24 **New irrigation connections, Tasmania**



Data source: ACIL Tasman model

Figure 25 **New residential subdivisions (lots), Tasmania**



Data source: ACIL Tasman

4.2 Forecasts by region

As part of the forecasting exercise, forecasts were also produced by region for each of the customer types.

Table 2 shows the historical and projected regional shares of the total number of connections for each customer type.

Table 2 **Projected proportions of total by region**

	Residential			Commercial			Irrigation			Residential subdivisions (lots)		
Year	NW	N	S	NW	N	S	NW	N	S	NW	N	S
2002-03	0.20	0.29	0.51	0.24	0.25	0.51	0.39	0.36	0.25	0.14	0.17	0.69
2003-04	0.15	0.27	0.58	0.15	0.28	0.57	0.39	0.35	0.26	0.31	0.20	0.49
2004-05	0.14	0.18	0.68	0.23	0.27	0.50	0.26	0.42	0.33	0.30	0.23	0.47
2005-06	0.13	0.20	0.67	0.23	0.24	0.53	0.40	0.30	0.30	0.14	0.21	0.65
2006-07	0.14	0.20	0.66	0.18	0.30	0.52	0.23	0.48	0.29	0.21	0.14	0.65
2007-08	0.16	0.22	0.62	0.24	0.28	0.48	0.33	0.41	0.26	0.16	0.22	0.62
2008-09	0.13	0.29	0.58	0.23	0.35	0.42	0.31	0.51	0.18	0.09	0.29	0.61
2009-10	0.15	0.28	0.58	0.22	0.32	0.47	0.21	0.61	0.17	0.20	0.23	0.57
2010-11	0.15	0.28	0.57	0.24	0.29	0.47	0.31	0.53	0.16	0.26	0.28	0.47
Forecast												
2011-12	0.15	0.28	0.57	0.25	0.30	0.46	0.30	0.55	0.15	0.25	0.29	0.46
2012-13	0.15	0.28	0.57	0.25	0.30	0.45	0.29	0.58	0.13	0.25	0.30	0.45
2013-14	0.15	0.28	0.57	0.25	0.31	0.44	0.27	0.61	0.11	0.25	0.31	0.44
2014-15	0.14	0.29	0.57	0.26	0.32	0.42	0.26	0.64	0.10	0.24	0.32	0.44
2015-16	0.14	0.29	0.57	0.26	0.33	0.41	0.25	0.67	0.08	0.24	0.33	0.43
2016-17	0.14	0.29	0.57	0.26	0.34	0.40	0.23	0.70	0.06	0.23	0.34	0.42

Data source: ACIL Tasman

By applying the projected regional shares to the forecast total number of connections, the regional forecasts are obtained.

These are shown for each customer type in the 4 tables that follow.

Table 3 **Forecast residential connections by region**

Year	North West	North	South
2002-03	67	101	175
2003-04	82	145	311
2004-05	77	100	374
2005-06	95	141	475
2006-07	68	94	314
2007-08	112	150	422

Year	North West	North	South
2008-09	87	187	378
2009-10	107	199	414
2010-11	91	162	335
Forecast			
2011-12	85	156	319
2012-13	86	161	326
2013-14	89	172	343
2014-15	93	186	367
2015-16	94	192	375
2016-17	93	196	379

Data source: ACIL Tasman

Table 4 **Forecast commercial connections by region**

Year	North West	North	South
2002-03	62	63	131
2003-04	38	71	142
2004-05	82	96	175
2005-06	80	86	187
2006-07	59	100	169
2007-08	90	107	184
2008-09	83	128	150
2009-10	84	124	182
2010-11	78	93	151
Forecast			
2011-12	69	84	129
2012-13	68	84	122
2013-14	70	86	120
2014-15	71	89	118
2015-16	72	91	114
2016-17	73	93	111

Data source: ACIL Tasman

Table 5 **Forecast irrigation connections by region**

Year	North West	North	South
2002-03	73	68	48
2003-04	64	57	43
2004-05	36	59	46
2005-06	65	49	49
2006-07	36	74	45
2007-08	77	97	61
2008-09	77	127	44
2009-10	31	89	25
2010-11	31	52	16

Year	North West	North	South
Forecast			
2011-12	46	84	22
2012-13	45	91	20
2013-14	43	97	18
2014-15	42	104	16
2015-16	41	111	13
2016-17	40	118	11

Data source: ACIL Tasman

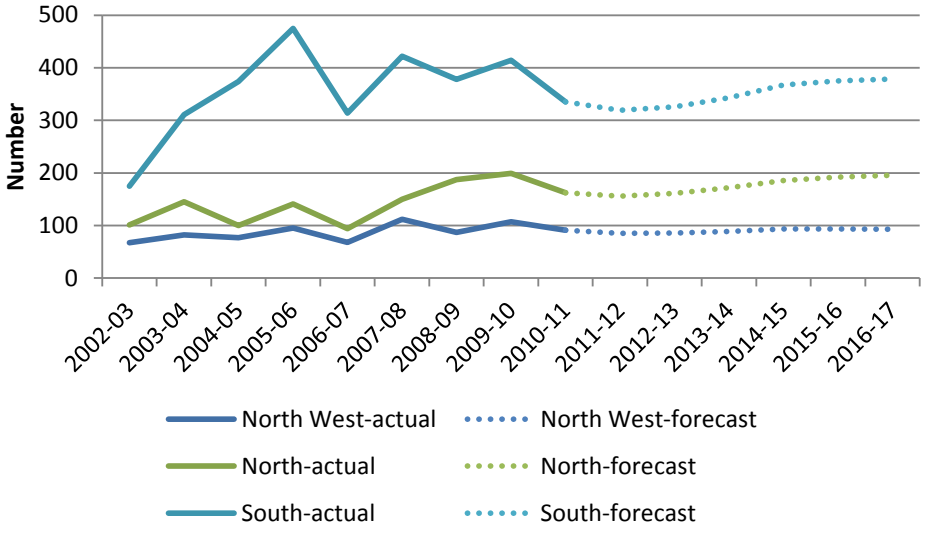
Table 6 **Forecast number of residential subdivisions (lots)**

Year	North West	North	South
2002-03	196	238	986
2003-04	710	459	1145
2004-05	1272	953	2005
2005-06	327	484	1530
2006-07	281	194	881
2007-08	428	588	1667
2008-09	146	472	986
2009-10	412	464	1179
2010-11	553	591	996
Forecast			
2011-12	535	604	963
2012-13	531	632	956
2013-14	533	669	959
2014-15	539	712	970
2015-16	535	743	962
2016-17	528	771	950

Data source: ACIL Tasman

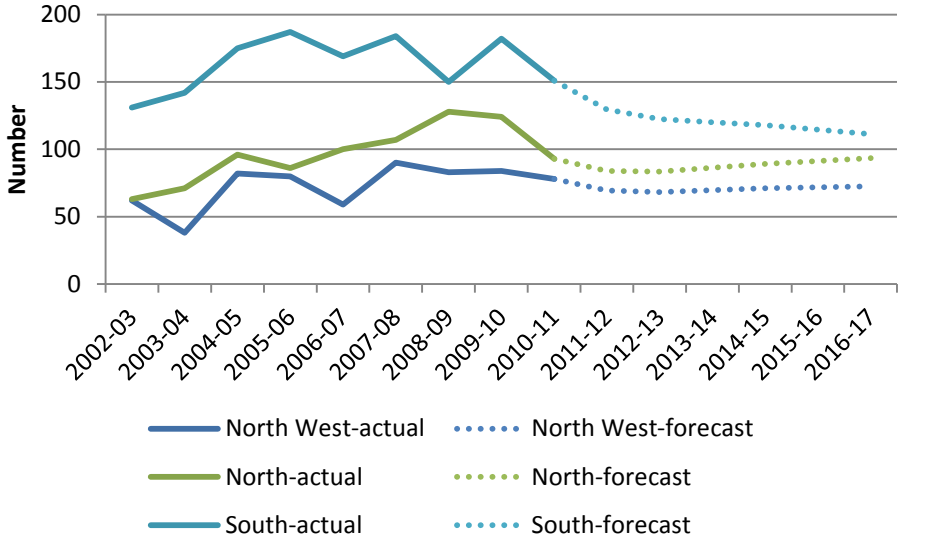
The forecasts are also shown graphically in the accompanying figures.

Figure 26 **Residential connections by region, actual and forecast**



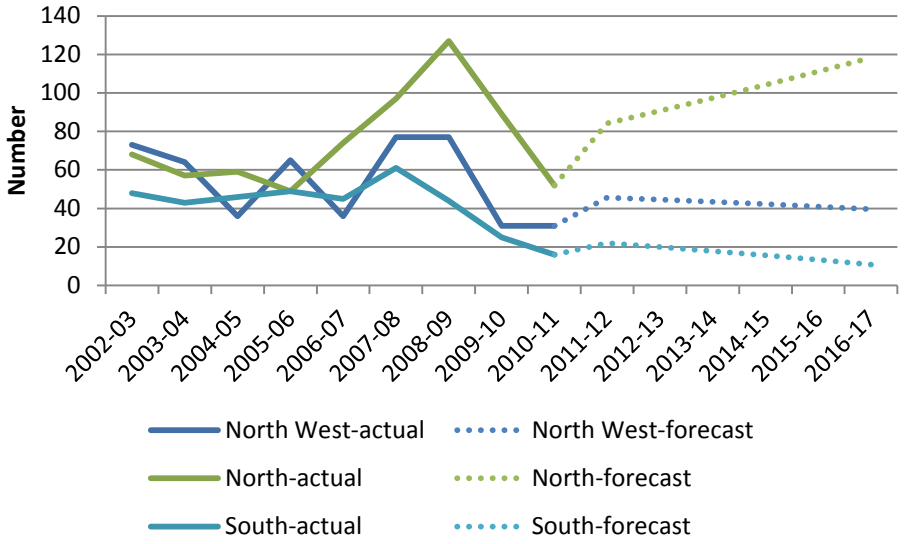
Data source: ACIL Tasman

Figure 27 **Commercial connections by region, actual and forecast**



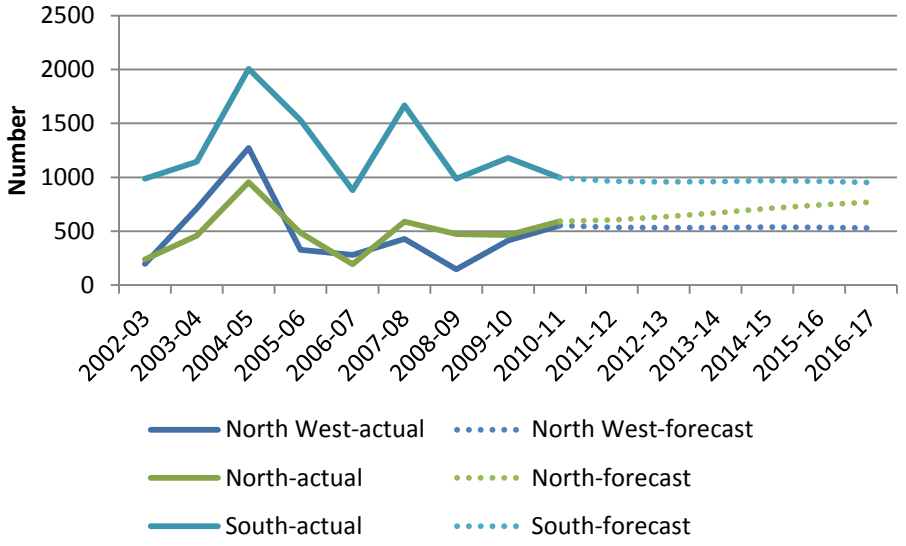
Data source: ACIL Tasman

Figure 28 **Irrigation connections by region, actual and forecast**



Data source: ACIL Tasman

Figure 29 **Residential subdivision (lots) connections by region, actual and forecast**



Data source: ACIL Tasman

4.3 Forecasts by connection type

The regional residential and commercial connections were also disaggregated further between overhead and underground connections. This was done by projecting the proportion of overhead versus underground connections for each region and customer type using historical trends. These projections are shown in Table 7. The projections show a clear trend away from overhead

towards underground connections for both residential and commercial connections across all three regions.

Table 7 **Projected proportions of overhead connections by region**

Year	Residential			Commercial		
	NW	N	S	NW	N	S
2002-03	0.99	1.00	0.98	0.94	0.87	0.76
2003-04	0.88	0.83	0.89	0.89	0.83	0.75
2004-05	0.82	0.92	0.92	0.72	0.79	0.65
2005-06	0.84	0.79	0.79	0.78	0.78	0.63
2006-07	0.97	0.96	0.88	0.83	0.71	0.59
2007-08	0.69	0.69	0.71	0.73	0.56	0.45
2008-09	0.83	0.61	0.69	0.71	0.53	0.50
2009-10	0.54	0.62	0.63	0.58	0.63	0.51
2010-11	0.54	0.62	0.64	0.56	0.69	0.46
Forecast						
2011-12	0.49	0.57	0.60	0.52	0.65	0.42
2012-13	0.44	0.52	0.56	0.48	0.62	0.38
2013-14	0.39	0.47	0.51	0.44	0.58	0.34
2014-15	0.34	0.42	0.47	0.40	0.55	0.30
2015-16	0.29	0.38	0.42	0.36	0.51	0.25
2016-17	0.25	0.33	0.38	0.32	0.48	0.21

Data source: ACIL Tasman

The forecasts by type of connection for residential and commercial are shown in Table 8 and Table 9 respectively. The forecasts in these tables are also presented graphically in the Appendix.

Table 8 **Residential connections by overhead/underground connection**

	North West		North		South	
Year	OH	UG	OH	UG	OH	UG
2002-03	66	1	101	0	172	3
2003-04	72	10	121	24	277	34
2004-05	63	14	92	8	345	29
2005-06	80	15	112	29	376	99
2006-07	66	2	90	4	276	38
2007-08	77	35	104	46	301	121
2008-09	72	15	114	73	261	117
2009-10	58	49	124	75	260	154
2010-11	49	42	100	62	216	119
Forecast						
2011-12	42	44	89	67	191	128
2012-13	38	48	84	77	181	145
2013-14	35	54	81	90	175	168

	North West		North		South	
2014-15	32	61	79	107	171	196
2015-16	28	66	72	119	158	217
2016-17	23	70	64	131	143	236

Data source: ACIL Tasman

Table 9 **Commercial connections by overhead/underground connection**

	North West		North		South	
Year	OH	UG	OH	UG	OH	UG
2002-03	58	4	55	8	100	31
2003-04	34	4	59	12	107	35
2004-05	59	23	76	20	113	62
2005-06	62	18	67	19	117	70
2006-07	49	10	71	29	100	69
2007-08	66	24	60	47	82	102
2008-09	59	24	68	60	75	75
2009-10	49	35	78	46	93	89
2010-11	44	34	64	29	69	82
Forecast						
2011-12	36	33	55	29	54	76
2012-13	33	35	52	32	46	76
2013-14	31	39	50	36	40	80
2014-15	28	43	49	40	35	83
2015-16	26	46	47	44	29	85
2016-17	23	50	45	49	24	87

Data source: ACIL Tasman

A Appendix

Statistical output from estimated models

Table 10 **New residential connections**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	65.3308	156.4111	0.417687	0.6887
RVALRES	0.000928	0.000275	3.372368	0.0119
R-squared	0.619003	Mean dependent var	584.7778	
Adjusted R-squared	0.564575	S.D. dependent var	123.5969	
S.E. of regression	81.55755	Akaike info criterion	11.83362	
Sum squared resid	46561.43	Schwarz criterion	11.87745	
Log likelihood	-51.25131	Hannan-Quinn criter.	11.73904	
F-statistic	11.37286	Durbin-Watson stat	3.187377	
Prob(F-statistic)	0.011882			

Data source: ACIL Tasman

Table 11 **New commercial connections**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	250.9525	41.32193	6.073108	0.0005
RVALNRES	0.00023	0.00011	2.103207	0.0735
R-squared	0.387227	Mean dependent var	332.7778	
Adjusted R-squared	0.299688	S.D. dependent var	49.91938	
S.E. of regression	41.77486	Akaike info criterion	10.4956	
Sum squared resid	12215.97	Schwarz criterion	10.53942	
Log likelihood	-45.23018	Hannan-Quinn criter.	10.40102	
F-statistic	4.42348	Durbin-Watson stat	1.385361	
Prob(F-statistic)	0.073522			

Data source: ACIL Tasman

Table 12 **New irrigation connections**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	159.3214	32.99576	4.828542	0.0029
TIME	4.595238	6.534135	0.703267	0.5082
D01	-101.6786	53.68339	-1.894041	0.1071
R-squared	0.384419	Mean dependent var	171	
Adjusted R-squared	0.179226	S.D. dependent var	46.74131	
S.E. of regression	42.34603	Akaike info criterion	10.59083	
Sum squared resid	10759.12	Schwarz criterion	10.65657	
Log likelihood	-44.65873	Hannan-Quinn criter.	10.44896	
F-statistic	1.873447	Durbin-Watson stat	2.048653	
Prob(F-statistic)	0.233268			

Data source: ACIL Tasman

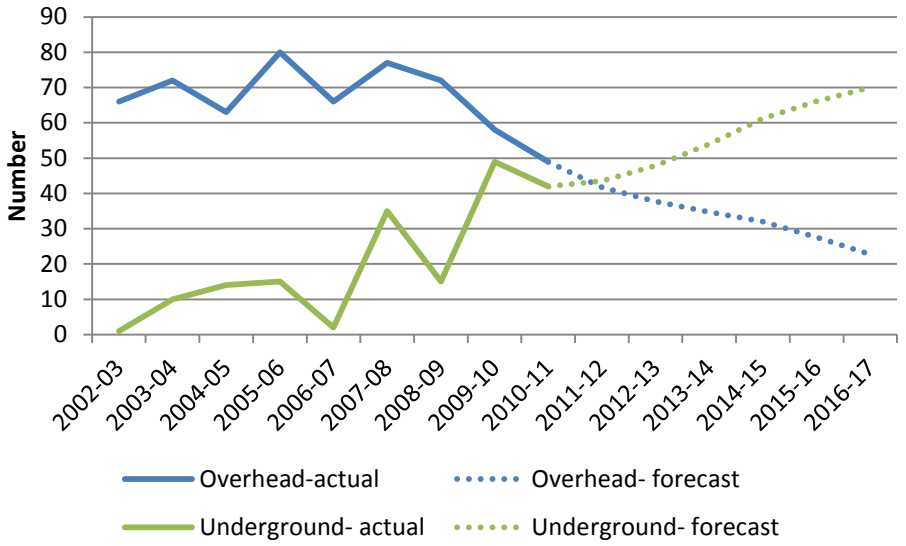
Table 13 **New residential sub-division (number of lots) connections**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1546.108	1102.864	1.401903	0.2037
RVALRES	0.001236	0.001849	0.668501	0.5252
R-squared	0.022101	Mean dependent var	2238.111	
Adjusted R-squared	-0.117599	S.D. dependent var	871.3905	
S.E. of regression	921.2038	Akaike info criterion	16.68237	
Sum squared resid	5940316	Schwarz criterion	16.7262	
Log likelihood	-73.07066	Hannan-Quinn criter.	16.58779	
F-statistic	0.158205	Durbin-Watson stat	1.940293	
Prob(F-statistic)	0.702665			

Data source: ACIL Tasman

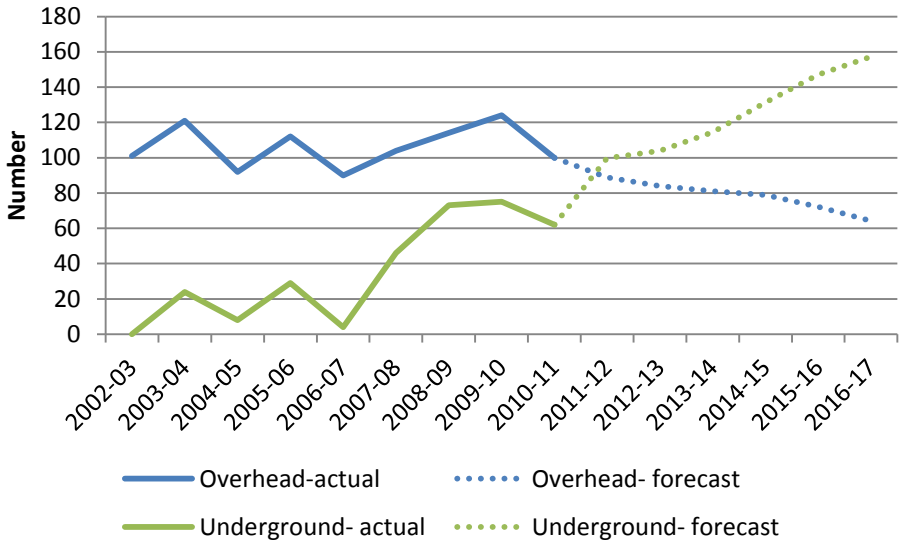
Charts of overhead versus underground connections

Figure 30 **North West region, residential connections by type**



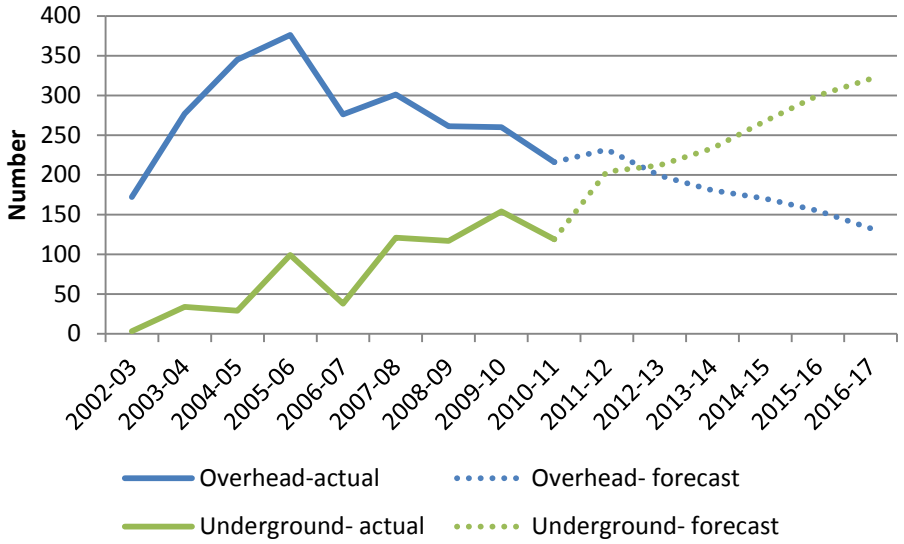
Data source: ACIL Tasman

Figure 31 **North region, residential connections by type**



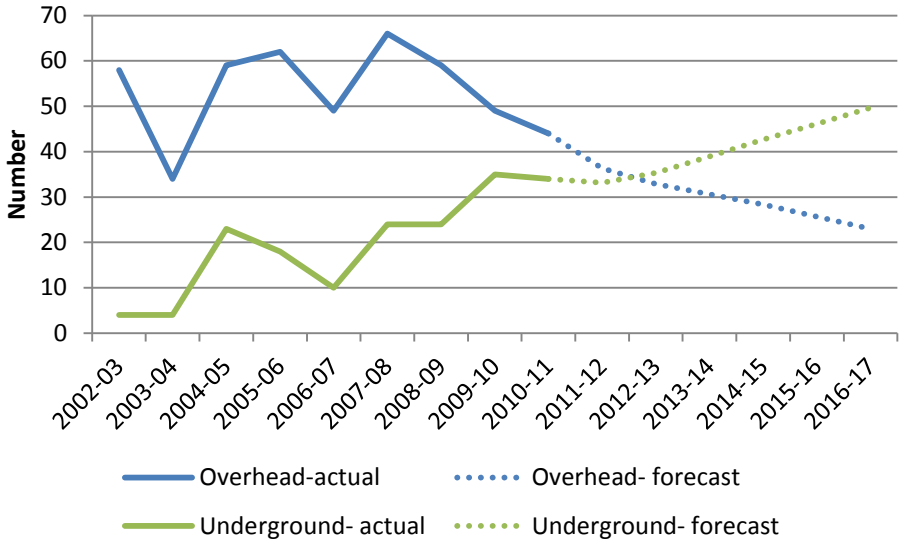
Data source: ACIL Tasman

Figure 32 **South region, residential connections by type**



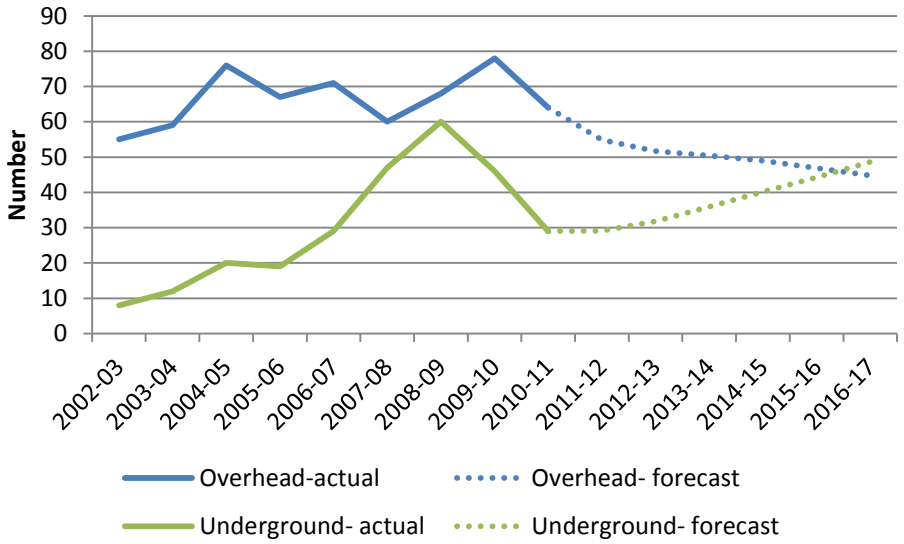
Data source: ACIL Tasman

Figure 33 **North West region, commercial connections by type**



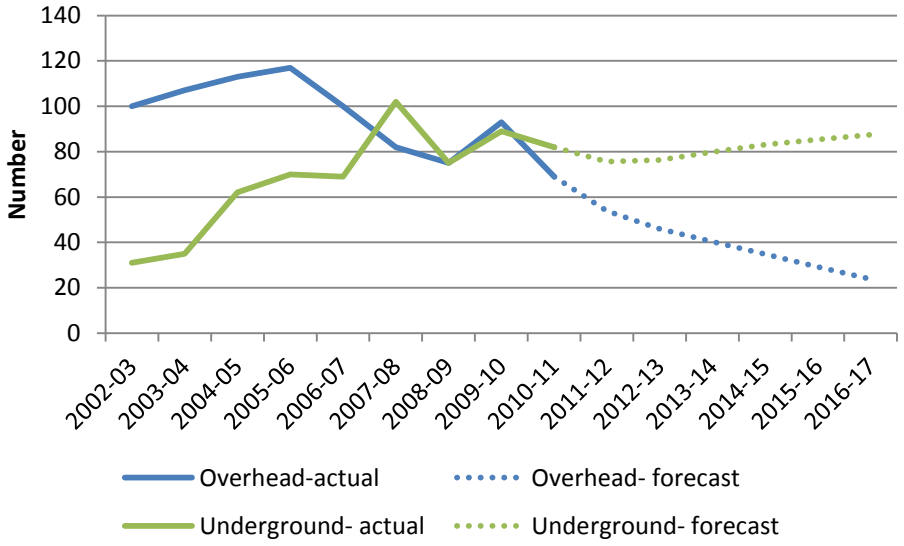
Data source: ACIL Tasman

Figure 34 **North region, commercial connections by type**



Data source: ACIL Tasman

Figure 35 **South region, commercial connections by type**



Data source: ACIL Tasman