Economics Consulting Services

ATCO GAS AUSTRALIA

Connections Forecast

May 2013

CONFIDENTIAL REPORT FOR ATCO GAS AUSTRALIA

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This report has been prepared by Economics Consulting Services for ATCO Australia to assist in forecasting the demand for natural gas connection services in the South West of Western Australia.

The analysis relies on information provided by ATCO on past services and forecast data on the economy prepared by Economics Consulting Services.

This has been a desktop study and professional care has been taken in preparation of the forecast data. The limitations of the study approach mean that any significant investment decisions should only be made after careful scrutiny of the information provided.

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Executive Summary

Western Australia continues to experience favourable economic conditions with high levels of resource sector investment. However, the State appears is at the top of the economic cycle with growth slowing as the commodity boom winds down.

The high value of the Australian dollar, high wages and relatively strong interest rates have adversely affected non-resource sectors of the economy and many sectors are struggling.

The Federal Government changes to taxation, particularly in the resource sector, have raised investment concerns and a number of large resource companies have deferred investment decisions until after the September election. The long lead time to the election has lengthened this period of investment uncertainty. Overseas investors appear reluctant to invest in Australia prior to the election and low prices for gold, nickel and uranium have reduced interest in these sectors.

In spite of the relatively strong economy, business and consumer confidence are at low levels and consumers have been adopting a cautious approach to spending and investment. Companies have entered a cost-cutting phase.

Population and household growth continue to reflect relatively buoyant conditions with strong inward migration and a relatively high birth rate. The high number of new households resulting from these increases is building up housing pressure. This underlying demand for residential dwellings is at record levels but is forecast to slow to longer term rates over the next six years.

A range of factors including affordability, consumer confidence and changes in consumer spending patterns have dampened the demand for dwellings. Rents have risen but investment in owner occupied dwellings is subdued.

Mortgage approvals have been rising since the bottom in January 2011 and the trend appears to be continuing. Numbers are now returning to those of the peak years and the trend remains upward. There is a slow recovery taking place in the number of dwellings approved for construction but numbers remain at levels similar to those of a decade ago.

The first quarter 2013 dwelling approval figures show a promising increase. *Other* dwelling types are slowly increasing their share of total dwellings and 22% in the short term trending to 25% appears to be a long term market share.

The HIA forecast is for dramatic growth in 2013 with further increases in 2014 to levels that have not been seen since 2006. The Housing Industry Forecasting Group is more restrained with a 26% increase in 2012-13 and a stable 22,500 commencements after that.

The number of lots for which preliminary planning approval has been obtained by developers appears to have slowly declined over the last nine years. However, a turnaround has taken place since January 2012 and the number is on the rise. Lot sales have recovered strongly in the last 18 months and the number of lots available for sale has now declined to 1.5 months of stock.

Lots being prepared for market are rising quickly but the lack of stock and the time taken to bring lots to market is causing concern in the industry.

The UDIA do not make any forecast of future land subdivision activity other than to note the recent jump in lots under construction and sold. The index has risen by at least 50% over the last year. The HIFG also does not forecast activity but notes the same jump in activity.

A recovery in lot sales will lead to greater ATCO pipe installations and inevitably lead to an increase in the number of houses under construction and hence home connections.

The following table summarises the forecasts for connections and mains over the period June 2013 to December 2019 for ATCO Gas Australia networks catchment area.

Half year to:	B3 connections	Cluster connections	Total connections	Mains and feeders (Km)
December 2012	5,560	1,400	6,960	115
June 2013	5,940	1,750	7,690	120
December 2013	6,110	1,930	8,040	130
June 2014	6,700	2,070	8,770	139
December 2014	6,890	2,130	9,020	149
June 2015	6,890	2,130	9,020	138
December 2015	6,890	2,130	9,020	128
June 2016	6,900	2,130	9,030	128
December 2016	6900	2,130	9,030	128
June 2017	6900	2,130	9,030	128
December 2017	6900	2,130	9,030	128
June 2018	6900	2,130	9,030	128
December 2018	6900	2,130	9,030	128
June 2019	6900	2,130	9,030	128
December 2019	6900	2,130	9,030	128

* Forecast numbers rounded

1. Introduction

ATCO Gas Australia owns and operates four gas distribution systems in Western Australia. These networks supply reticulated natural gas to residential, commercial and industrial customers in metropolitan Perth, Geraldton, Bunbury, Busselton and Kalgoorlie-Boulder, and liquefied petroleum gas to Albany.

ATCO Gas Australia is the largest distributor of natural gas in Western Australia and services over 667,000 customers. The networks cover approximately 13,300 km of pipelines and an area of about 3,800 km^2.

This brief report provides an assessment of the demand for new connections within the Mid West and South West distribution systems. These provide over 95% of ATCO Gas Australia revenue. The report focuses on residential connections as these make up most new connections.

New pipelines and meters in distribution areas are installed in response to requests from customers. Most installations occur in new residential land subdivisions.

Information for this report was provided by ATCO Gas Australia, the Urban Development Institute of Western Australia, the Housing Industry Association and a range of public data sources. The forecast is for mains extensions and new connections – it does not cover gas carried. Hotspots of residential development are identified.

2. House and Land Drivers

2.1 Introduction

Residential connections are driven by the number of new dwellings completed, the proportion of those dwelling choosing to connect to gas and the number of established houses converting to natural gas. Established house conversions are now at very low levels with a very high proportion of existing houses already connected.

The number of new residences built depends on the number of households formed or migrating into the State and economic influences on household expenditure. The key drivers are thus population growth, changes in household structure and consumer confidence.

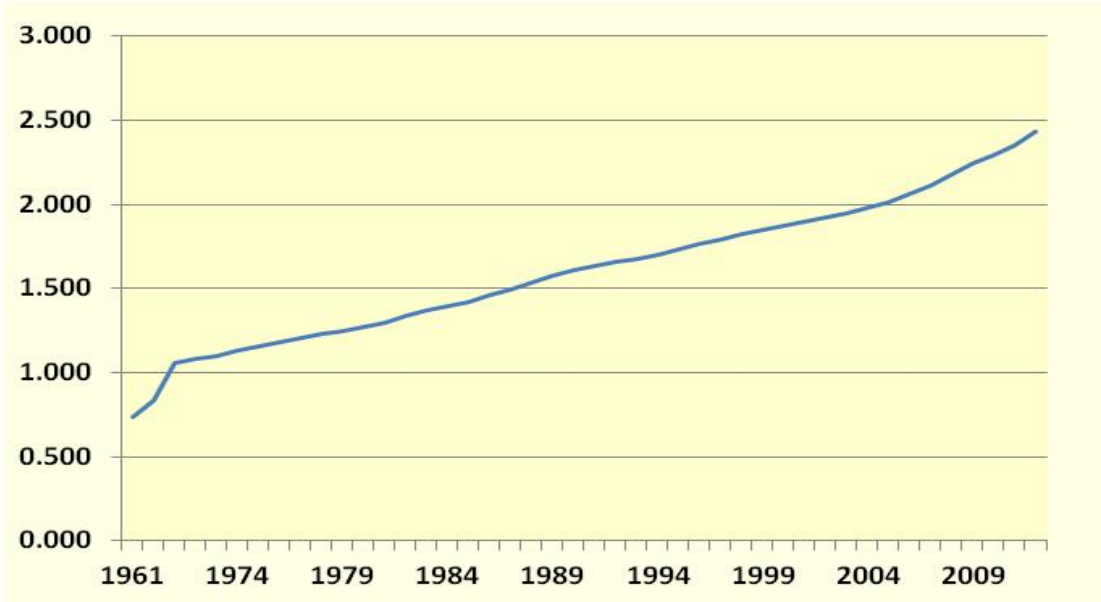
The rationale adopted in this report is that the long term demand for housing is based on household formation. However, short term changes are a function of a broad range of social and economic factors including consumer confidence, employment levels, finance availability and interest rates, taxation settings, government planning processes, new public infrastructure and economic policies. The most pertinent issues in Western Australia have become affordability and interest rates. The following sections discuss some of the current key issues.

2.2 Population Changes

2.2.1 Population Numbers

The Western Australian population has grown strongly over the last 50 years from 0.74 million people to an estimated 2.45 million in September 2012 (Figure 1). The population has tripled in the last fifty years and doubled in the last two decades. The average annual increase has been 2.37% which is high for a developed country.

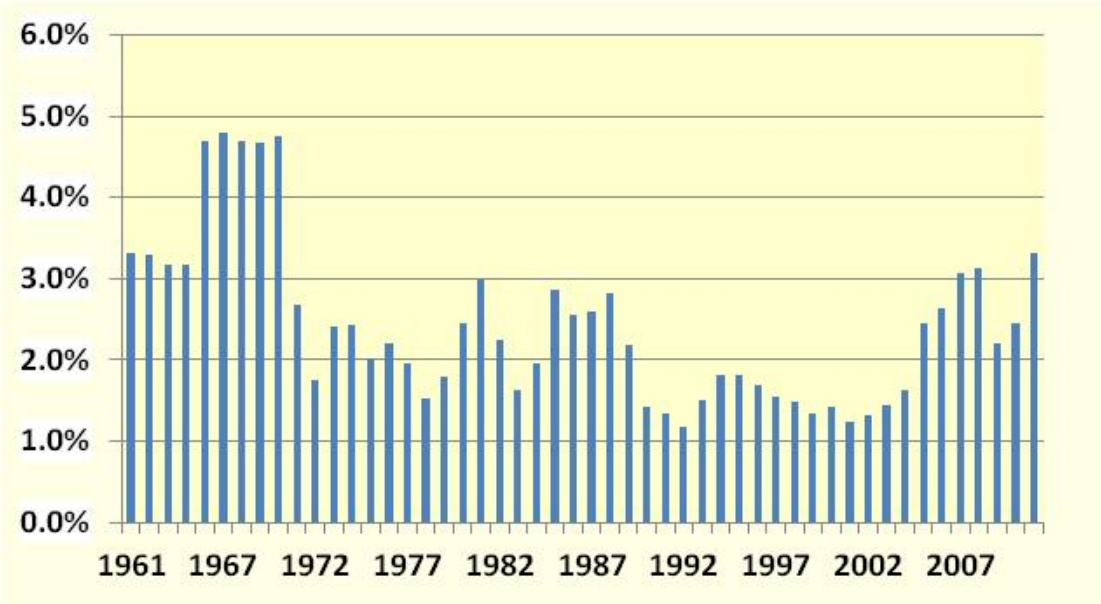
Figure 1: Western Australian population (millions)



Source: ABS Catalogue 3101

The long term trend does not disclose any slowing in growth. This is misleading as the annual change has been reasonably volatile ranging from 1.2% to 4.8% over the 50 year period (Figure 2).Growth rates are now lower than they were in the 1960's.

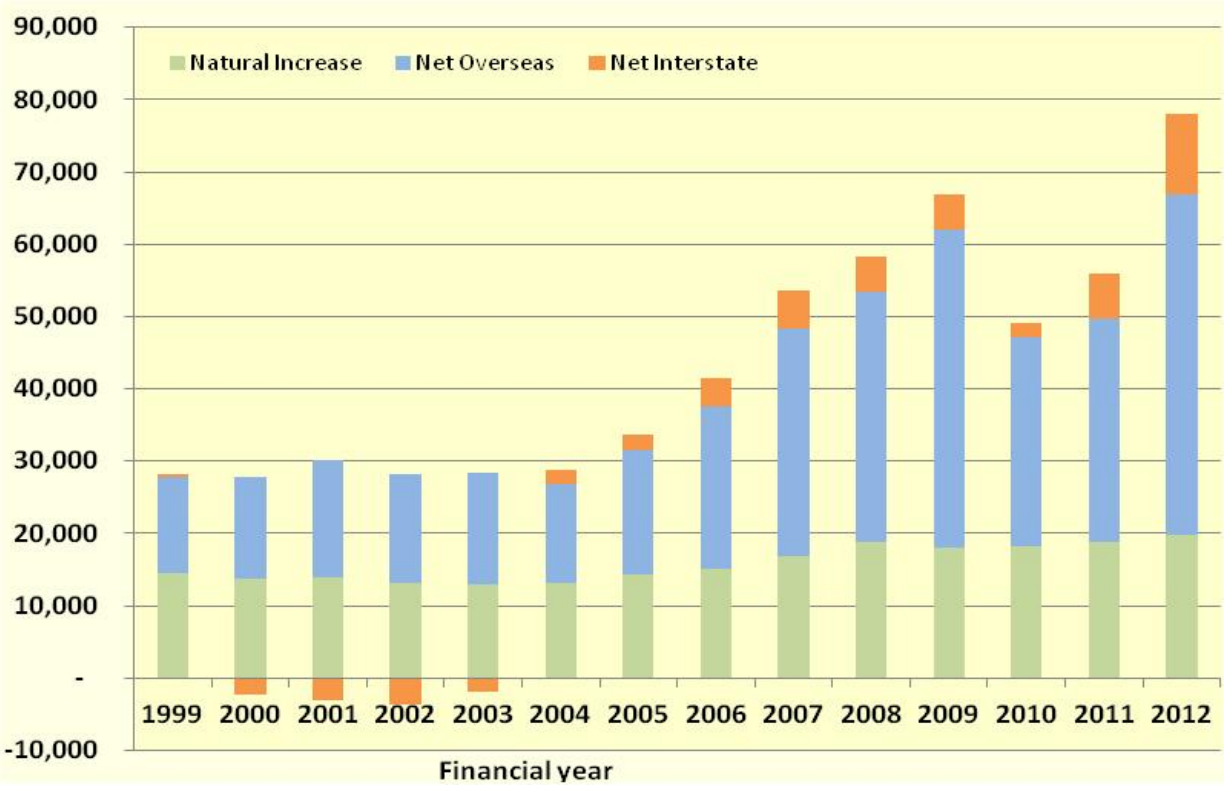
Figure 2: Annual Population Change (%)



A surge in population since 2004 has been driven by increases in overseas immigration (Figure 3). Net immigration in 2011-12 was estimated at 47,000 people and the total State population increase in that year was 78,000 – by far the highest increase ever recorded. The growth since 2004 reflects the strong economy and employment prospects.

Most of the increase in the last decade has come from overseas migration (nearly 60%), followed by natural population growth (32%) with Interstate migration contributing 8%.

Figure 3: Annual Population Change



Source: Australian Bureau of Statistics Catalogue 3101, December 2010

Population growth rates since 2001-02 have ranged from 1.4% to 3.3% with an average of 2.2%. The last seven years have been in excess of 2% (Table 1).

Table 1: Western Australian population change (%)

Year	%
2001-02	1.3
2002-03	1.4
2003-04	1.5
2004-05	1.7
2005-06	2.1
2006-07	2.6
2007-08	3.1
2008-09	3.1
2009-10	2.2
2010-11	2.4
2011-12	3.3

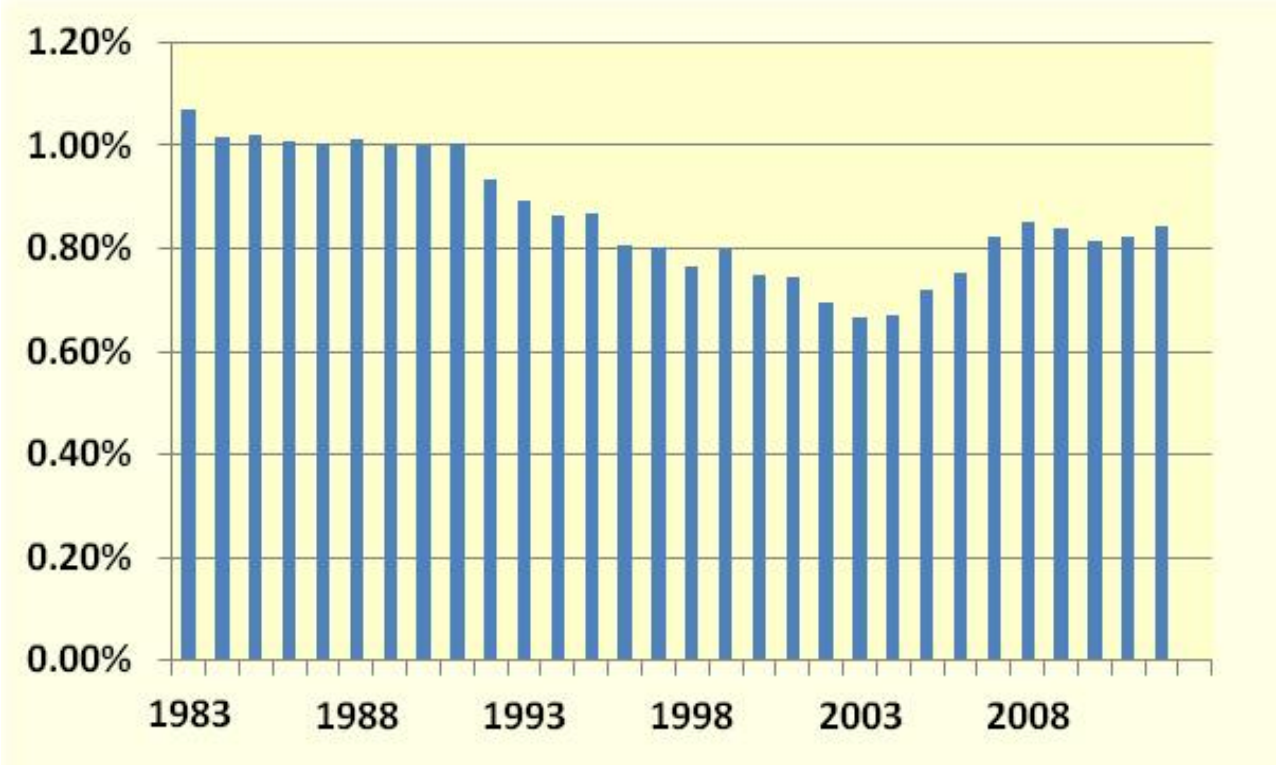
Some caution is needed with the immigration statistics. The Australian Bureau of Statistics warns that international migration is volatile and influenced by a wide range of demographic, social, economic and political factors. Changes to the ABS methodology have also meant large upward revisions in recent years and these may have over-stated the growth. In particular, measurement of student numbers is problematic and can inflate numbers with the students having a relatively small economic impact on housing.

Net overseas migration has averaged just over 18,000 people a year over the last thirty years and has only fallen below 10,000 in five years.

Natural growth was fairly stable to 2003-04, ranging between 13,000 and 14,500. Since then natural growth has risen steadily to about 20,000. This expansion mostly reflects the increase in the total population although a combination of prosperous times and favourable Commonwealth government family policies have been additional influences.

While the annual increase in population has been rising, this is primarily a function of the larger population. The rate of increase due to natural births (less deaths) has actually declined over the last thirty years (Figure 4)) and now sits around 0.8%. The longer term trend is for a slow decline in this rate given that many births have been brought forward, government policies have been wound back and the economy is softening.

Figure 4: Rate of natural increase in population (% for financial year ending June)



Net Interstate migration has been more volatile that overseas migration. The annual change has varied from a net loss of 3,500 to a net gain in the most recent year (2011-12) of over 11,000 with an average of 2,730 a year.

The Western Australian Department of Planning has forecast future population based on five scenarios. The forecasts were prepared at a time when there had been very little negative economic news and this could not continue indefinitely. While forecasting is complex, this study can only use simplified assumptions and three scenarios are used – Band A, C and E referred to as low case, base case and high case (Table 2).

Table 2: Population increase forecast, Western Australia

Year	Band A	Band C	Band E
2013	45,400	52,100	59,000
2014	41,700	48,300	55,600
2015	40,100	46,500	52,800
2016	38,300	44,200	50,900
2017	38,200	43,500	49,900
2018	37,400	43,900	50,300
2019	38,300	44,400	50,600

Source: Western Australia Tomorrow WA Department of Planning, February 2012

The growth rates slow significantly in all scenarios and all appear conservative when compared with the last seven years (Table 3). Recent rates in excess of 3% would suggest that Band E is the more likely.

Table 3: Population increase forecast, Western Australia

Year	Band A	Band C	Band E
2013	1.9%	2.2%	2.4%
2014	1.7%	2.0%	2.2%
2015	1.6%	1.8%	2.0%
2016	1.5%	1.7%	1.9%
2017	1.5%	1.7%	1.9%
2018	1.4%	1.7%	1.8%
2019	1.5%	1.6%	1.8%

In the short term, Western Australia is an attractive economy for overseas and interstate workers with strong employment prospects compared to other countries and the fastest growing State economy in Australia.

Investment in major resource projects is slowing but many projects will move into an operational phase providing stable medium to longer term employment. Growth is being inhibited by high living costs and poor housing affordability. Improvements in transport have enabled much of the employment to be met by a fly in fly out workforce with many workers now commuting from Interstate and overseas.

Given the relative strength of the State economy, the more optimistic Band E forecast appears to be the more likely outcome at this stage.

2.2.2 Household Numbers

Household growth is a better predictor of housing demand than population growth. Household growth in the last decade was higher than population growth as a consequence of:

- An increasing proportion of single person households (older and younger people)
- A high rate of separation and divorce
- higher incomes for younger people with more one person households although there is anecdotal evidence of children moving back home as living costs rose
- an increase in the numbers of people living in Australia on a long-term temporary basis, such as students

The average household size in Australia has steadily decreased from 1911 when it was 4.6 to an estimated 2.5 at the 2006 census. The Australian Bureau of Statistics forecasts a continuing slow decline to around 2.3 by 2026.

The ABS forecast in 2010 that Western Australia would see the second highest household growth in Australia over the period to 2031[1]. Growth for Perth was forecast to remain strong albeit at levels lower than those seen in the calendar years 2007 to 2010 (Table 4).

Table 4: ABS household growth scenario B, Western Australia

Financial Year	ABS	Number
2013	2.4%	21,100
2014	2.4%	21,300
2015	2.4%	21,560
2016	2.3%	21,560
2017	2.2%	21,300
2018	2.2%	21,250
2019	2.2%	21,500

Source: ABS Catalogue 3236 2.2

The ABS estimate is based on a medium growth scenario assuming medium fertility levels and medium levels of interstate and overseas migration. ATCO Gas Australia distribution systems are generally located in the higher growth areas of the State and the dominance of the systems around Perth makes the Perth region forecast the most relevant.

Economics Consulting Services anticipates that a softening in commodity prices in 2014-2015 will see a reduction in the workforce engaged in mining and a corresponding reduction in household growth. A return to longer term growth rates is anticipated rather than a continuation of the high rates experienced from 2005 to 2010 (Table 5). The Economics Consulting Services forecasts are for financial years and not calendar years.

[1] ABS, 2010, 3236.0 - Household and Family Projections, Australia, 2006 to 2031

Table 5: Forecast of underlying household growth in ATCO Gas Australia areas

Year	ECS (%)	WA increase
2012-13	2.4%	21,660
2013-14	2.2%	20,300
2014-15	2.0%	18,900
2015-16	1.8%	17,300
20-1617	1.8%	17,650
2017-18	1.7%	17,000
2018-19	1.7%	17,250

Source: ABS Catalogue 3236 2.2

While household formation represents the **underlying** demand for residences, it is not the sole factor affecting the demand for housing in the shorter to medium term. Other economic factors will have a significant impact including:

- Housing affordability (hence total price and interest rates)
- Consumer and investor confidence
- Consumer spending patterns

Housing affordability in Perth is a challenging issue. Residential home prices are back over pre global financial crisis levels and this makes housing very expensive for first homebuyers.

The underlying demand for residential dwellings is at record levels but is forecast to slow to longer term rates over the next six years. Hence the demand over the next two years is strong before slowing to longer term rates of increase after that.

Dwelling construction will be moderated to some extent by a number of negative factors including affordability and weak consumer and investor confidence.

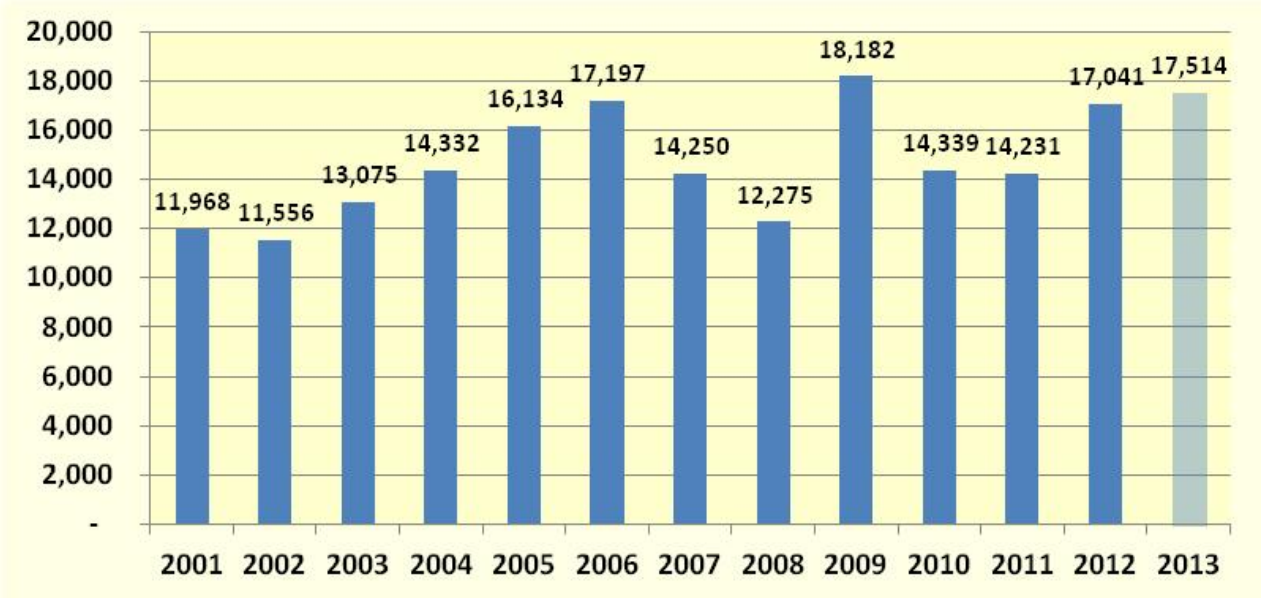
3. Housing Activity

3.1 Finance approvals

The Australian Bureau of Statistics records mortgage numbers borrowed by owner occupiers for new dwellings. Mortgage numbers over the last decade suggest a slight upward trend in new dwelling purchase with the First Home Owner Grant Scheme providing a huge boost in 2009 (Figure 5).

The First Home Owner Grant brought forward dwelling purchase decisions by many new buyers. It is hard to judge the number as the State Government also believe that some applicants were purchasers that would have never made the lending institution loan tests and hence moved out of the rental market and into owner occupation.

Figure 5: Mortgages for new dwellings taken out by owner occupiers



Source: ABS Catalogue 5609, Table 5

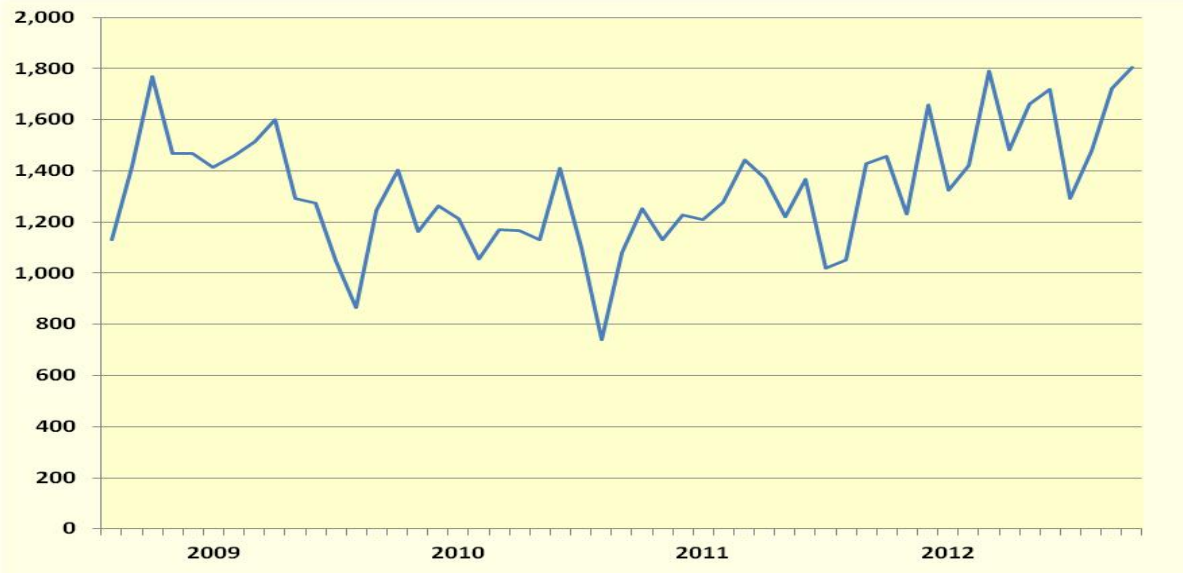
New owner occupier mortgage loans are picking up following the 2009 burst of activity. Although the data for 2013 is only based on two months, there are indications numbers are continuing to rise.

The recovery in 2012 loans is confirmed by one of the largest mortgage brokers with the AFG group showing the highest loan levels in March 2013 since they started reporting in January 2009 (Figure 6).

The AFG statistics refer to **all** mortgages and not just new dwellings but they provide some confidence that the slump in dwelling purchases has passed. AFG note that first home buyers appear to be returning but investors remain cautious.

Mortgage approvals have been rising since the bottom in January 2011 and the trend appears to be continuing. Numbers are now returning to those of the peak years and the trend remains upward.

Figure 6: Monthly mortgages sold by AFG for Western Australia



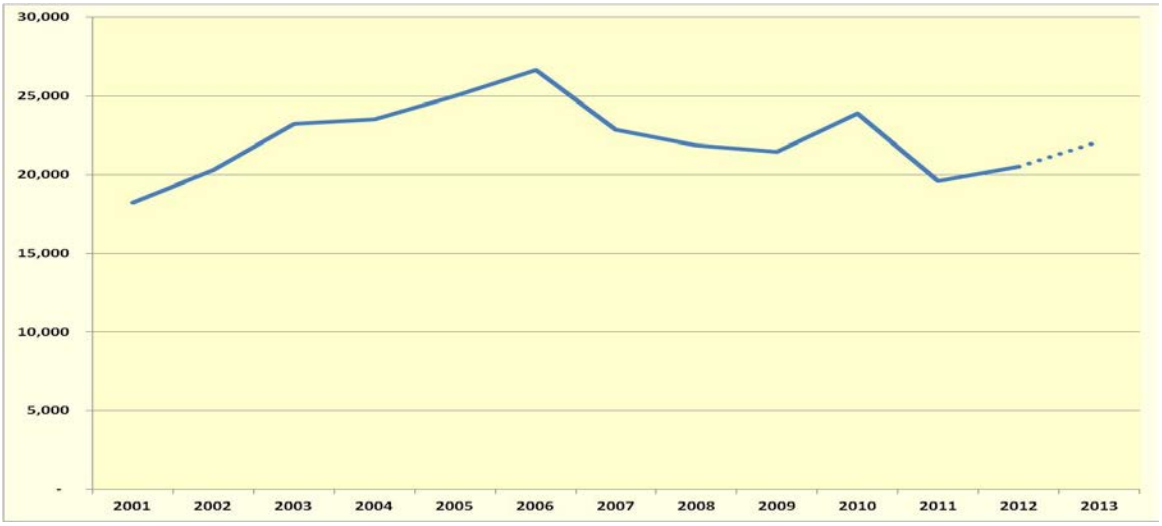
Source: Australian Finance Group March 2010

3.2 Dwelling Approvals

Residential dwelling approvals peaked in 2006 and then fell to 2009 before the boosted First Home Owner Grant Scheme picked up the level of activity in 2009. Numbers fell away again as the Scheme was wound back but have since recovered and appear to be trending up again (Figure 7). Although the 2013 estimate is based on only two months of data, the rising trend supports the 2012 trend.

Approvals over the twelve years to 2012 have ranged from 18,235 to 26,675 with nine of the twelve years falling in the range 20,000 to 25,000. The average was very close to the midpoint of this latter band at close to 22,250. The final full year (2012) was 8% below the twelve year average with the first two months of 2013 back to the average (1% less).

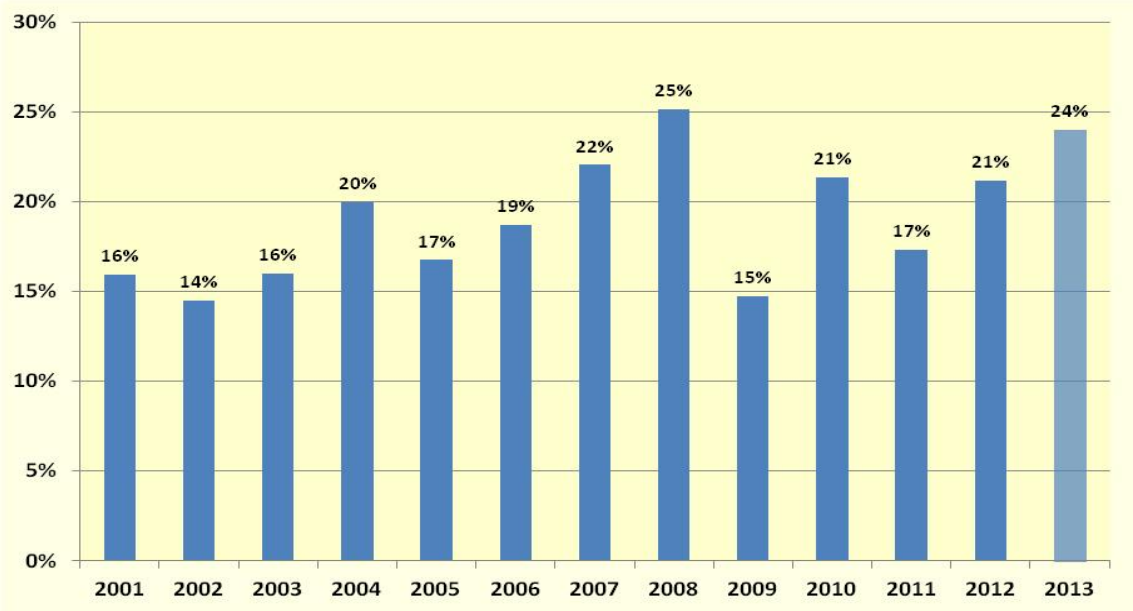
Figure 7: New dwellings approved



Source: ABS Catalogue 8731, Table 26

The composition of the dwelling stock has been slowly changing. The share of the housing starts coming from *other* dwelling types increase until 2006 and then fell back but has been rising again since 2009 (Figure 8). The average over the twelve years has been 20% but more recent numbers suggest it is trending towards 25%.

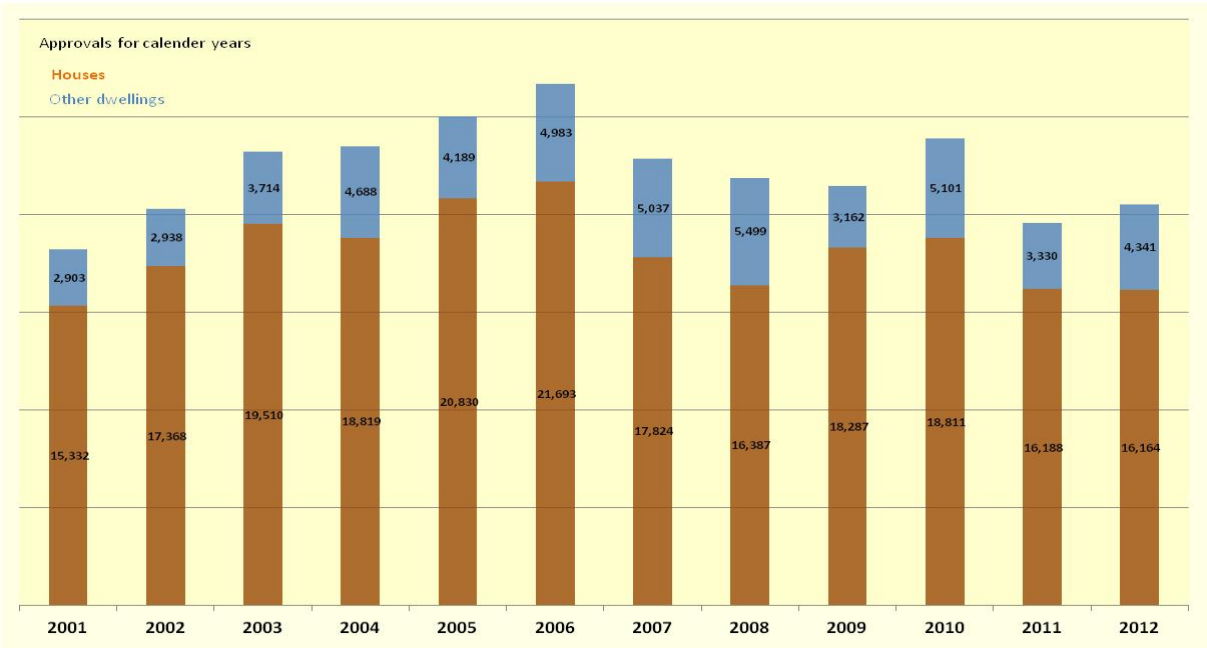
Figure 8: Housing mix – other dwelling share



Source: ABS Catalogue 8731, Table 26

The average number of dwelling approvals over the last twelve years has been close to 18,100 houses and 4,150 other dwellings or 22,250 in total. Approvals over the last five years have been lower for houses at 17,250 but higher for other dwellings at 4,400 with total dwellings at 21,650.

Figure 9: New dwellings approved



Source: ABS Catalogue 8731, Table 26

Clearly the first home owner scheme brought forward approvals in the 2003 to 2006 years with house numbers in particular then falling back before some recovery in 2012. There is an indication of further recovery in early 2013.

There is a recovery taking place in the number of dwellings approved for construction. However, numbers remain at levels similar to those of a decade ago.

Assuming that 2006 represented a bubble, the average since then appears to be a better indicator of the medium to longer term suggesting dwelling approvals of about 17,250 houses and 4,400 other dwellings or 21,650 in total.

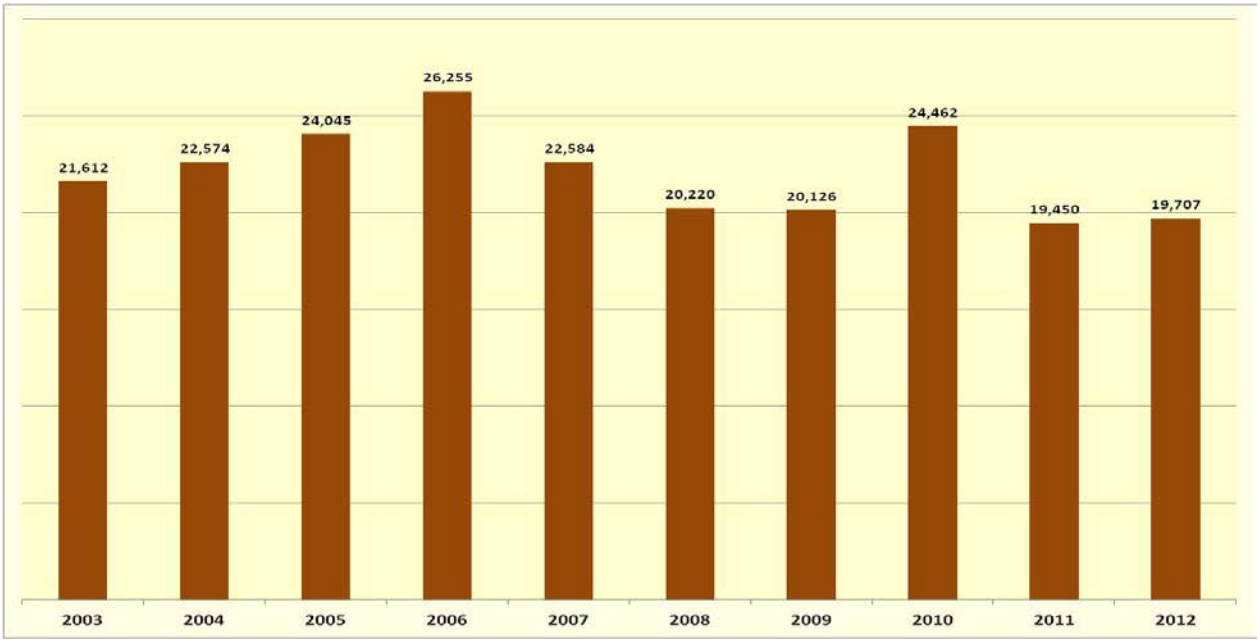
The first quarter figures for 2013 suggest a short term increase with a medium term return to the longer term numbers. Other dwellings are slowly increasing their share of total dwellings and 22% in the short term trending to 25% appears to be a long term market share.

3.3 Dwelling Starts

Dwelling starts lag mortgage approvals by the time taken for builders to gear up for construction; obtain building approvals and finance and owner endorsement to occur. Some approvals are deferred by the owners while some may never be acted on. The Housing Industry Association suggests that the lag is on average around 6 weeks with 95% of approvals becoming commencements.

Annual starts have varied over the last decade from 19,450 to 26,250 with an average of 22,100 (Figure 10). Starts fell for after the 2006 peak before picking up again with the boosted First Home Owner Grant Scheme. Average starts for the most recent five years have been 6% lower at close to 20,800. Most of reduction has been in houses with other dwellings relatively constant. The last five years have seen 16,600 house starts on average and 4,200 other dwellings.

Figure 10: Dwelling starts

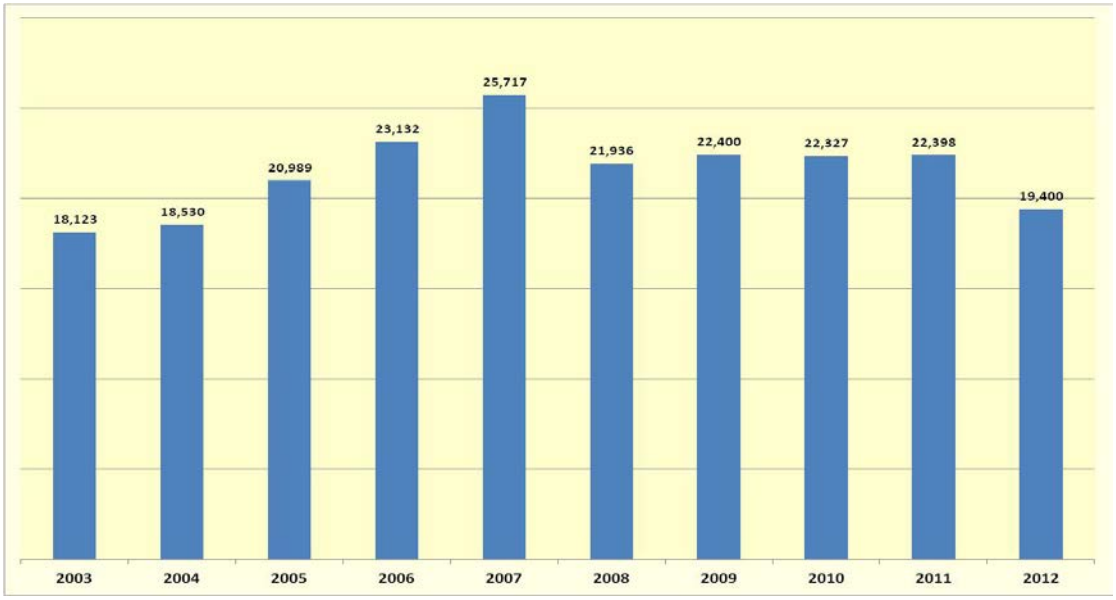


Source: ABS Catalogue 8750 Table 3

3.4 Dwelling Completions

Dwelling completions have followed a similar pattern to starts with an average over the last decade of 21,500 just below the average start number of 22,100 (Figure 11). Average completions over the last five years have been slightly higher at 21,700.

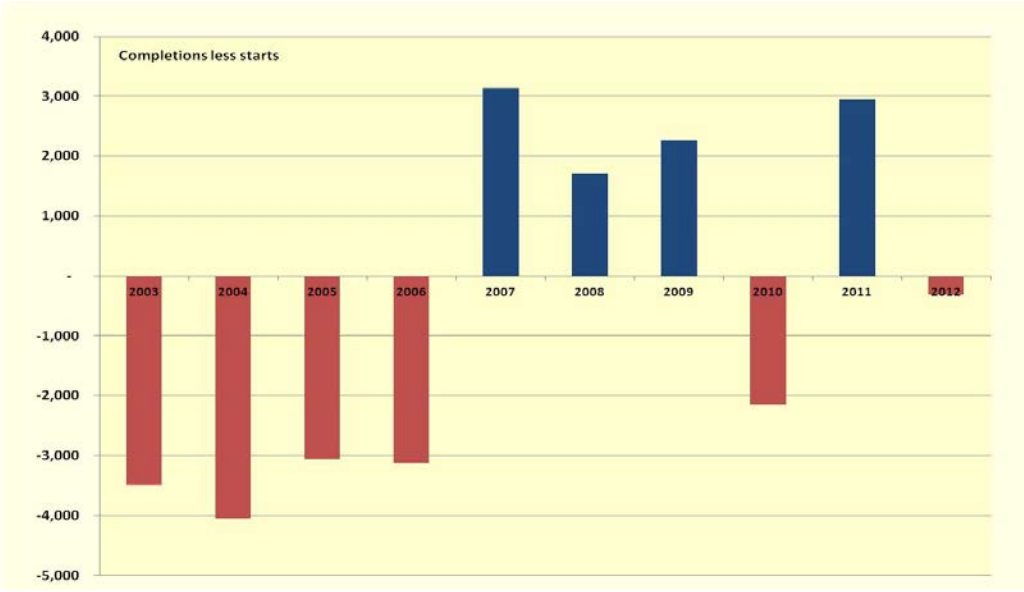
Figure 11: Dwelling completions



Source: ABS Cat. No. 8752.0, Building Activity Australia, Table 39

The busy period up to 2006 saw completions in each year less than the number of houses started in that year (Figure 12). Since then, completions have been greater than starts in four out of the six years reflecting less pressure on the industry allowing more houses to be completed. The total over the decade suggest 6,000 more starts than completions representing about one third of a year worth of unfinished stock under construction. This is not a large proportion.

Figure 12: Housing starts and completions

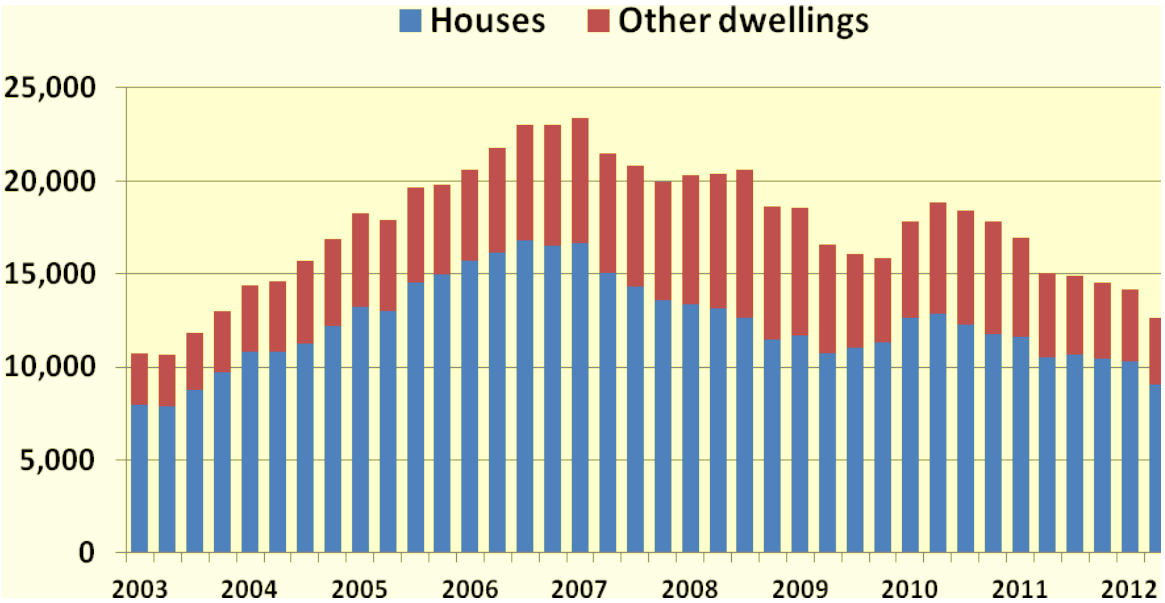


Source: ABS Cat. 8752 Building Activity Australia, Table 39 and ABS Cat No 8750 Table 3

3.5 Dwellings under construction

The number of dwellings under construction re-enforces the message that construction appears to be still declining and is now back at levels not seen for nearly a decade (Figure 13). There is no indication in this data that any increase in activity is taking place to meet the growth in household numbers.

Figure 13: Dwellings under construction



Source: ABS Cat. 8752 Building Activity Australia, Table 39 and ABS Cat No 8750 Table 3

With the building industry now appearing to have caught up on the high number of starts to 2006, completions are forecast to closely match dwelling starts. Starts appear to have stabilised at around 20,000 a year and the number of dwellings under construction has continued to decline.

There is no indication of any increase in dwelling construction to match the growth in household numbers.

3.6 Housing Industry Forecasts

The Housing Industry Association forecast housing **starts** to jump in 2013 after a very low number in 2012. Small increases are expected again in the following two years reflecting the pent up demand from household growth that has not been met by new dwelling construction. The HIA forecast is for increases in starts to begin in the December quarter of 2012 (Table 6).

Table 6: HIA forecast of dwelling starts

Year	HIA Starts ("000)	HIA Change (%)
2010	24.50	21.2%
2011	19.56	-20.1%
2012	19.45	-0.6%
2013	23.09	18.7%
2014	24.42	5.8%
2015	24.95	2.2%

Source: HIA Economics March 2013; Housing Industry Forecasting Group October 2012

The WA Housing Industry Forecasting Group (HIFG) estimate is for a jump in dwelling commencements of 26% in 2012-13 and stable after that (Table 7).

Table 7: HIFG forecast of dwelling commencements, WA

Year	HIFG Starts ("000)	HIFG Change (%)
2009-10	25,340	
2010-11	20,753	-18%
2011-12	17,785	-14%
2012-13	22,500	+26%
2013-14	22,500	0%
2014-15	22,500	0%

Source: Housing Industry Forecasting Group, April 2013

The HIFG forecast is only available on a financial year basis but the total numbers remain significantly less than the HIA peaking at 22,500 compared with the HIA forecast of nearly 25,000 in 2015.

The HIA forecast is for dramatic growth in 2013 and further increases in 2014 to levels that have not been seen since the peak in 2006. The Housing Industry Forecasting group is more restrained with a 26% increase in 2012-13 and a stable 22,500 commencements after that.

The jump in forecast dwellings commencements reflects a response to the strong inward migration and household formation numbers. Rents have risen and there is an appreciation that dwelling numbers are below household requirements. Consumer confidence is slowly returning and a recovery appears inevitable.

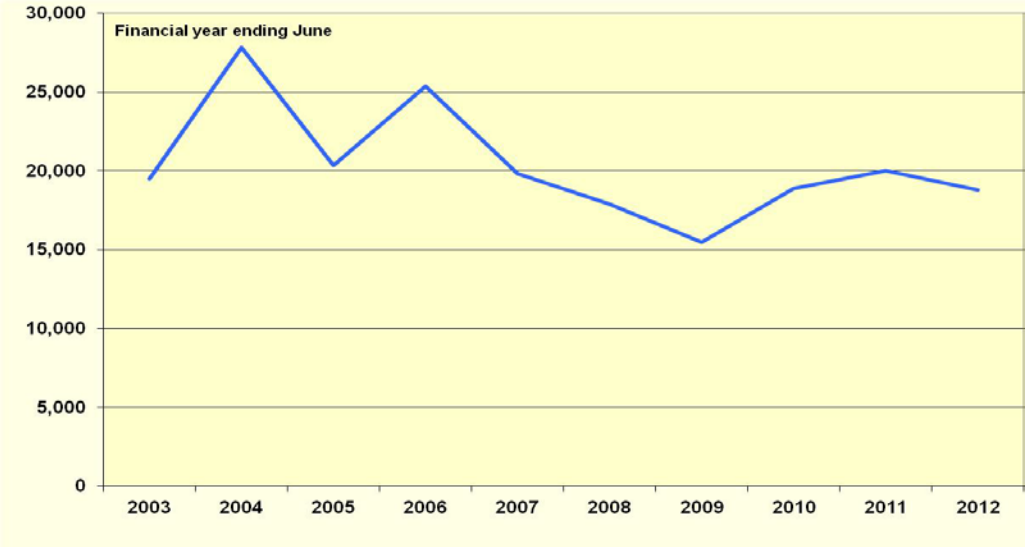
4. Land Activity

4.1 Planning Approvals

New land subdivisions require approval from the Western Australian Planning Commission. Preliminary approval is given subject to conditions including installation of services. Preliminary approval generally occurs before a developer prepares detailed plans and engineering drawings but in a busy market, these activities can run in parallel.

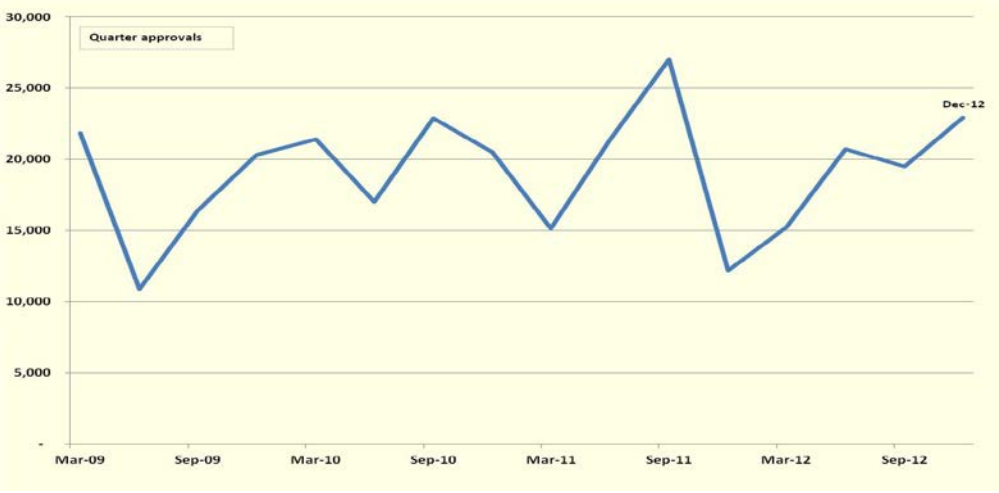
The number of residential lots in the Metropolitan and Peel regions receiving **preliminary** approval over the last decade has generally eased from the peak in 2006 (Figure 14). Quarterly data provides a different picture over the last four years with conditional lot numbers steadily increasing from December 2011 (Figure 15). There has been a clear turnaround in the number of lots for which subdivision approval has been sought.

Figure 14: WA Planning Commission subdivision approvals (financial years)



Source: Western Australian Planning Commission: State Lot Activity

Figure 15: WA Planning Commission subdivision approvals (quarters)



Source: Western Australian Planning Commission: State Lot Activity

4.2 Lot Sales

The lot sales index developed by the Urban Development Institute (UDIA) demonstrates a dramatic resurgence in residential lot sales in the Perth Metropolitan and Peel regions beginning in the September quarter of 2011 (Figure 16). The index has risen by over 170% in the intervening 10 quarters. Sales in the last two quarters to March 2013 are up 40%.

Figure 16: Residential lot sales

Source: UDIA Western Australia

The jump in land sales has meant a reduction in the number of lots on the market (Figure 17) and some developers report that sales are now up to six months in advance of the likely issue of land titles. If the demand continues at current levels, land stocks will decline quickly and a price bubble is inevitable. The stock of lots available at present is only sufficient to meet the demand levels for 1.5 months.

Figure 17: Residential lot availability (lots on the market index)

Source: UDIA Western Australia

Developers have responded to the demand and the number of lots under construction has risen quickly (Figure 18). Again, this is a UDIA index but the organisation represents most of the larger land developers and the statistics are considered a good indication. Lots under construction have risen by about 50% from the low point in September 2011 but are still well below the peak quarters in 2005-06.

Over the March quarter land sales increased partly due to house and land packages sold to the first home buyers' market. This will increase gas connections when these homes are completed in six to nine months time.

Figure 18: Residential lot availability index (lots being constructed for sale in the next 12 months)

Source: UDIA Western Australia

The number of lots for which preliminary planning approval has been obtained by developers appears to have slowly declined over the last nine years. However, a turnaround has taken place since December 2011 and the number of such lots is on the rise.

Lot sales have recovered strongly in the last 18 months and the number of lots available for sale on the market has now declined to 1.5 months of stock.

Lots being prepared for market are rising quickly but the lack of stock and the time taken to bring lots to market is causing concern in the industry.

The UDIA do not make any forecast of future land subdivision activity other than to note the recent jump in lots under construction and sold. The index has risen by at least 50% over the last year. The HIFG also does not forecast activity but notes the recent jump in activity.

A recovery in lot sales will lead to greater ATCO pipe installations and inevitably lead to an increase in the number of houses under construction and hence home connections. However, the delays in servicing mean that the number of lots serviced is unlikely to jump from present levels for at least six months with increases after that.

.5. ATCO Gas Australia Forecast

5.1 B3 Connections

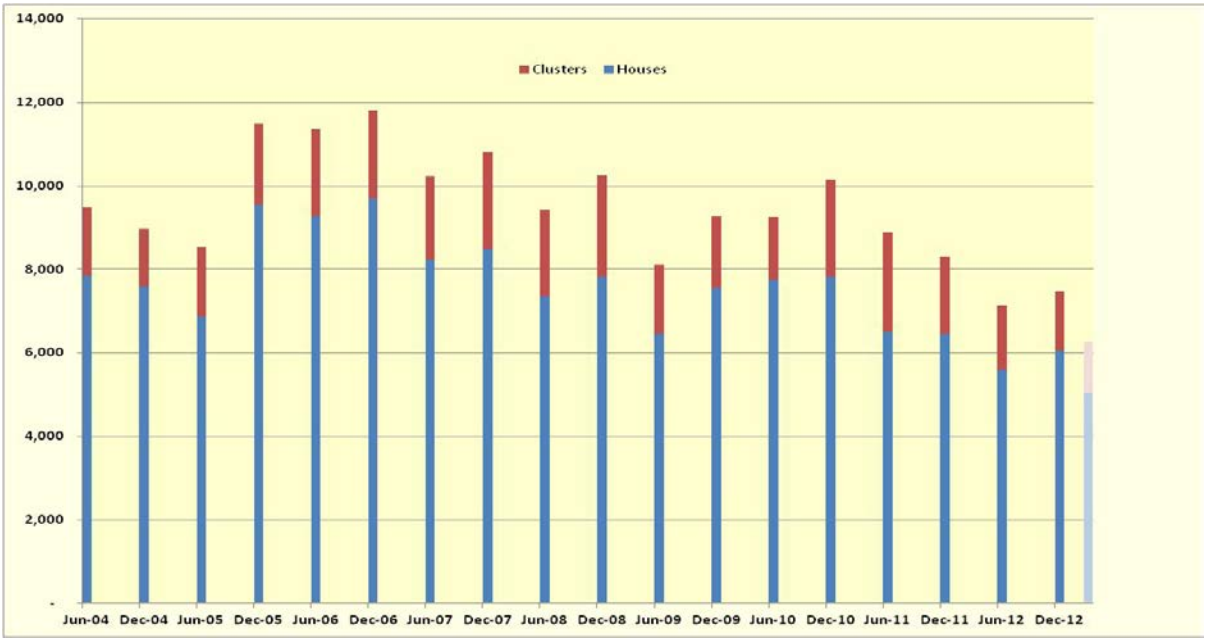
Domestic meter connections are recorded for all dwellings with the focus in this report on those receiving a B3 tariff. This includes all detached houses and medium density developments where gas can be piped to individual dwelling units. Large apartment buildings may have a gas connection for a central boiler room but this is likely to be a larger gas supply pipeline and more sophisticated meter and consequently the property on a different gas tariff.

This report focuses on B3 tariff connections which are segregated into Domestic connections and cluster connections. Domestic connections mostly apply to single detached houses but can include duplexes. Cluster connections apply to low density developments from triplexes up and may include group housing of up to around seven dwellings and low rise apartments and flats, and aged care estates.

ABS defines a **house** to include a separate house, semi-detached row or terrace or townhouse. **Other** dwellings include flats, units, apartments, caravan/cabin/houseboat or a house or flat attached to a shop or office. There should be a reasonable relationship between the cluster connections and other dwellings in terms of gas connections.

B3 connections are presented in six month aggregates with the average over the nine years to 2012 being close to 9,500 or 19,000 in annual equivalent terms (Figure 19). Total connections have fluctuated by up to 30% around this average.

Figure 19: ATCO Gas Australia meter connections (six month durations)



Source: ATCO Gas Australia

The connections for both halves of 2012 are at the bottom of the range and the first three months of 2013 suggests a continuing reduction in numbers with an annual equivalent value of 12,500 which is about 35% below the nine year average. Domestic B3 connections (effectively houses) have fallen significantly over the nine year period and appear to be on a downward trend (Figure 20). Note that these are six month periods.

Figure 20: Domestic B3 meter connections

Four factors are postulated for this trend.

1. The proportion of houses constructed outside the ATCO distribution system. The policy of ATCO for a few years was not supportive of connecting new residential subdivisions some distance from existing infrastructure. This less aggressive approach to network extension meant that some developments such as the new St Andrews Estate at Yanchep were not connected.
2. The increased use of air-conditioning systems that include heating and solar hot water. These reduce gas use and the incentive to connect to the gas system.
3. The introduction of higher energy rating standards for housing and some measures taken by builders to meet the standard that reduced the incentive to use gas heating
4. The maturity of the gas supply market. The proportion of established houses being connected has gradually declined over the eight years from over 20% to less than 10% with all six month periods since December 2009 recording established house shares of 8% or less. Anecdotal evidence suggests that the ATCO Gas Australia coverage of the metropolitan area is reaching a plateau. This suggests that future house connections will be mostly new houses. However, there will be some infill areas where connections are still likely to occur although probably at lower levels than in the past.

An average of 91% of the B3 connections to houses (domestic connections) has been new houses and 9% established houses. The number of established houses connected has declined to less than 1,000 in 2011 and 2012. This study assumes a medium term connection rate of 800 established houses a year or 400 in a six month period.

Cluster connections are virtually all new dwellings with the average of established property connections in the last five years less than 1% of the total cluster number. This study assumes all future cluster connections will be to new dwellings.

5.1.1 Domestic B3 connections

The proportion of **new** B3 connections to **new** house completions varied from 66% to 88% over the seven years to December 2012 (Figure 21) with an average of 76%. The proportion fell to 58% in the December quarter of 2012 but there may be some catch-up in the next six months as a consequence of this low share. This study uses a projection of 65% ATCO share of the new houses to be built in Western Australia.

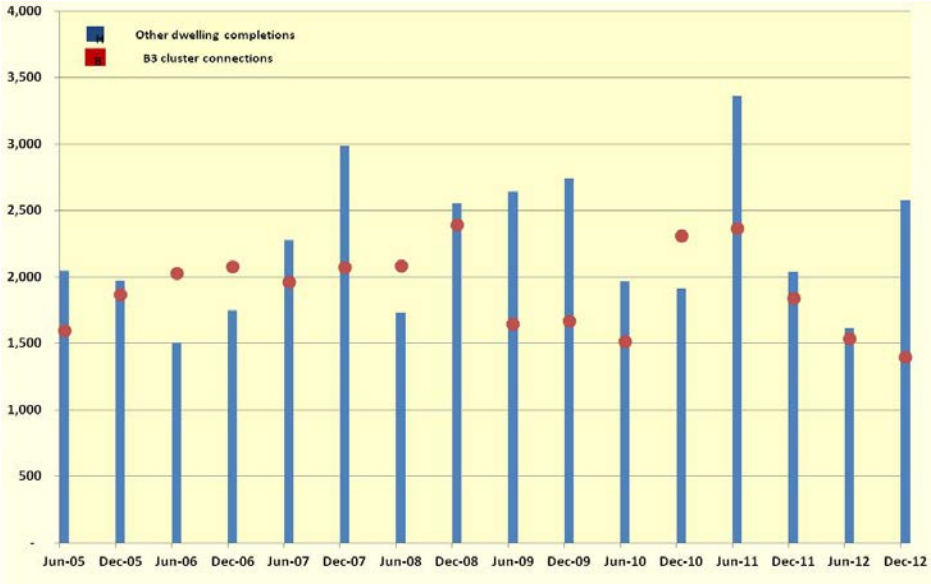
Figure 21: ATCO Gas Australia B3 meter connections and new dwelling completions

Source: ATCO Gas Australia and ABS

5.1.2 Cluster connections

Cluster connections as a share of new **other** dwellings have been more variable over the last seven years ranging from a low of around 1,600 to a high of 2,400 over a six month period (Figure 22). The average over the period was very close to 90%. This study assumes a more conservative 75%.

Figure 22: ATCO Gas Australia cluster connections as share of other dwellings



Source: ATCO Gas Australia

In summary, the assumptions used in the forecast of future connections are:

Established houses – 800 a year

New houses – 65% of new homes completed in WA

Cluster connections – 75% of other dwellings completed in WA

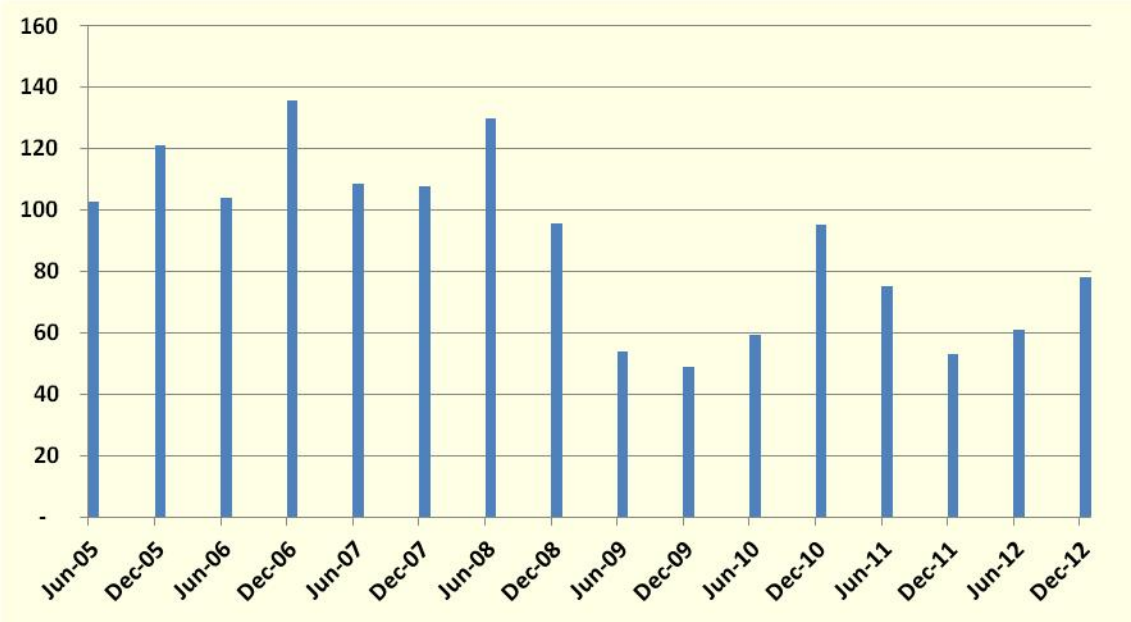
5.2 Mains Extensions

New pipe installations include infill work in older suburbs and new subdivisions. The latter make up most of the open trench work and hence the cost of servicing new customers. Installations are classified as "mains extensions", "open trench mains extensions" and "open trench gas feeders".

Mains extensions are generally larger sized pipes that connect to subdivisions some distance from the established network. They are thus highly dependent on the construction of large new residential areas. Since June 2005, the average six monthly extension lengths have been 2.06 km or 4.12 km a year. ATCO has adopted a more proactive approach to network extension and this study assumes an increase in mains extensions to 5 km a year from June 2013.

The length of open trench installations is primarily dependant on new lot creation. It has varied substantially ranging from 50 to 120 km (Figure 23). The trend has been down.

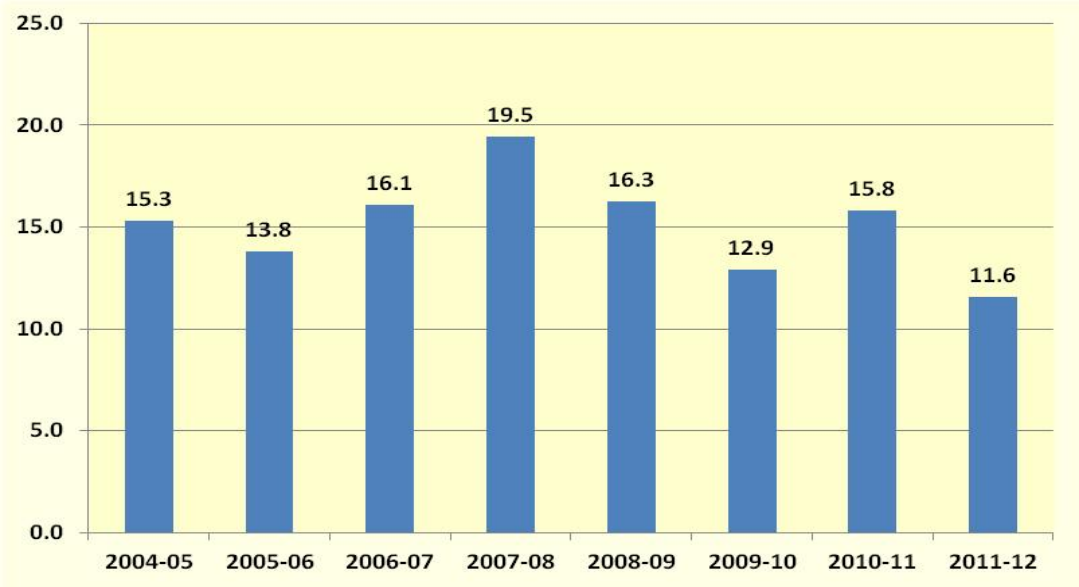
Figure 23: ATCO Gas Australia main extensions (open trench extension excluding feeders)



Source: ATCO Gas Australia

The reduction in the length of open mains installation reflects the decrease in new lot creation. A decrease in lot size is also thought to be a contributing factor. The average ATCO installed length compared to the WAPC estimate of final lots created has varied from 11.6 metres per lot in 2011-12 to 19.5 metres in 2007-08 (Figure 24) with an average of 15.2 metres. The trend appears to be lower with a particularly low installation in 2011-12. Given the shorter distance in two of the last three years, this study uses an estimate for the next five years of 15.2 metres.

Figure 24: ATCO open trench distances (metres a lot)



*** Metres of open trench extension excluding feeders per final lot created**

The length of feeders installed has ranged from 59 to 84 km over the last eight financial years with an average of 75 km. This forecast uses 70 km from January 2013

The estimate of future metres installed by ATCO is thus made up from:

Mains extensions – 5 km a year from June 2013

New lots -15 metres per lot created in the Metropolitan and Peel regions

Feeders – 70 km a year from January 2013

5.3 Forecast

The forecast parameters are summarised in Table 8.

Table 8: Forecast parameters

Year	Final lots	Dwelling completions
December-2013	+10%	+3%
June-2014	+10%	+7%
December-2014	+5%	+3%
June-2015	+5%	-5%
December-2015	0%	-5%
June-2016	0%	-5%
December-2016	0%	0%
June-2017	0%	0%
December-2017	0%	0%
June-2018	0%	0%
December-2018	0%	0%
June-2019	0%	0%
December-2019	0%	0%

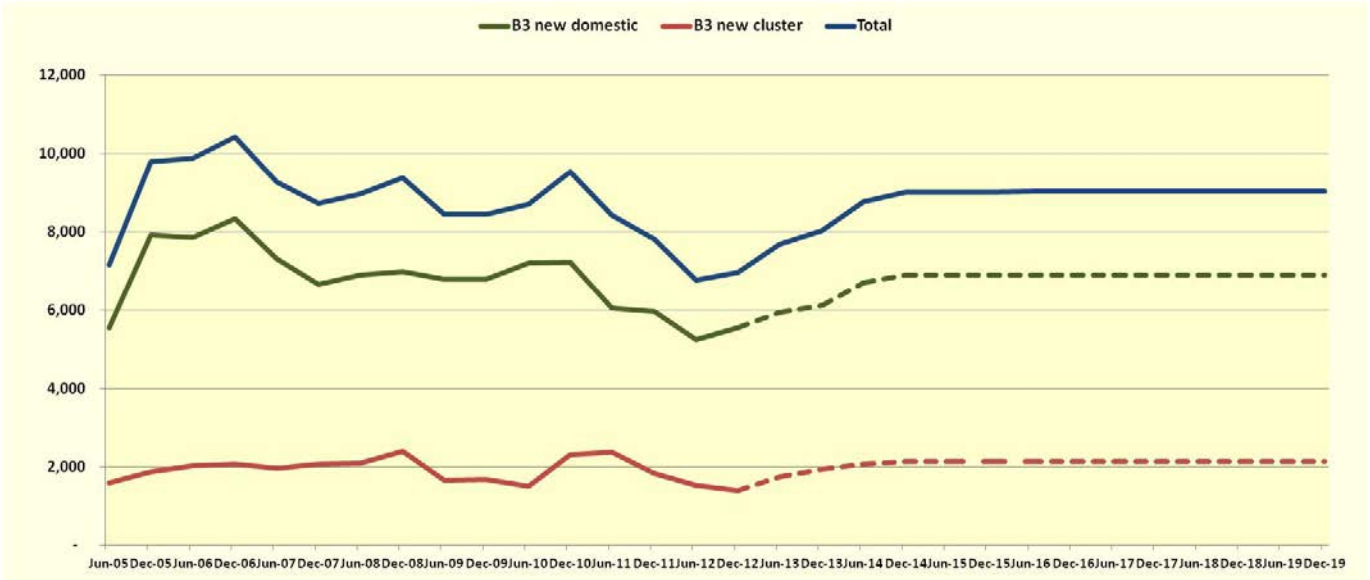
Table 9: ECS forecast*

Half year to:	B3 connections	Cluster connections	Total connections	Mains and feeders (Km)
December 2012	5,560	1,400	6,960	115
June 2013	5,940	1,750	7,690	120
December 2013	6,110	1,930	8,040	130
June 2014	6,700	2,070	8,770	139
December 2014	6,890	2,130	9,020	149
June 2015	6,890	2,130	9,020	138
December 2015	6,890	2,130	9,020	128
June 2016	6,900	2,130	9,030	128
December 2016	6900	2,130	9,030	128
June 2017	6900	2,130	9,030	128
December 2017	6900	2,130	9,030	128
June 2018	6900	2,130	9,030	128
December 2018	6900	2,130	9,030	128
June 2019	6900	2,130	9,030	128
December 2019	6900	2,130	9,030	128

* Forecast numbers rounded

Connections picked up in the last half of 2012 and will continue to increase until June 2014 when expansion will slow to long term population growth rates of less than 2% a year (Figure 25).

Figure 25: Forecast connections



5.4 Residential lot activity

Lot sales by developers surveyed by the UDIA in the March 2013 quarter reflect the location of land subdivision activity around the Metropolitan and Peel regions (Table 10). The 2,878 lots sold were 13% higher than in the previous quarter. Sales in the South East Metro and South West Metro declined while sales jumped in Peel and North East Metro.

Table 10: Residential lot sales

Local Government Area	Lots	Share
Wanneroo	738	25.5%
Swan	632	21.8%
Rockingham	475	16.4%
Armadale	414	14.3%
Peel	224	7.4%
Kwinana	182	6.3%
Shire of Serpentine-Jarrahdale	80	2.8%
Cockburn	67	2.3%
Joondalup	66	2.3%
Total	**2,878**	**95%**

Source: UDIA, March 2013

Developers surveyed by the UDIA reflect the changing pattern of Perth development with the number of lots to be released in the next year dominated by North West and South West Metro areas (Table 11). Wanneroo and Rockingham local government areas are expected to provide 50% of the developer lot releases.

Table 11: Developer land release intentions

Local Government Area	Lots	Share
Wanneroo	1,971	34%
Rockingham	1,003	17%
Armadale	828	14%
Swan	688	12%
Kwinana	535	9%
Mandurah	346	6%
Joondalup	172	3%
Murray	112	2%
Cockburn	88	2%
Other	40	1%
Total	**5,783**	

Source: WA Planning Commission