

Electricity, gas & water:
Cost and activity forecasts
2015

Extract to indicate general nature of report



macromonitor

TABLE OF CONTENTS

1.	Cost forecasts	1
1.1	Summary.....	3
1.2	Electricity, Gas & Water Construction Costs.....	5
1.3	Labour Costs.....	10
1.3.1	Labour Cost Measures.....	10
1.3.2	Estimation of EGWW Wages by State	11
1.3.3	Forecasting methodology	12
1.3.4	Labour costs and their determinants	12
1.3.5	Total Labour Cost Forecasts.....	15
1.4	Materials Costs.....	20
1.4.1	Commentary on main drivers of cost growth	20
1.4.2	Data and Forecasts.....	26
1.5	Plant hire and Fuel Costs.....	31
1.5.1	Equipment rental and hire.....	31
1.5.2	Fuel costs	31
2.	Outlook for utilities construction.....	35
2.1	Summary.....	37
2.2	Gas Pipeline Construction	45
2.2.1	Overview	45
2.2.2	Connecting coal seam gas (CSG) to power generation & domestic gas network	49
2.2.3	Other pipelines for power stations.....	53
2.2.4	Connecting CSG to LNG Plants	53
2.2.5	National Gas Pipeline Network connections & expansions	54
2.2.6	Pipelines associated with offshore gas field developments	55
2.2.7	Gas distribution.....	57
2.3	Water and Wastewater Construction	62
2.4	Electricity Construction	84
2.4.1	Overview	84
2.4.2	Generation.....	88
2.4.3	Renewable Energy	92
2.4.4	Distribution.....	94
2.4.5	Transmission	96
2.4.6	State and Territory Information.....	98

LIST OF TABLES

Cost Forecasts

1.1. Electricity – Summary of Costs.....	7
1.2. Gas Pipelines – Summary of Costs.....	8
1.3. Water and Wastewater – Summary of Costs.....	9
1.4. Labour Cost Indicators – Australia.....	17
1.5. Labour Costs – Electricity, Gas, Water and Waste Services.....	18
1.6. Labour Costs - Construction.....	19
1.7. Composition of Utilities Materials Cost Indexes.....	21
1.8. Material Cost Indicators - Australia.....	22
1.9. Electricity – Materials Costs.....	26
1.10. Gas Pipelines – Materials Costs.....	28
1.11. Water and Wastewater – Materials Costs.....	29
1.12. Equipment Rental and Hiring.....	31
1.13. National Fuel Prices.....	34

Outlook for Utilities Construction

2.1. Value of Electricity, Gas and Water Construction Work Done – Australia.....	41
2.2. Value of EGW Construction Work Done –Funded by the Private Sector.....	42
2.3. Value of EGW Construction Work Done –Funded by the Government Sector.....	43
2.4. Value of EGW Construction Work Done –States and Territories.....	44
2.5. Value of Gas Pipelines Construction Work Done – States and Territories.....	46
2.6. Gas Utilities – New Construction – Macromonitor Estimates.....	48
2.7. Gas Transmission – New Construction.....	50
2.8. Gas Distribution Utilities – Components of Construction.....	56
2.9. Gas Distribution Utilities – Major States – New Construction.....	58
2.10. Gas Distribution Utilities – Major States – Renewals/Upgrades.....	59
2.11. Gas Distribution Utilities – Major States – New Connections Construction.....	60
2.12. Gas Distribution Utilities – Major States – Network Capacity Augmentation.....	61
2.13. Value of Water & Wastewater Construction Work Done - Australia.....	65
2.14. Summary of Water and Wastewater Construction.....	68
2.15. Value of Water & Wastewater Construction Work Done – States/Territories.....	70
2.16. Major Water and Wastewater Projects Included in Forecasts.....	72
2.17. Water Utilities – New Construction.....	76
2.18. Water Utilities – New Construction – Work Done by Private Sector.....	77
2.19. Water Utilities – Water and Wastewater Construction – Components.....	78
2.20. Water Utilities – Water Supply Construction – Components.....	79
2.21. Water Utilities – Wastewater Construction – Components.....	80
2.22. Water Utilities – Total Water & Wastewater – Total New Construction.....	81
2.23. Water Utilities – Water Supply – Total New Construction.....	82
2.24. Water Utilities – Wastewater – Total New Construction.....	83

LIST OF TABLES (CONTINUED)**Outlook for Utilities Construction (Continued)**

2.25. Value of Electricity Construction Work Done - Australia.....	85
2.26. Total Australia – Electricity Construction Work.....	87
2.27. Total Australia – Electricity Generation Capacity Added.....	89
2.28. Major Electricity Distribution Businesses – Construction Capital Expenditure.....	93
2.29. Major Electricity Transmission Businesses – Construction Capital Expenditure.....	95
2.30. Value of Electricity Construction Work Done – States and Territories.....	97
2.31. Major Electricity Generation Projects Included in Forecasts – New South Wales.....	100
2.32. New South Wales – Electricity Construction Work.....	101
2.33. Major Electricity Generation Projects Included in Forecasts - Victoria.....	103
2.34. Victoria – Electricity Construction Work.....	104
2.35. Major Electricity Generation Projects Included in Forecasts - Queensland.....	106
2.36. Queensland – Electricity Construction Work.....	107
2.37. Major Electricity Generation Projects Included in Forecasts – South Australia.....	109
2.38. South Australia - Electricity Construction Work.....	110
2.39. Major Electricity Generation Projects Included in Forecasts – Western Australia.....	112
2.40. Western Australia – Electricity Construction Work.....	113
2.41. Major Electricity Generation Projects Included in Forecasts – ACT, TAS and NT.....	114
2.42. Tasmania – Electricity Construction Work.....	115
2.43. Northern Territory - Electricity Construction Work.....	116
2.44. ACT – Electricity Construction Work.....	117

LIST OF CHARTS

Cost Forecasts

1.1. Utilities Construction Costs	3
1.2. Industry Wage Forecasts	4
1.3. Construction Output Cost Indicators	5
1.4. Wage Price Index – Electricity, Gas, Water & Waste Services	11
1.5. Method of Setting Pay by Industry, Australia	12
1.6. Wage Indicators by Industry	13
1.7. Total Construction Activity by State	14
1.8. Utilities Construction - States	15
1.9. Industry Wage Forecasts	16
1.10. Metals Prices and Exchange Rates	20
1.11. Electrical Cable and Wire Manufacturing	23
1.12. Structural Steel Fabricating	24
1.13. Readymixed Concrete and Construction Work Done	25
1.14. Oil and Diesel Fuel Prices	33

Outlook for Utilities Construction

2.1. Electricity, Gas and Water Construction	37
2.2. Electricity, Gas and Water Construction - Australia	38
2.3. Electricity, Gas and Water Construction - Australia	39
2.4. Electricity, Gas and Water Construction – States	40
2.5. Gas Pipeline Construction - Australia	45
2.6. Gas Pipelines Construction – Australia – By Sector of Funding	47
2.7. Gas Distribution – Construction and Renewals	57
2.8. Water & Wastewater Construction - Australia	62
2.9. Water & Wastewater Construction – Australia – By Sector of Funding	63
2.10. Water & Wastewater Construction – Australia – By Sector Doing the Work	64
2.11. Water & Wastewater Construction – Large States	69
2.12. Electricity Construction – Australia	84
2.13. Electricity Construction – Australia - By Sector of Funding	86
2.14. Value of Generation Construction by Type	89
2.15. Electricity Construction – Australia – By Sector Doing the Work	90
2.16. Electricity Generation – Total Australia	91
2.17. Forecast Renewable Energy Investment	92
2.18. Capital Expenditure Plans – New South Wales Distribution Business	94
2.19. Electricity Construction – Large States	98
2.20. NSW Electricity Generation – Additions to Capacity	99
2.21. VIC Electricity Generation – Additions to Capacity	102
2.22. QLD Electricity Generation – Additions to Capacity	105
2.23. SA Electricity Generation – Additions to Capacity	108
2.24. WA Electricity Generation – Additions to Capacity	111

Table 1.1
Electricity - Summary of Costs
Indexes: June 2006=100

As At June	Materials		Construction Wages		Electricity, Gas, Water & Waste Wages		Total Input Costs (Macromonitor)		ABS Output Cost Index	
	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
Forecasts										
2016										
2017										
2018										
2019										
2020										
2021										
2022										
2023										
2024										
2025										
Average Annual Growth										
2010-2015										
Forecasts										
2015-2020										
2020-2025										
Weighting*										

* % of all electricity construction costs

Source: Macromonitor

Once this “other states” series has been computed, it can be further decomposed into the remaining states and territories using other information. For the historical data, we make this approximation using the differences between the general rate of wage inflation in each state (as represented by the all-industries WPI).

1.3.3 Forecasting methodology

There are a number of steps involved in our approach to forecasting industry labour costs. These steps are summarised in the following five points:

- Data collection and estimation,
- Industry analysis (i.e. consideration of method of setting pay within the industry, types of occupations, etc.),
- Economic modelling (i.e. specification of relevant wage determinants),
- Time series and econometric analysis (i.e. examining historical movements and trends in wage growth, and estimating the relative importance of each determinant over time),
- Forecasting – based on forecasts of labour cost determinants, modelling work done in the previous steps, and judgement pertaining to the potential for external shocks or regime change.

Data collection and estimation were discussed above. Results from the remaining steps are summarised and reported below.

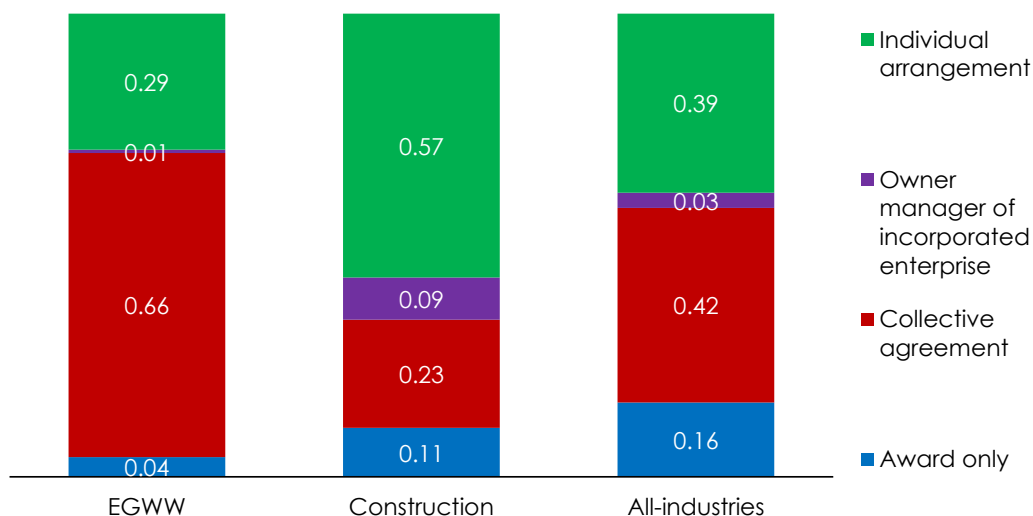
1.3.4 Labour costs and their determinants

In order to build up an understanding of the nature of wages growth in a particular industry, it is useful to consider the methods of setting pay within it, as well as the types of workers that are employed. This step is important for at least two reasons. In the first instance, the flexibility of a worker’s wage through the cycle depends on whether their wage is set by award, individual agreement, or enterprise bargaining. Second, wages for workers in a particular industry can be influenced by developments in industries that employ similar types of workers.

Chart 1.5

Method of Setting Pay by Industry, Australia

Proportion of employees, May 2012



Source: ABS Cat No 6306.0

Table 1.4
Labour Cost Indicators - Australia

As At June	Electricity, Gas, Water and Waste Services				Construction			
	WPI		AWOTE (annual averages)		WPI		AWOTE (annual averages)	
	Index	Annual % Ch.	\$/week	Annual % Ch.	Index	Annual % Ch.	\$/week	Annual % Ch.
2006								
2007								
2008								
2009								
2010								
2011								
2012								
2013								
2014								
2015								
Forecasts								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
2023								
2024								
2025								
Average Annual Growth								
2010-2015								
Forecasts								
2015-2020								
2020-2025								
Weighting*								

Data available in report

Average Weekly Earnings

As we have discussed above, the AWOTE measure includes the effects of compositional changes in the workforce, whereas the WPI measure does not. The AWOTE measure is more volatile than the WPI measure and it has also tended to increase at a faster rate, on average, over a reasonably long period of time.

A higher rate of growth in the AWOTE measure indicates a compositional change in the workforce towards higher paid occupations, or higher skill levels. This long term 'up-skilling' of the workforce has resulted in an average differential between growth in AWOTE and growth in the WPI of 0.7%, on average, over the period from 1998 to 2013.

The ups and downs of this differential – the timing of the differences between AWOTE and WPI growth – could be due to a number of factors, but they difficult to understand and predict. Therefore, we have assumed a more-or-less stable differential between AWOTE growth and WPI growth in our forecasts. This differential averages around 0.6% per year over the forecast years from 2013/14 to 2022/23. Table 1.4 provides forecasts of both the WPI and AWOTE measures at the national level.

Table 1.5
Labour Costs - Electricity, Gas, Water and Waste Services
Wage Price Indexes
Indexes: June 2006=100

As At June	New South Wales		Victoria		Queensland		South Australia		Western Australia		Total Australia	
	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch
2006												
2007												
2008												
2009												
2010												
2011												
2012												
2013												
2014												
2015												
Forecasts												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
Average Annual Growth												
2010-2015												
Forecasts												
2015-2020												
2020-2025												

Source: Macromonitor

Table 1.8
Material Cost Indicators - Australia

As At June	Electricity		Gas		Water and Waste		Total Utilities (weighted average)	
	Index	Annual % Ch.	Index	Annual % Ch.	Index	Annual % Ch.	Index	Annual % Ch.
2006								
2007								
2008								
2009								
2010								
2011								
2012								
2013								
2014								
2015								
Forecasts								
2016								
2017								
2018								
2019								
2020								
2021								
2022								
2023								
2024								
2025								
	Average Annual Growth							
2010-2015								
Forecasts								
2015-2020								
2020-2025								
Weighting*								

Source: ABS & Macromonitor

1.4.2 Data and Forecasts

Table 1.9
Electricity - Materials Costs
 Indexes: June 2006=100

As At June	Plastic Pipe and Conduit		Iron & Steel Products		Fabricated Metal Products		Bolts, Nuts & Screws		Wood Products		Readymixed Concrete	
	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch
2006												
2007												
2008												
2009												
2010												
2011												
2012												
2013												
2014												
2015												
Forecasts												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
Average Annual Growth												
2010-2015												
Forecasts												
2015-2020												
2020-2025												
Weighting*	8.5%		3.0%		0.2%		1.2%		1.5%		2.0%	

Data available in report

* % of all electricity construction costs

Source: Macromonitor

Table 1.9 Continued
Electricity - Materials Costs Continued
 Indexes: June 2006=100

As At June	Concrete Pipes and Fittings		Wire & Spring		Electrical Cable		Electric Lighting Equipment		Other Electrical Equipment		Insulation		Total Materials	
	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch	Index	Ann. %Ch
2006														
2007														
2008														
2009														
2010														
2011														
2012														
2013														
2014														
2015														
Forecasts														
2016														
2017														
2018														
2019														
2020														
2021														
2022														
2023														
2024														
2025														
Average Annual Growth														
2010-2015														
Forecasts														
2015-2020														
2020-2025														
Weighting*														

Data available in report

Source: Macromonitor

* % of all electricity construction costs

Table 2.1
Value of Electricity, Gas & Water Construction Work Done - Australia

Chain Volume Measures - 2012/13 Prices

Year Ended June	Gas Pipelines		Water		Wastewater		Electricity		Total	
	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999										
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
Forecasts										
2016										
2017										
2018										
2019										
2020										
2021										
2022										
2023										
2024										
2025										
Average Annual Growth Rates										
2005-2010										
2010-2015										
Forecasts										
2015-2020										
2020-2025										

Data available in report

Source: ABS & Macromonitor

Table 2.5
Value of Gas Pipelines Construction Work Done - State and Territories

Chain Volume Measures - 2012/13 Prices

Year Ended June	NSW		VIC		QLD		SA		WA		TAS		NT		ACT		AUSTRALIA		
	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	\$M	Ann. %Ch	
2001																			
2002																			
2003																			
2004																			
2005																			
2006																			
2007																			
2008																			
2009																			
2010																			
2011																			
2012																			
2013																			
2014																			
2015																			
Forecasts																			
2016																			
2017																			
2018																			
2019																			
2020																			
2021																			
2022																			
2023																			
2024																			
2025																			
Average Annual Growth Rates																			
2005-2010																			
2010-2015																			
Forecasts																			
2015-2020																			
2020-2025																			

Source: ABS & Macromonitor

Table 2.7
Gas Transmission - New Construction
\$ Million - Constant 2012/13 Prices

	Total Cost (\$m)	Historical										Forecasts								
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
New South Wales																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Other Projects																				
- Rehabilitation and Augmentation																				
TOTAL NSW																				
Victoria																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Project Name																				
- Other Projects																				
- Rehabilitation and Augmentation																				
TOTAL VIC																				

Table 2.19
Water Utilities - Water & Wastewater Construction
Components of Construction - Macromonitor Estimates
 2012/13 \$ Million

	2008	2009	2010	2011	2012	2013	2014	2015	Forecasts				
									2016	2017	2018	2019	2020
Dams, Plants & Headworks													
New South Wales													
Victoria													
Queensland													
South Australia													
Western Australia													
Tasmania													
Northern Territory													
ACT													
TOTAL													
Network Renewals & Augmentation													
New South Wales													
Victoria													
Queensland													
South Australia													
Western Australia													
Tasmania													
Northern Territory													
ACT													
TOTAL													
New pipe networks & Irrigation													
New South Wales													
Victoria													
Queensland													
South Australia													
Western Australia													
Tasmania													
Northern Territory													
ACT													
TOTAL													
Other (recycled water, stormwater & drainage)													
New South Wales													
Victoria													
Queensland													
South Australia													
Western Australia													
Tasmania													
Northern Territory													
ACT													
TOTAL													

Source: Macromonitor Estimates

Table 2.22**Water Utilities - Total Water & Wastewater****Total New Construction - Macromonitor Estimates**

2012/13 \$ Million

								Forecasts				
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New South Wales												
- Sydney Water												
- Hunter Water												
- Gosford & Wyong Councils												
- Sydney Catchment Authority												
- State Water Corporation												
- Local Govt. & Other Public												
- Private Sector												
TOTAL NSW												
Victoria												
- Melbourne Water												
- City West Water												
- South East Water												
- Yarra Valley Water												
- Non-Major												
- Other Public Sector												
- Private Sector												
TOTAL												
Queensland												
- Cairns Water and Waste												
- SEQWater												
- QLD Urban Utilities												
- Unity Water												
- Gold Coast Water												
- Logan Water												
- Redland Water												
- Other Authorities												
- SEQ Water Plan												
- Other Public Sector												
- Private Sector												
TOTAL												
South Australia												
- SA Water												
- Private Sector												
TOTAL												
Western Australia												
- Water Corporation												
- Private Sector												
TOTAL												
Tasmania												
- Southern Water												
- Ben Lomond Water												
- Cradle Mountain Water												
- Other Public Sector												
- Private Sector												
TOTAL												
Northern Territory												
- PAWA												
- Private Sector												
TOTAL												
ACT												
- Actew												
- Private Sector												
TOTAL												
TOTAL OF STATES												

Source: Macromonitor Estimates