ATCO Gas Australia Connection Forecast Economics Consulting Services (ECS) June 2014

Appendix 4.3

27 November 2014

Response to the ERA's Draft Decision on required amendments to the Access Arrangement for the Mid-West and South-West Gas Distribution System

Connecting WA to natural gas

Economics Consulting Services

ATCO GAS AUSTRALIA

Connections Forecast

June 2014

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

Economics Consulting Services was commissioned by ATCO Gas Australia to prepare a forecast of mains extensions and new connections for the 2014 to 2019 period. The forecast was to be on a six month basis and compared to the revised forecast prepared in June 2013.

Forecast*

Half year to:	B3 connections	Cluster connections	Total connections	Mains and feeders (km)
June 2013	5,411	1,479	6,890	109
December 2013	7,055	1,701	8,756	138
June 2014	7,020	1,980	9,000	152
December 2014	7,020	1,980	9,000	151
June 2015	7,315	2,060	9,375	145
December 2015	7,315	2,060	9,375	143
June 2016	7,505	2,115	9,620	133
December 2016	7,505	2,115	9,620	124
June 2017	7,790	2,200	9,990	124
December 2017	7,227	2,038	9,265	124
June 2018	6,405	1,805	8,210	124
December 2018	6,405	1,805	8,210	124
June 2019	6,320	1,780	8,100	124
December 2019	6,320	1,780	8,100	124

*** Forecast numbers rounded**

Commentary

The underlying demand for residential **dwellings** is at high levels but is forecast to slow to longer term rates over the next six years. Demand has been driven by high inward migration and an increase in the birth rate flowing from favourable economic conditions. The Housing Industry Association forecast increases to construction levels in 2013-14 that have not been seen since 2006. HIA and the WA Housing Industry Forecasting Group forecast 27,000 house starts in 2012-13 with a fall to 25,000 in 2013-14. Numbers fall after that although the HIA numbers are substantially above those of the HIFG.

Residential **land** sales jumped in June 2011 and have continued to increase. There is some suggestion that sales have peaked with inventory levels very low and land sale listings with real estate agents falling dramatically. Developers have lifted the rate of lot creation with an increase to 14,000 in 2013 from 9,900 the previous year. The recovery in land sales has led to greater ATCO pipe installations with the December half of 2013 being one of the larger periods on record. More lots and network length will inevitably lead to an increase in the number of home connections.

The 2014 forecast shows significantly higher connections and pipeline installations than in May 2013 for the June 2014 to December 2017 periods. The revised forecast is lower after that as housing activity returns to longer term levels.

Half year to:	Connections		Mains and feeders (km)	
	June 2013	June 2014	June 2013	June 2014
June 2013	7,690	6,890	120	109
December 2013	8,040	8,756	130	138
June 2014	8,770	9,000	139	152
December 2014	9,020	9,000	149	151
June 2015	9,020	9,375	138	145
December 2015	9,020	9,375	128	143
June 2016	9,030	9,620	128	133
December 2016	9,030	9,620	128	124
June 2017	9,030	9,990	128	124
December 2017	9,030	9,265	128	124
June 2018	9,030	8,210	128	124
December 2018	9,030	8,210	128	124
June 2019	9,030	8,100	128	124
December 2019	9,030	8,100	128	124

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 686,000 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 over the period June 2014 to December 2019.

In March 2014, residential connections accounted for 98% of all connections in the State while the Mid West and South West systems accounted for 98% of the total. Hence, 96% of all connections were residential customers in the Mid West and South West systems. This report thus focuses on residential connections in the Mid West and South West distribution systems. These areas are described collectively as the Coastal System.

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

Connections are recorded by ATCO in two categories. **Domestic** connections 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 seven dwellings and low rise apartments and flats, and aged care estates.

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 dwellings 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 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.

In the past, a high proportion of new residential dwellings have been connected to gas services. This is changing with new energy efficiency standards, more efficient electric cooling and heating systems, solar panels and the increasing share of apartments.

The following sections discuss some of the current key issues.

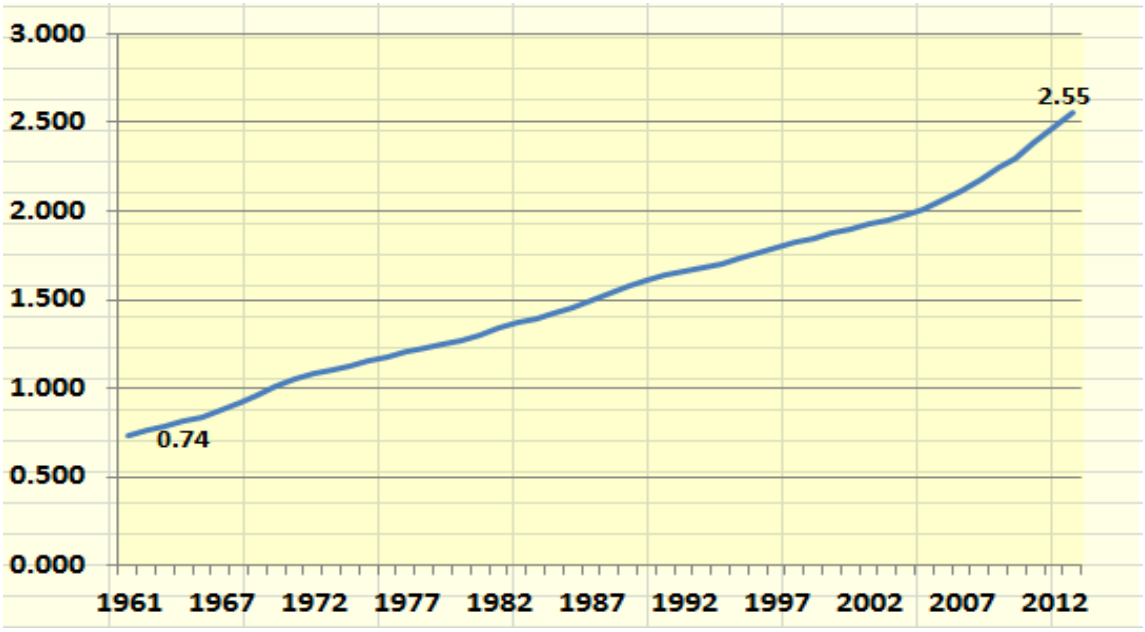
2.2 Population Changes

Population growth and the formation of households provide the foundation for new dwelling demand. The construction of new dwellings creates the demand for ATCO gas connections and the need to expand the gas distribution network into new housing areas.

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 2.55 million in December 2013 (Figure 1). The population has more than tripled in the last fifty years and doubled in the last two decades. The average annual increase has been 2.4% which is high for a developed country.

Figure 1: Western Australian population (millions)



Source: ABS Catalogue 3101

There has clearly been acceleration since around 2005 and the long term trend does not indicate any slowing in growth. The relatively smooth increase is misleading as the annual change has been reasonably volatile ranging over the last ten years from 1.4% to 4.2% with an average of 2.4%. The annual change over the last three years has been at least 3% (Table 1).

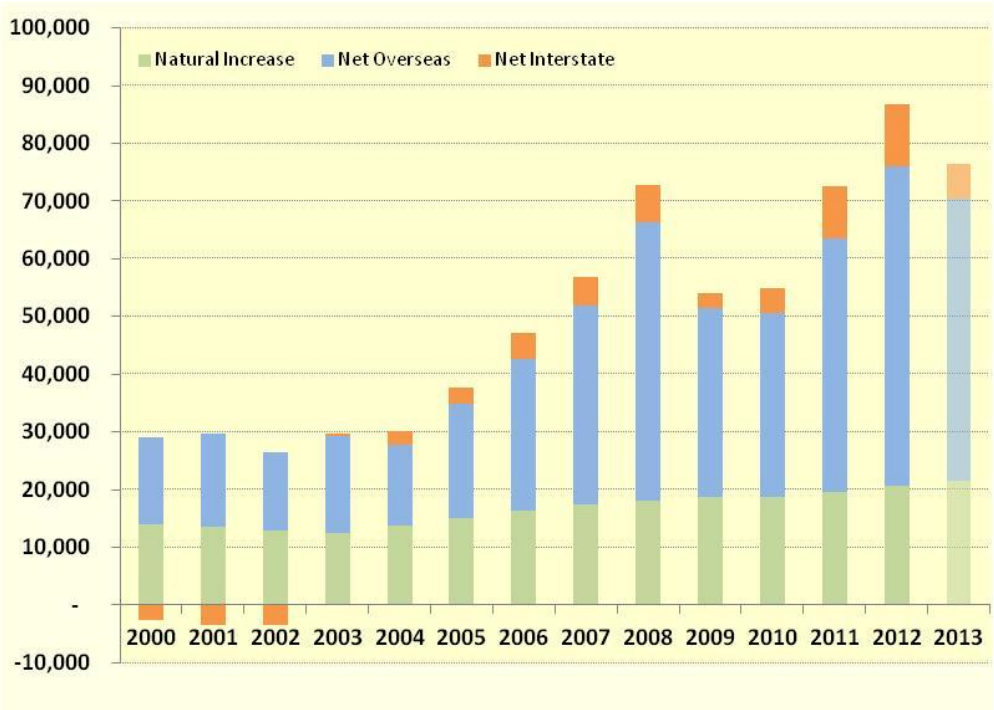
Table 1: Western Australian population change (%)

Year	%
2004	1.4%
2005	1.6%
2006	2.5%
2007	2.6%
2008	3.1%
2009	3.1%
2010	2.2%
2011	4.2%
2012	3.6%
2013	3.0%

The increase since 2004 has been primarily driven by increases in overseas immigration (Figure 2). Net immigration over the fourteen years from 2000 was 404,000 people representing 60% of the population gain with the natural increase contributing 34% and net interstate migration 6%.

The high inward migration reflects the strong economy and employment prospects. There is a suggestion in the 2013 estimate that the inflow may have peaked with interstate and overseas migration falling.

Figure 2: Annual Population Change



Source: Australian Bureau of Statistics Catalogue 3101, December 2013. Note: ***2013 is an estimate with the December quarter assumed to be the same as the September quarter.***

The Western Australian Department of Planning forecast population growth in 2012 using a range of scenarios (Table 2). Growth slows significantly in all scenarios and all appear conservative when compared with the average of 2.4% over the last ten years.

Table 2: Population increase forecast, Western Australia

Year	Low case Band A	Mid case Band C	High case 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%

Given the past ten years growth and the relative strength of the State economy, the more optimistic Band E forecast appears to be the more likely 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 due to:

- 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
- More 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.

ABS forecast in 2010 that Western Australia would see the second highest household growth in Australia 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 3).

Table 3: 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

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

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 outlook 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 4). The Economics Consulting Services forecasts are for financial years and not calendar years.

Table 4: Forecast of underlying household growth in ATCO Gas Australia areas

Year	ECS (%)
2013 -14	2.4%
2014 -15	2.2%
2015 -16	2.0%
2016 -17	1.8%
2017 -18	1.8%
2018 -19	1.7%

Source: ECS

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 land and construction costs, interest rates)
- Consumer and investor confidence
- Consumer spending patterns

Housing affordability in Perth is a challenging issue. Residential home prices are at very high 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 five years. Hence the demand forecast over the next two years is strong before slowing to longer term rates of increase after that.

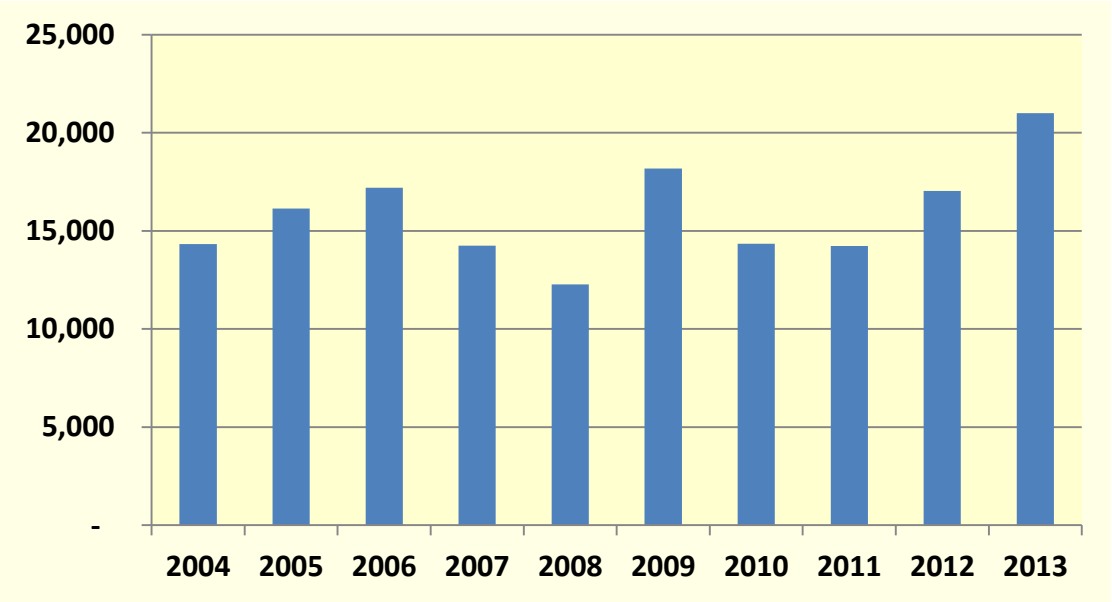
Dwelling construction will be moderated to some extent by a number of negative factors including affordability and weak consumer and investor confidence.

3. Housing Activity

3.1 Finance approvals

The Australian Bureau of Statistics records mortgages taken out by owner occupiers for the construction or purchase of new dwellings in Western Australia. The number of mortgages taken out for new dwellings has been growing since 2010 with increases of just over 20% in both 2012 and 2013 (Figure 3).

Figure 3: Mortgages for new dwellings taken out by owner occupiers



Source: ABS Catalogue 5609, Table 10

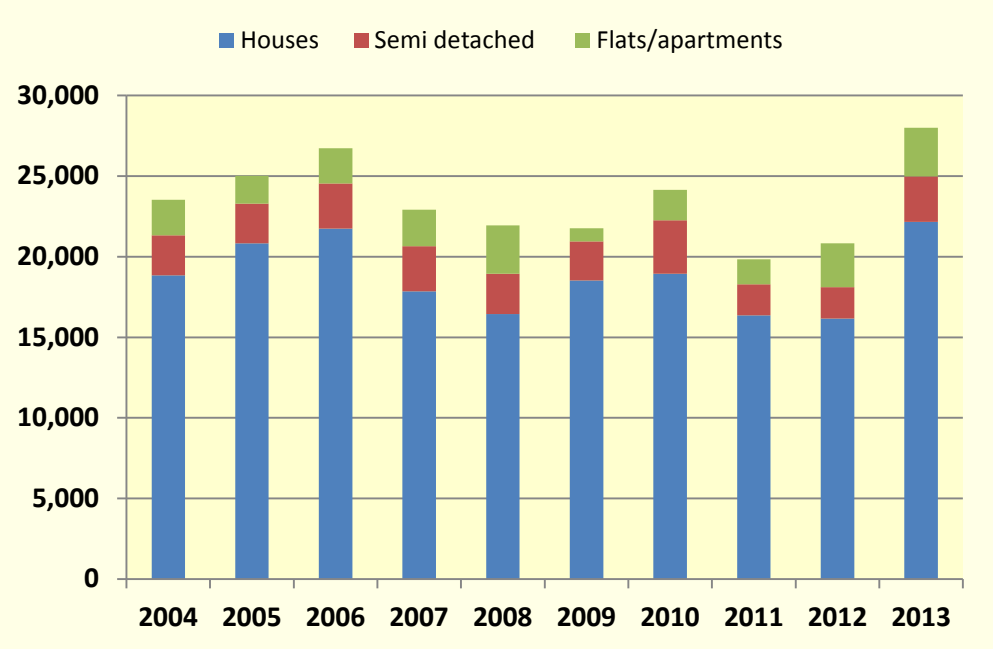
The recovery in loans is confirmed by one of the largest mortgage brokers with the AFG group showing strong loan levels in the first quarter of 2014. The AFG statistics refer to **all** mortgages and not just new dwellings but they provide some confidence that the increase is continuing. AFG note that first home buyers have left the market in Western Australia, slumping to less than 20% of loans, while property investors are returning and account for over 30% of loans.

Mortgage numbers for new dwellings have been rising since 2010 with levels higher than the last peak in 2006 and the trend remains upward.

3.2 Dwelling Approvals

The average number of dwelling approvals over the last decade has been 23,500 made up of 18,800 houses and 4,600 other dwellings (Figure 4). Approvals in 2013 were up a huge 35% on 2012 and recent monthly data indicates that this will increase again in 2014 to over 30,000.

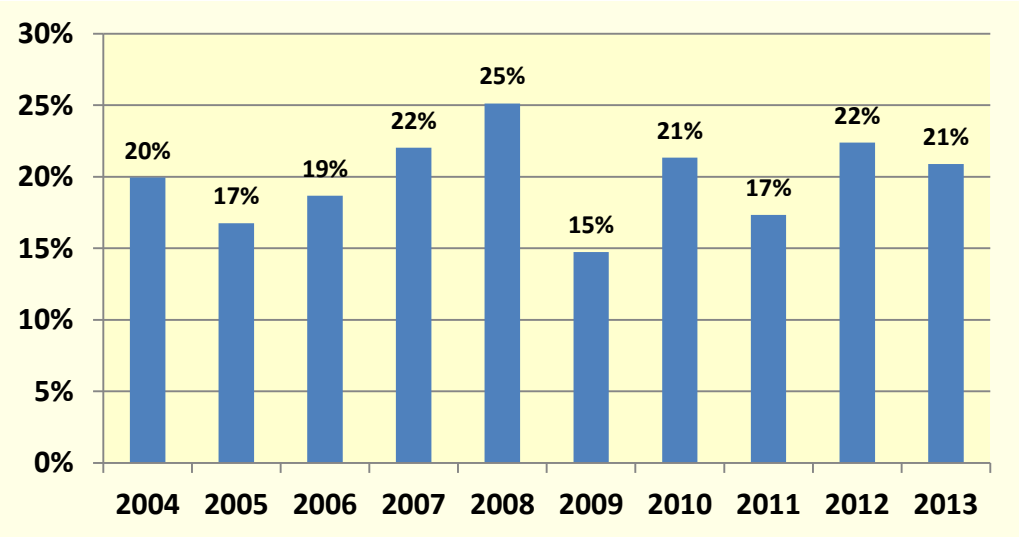
Figure 4: New dwellings approved



Source: ABS Catalogue 8731, Table 26

Single residential dwellings continue to make up the dominant share with "other dwellings" making up between 15% and 25% of approvals (Figure 5). *Other* includes all dwellings that are not single residential and hence includes medium density attached terrace and villa type developments as well as apartments. The average over the decade is 20% but with affordability issues and strong apartment construction continuing in central areas, an average 22% is used in this study.

Figure 5: Housing mix – other dwelling share



Source: ABS Catalogue 8731, Table 26

A strong recovery has taken place in dwellings approved for construction. Numbers now exceed the previous peak in 2006 and appear to be still rising.

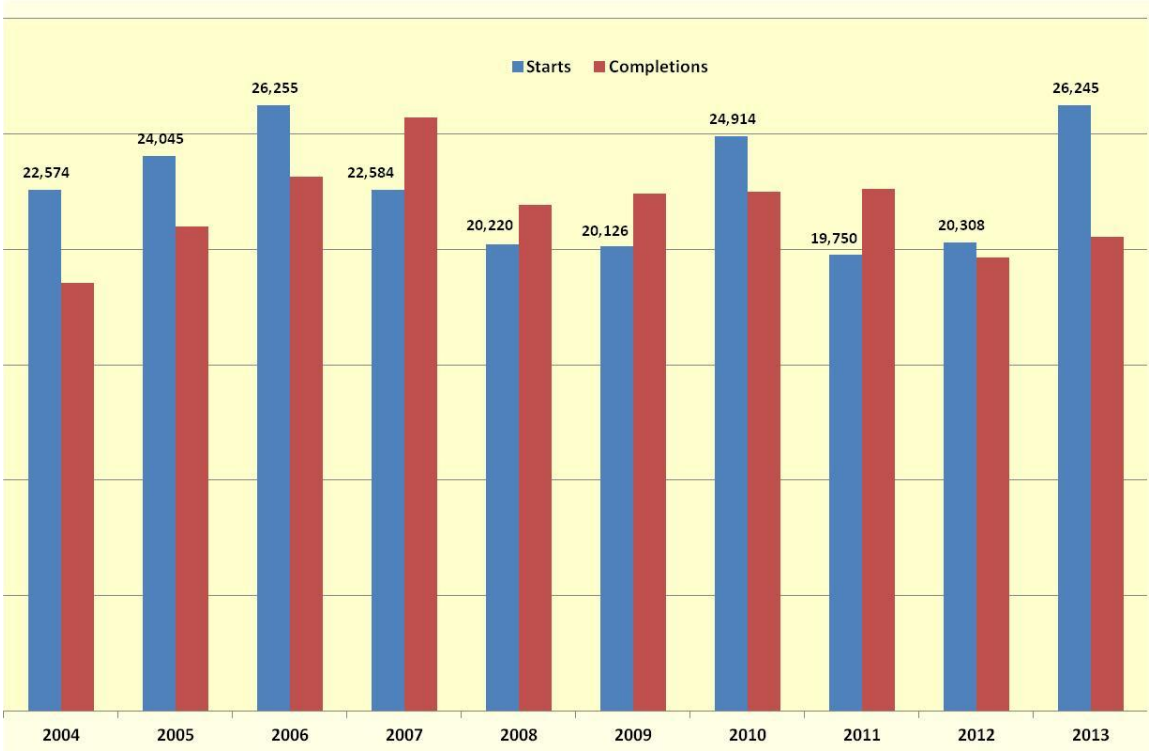
3.3 Dwelling Starts and completions

Dwelling starts lag approvals by the time taken for builders to gear up for construction and obtain a building license, finance and owner endorsement to proceed. Some approvals are deferred by the owners while some may never be acted on.

Annual starts have varied over the last decade from 19,750 to 26,245 with an average of 22,700 (Figure 6). The average number of starts is 3.5% less than approvals (23,500) indicating the small number of approvals that do not proceed to construction.

Starts fell after the 2006 peak before picking up again with the boosted First Home Owner Grant Scheme. There was a small 3% lift in 2012 and a massive 30% increase in 2013 over 2012. Completions have actually fallen from 2011 as the building activity picks up and the period of time taken to build lengthens.

Figure 6: Housing starts and completions



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

Dwelling completions lagged behind starts in the first three years of the decade before the industry caught up over the following three years. The high starts in 2010 were completed in the following two years. The near record level of starts in 2013 are likely to take at least two years to complete and completions may lag even further if the high level of starts continues as expected in 2014. Dwelling completions have rarely exceeded 22,000 in a year.

It appears that the population growth and pent up demand for residential dwellings saw a burst of activity in 2013. Housing starts are at similar levels to the last peak in 2006 and completions will remain at high levels for at least the next two years to catch up this accumulated housing stock under construction.

3.4 Industry Forecasts

The Housing Industry Association data shows housing **starts** jumping in 2012-13 after a very low number in 2011-12. A peak is expected in 2014 before the gradual return to longer term trend numbers (Table 5).

Table 5: HIA forecast of dwelling starts ('000)

Year	All Starts ('000)	HIA Change (%)
2013	26.206	29.7
2014	26.881	2.6
2015	25.168	-6.4
2016	24.352	-3.2
2017	23.227	-4.6
2018	22.200*	-4.0

Source: HIA Economics May 2014 * derived from half year numbers

The WA Housing Industry Forecasting Group (HIFG) estimate is for a peak in 2013-14 followed by a significant reduction in the following two years (Table 6). The HIFG forecast is slightly less than the HIA in 2013-14 and 2014-15 with the numbers far lower in the following two years. Economics Consulting Services uses a forecast that is just above the midpoint between these estimates for the years after 2013-14 with the higher HIA estimate for 2013-14.

Table 6: HIFG forecast of dwelling commencements, WA

Year	HIFG Starts ('000)	HIFG Change (%)	HIA Starts ('000)	HIA Change (%)	ECS estimate ('000)	ECS Change (%)
2012-13	24.01		24.20	35.3%	24.10	
2013-14	27.00	12%	27.58	14.0%	27.40	14%
2014-15	25.00	-7%	25.71	-6.8%	25.30	-7%
2015-16	21.00*	-16%	24.70	-3.9%	23.30	-9%
2016-17	21.00*	0%	23.85	-3.4%	22.50	-2.1%
2017-18			22.74	-4.6%	22.50	0%

Source: Housing Industry Forecasting Group, April 2014 * midpoint of forecast

The HIFG group points to a softening in employment, poor housing affordability and a drop in consumer confidence as some of the reasons behind its weak long term outlook.

Industry forecasts are for peak housing starts in 2014 before slipping back to longer term trend numbers. The HIA is more optimistic about the medium to longer term than the Western Australian Housing Industry Forecasting Group.

Translating the Economics Consulting Services forecast into six monthly durations provides housing commencements for the next five years (Table 8). Economics Consulting Services expects the numbers to start increasing again around June 2018 to reflect the longer term population growth.

Completions will lag for at least twelve months and are not forecast to exceed 25,000 in annual equivalent terms until after December 2015 given the time it takes the industry to increase capacity. The industry is forecast to complete the backlog by June 2017 when completions fall back to around a year after starts.

Table 7: Forecast of dwelling commencements, WA

Year	Starts ('000)	Completions ('000)	Backlog ('000)
June 2013	12.10	8.66	
December 2013	14.15	11.87	5.72
June 2014	13.25	12.00	6.97
December 2014	13.00	12.00	7.97
June 2015	12.30	12.50	7.77
December 2015	11.80	12.50	7.07
June 2016	11.20	13.00	5.27
December 2016	11.25	13.00	3.52
June 2017	11.25	13.50	1.27
December 2017	11.25	12.52	0
June 2018	11.25	11.25	0
December 2018	11.25	11.25	0
June 2019	11.25	11.25	0
December 2019	11.25	11.25	0

Source: Economics Consulting Services

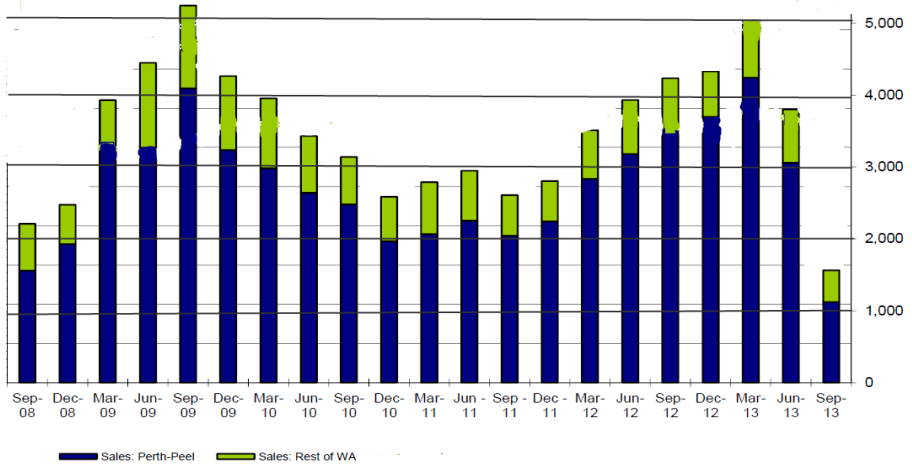
4. Land Activity

4.1 Lot Sales

Vacant residential lot sales are difficult to track due to the uncertainty over the sale date. Sales are recorded when the sale is settled using the contract date. Hence, a settlement in December can relate to a sale made many months earlier. During peak sale periods developers sell lots prior to construction and hence the data lag increases with sales in recent months, understating activity.

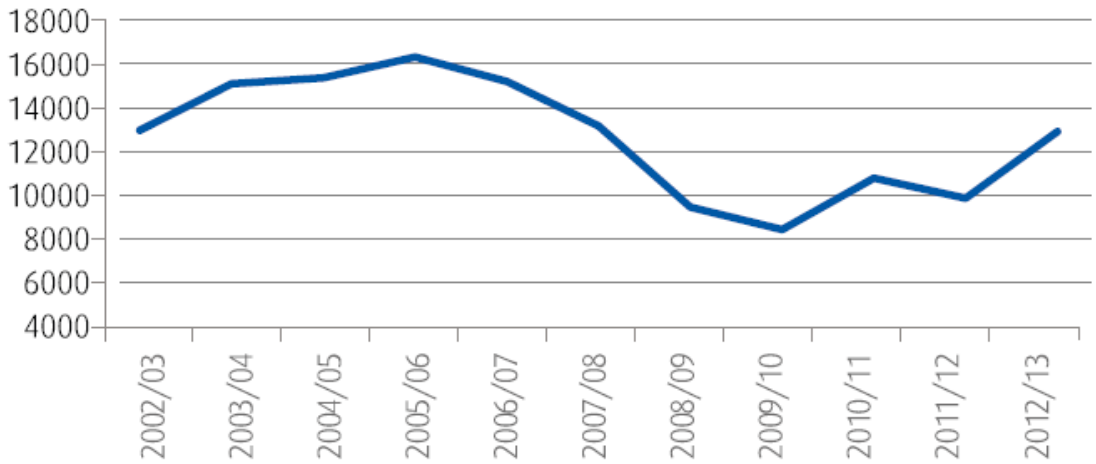
Valuer General sales records show a sharp lift in sales from June 2011 continuing through to a peak in March 2013 before slumping to very low levels in the September 2013 quarter (Figure 7).

Figure 7: Residential lots sales



The UDIA developer lot sales index suggests strong sales continued to March 2014 with the index rising by over 170% in the 12 quarters from September 2011 (Figure 8).

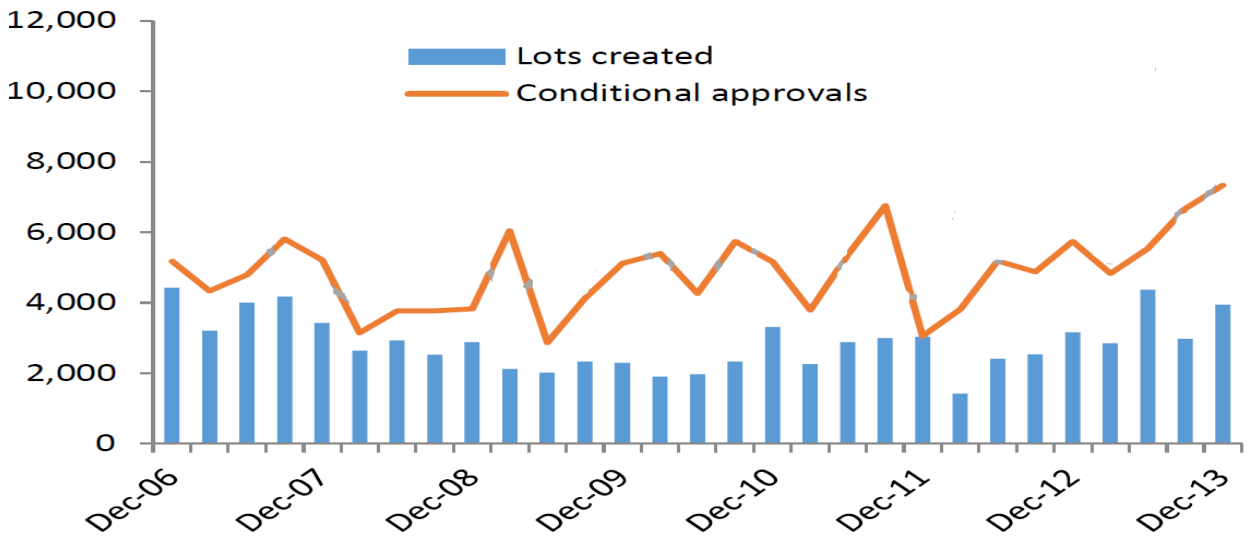
Figure 8: UDIA lot sale index



Sales by UDIA members in 2013 totalled 11,159 lots beating the previous high set ten years earlier in 2003.

Lots constructed for sale by developers showed a strong increase of 40% from 10,000 in 2012 to 14,000 in 2013 (Figure 9).

Figure 9: Lots created and conditional subdivision approvals in Perth

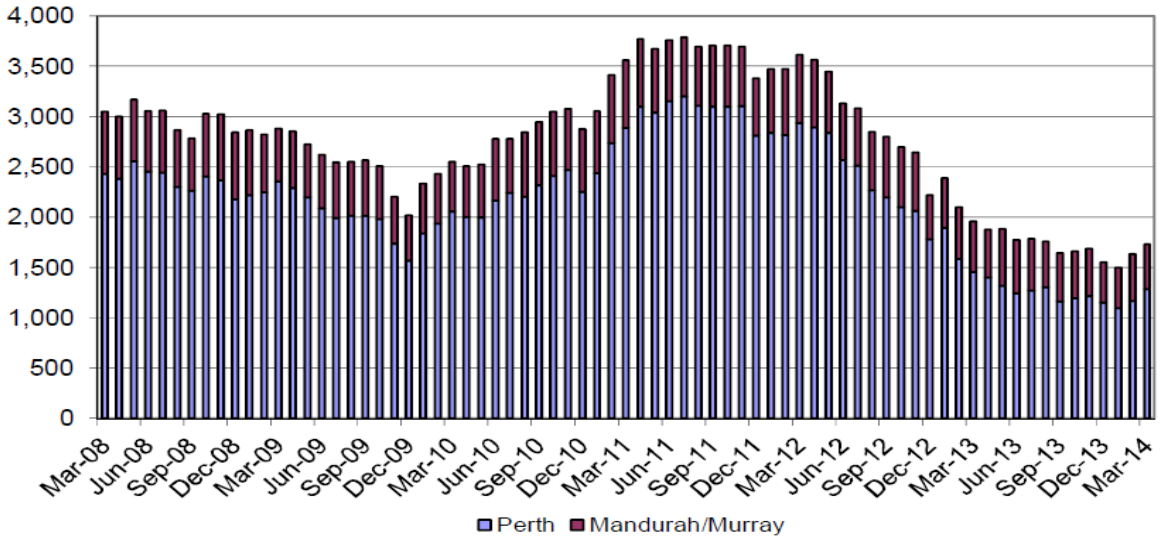


Source: WA Planning Commission

Large developers report that they are selling lots more than five months before they are ready for final subdivision approval.

The acceleration in sales is reflected in the number of lots being advertised by estate agents. REIWA member's listings fell from a high of 3,200 lots in July 2011 to 1,290 in March 2014 (Figure 10).

Figure 10: Residential lot listings in Perth and Peel by REIWA agents



Source: Housing Industry Expert Group (unpublished REIWA data)

Developers have responded to the demand by increasing the number of applications for subdivision. Conditional approvals granted by the WAPC have risen dramatically since the low

point in December 2011. However, lots take time to bring to market and developers report that stock levels are heavily depleted. UDIA members anticipate that lot stock levels are generally inadequate to meet demand with the South West and North East corridors particularly affected. The North east corridor is forecast to have lot supply sufficient to only meet 67% of demand.

There are around 54,000 lots that have been granted conditional approval for subdivisions by the WA Planning Commission. The approval is for development within a four year period. In the September quarter of 2013 there were 9,700 lots in the Perth-Peel region being developed in that they had received clearance from the Water Corporation to proceed. However, the delays meant that only 2,972 lots in the Perth-Peel region were given final approval as developed lots by the WAPC. This suggests that only around 12,000 lots a year are becoming available in the Perth-Peel region for dwelling construction. RPS reports an estimate of 14,000 to 15,000 actual lot sales in the greater Perth region in 2013[2]. It will be difficult to maintain this level with the development pipeline.

There are indications lot sales have slowed due possibly to the lack of stock but potentially to a slowdown in consumer confidence.

The UDIA reports that developers with capacity to expand expected lots under construction in the first half of 2014 to be up by 20% followed by a further increase in the second half of the year. However, many developers did not have land ready for development[3].

Lot sales have recovered strongly in the last 18 months and the number of lots available for sale on the market has now declined with some corridors having very little stock.

Lots being prepared for market are rising quickly but the lack of stock and the time taken to bring lots to market is creating delays in lots available for dwelling construction.

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

This study assumes that lots constructed will change over the next five years in the pattern set out in Table 8.

Table 8: Forecast parameters

Year	Final lots
June 14	+10%
December-2014	+5%
June-2015	+5%
December-2015	-10%
June-2016	-10%
December-2016	-10%
June-2017	0%
December-2017	0%
June-2018	0%
December-2018	0%
June-2019	0%
December-2019	0%

[2] UDIA Urban Intelligence, April 2014
[3] Housing Industry Forecasting Group, April 2014

5. ATCO Gas Australia Forecast

5.1 B3 Connections

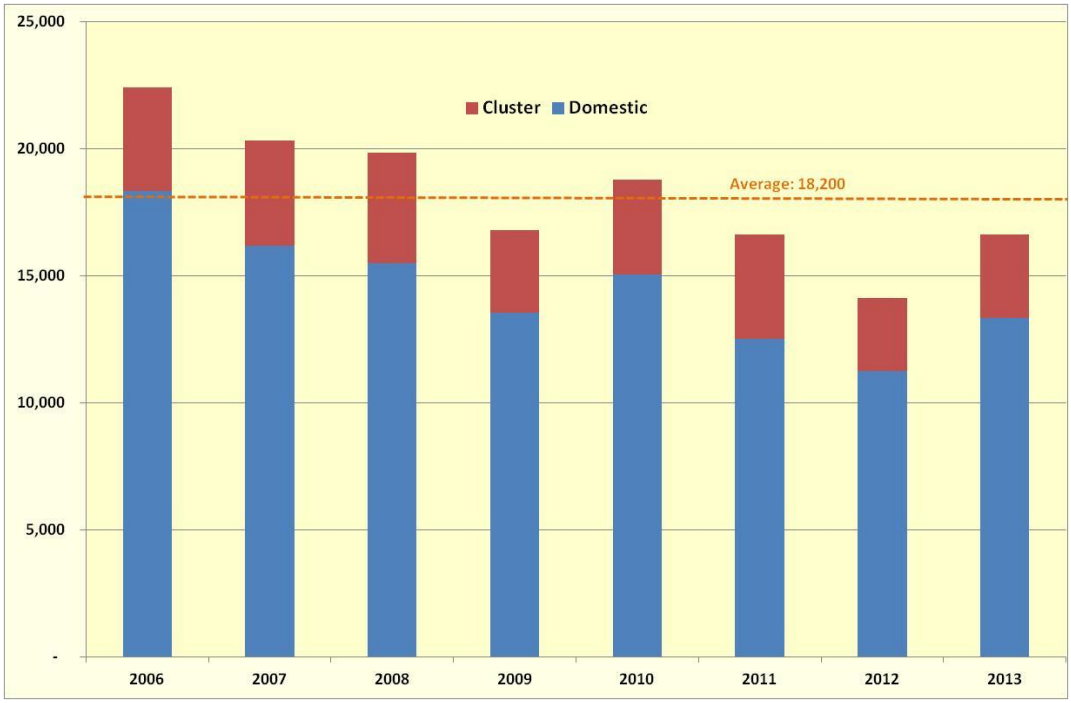
Domestic meter connections are recorded for all dwellings. The focus of this report is on these with a B3 tariff. This includes all detached houses and medium density developments where gas can be piped to individual dwelling units. Large apartment buildings may have a gas connection for a central boiler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

B3 tariff connections 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.

ATCO record overall connections but as this report is focused on the Coastal System, it is necessary to exclude the Kalgoorlie and Albany connections. This was done by taking the change in each month (e.g. Albany change 4 connections, total B3 change 1,000) and applying the share of the change to the total B3 domestic and cluster connections to derive a number for the Coastal System. This gives an estimate of **gross** connections in the Coastal System (Appendix 1). Actual new connections will be greater to the extent of any disconnections in the system.

B3 connections over the past eight years averaged 18,200 (Figure 11). Connections varied by up to 23% around this average. Connections in 2013 increased by 18% over 2012 and were effectively that same as in 2011 and 2009.

Figure 11: ATCO Gas Australia meter connections (six month durations)

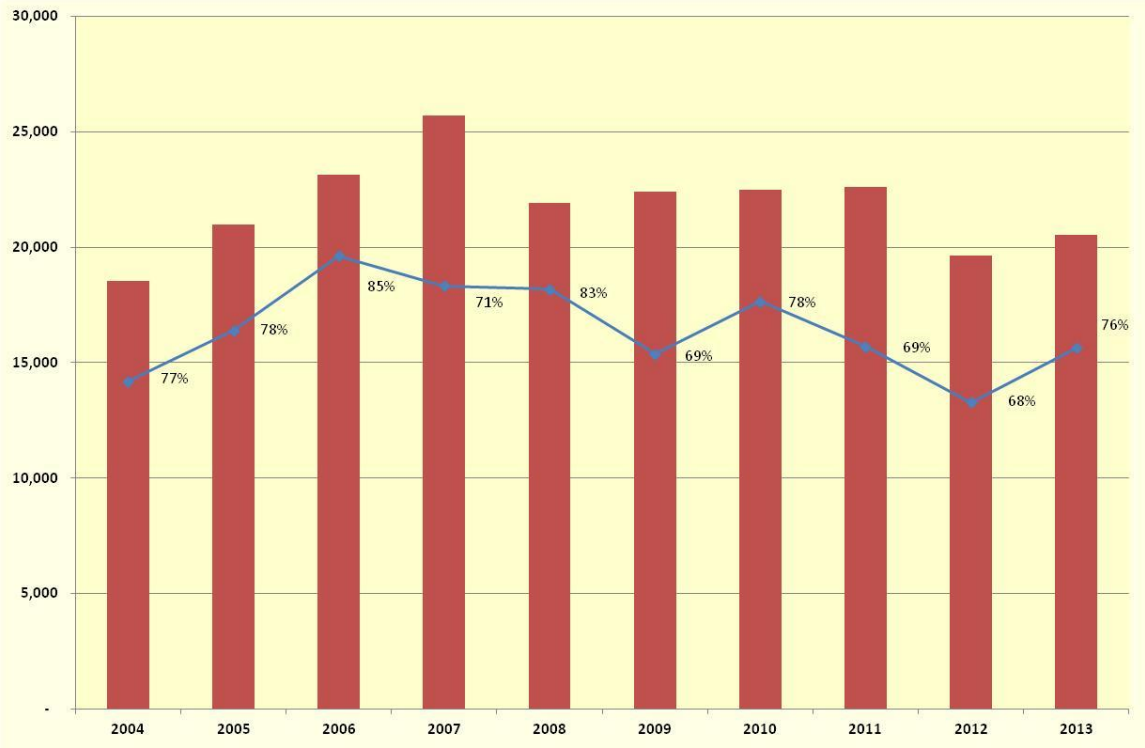


Source: ATCO Gas Australia

5.2 Domestic B3 connections and completions

The proportion of B3 connections to **new** dwelling completions varied from 63% to 85% over the decade years to December 2013 (Figure 12) with an average of 75%. This study uses a projection of 75% ATCO share of the new houses to be built in Western Australia.

Figure 12: ATCO Gas Australia B3 meter connections and new dwelling completions



ATCO faces competitive pressures to maintain market share including:

1. The increased use of air-conditioning systems that includes heating at a lower effective cost than gas and high installation rates for solar PV systems where people are more inclined to think electricity than gas
2. Growing use of solar hot water and electric boosting
3. Higher energy rating standards for housing and some measures taken by builders to meet the standard that reduce 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. The number of established houses connected has declined to less than 1,000 a year since 2011

Connections in 2013 increased by 18% over the low connection number in 2012 but remain below the average of the last decade. The assumptions used for the forecast of future connections are:

Established houses – 800 a year

New houses – 75% of new homes completed in WA declining slowly to 72% given the competition from other energy sources

5.3 Forecast connections

Based on the assumptions for future connections and the forecast dwelling completions, the total number of B3 connections will peak in June 2016 and decline to 2019 (Table 9).

Table 9: Forecast of ATCO B3 connections

Year	Completions ('000)	ATCO share	B3 forecast ('000)
June 2013	8.66	80%	6.89
December 2013	11.87	74%	8.76
June 2014	12.00	75%	9.00
December 2014	12.00	75%	9.00
June 2015	12.50	75%	9.37
December 2015	12.50	75%	9.37
June 2016	13.00	74%	9.62
December 2016	13.00	74%	9.62
June 2017	13.50	74%	9.99
December 2017	12.52	74%	9.26
June 2018	11.25	73%	8.21
December 2018	11.25	73%	8.21
June 2019	11.25	72%	8.10
December 2019	11.25	72%	8.10

This forecast (Table 10) varies from that completed in 2013 for the following reasons:

- The jump in dwelling starts in 2013 and early 2014 to higher levels than expected
- The lack of capacity in the building sector and the time it will take to complete this increase in starts means higher numbers until around the end of 2017 when they revert to longer term levels consistent with the HIA and HIFG forecasts
- Competition from other energy sources in residential dwellings

Table 10: Comparison of ATCO B3 connections (numbers rounded)

Year	May 2013	June 2014	Change
June 2013	7,690	6,890	-800
December 2013	8,040	8,756	716
June 2014	8,770	9,000	230
December 2014	9,020	9,000	-20
June 2015	9,020	9,375	355
December 2015	9,020	9,375	355
June 2016	9,030	9,620	590
December 2016	9,030	9,620	590
June 2017	9,030	9,990	960
December 2017	9,030	9,265	235
June 2018	9,030	8,210	-818
December 2018	9,030	8,210	-818
June 2019	9,030	8,100	-930
December 2019	9,030	8,100	-930

Segregation into cluster and houses assumes 22% of dwellings are cluster types (Table 11).

Table 11: Forecast of ATCO B3 connections by dwelling type

Year	June 2014	Houses	Clusters
June 2013	6,890	5,411	1,479
December 2013	8,756	7,055	1,701
June 2014	9,000	7,020	1,980
December 2014	9,000	7,020	1,980
June 2015	9,375	7,315	2,060
December 2015	9,375	7,315	2,060
June 2016	9,620	7,505	2,115
December 2016	9,620	7,505	2,115
June 2017	9,990	7,790	2,200
December 2017	9,265	7,227	2,038
June 2018	8,210	6,405	1,805
December 2018	8,210	6,405	1,805
June 2019	8,100	6,320	1,780
December 2019	8,100	6,320	1,780

Numbers rounded and may not add up precisely

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”. The data from the ATCO tracking system includes all networks and a reduction of 3.5% has been made to reflect the 96.5% of connections in the Coastal Network (Table 12).

Table 12: Network installations (km)

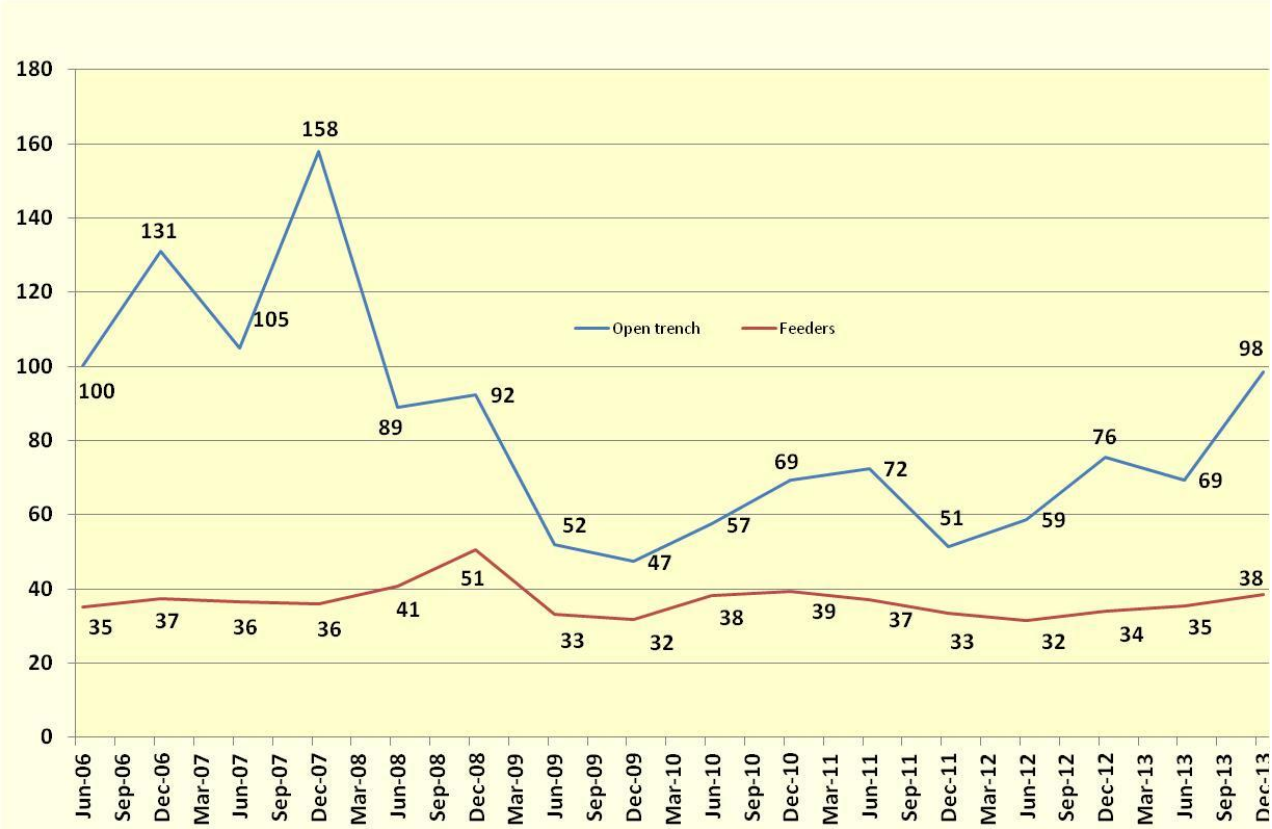
Period	Mains	Open Trench	Feeders
June 2006	1.4	100.2	35.1
December 2006	2.1	131.0	37.3
June 2007	1.1	104.8	36.4
December 2007	2.8	158.0	35.9
June 2008	1.2	89.0	40.7
December 2008	1.7	92.4	50.5
June 2009	4.5	51.8	33.3
December 2009	2.6	47.4	31.9
June 2010	1.5	57.4	38.1
December 2010	0.7	69.3	39.3
June 2011	1.2	72.5	37.0
December 2011	0.8	51.3	33.5
June 2012	1.8	58.7	31.6
December 2012	1.6	75.6	33.9
June 2013	3.0	69.5	35.4
Dec 2013	1.7	98.4	38.4

Mains extensions involve large diameter pipes connecting new areas back to the existing network. They vary from year to year but average only 1.8 km in a six month period or 3.6 km over a year.

The length of mains installations in open trenches is primarily dependant on new lot creation. It has varied substantially ranging from 47 to 158 km in a six month period over the last eight years (Figure 13). The average has been 83 km with at least a 25% variation over the duration. The average is strongly affected by one very high number in December 2007. Removal of this number and the lowest number from the sample provides an average of 80 km in a six month period.

Feeder installations have been more consistent varying from 33 to 51 km in a six month period for an average of 37 km. This average of 76 km a year is used in this study for the forecast period.

Figure 13: ATCO Gas Australia main extensions (open trench extension excluding feeders)



Source: ATCO Gas Australia

The estimate of future metres installed by ATCO is derived using the December 2013 mains installations as the base and varying the distance by the forecast change in lot numbers with feeders added at 76 km a year and main extensions at 3.6 km a year.

5.3 Forecast

Table 13: ECS network extensions forecast (km)

Half year to:	Mains	Feeders	Lot change	Open trench	Mains and feeders
June 2013	3.0	35		70	109
December 2013	1.7	38		98	138
June 2014	0.6	45		106	152
December 2014	1.8	38	+5%	111	151
June 2015	1.8	38	+5%	115	145
December 2015	1.8	38	-10%	103	143
June 2016	1.8	38	-10%	93	133
December 2016	1.8	38	-10%	84	124
June 2017	1.8	38	0%	84	124
December 2017	1.8	38	0%	84	124
June 2018	1.8	38	0%	84	124
December 2018	1.8	38	0%	84	124
June 2019	1.8	38	0%	84	124
December 2019	1.8	38	0%	84	124

***numbers rounded**

Table 14: ECS forecast of connections and extensions*

Half year to:	B3 connections	Cluster connections	Total connections	Mains and feeders (km)
June 2013	5,411	1,479	6,890	109
December 2013	7,055	1,701	8,756	138
June 2014	7,020	1,980	9,000	152
December 2014	7,020	1,980	9,000	151
June 2015	7,315	2,060	9,375	145
December 2015	7,315	2,060	9,375	143
June 2016	7,505	2,115	9,620	133
December 2016	7,505	2,115	9,620	124
June 2017	7,790	2,200	9,990	124
December 2017	7,227	2,038	9,265	124
June 2018	6,405	1,805	8,210	124
December 2018	6,405	1,805	8,210	124
June 2019	6,320	1,780	8,100	124
December 2019	6,320	1,780	8,100	124

*** numbers rounded**

5.4 Residential lot activity

Lot sales by developers surveyed by the UDIA in September 2013 reflect the location of land subdivision activity in the Metropolitan and Peel regions (Table 15). Wanneroo, Swan and Armadale are the new frontiers making up 63% of the total. Sales in the Peel and South West Metro declined from the previous quarter while sales jumped in North West and North East Metro.

Table 15: Residential lot sales

Local Government Area	Lots	Share
Wanneroo	671	24.9%
Swan	618	22.9%
Armadale	439	16.3%
Rockingham	335	12.4%
Serpentine Jarrahdale	201	7.5%
Peel	167	6.2%
Kwinana	158	5.9%
Joondalup	59	2.2%
Cockburn	48	1.8%
Total	**2,696**	**99%**

Source: UDIA, September 2013

Developers surveyed by the UDIA reflect the changing pattern of land development with land releases in the next year dominated by North West, South East Metro and South West Metro areas (Table 16). Wanneroo, Armadale, Swan and Rockingham local government areas are expected to provide over 62% of the lots released for sale.

Table 16: Developer land release intentions: UDIA, September 2013

Local Government Area	Lots	Share
Wanneroo	1,524	23.0%
Armadale	1,243	18.7%
Swan	856	12.9%
Rockingham	852	12.8%
Kwinana	641	9.7%
Mandurah	392	5.9%
Serpentine Jarrahdale	350	5.3%
Joondalup	310	4.7%
Murray	162	2.4%
Other	201	4.6%
Total	**6,631**	

Appendix 1:

B3 Connections in Coastal System

Year	Domestic	Cluster	Total
2006	18,334	4,076	22,410
2007	16,170	4,171	20,341
2008	15,487	4,346	19,832
2009	13,548	3,256	16,804
2010	15,044	3,730	18,773
2011	12,527	4,117	16,644
2012	11,256	2,870	14,126
2013	13,356	3,266	16,622

Network installations (km)

	June	Dec	Total
2008	90.3	94.2	184.6
2009	56.4	50.1	106.6
2010	59.1	93.2	152.3
2011	73.8	52.2	125.9
2012	60.6	77.3	137.9
2013	72.6	100.3	172.9