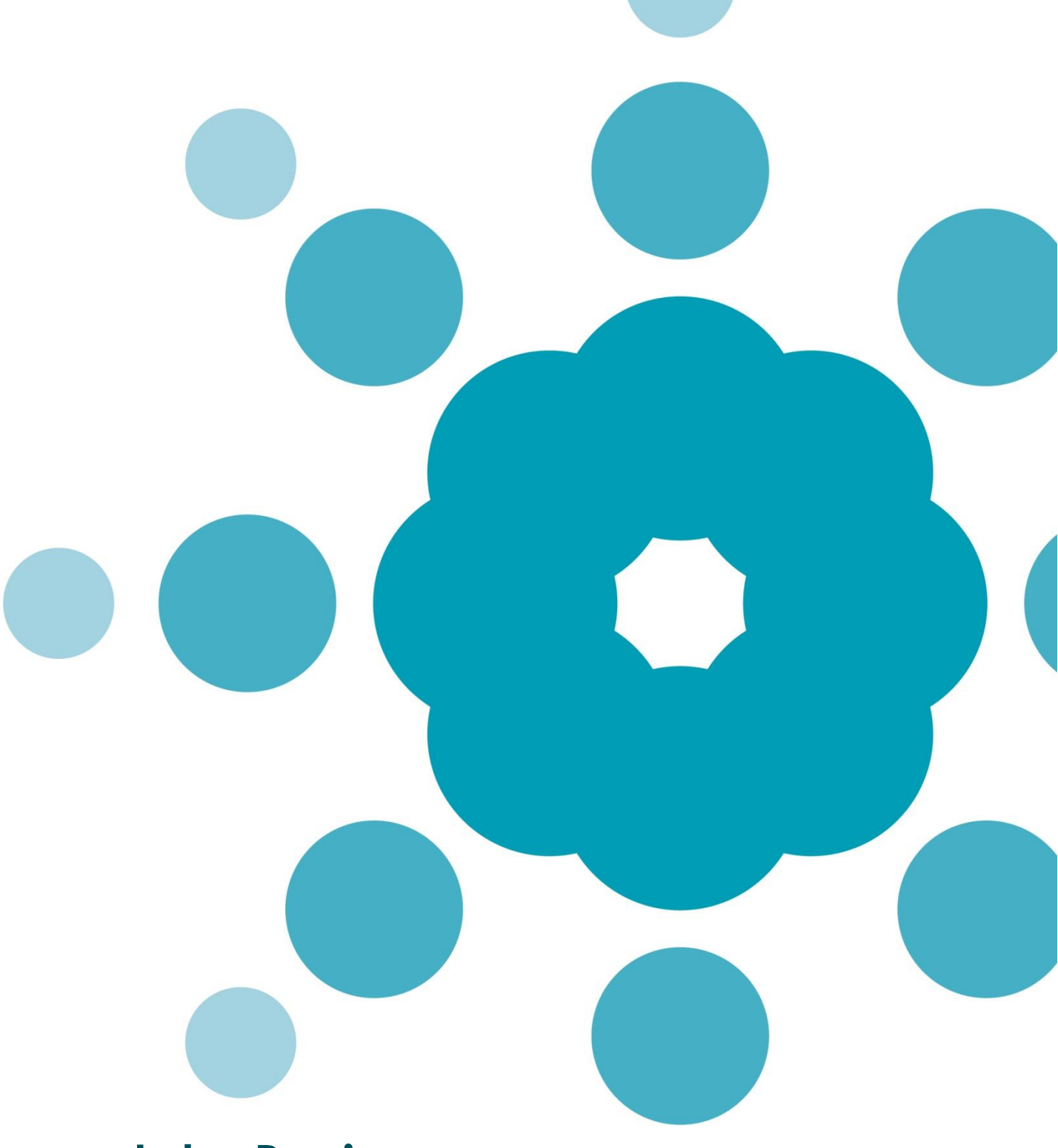

Forecasts by Region

Report prepared for CitiPower, Powercor & United Energy

August 2024

macromonitor

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Summary

Objective & approach

Our objective in this report is to provide forecasts of residential building, non-residential building, renewable energy investment and data centre construction, by network area, for CitiPower, Powercor and United Energy, including detailed commentary, graphs and other supporting information.

The forecasts cover the period through to June 2031. Macromonitor is well placed to provide these forecasts, as a result of our regular, extensive analysis and forecasting work at the state and regional level, covering demographics, households, dwellings, non-residential buildings and electricity construction.

Macromonitor has extensive experience in forecasting building and construction activity. We are highly regarded for our forecasting techniques and the thoroughness of the research which underlies our forecasts.

Residential building

Victoria is currently experiencing a large downturn in the number of new dwellings approved and commenced, due to a period of higher interest rates, combined with the inevitable decline following the end of the *HomeBuilder* scheme. The most recent data, up to June 2024, show some signs of improvement, however, and indicate that the conditions are being put in place for the next upturn, expected during 2024/25.

A key factor in the timing of the upturn will be interest rates. We expect the first reduction in rates to occur around the end of calendar 2024 or early 2025. Demand for dwellings is high, due to record levels of immigration, but affordability is poor. Along with lower interest rates, a normalisation of building cost inflation is expected during 2024/25, which will mean a better ratio of house values to building cost.

We expect a gradual upturn in 2024/25, with weak economic conditions and poor household confidence limiting the upturn initially. We expect a total increase in dwelling approvals of just less than 7% in 2024/25, then accelerating to around 15% in 2025/26. Another downturn is then expected at the end of the forecast period, from around 2027/28.

Non-residential building

Non-residential building activity in Victoria has been running at historically high levels over the past five years. The sub-sectors that drove this boom in Victoria, were offices, accommodation, warehouses, education and more recently health.

We estimate a fall of 17.7% in commencements occurred in the year to June 2024, due to falls in Victoria's largest sub-sectors, which is in line with the broader slowdown in the economy. We forecast a brief uptick in 2025 from a surge in health and other commercial buildings, before commencements fall again.

Commercial and industrial space is now being added at a time when the economy is slowing. Consequently, there will be little incentive for new investment over the next few years. And the

Victorian Government is facing mounting pressure to reign in public spending following large investments in projects.

From 2024/25, the backlog of work done will be exhausted and will then realign with the trend in commencements. We forecast work done to fall from over $17 billion in 2023/24, to around $15 billion in 2025/26. Looking longer term, annual work done is then expected to steadily rise once again, through to $16.1 billion in 2030/31. This level of activity is still very high from a historical perspective.

Renewable energy

Construction activities in the renewable energy sector in Victoria have experienced significant acceleration in recent years, with total value of work done going from around $800 million in 2020/21 to an estimated $2 billion in 2023/24 (both figures in constant 2021/22 prices).

This upward trend is expected to continue, with more growth forecast over the next two years. We expect a peak of $3.1 billion (in constant 2021/22 prices) in FY2026, followed by gradual decline.

Construction is estimated to have more than doubled in 2023/24, and another large rise of 56% is forecast for 2024/25. This upward trend is expected to reach its peak, at $3.1 billion, in 2025/26, mainly driven by the large Golden Plains Wind Farm project ($3 billion). This peak level of construction also coincides with the state's target of 40% renewable energy by 2025.

Despite expected declines in construction activity in the subsequent three years to 2028/29, total value of work done will remain elevated at around $2.8 billion in 2026/27 and $2.1 billion in 2027/28 (both figures in constant 2021/22 prices). This levels of investment remains substantially higher than it has been in the past.

Data centres

Data Centre construction in Victoria has become a booming sector with over $1.2 billion worth of project commencements in 2022/23, on our estimates. The widespread adoption of cloud services, rapid development of AI, and government requirements for onshore data storage are all combining to drive a boom in data centre construction.

Commencements have been rapidly increasing since 2020/21 with the value of work commenced more than doubling each year from $170 million to $1.2 billion in 2022/23. Following this boom, we estimate a decline to $620 million in 2023/24 before lifting again to $1,053 million in 2024/25. For the remainder of the forecast period, we expect relatively stable investment, but with a slight trend decline.

The overall downward trend from the 2022/23 peak, is due to the large amount of capacity being added during the current boom – as the industry is essentially established in Victoria. Future additions to capacity will not need to be as large every single year as they are currently, and demand growth can also partially be met by expansion of existing facilities which is cheaper than new developments. However, it should be noted that although commencements are forecast to decline, the average value of around $770 million from 2025/26 to 2030/31, is still a historically very high level for the sector.

Geographic regions

We provide data and forecasts for three geographic regions, which approximately match the network areas of the three businesses: CitiPower, Powercor and United Energy.

We have described the three geographic areas using the 'Australian Statistical Geography Standard' (ASGS) which is used by the Australian Bureau of Statistics (ABS). From the ASGS, we use a combination of SA2, SA3 and SA4 regions to define the regions. The table below outlines the ASGS regions that are included in each of the three business areas.

Table 1
Macromonitor's Approximate Geographic Regions

CitiPower	United Energy	Powercor
206: Melbourne – Inner: - 20601 Brunswick - Coburg - 20602 Darebin - South - 20604 Melbourne City - 20607 Yarra - 20605 Port Phillip - 20606 Stonnington - West **207:** Melbourne – Inner East: - 20701 Boroondara - Excluding two SA2 regions: *207011150 Glen Iris - East* *207011146 Ashburton*	**207:** Melbourne – Inner East: - 20702 Manningham – West - 20703 Whitehorse – West **208:** Melbourne – Inner South - All **211:** Melbourne – Outer East - 21104 Whitehorse – East **212:** Melbourne – South East - 21202 Casey – North - 21204 Dandenong - 21205 Monash **214:** Mornington Peninsula - All **207:** Melbourne - Inner East - Includes two SA2 regions: *207011150 Glen Iris - East* *207011146 Ashburton*	**201:** Ballarat - All **202:** Bendigo - All **203:** Geelong - All **210:** Melbourne - North West - 21002 Macedon Ranges **213:** Melbourne West - 21301 Brimbank - 21302 Hobsons Bay - 21304 Melton - Bacchus Marsh - 21305 Wyndham **215:** North West - All **216:** Shepparton - All **217:** Warrnambool & South West - All

Maps showing the boundaries of these approximate regions, along with the actual network areas for the three businesses for comparison, are shown on the following three pages.

These geographic regions are similar to, but not the same as, the standard geographic regions used in Macromonitor's usual building and construction forecasting work.

Figure 1
CitiPower Regions Comparison

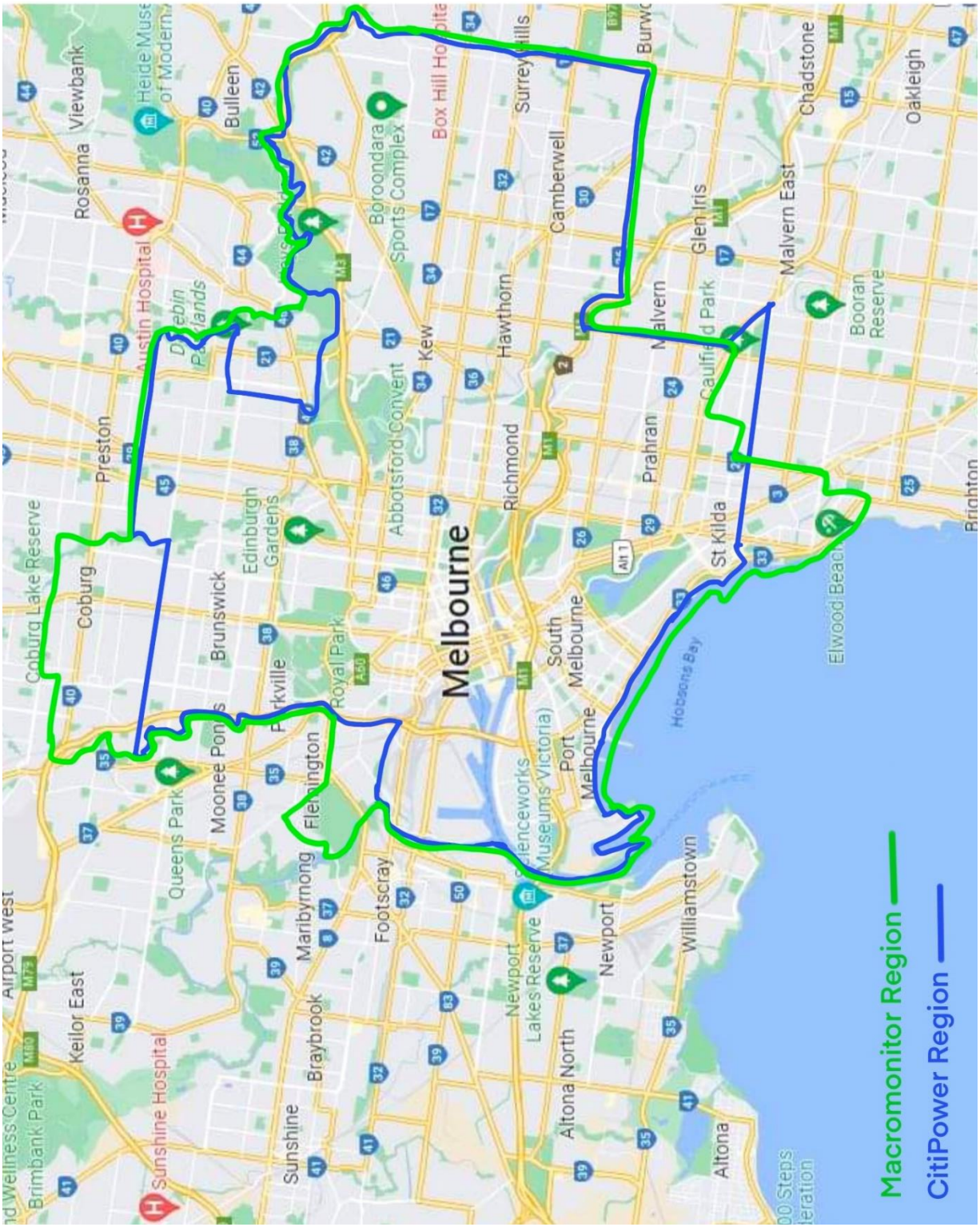


Figure 2
United Energy Regions Comparison

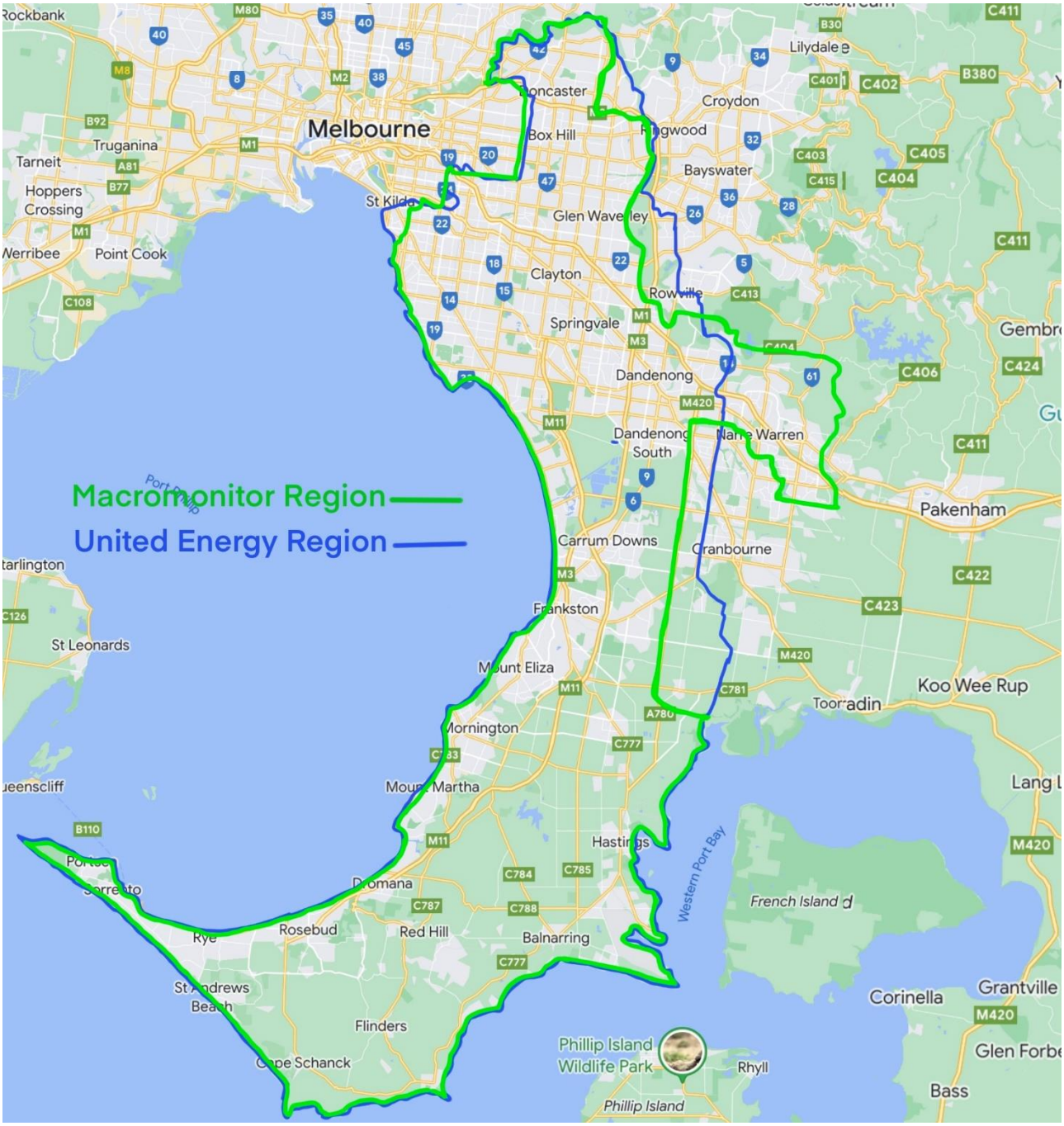
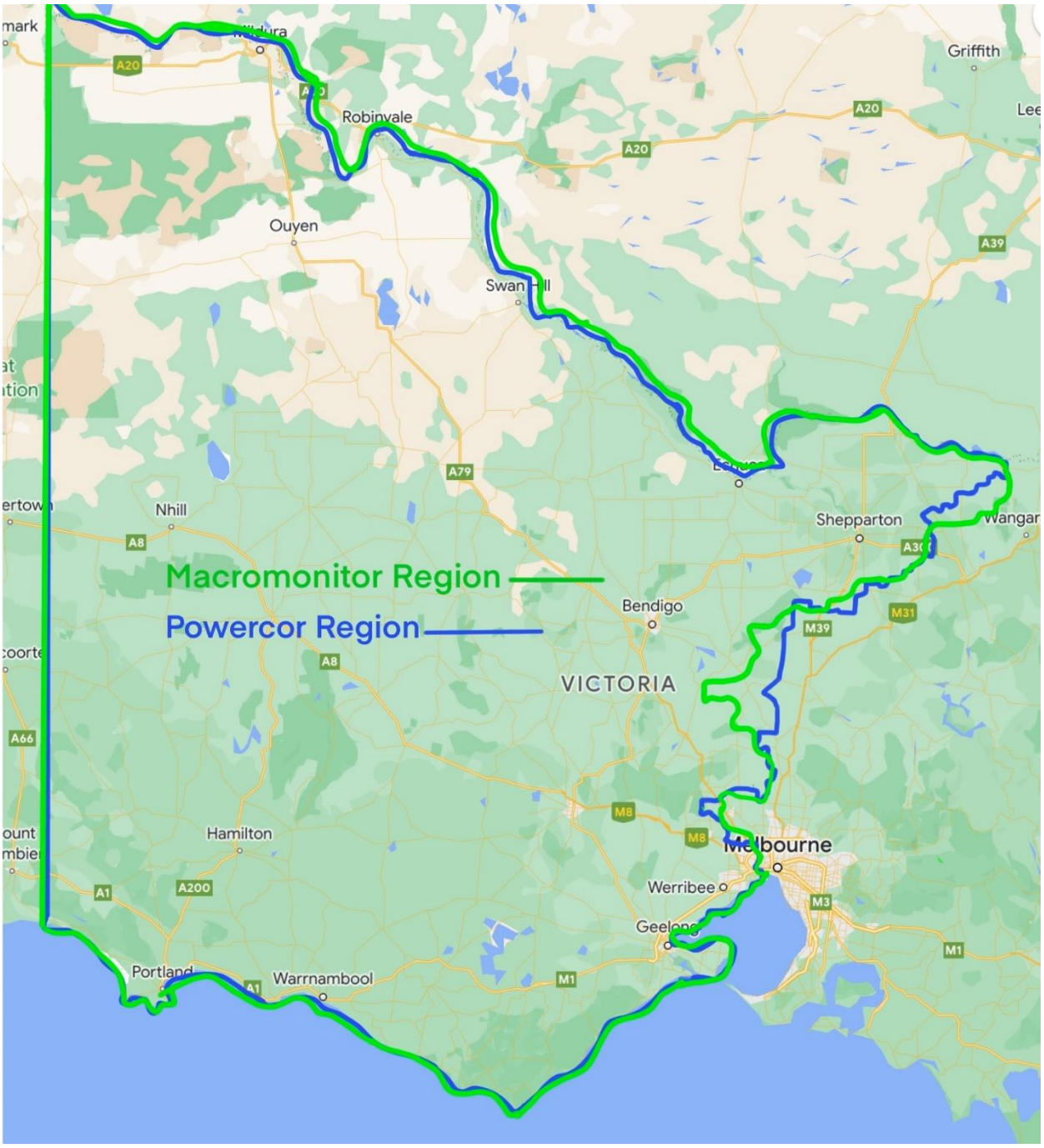


Figure 3
Powercor Regions Comparison



1. Residential Building Forecasts

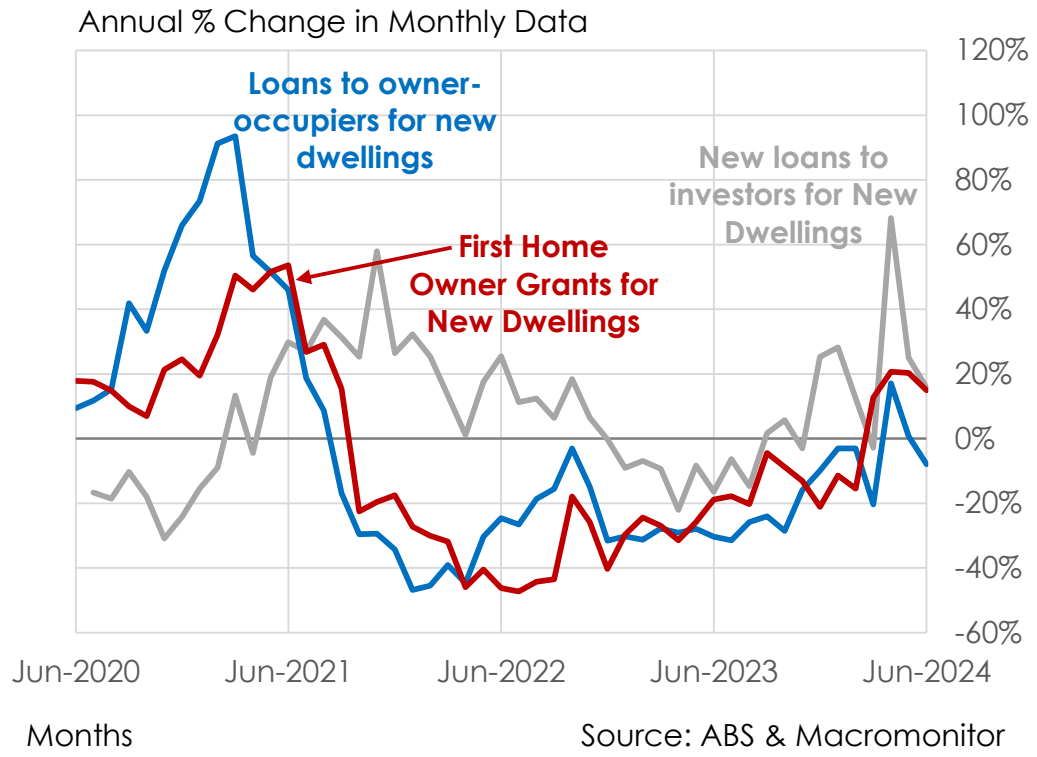
1.1 Outlook for Victoria

Victoria is currently experiencing a large downturn in the number of new dwellings approved and commenced, due to a period of higher interest rates, combined with the inevitable decline following the end of the *HomeBuilder* scheme.

Total dwelling approvals began to fall in 2021/22, with a drop of 4%. Although there was still some strength in the multi-unit dwelling segment this was not enough to offset a 15% decline in house approvals. The downturn continued, this time in both segments, through 2022/23 and 2023/24.

The most recent data, up to June 2024, show some signs of improvement, and indicate that the conditions are being put in place for the next upturn in residential building starts, which is expected during 2024/25.

Chart 1
Leading Indicators of Dwelling Starts - Victoria

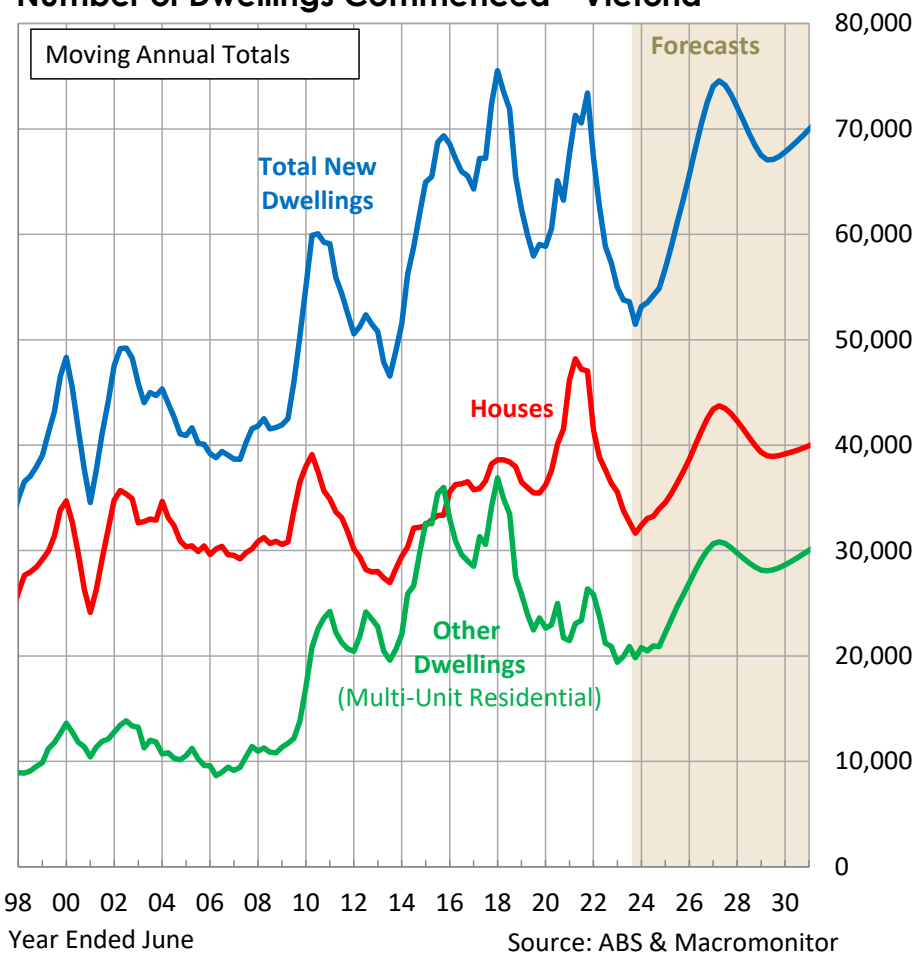


A number of key leading indicators are now moving into positive growth territory (see chart below). The number of monthly loans for new dwellings to owner occupiers and to investors have move into positive growth in recent months, as has the estimated number of grants to first home owners (which only applies to new dwellings).

Furthermore, the backlog of work still to be done on residential building is consistently falling, which means that capacity within the building industry will become available for an increase in starts.

A key factor in the timing of the upturn will be interest rates. We expect the first reduction in rates to occur around the end of calendar 2024 or early 2025. Demand for dwellings is high, due to record levels of immigration, but affordability is poor. Along with lower interest rates, a normalisation of building cost inflation is expected during 2024/25, which will mean a better ratio of house values to building cost.

Chart 2
Number of Dwellings Commenced - Victoria



Source: ABS & Macromonitor

Total net migration inflows into Victoria are currently sitting at an all-time high. In calendar 2023, there was a net inflow of 160,000 people into Victoria, compared to a pre-COVID peak of around 100,000 in 2016 and 2017. High migration flows are driving an increase in occupant demand. We estimate that occupant demand was around 54,000 dwellings per year in the five years 2016 to 2021, but is now around 65,000 dwellings per year.

We expect a gradual upturn in 2024/25, with weak economic conditions and poor household confidence limiting the upturn initially. We expect a total increase in dwelling approvals of just less than 7% in 2024/25, then accelerating to around 15% in 2025/26.

We expect the next upturn to be quite large, with an increase of around 39% in number of dwellings commenced, between the low point of 2023/24 and the peak in 2026/27. In percentage terms, this upturn is forecast to be very similar to the two previous upturns (2007 to 2010 and 2013 to 2016) but smaller than some prior upturns.

Government policy will be supportive of the upturn (including the National Housing Accord, Housing Australia Future Fund and Social Housing Accelerator Payment), while not being the key driver.

The next upturn is likely to feature roughly similar amounts of growth in both detached houses and multi-unit residential. And we expect the importance of the investor segment to rise even further in prominence over this next cycle.

Another downturn is then expected at the end of the forecast period, from around 2027/28.

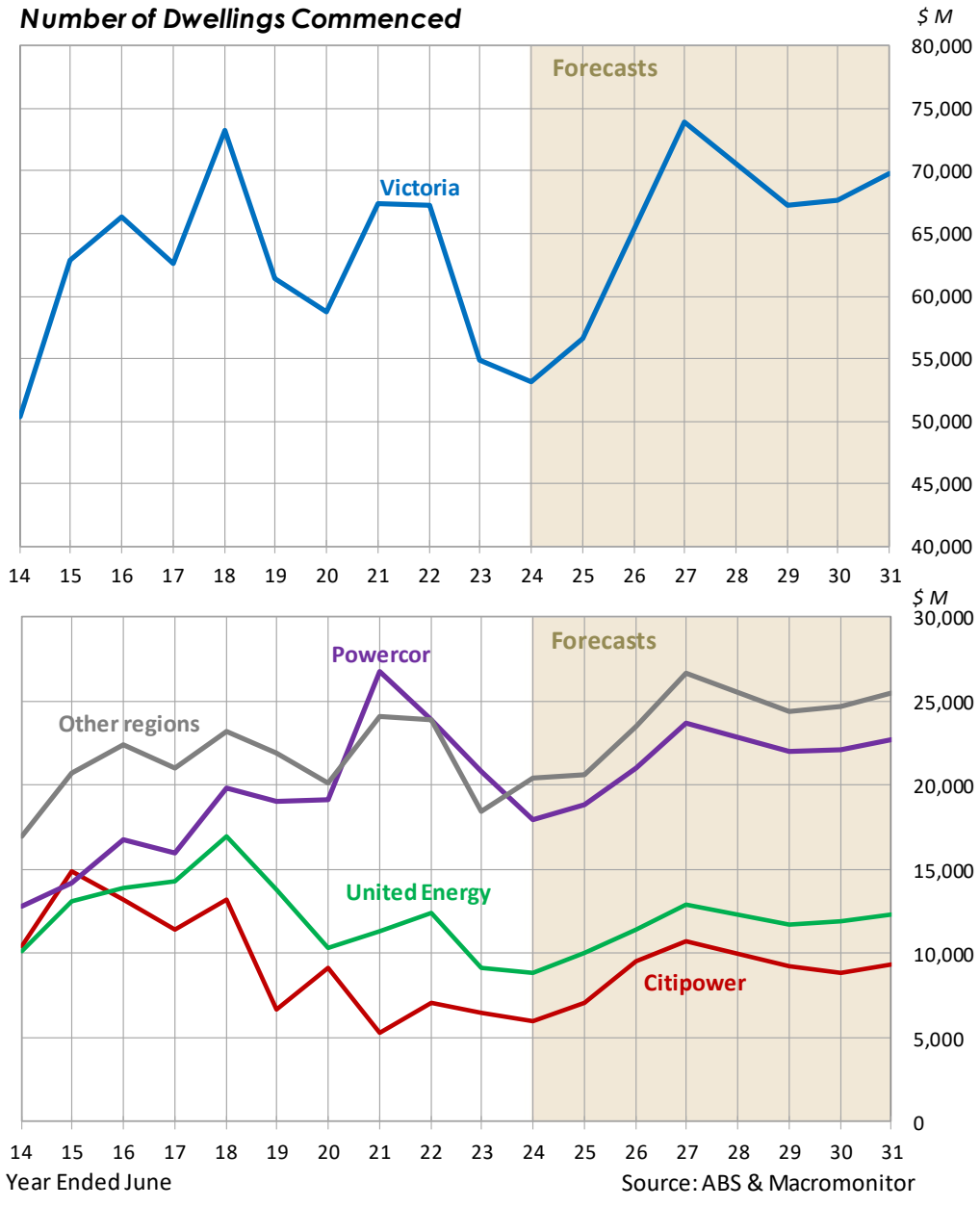
1.2 Regional Breakdown

To produce forecasts for each region, we have, first, estimated occupant demand by region. Occupant demand is demand based on population growth, the age profile of population growth, household formation rates, and other demographic factors. The demographic profiles of each region can be quite different, so we initially estimate this measure of demand.

We estimate that current occupant demand (annual demand during the ten years from 2022 to 2031), in the three regions is as follows:

- Powercor region – around 23,000 dwellings per year,
- United Energy region – around 11,200 dwellings per year,
- CitiPower region – around 9,000 dwellings per year.

Chart 3
Residential Building - Victoria Regions
Number of Dwellings Commenced



The Powercor region has the largest population and the largest annual population increase, at around 38,000 people per year over the next seven years (2024 to 2031). CitiPower has the smallest population, and the smallest annual increase expected over the next decade, at around 16,000 per year. In percentage growth terms however, the CitiPower region increase should be slightly higher than the total state growth rate over the seven years (2.0% vs 1.6% per year). CitiPower also a relatively high proportion of its population growth in the important 15 to 64 years age range.

In conjunction with these long run population drivers, there are cycles in activity in each region which move the actual number of dwellings built above and below occupant demand over time. The drivers of these cycles are largely the same as the state-wide drivers described above; namely, interest rates, State and Federal government incentives, economic growth and employment, swings in broader migration patterns etc.

Each region is experiencing a decline at present. The Powercor region has experienced the largest decline, with an estimated total drop of one-third (33%) in the number of dwellings commenced between the peak of 2020/21 and 2023/24. The decline was greater – 35% - in approvals terms. But all regions have had sizeable declines over the past two to three years, as a result of the same drivers outlined in the section above on total Victoria.

Looking ahead, we expect a solid upturn in total dwelling commencements, starting in 2024/25 and peaking in 2026/27. The Powercor region should have a relatively slow upturn in initially, in 2024/25), before building momentum in the following two years. Over the next three years we expect the Powercor region to have the largest increase in total dwelling commencements, but the smallest increase in percentage terms. The most rapid growth, in percentage terms, is expected in the CitiPower region.

We expect the peak to be reached in 2026/27 in all regions, prior to the next downturn – largely in line with the total state outlook.

1.3 Forecasting Methodology

Our forecasting approach involves examining two types of demand for dwellings:

- *Occupant demand* – or the number of dwellings required to house the population, based on projections of the size and composition of the population and a given set of household formation behaviour assumptions, and
- *Purchaser demand* – or the actual number of new dwellings purchased, or paid for, by the various categories of buyers.

Occupant demand should be looked at as a long run determinant of dwelling construction levels, while purchaser demand (the actual decisions made to construct or purchase a new dwelling), drives the year-to-year, cyclical fluctuations. In reality, these two types of demand are not independent, as greater supply (created by the purchasers) can lead to greater demand from occupants and vice versa. They need to be examined in conjunction in order to build a complete picture of the market. Over the long term (over a five or ten-year period) occupant demand should equal purchaser demand, which equals the total number of dwellings built.

The Australian Bureau of Statistics (ABS) releases residential building approvals data at the SA4, SA3 and SA2 regional levels. We use these data to estimate commencements at the regional level by allocating activity according to the proportion of approvals in the region.

Table 2
Number of Total Dwellings Approved

Numbers

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2020	10,003		10,371		19,387		20,254		60,015	
2021	4,688	- 53.1	11,252	8.5	27,508	41.9	24,877	22.8	68,325	13.8
2022	7,596	62.0	12,065	7.2	22,924	- 16.7	23,237	- 6.6	65,822	- 3.7
2023	7,582	- 0.2	9,099	- 24.6	20,082	- 12.4	18,517	- 20.3	55,280	- 16.0
2024	5,067	- 33.2	8,233	- 9.5	17,827	- 11.2	20,370	10.0	51,497	- 6.8
Forecasts										
2025	7,515	48.3	10,059	22.2	19,115	7.2	21,020	3.2	57,709	12.1
2026	9,476	26.1	11,658	15.9	21,564	12.8	24,446	16.3	67,144	16.3
2027	10,478	10.6	13,042	11.9	24,101	11.8	27,487	12.4	75,107	11.9
2028	9,799	- 6.5	12,283	- 5.8	23,547	- 2.3	26,205	- 4.7	71,833	- 4.4
2029	8,825	- 9.9	11,737	- 4.4	22,086	- 6.2	24,788	- 5.4	67,438	- 6.1
2030	8,595	- 2.6	12,034	2.5	22,429	1.5	25,356	2.3	68,414	1.4
2031	9,103	5.9	12,470	3.6	22,941	2.3	26,095	2.9	70,610	3.2

Source: ABS & Macromonitor

Table 3
Estimated Number of Dwellings Commenced

Numbers

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2020	9,152		10,332		19,144		20,095		58,723	
2021	5,241	- 42.7	11,281	9.2	26,756	39.8	24,131	20.1	67,409	14.8
2022	7,117	35.8	12,395	9.9	23,889	- 10.7	23,873	- 1.1	67,274	- 0.2
2023	6,485	- 8.9	9,144	- 26.2	20,837	- 12.8	18,420	- 22.8	54,886	- 18.4
2024	5,971	- 7.9	8,803	- 3.7	17,907	- 14.1	20,421	10.9	53,103	- 3.2
Forecasts										
2025	7,092	18.8	10,042	14.1	18,869	5.4	20,611	0.9	56,613	6.6
2026	9,507	34.1	11,375	13.3	21,045	11.5	23,489	14.0	65,416	15.5
2027	10,733	12.9	12,856	13.0	23,651	12.4	26,651	13.5	73,891	13.0
2028	10,242	- 4.6	12,347	- 4.0	23,445	- 0.9	25,866	- 2.9	71,900	- 2.7
2029	9,231	- 9.9	11,727	- 5.0	21,992	- 6.2	24,374	- 5.8	67,323	- 6.4
2030	8,895	- 3.6	11,916	1.6	22,139	0.7	24,706	1.4	67,656	0.5
2031	9,345	5.1	12,347	3.6	22,659	2.4	25,440	3.0	69,792	3.2

Source: ABS & Macromonitor

2. Non-residential Building Forecasts

2.1 Outlook for Victoria

Non-residential building activity in Australia is set to plateau over the next two years following the completion of a strong upturn, with commencements now on the precipice of a downturn. National activity levels will now be primarily supported primarily by government building work, in particular major hospital projects.

In Victoria, non-residential building activity has been running at historically high levels over the past five years, with total work done for the sector averaging around $14.6 billion per year since 2016/17, compared to the $9.7 billion average for the ten years prior (both in 2021/22 constant prices).

The sub-sectors that drove this boom in Victoria, were offices, accommodation, warehouses, education and, more recently, health.

Commencements reached $18.4 billion in the year to June 2023 and we expect that this is the peak. We estimate a fall of 17.7% in commencements in the year to June 2024, due to falls in education, health, offices, retail and data centres. This is partly due to the large government building commencements in 2022/23, as well as being a result of slowing economic growth. We forecast a brief uptick in 2025, as a result of some more big commencements, in most notably in health, but also in offices, retail and data centres, before commencements fall once again in 2025/26.

Chart 4
Commercial Building - Victoria

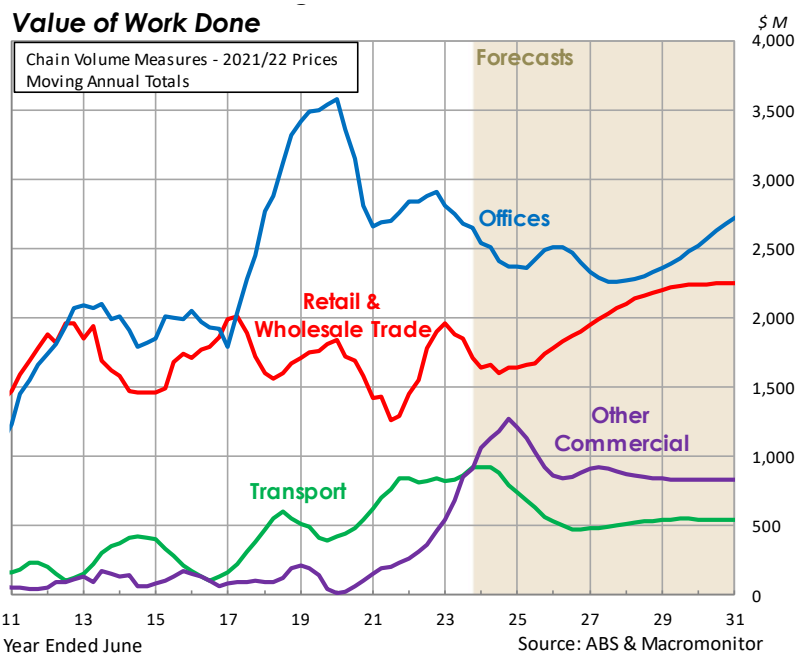
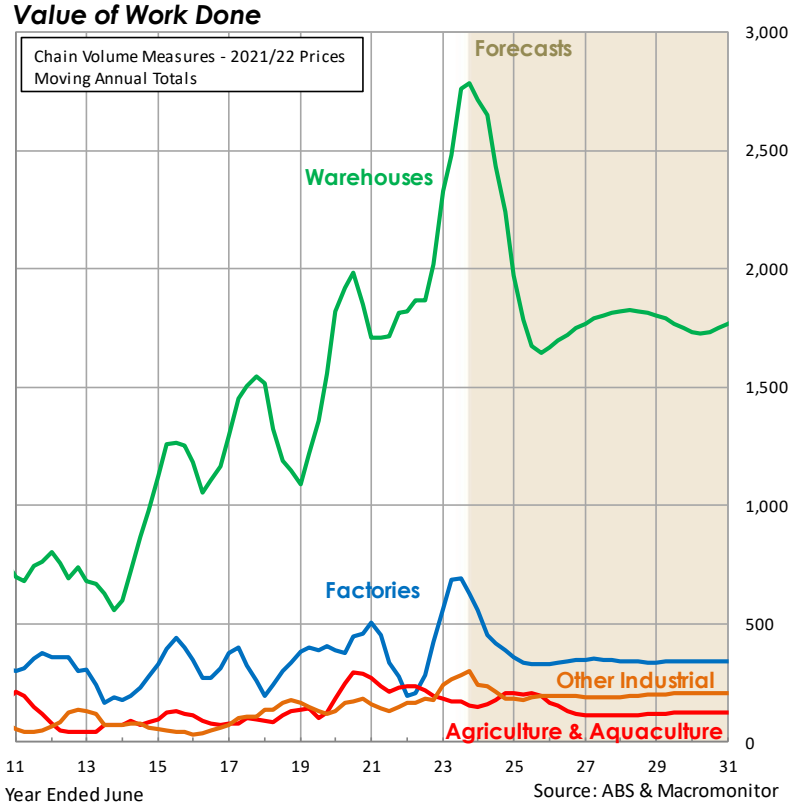


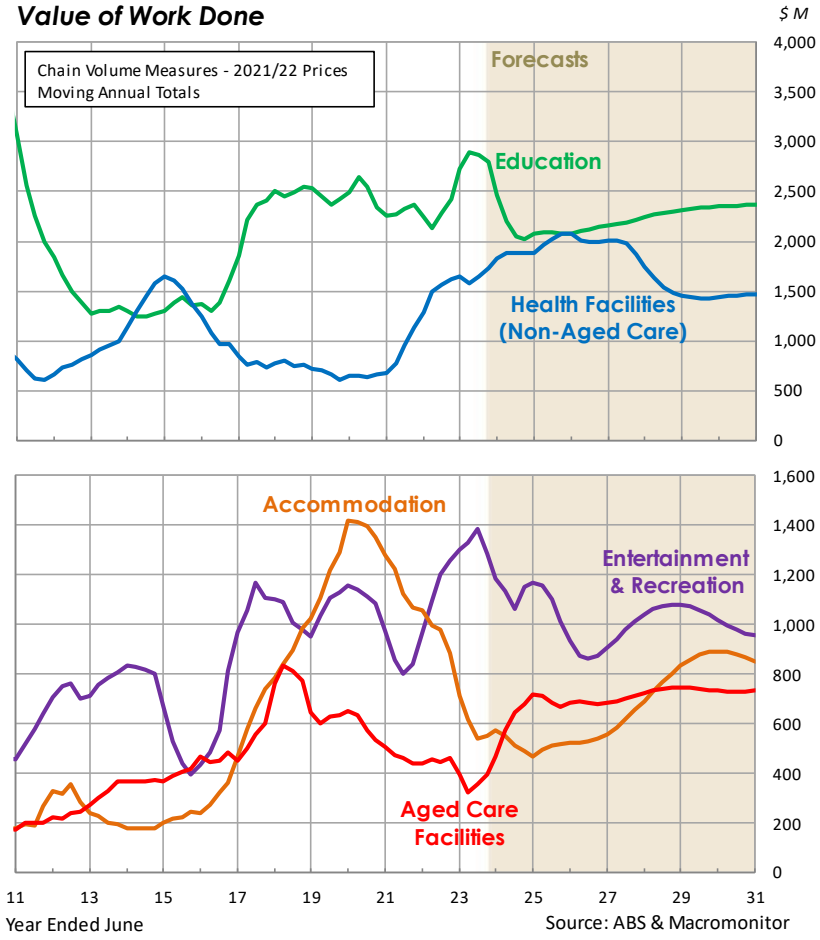
Chart 5
Industrial Building - Victoria



Commercial and industrial space is now being added at a time when the economy is slowing. Consequently, there will be little incentive for new investment, and this will lead to the expected decline in private sector commencements in 2025/26.

The Victorian Government is facing mounting pressure to reign in public spending following large investments in projects in response to the pandemic. High inflation and labour market shortages, especially in the infrastructure sector, resulted in sharply rising project costs. This is compounded by the slowing of the economy, which is lowering government revenue growth.

Chart 6
Other Non-Residential Building - Victoria
Value of Work Done



This strain has already caused reduced spending, including a scrapped $1.6 billion redevelopment of the Royal Melbourne and Royal Women's Hospital in Arden, delay and spending freeze on the $10 billion Melbourne Airport Rail and a delay in rollout of 30 new childcare centres, 35 mental health centres and 29 school upgrades. Although there are budgetary constraints, we still expect government spending to remain relatively high with major health and education projects forecast to commence in 2024/25. However, a decline in public sector building commencements is forecast for 2025/26 and 2026/27.

Work Done increased by 11.4% in the year to June 2023 to $17.3 billion (2021/22 constant prices), taking activity well above the previous record peak of 2019/20. This growth is driven by industrial sub-sectors, retail, education and entertainment & recreation. We estimate work done decreased marginally, by 0.4%, over the year to June 2024, largely due to falls in both education and offices, offsetting growth in aged care, other commercial and transport segments.

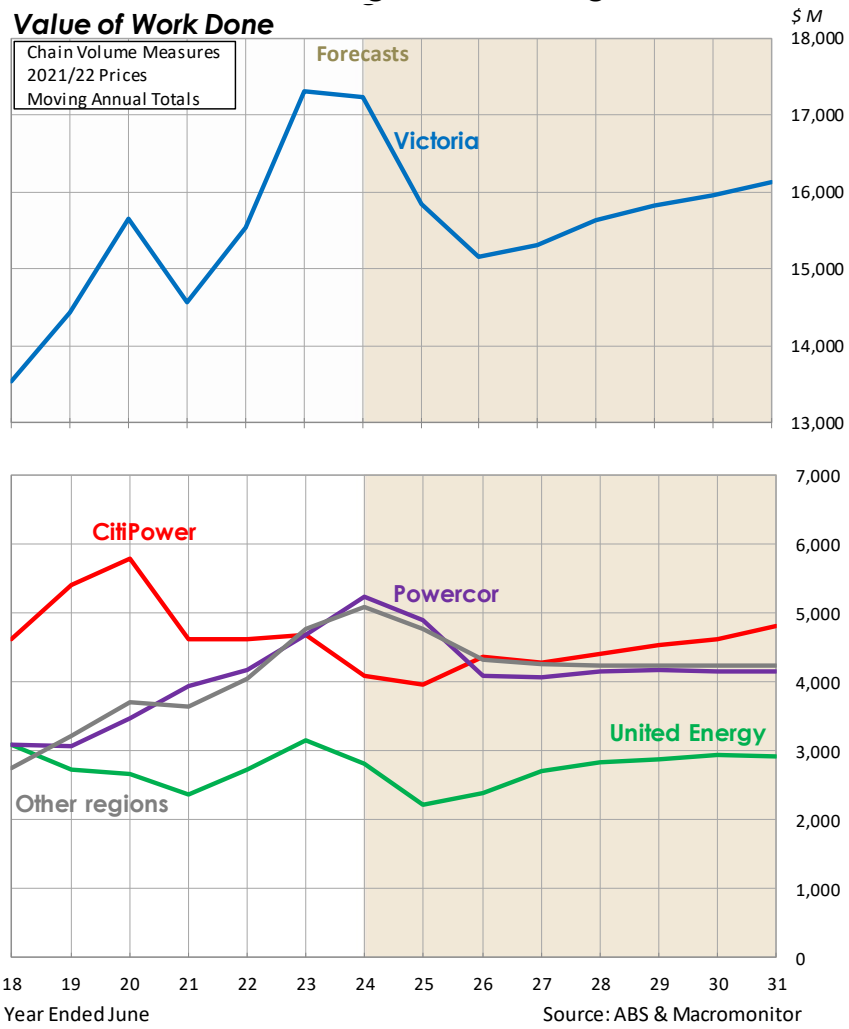
A large spike in commencements in other commercial building in 2023 is forecast to follow through to work done, we estimate an increase of 97% over the year to June 2024. This growth can be attributed to the burst in construction of data centres, which we expect to remain high in metro areas.

From 2024/25, the backlog of work done will be exhausted and will then realign with the trend in commencements. We forecast work done to fall to $15.1 billion in 2025/26. Looking longer term, annual work done is expected to steadily rise once again, through to $16.1 billion in 2030/31. This level of activity, while lower than the 2023/24 peak, is still very high from a historical perspective.

2.2 Regional Breakdown

Victoria's non-residential building construction is spread reasonably evenly across the three business regions, and the rest of Victoria, albeit with the United Energy region being a bit smaller than the others. On our calculations, on average over the last five years, around 33% of the value of Victoria's non-residential building construction has taken place in the Citipower business region, 18% in the United Energy business region and 25% in the Powercor business region.

Chart 7
Non-Residential Building - Victoria Regions



In the CitiPower region, the largest non-residential building segment by far is offices, supplemented by education, health and accommodation. Work done is estimated to have fallen in 2023/24 given a lack of commencements in these segments. However, a steep rise in 2024/25 commencements is expected, prior to another decline, of 9.5%, in 2025/26.

In the United Energy region, the biggest segments are retail and education, followed by warehouses and health. Work done in the region is estimated to have fallen in 2023/24, with another drop expected in 2024/25, largely due to falls in retail and warehouses followed by falls in health and education in 2025.

Construction in the Powercor region is dominated by warehouses, education, health and retail. We estimate growth in work done has been steady over the last five years, with an increase of 11.7% over the year to June 2024, largely due to strength in health and education. However, we forecast a downturn from 2024/25 through to 2026/27 due to board-based declines.

2.3 Forecasting Methodology

The forecasts for non-residential building are derived from the combination of a detailed assessment of known projects, and a thorough analysis of the economic and broader market influences on each sector. We start with a bottom-up approach, assessing current and planned projects and expected start and delivery dates. We add to this a top down analysis of the economic and market drivers, which are different for each sector.

Commercial building is influenced by:

- economic conditions,
- the rate of growth in employment,
- the demand for each type of space, and
- overall market conditions (as measured by vacancy or occupancy rates, rents and values).

Government building is influenced by:

- the economy, and
- by overall budgetary positions, fiscal policy and political factors.

In the near term, (the next 6-12 months), our commencements forecasts are guided by the latest approvals data, commencements usually lag approvals by around 6 months. Over the long-term commencements should equal to approvals.

In the short term (the next one to two years), the bottom-up project analysis is more influential in our forecasts. Further out, there is less generally specific, reliable information available on projects, and hence the macro level drivers become more important. It is important to note that, even in the short term, there is a 'residual' of work that is not accounted for by known major projects, and this element of activity must be forecast with reference to top-down factors.

Further out, a larger proportion of forecast activity is comprised of this 'residual' element, or in other words, projects not yet known. Also, the timing of planned projects beyond the next year or two must be considered variable and under the influence of economic and market conditions. For these reasons, our assumptions regarding the economic outlook, and the outlook for the other important macro drivers, play an increasingly important role in our forecasts the further we move out in the future.

The Australian Bureau of Statistics (ABS) releases non-residential building approvals data at the SA2, SA3 and SA4 regional levels. We use these data, combined with our lists of major projects broken down by sector and region, to estimate commencements and work done at the regional level.

Table 4
Major Non-Residential Building Projects - Citipower

Project	SA4 Region	Business Region	Sector	Company	Sector Cost ($M)	Start	Complete
Redevelopment of Royal Melbourne	206	CitiPower	Health	Vic Department Of Health	1637	2025	2037
60 Collins Street	206	CitiPower	Office	Dexus	750	2025	2028
600 Collins Street	206	CitiPower	Office	Hines	700	2026	2028+
555 Collins Street - Stage 1	206	CitiPower	Office	Charter Hall	598	2021	2023
435 Bourke Street	206	CitiPower	Office	Cbus Property	560	2024	2026
New Victoria Police headquarters at 311 Spencer Street, Melbourne CBD	206	CitiPower	Office	Cbus Property	503	2018	2020
90 Collins Street, Melbourne - Stage 1	206	CitiPower	Office	Mirvac Group	500	2025	
Olderfleet - 477 Collins Street	206	CitiPower	Office	Mirvac	480	2018	2020
405 Bourke Street, Melbourne	206	CitiPower	Office	Brookfield Multiplex / Ispt	451	20119	2021
80 Collins Street - office component	206	CitiPower	Office	Queensland Investment Corp	444	2018	2020
Melbourne Quarter Tower (693 Collins Street)	206	CitiPower	Office	Lend Lease	394	2019	2024
140 Lonsdale Street (AFP)	206	CitiPower	Office	Charter Hall	355	2021	2022
Two Melbourne Quarter (697 Collins Street)	206	CitiPower	Office	Lend Lease	350	2018	2020
Elizabeth North Stage 2 – CSL Headquarters	206	CitiPower	Office	Pdg Corporation	350	2020	2024
Queen Victoria Market Revitalisation - Residential, office, student accom, park	206	CitiPower	Office	Lendlease	350	2024	2028
12-storey office development at 480 Swan Street, Richmond. Includes new Australia Post headquarters.	206	CitiPower	Office	Charter Hall	322	2023	
Melbourne Connect (Carlton Connect Initiative)	206	CitiPower	Education	University Of Melbourne / Lendlease	311	2019	2020
Thomas Embling Hospital Expansion - Stage 1,2,3	206	CitiPower	Health	Department Of Health	309	2022	2025
NGV Contemporary	206	CitiPower	Ent & Rec	Creative Victoria	300	2024	2028
7 Spencer Street, Melbourne	206	CitiPower	Office	Mirvac Group	288	2024	2025
600 Lonsdale Street - Office building	206	CitiPower	Office	V-Leader	280	2025	2026
Hilton Melbourne Square	206	CitiPower	Accommodation	Hilton / Osk Property	270	2026	2028
85 Spring Street - refurb	206	CitiPower	Office	Pelligra Group	225	2023	2024
55 King Street, Melbourne	206	CitiPower	Office	Charter Hall	225	2026	2028
Shangri La Melbourne, 308 Exhibition Street	206	CitiPower	Accommodation	Sp Setia Berhad Group	216	2019	2022
Melbourne Park redevelopment – Stage 3	206	CitiPower	Ent & Rec	Development Victoria	200	2020	2022
130 Lonsdale Street, Wesley Place	206	CitiPower	Office	Charter Hall	200	2017/18	2020
Wellington Timber Tower	206	CitiPower	Office	Hines	180	2022	2024
383 La Trobe Street	206	CitiPower	Office	Mirvac	175	2025	2028
Victoria University City West Precinct (364-378 Little Lonsdale Street)	206	CitiPower	Education	Victoria University / Victorian Department Of Education And Training / Istp	162	2019	2021
51 Flinders Street	206	CitiPower	Office	Gpt Group	160	2024	2025
25 swanston Street - Mixed use, above town hall metro station	206	CitiPower	Office	Lendlease	160	2024	2026
140 Lonsdale Street, Wesley Place	206	CitiPower	Office	Charter Hall	150	2020	2022
180 Flinders Street, Melbourne	206	CitiPower	Office	Dexus	143	2018	2020
101 Moray Street	206	CitiPower	Office	The Deague Group	140	2019	2020
Elizabeth North Stage 1 – Melbourne City Toyota	206	CitiPower	Retail	Pdg Corporation	140	2020	2021
Hyatt Centric Melbourne	206	CitiPower	Accommodation	Little Projects	136	2020	2021
Eleven Eastern	206	CitiPower	Office	I&D Group	135	2022	2023
The Alfred Hospital urgent infrastructure (Prahran)	206	CitiPower	Health	Vic Dept Of Health And Human Services	131	2026	2030
Aikenhead Centre for Medical Discovery (ACMD)	206	CitiPower	Health	St Vincent'S Hospital	124	2023	2024
Marriott Docklands Melbourne	206	CitiPower	Accommodation	Capital Alliance	120	2019	2020
The District Docklands	206	CitiPower	Retail	Ashemorgan	120	2018	2019
Adina Apartment Hotel Melbourne Southbank	206	CitiPower	Accommodation	Tfe Hotels / Hume Partners Property	120	2019	2020
New Seek Headquarters, Cremorne	206	CitiPower	Office	Seek / Cremorne Properties	117	2019	2021
627 Chapel Street, South Yarra	206	CitiPower	Office	Goldfields	117	2020	2021
Poly Center Melbourne (1000 La Trobe Street, Docklands)	206	CitiPower	Office	Digital Harbour Pty Ltd / Poly Australia	110	2020	2021
80 Collins Street - hotel component	206	CitiPower	Accommodation	Qic, Next, Dexus	108	2018	2020
Adina Hotel, Southbank, 45-59 Southbank Boulevard	206	CitiPower	Accommodation		105	2019	2020
Little Hall student accommodation project	206	CitiPower	Education	University Of Melbourne	100	2019	2021
Younghusband Wool Store Redevelopment – Stage 2	206	CitiPower	Office	Impact Investment Group	100	2025	
Younghusband Wool Store Redevelopment – Stage 3	206	CitiPower	Office	Impact Investment Group	100	2025	
25hours Hotel, The Malt District	206	CitiPower	Accommodation	Caydon Property Group	100	2025	
Elizabeth North Stage 1 – Trinity College Campus	206	CitiPower	Education	Pdg Corporation	100	2020	2021
448 St Kilda Road - 17 storey mixed use	206	CitiPower	Accommodation	Carter Group / Orchard Piper	100	2024	2026

Table 5
Major Non-Residential Building Projects - United Energy

Project	SA4 Region	Business Region	Sector	Company	Sector Cost ($M)	Start	Complete
Frankston Hospital Redevelopment	214	United Energy	Health	Department Of Health And Human Services	840	2023	2026
Victorian Heart Hospital at Monash University	212	United Energy	Health		564	2020	2022/23
HMAS Cerberus Redevelopment	214	United Energy	Other Nrb	Department Of Defence	427	2018	2025
Monash Medical Centre Redevelopment (Clayton)	212	United Energy	Health	Victorian Department Of Health	375	2026	2028/29
Wellington Health Stage 1 - Health hub	207	United Energy	Health	Aph Holding	240	2023	2024
Caulfield Race Course Precinct Redevelopment	208	United Energy	Ent & Rec	Caulfield Racecourse Reserve Trust	200	2024	
The "Common Grounds" mixed use development - Moorabbin	208	United Energy	Office	Pellicano	180	2024	
Chadstone Shopping Centre – Fresh Food, Wellness and Workplace redevelopment	208	United Energy	Retail	Vicinity Centres	180	2023	
Stage 3 Kingston Project (Cheltenham)	208	United Energy	Health		105	2023	2026
Emergency Departments Expansion Program – Casey Hospital (Casey)	212	United Energy	Health	Victorian Department Of Health	105	2025	2027

Table 6
Major Non-Residential Building Projects - Powercor

Project	SA4 Region	Business Region	Sector	Company	Sector Cost ($M)	Start	Complete
New Melton Hospital	213	Powercor	Education	Western Health	697	2024	2029
Ballarat Base Hospital revamp	201	Powercor	Education	Department of Health and Human Services	455	2023	2028
Chisholm Road prison project	203	Powercor	Education	Department of Justice and Community Safety	430	2021	2022
Barwon Women's and Children's Hospital Geelong	203	Powercor	Education	VIC Department of Health	386	2024	2030
Nyaal Banyul Geelong Convention and Event Centre (Geelong)	203	Powercor	Education		314	2024	2026
New Youth Justice Facility, Cherry Creek	213	Powercor	Education	Department of Justice and Community Safety	309	2020	2022
Warrnambool Base Hospital Redevelopment	217	Powercor	Education	Department of Health	269	2023/24	2027
115,000sqm warehouse/distribution centre in Truganina west Melbourne for Metcash.	213	Powercor	Education	Goodman Group/Metcash	230	2022/23	2024/25
Wyndham Law Court	213	Powercor	Education	Court Services Victoria	220	2023	2025
Dame Phyllis Frost Centre expansion	213	Powercor	Education	Department of Justice and Community Safety	163	2022	2022
Wyndham City Stadium	213	Powercor	Education	Wyndham City / Western Melbourne Group	151	2025	2026
Goulburn Valley Health Shepparton Hospital, Redevelopment	216	Powercor	Education	VIC Department of Health	149	2018	2023/24
Geelong Arts Centre Stage 3 (Little Malop Street)	203	Powercor	Education	Development Victoria	140	2020/21	2023
Kardinia Park Stage 5 Redevelopment	203	Powercor	Education	Kardinia Park Stadium Trust	140	2022	2023
Sunshine Private Hospital	213	Powercor	Education	Australian Unity	140	2021	20220
17 Bennetts Lane, Melbourne	213	Powercor	Education	Perri Projects	120	2023	2025
Bendigo Law Court redevelopment	202	Powercor	Education	Court Services Victoria	114	2020/21	2022
Emergency Departments Expansion Program – Werribee Mercy Hospital (Werribee)	213	Powercor	Education	Victorian Department of Health	105	2024	2027
Greater Shepparton Secondary College	216	Powercor	Education	Department of Education and Training	100	2021	2022

Table 7
Estimated Value of Total Non-Residential Building Work Commenced

Chain Volume Measures - 2021/22 Prices

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch
2018	6,996		3,651		3,153		3,065		16,865	
2019	5,404	- 22.8	2,088	- 42.8	2,997	- 4.9	3,717	21.3	14,207	- 15.8
2020	5,230	- 3.2	3,019	44.6	4,386	46.3	3,947	6.2	16,583	16.7
2021	4,622	- 11.6	2,105	- 30.3	3,846	- 12.3	4,183	6.0	14,757	- 11.0
2022	4,292	- 7.1	2,995	42.3	3,909	1.6	4,438	6.1	15,633	5.9
2023	4,842	12.8	3,000	0.2	5,756	47.3	4,832	8.9	18,431	17.9
2024	3,096	- 36.1	2,321	- 22.6	4,824	- 16.2	4,935	2.1	15,176	- 17.7
Forecasts										
2025	4,800	55.0	1,993	- 14.2	4,262	- 11.7	4,702	- 4.7	15,756	3.8
2026	4,345	- 9.5	2,832	42.1	3,588	- 15.8	3,965	- 15.7	14,730	- 6.5
2027	4,047	- 6.8	2,646	- 6.6	4,189	16.7	4,210	6.2	15,092	2.5
2028	4,737	17.0	2,848	7.6	4,109	- 1.9	4,168	- 1.0	15,861	5.1
2029	4,566	- 3.6	2,945	3.4	4,175	1.6	4,267	2.4	15,953	0.6
2030	4,685	2.6	2,939	- 0.2	4,158	- 0.4	4,246	- 0.5	16,029	0.5
2031	5,124	9.4	2,870	- 2.4	4,115	- 1.0	4,178	- 1.6	16,288	1.6

Source: ABS & Macromonitor

Table 8
Estimated Value of Total Non-Residential Building Work Done

Chain Volume Measures - 2021/22 Prices

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch
2018	4,618		3,085		3,078		2,750		13,532	
2019	5,414	17.3	2,733	- 11.4	3,070	- 0.3	3,215	16.9	14,432	6.7
2020	5,783	6.8	2,673	- 2.2	3,471	13.1	3,714	15.5	15,641	8.4
2021	4,624	- 20.1	2,368	- 11.4	3,936	13.4	3,636	- 2.1	14,563	- 6.9
2022	4,612	- 0.2	2,719	14.8	4,174	6.0	4,037	11.0	15,543	6.7
2023	4,678	1.4	3,161	16.2	4,693	12.4	4,776	18.3	17,307	11.4
2024	4,096	- 12.4	2,812	- 11.0	5,244	11.7	5,078	6.3	17,229	- 0.4
Forecasts										
2025	3,950	- 3.6	2,223	- 21.0	4,897	- 6.6	4,772	- 6.0	15,841	- 8.1
2026	4,355	10.2	2,382	7.2	4,092	- 16.4	4,324	- 9.4	15,153	- 4.3
2027	4,281	- 1.7	2,702	13.4	4,071	- 0.5	4,255	- 1.6	15,308	1.0
2028	4,409	3.0	2,825	4.5	4,159	2.2	4,229	- 0.6	15,622	2.0
2029	4,526	2.7	2,873	1.7	4,177	0.4	4,241	0.3	15,817	1.3
2030	4,620	2.1	2,930	2.0	4,155	- 0.5	4,245	0.1	15,950	0.8
2031	4,813	4.2	2,925	- 0.2	4,154	- 0.0	4,236	- 0.2	16,128	1.1

Source: ABS & Macromonitor

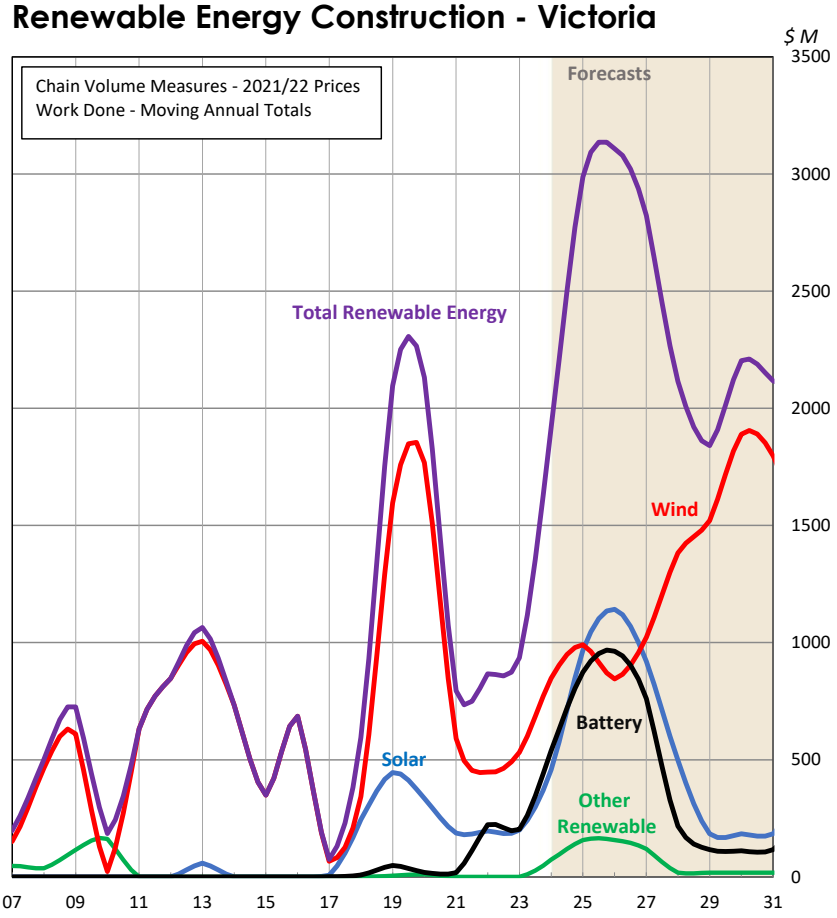
3. Renewable Energy Construction Forecasts

3.1 Outlook for Victoria

Construction activities in the renewable energy sector in Victoria have experienced significant acceleration in recent years, with total value of work done going from around $800 million in 2020/21 to an estimated $2 billion in 2023/24 (both figures in constant 2021/22 prices). (These figures do not include renewable energy-related transmission projects)

This upward trend is expected to continue, with more growth forecast over the next two years. We expect a peak of $3.1 billion (in constant 2021/22 prices) in FY2026, followed by gradual decline. But despite the expected downturn from FY2027, investment in renewable energy investment will remain substantially higher than it has been in the past.

Chart 8
Renewable Energy Construction - Victoria



This upswing in construction activity is being supported by Victoria's ambitious Renewable Energy Targets, aiming for 65% by 2030 and 95% by 2035. These targets are underpinned by a robust framework of policies and incentives, prominently reflected in the state's budget, which is designed to facilitate and incentivize investments in the renewable energy sector.

The wind sector has played a central role in Victoria's renewable energy mix, and offshore wind projects set to boost construction activities in coming years.

Looking back over the past decade, in 2012/13, the estimated value of total construction work in the renewable energy sector reached $1 billion (in constant 2021/22 prices), primarily driven by wind farm projects such as the $1 billion Macarthur Wind Farm and the $400 million Bald Hills Wind Farm. However, construction activities saw a downturn in the following years, with an average construction work done of $460 million per year between 2014 and 2017.

The strong recovery began in 2017/18 and construction activity rose to an unprecedented peak of $2 billion in 2019/20 (in constant 2021/22 prices). During this peak period, the wind sector contributed more than 75% of total renewable construction, with major wind projects such as

- $700 million Stockyard Hill Wind Farm – 530MW
- $600 million Moorabool Wind Farm North & South-321 MW
- $560 million Dundonnell Wind Farm –336 MW
- $380 Murra Warra Wind Farm - Stage 1- 226 MW
- $300 million Bulgana Green Power Hub– Wind–194 MW
- $275 million Mortlake South Wind Farm- 158MW

The peak in construction activities in 2019/20 was triggered by state's Renewable Energy Target to have 25% share of renewables in its energy mix by 2020. In 2020, Victoria surpassed its first target of 25 per cent renewable electricity.

Construction activities dipped in 2020/21 as wind projects were completed, resulting in a decline in renewable energy construction work done to $795 million (in constant 2021/22 prices). However, since 2021/22, there has been a resurgence in renewable energy construction, with a 9% increase in 2021/22, an 8% increase in 2022/23.

But there has now been an even greater acceleration of investment, with construction estimated to have more than doubled in 2023/24, to just less than $2 billion (again, in 2021/22 prices). And another large rise of 56% is forecast for 2024/25. This upward trend is expected to reach its peak, at $3.1 billion, in 2025/26, mainly driven by the large Golden Plains Wind Farm project ($3 billion). This peak level of construction also coincides with the state's target of 40% renewable energy by 2025.

Despite expected declines in construction activity in the subsequent three years to 2028/29, total value of work done will remain elevated at around $2.8 billion in 2026/27 and $2.1 billion in 2027/28 (both figures in constant 2021/22 prices).

In the latter half of the forecast period, Victoria's offshore wind targets (at least 2 GW of offshore generation capacity by 2032, 4 GW by 2035, 9 GW by 2040) will provide additional momentum to the construction activities in renewable energy sector. We expect construction activity to rise by 20% in 2029/30. Total value of work done in renewable energy will remain above $2 billion per year at the end of the forecast period. Prominent offshore wind projects in Victoria's BASS Strait off Gippsland (Australia's first offshore wind zone), driving this sustained construction activity are:

- $8 billion Star of South,
- $7.7 billion Greater Gippsland Offshore Wind Project, and
- $3 billion Seadragon Offshore Wind Project,

Victoria's growth in renewable energy construction aligns with its ambitious Renewable Energy Targets of 65% by 2030 and 95% by 2035, bolstered by substantial policy initiatives and budget allocations. The Victoria-Commonwealth agreement has earmarked $2.25 billion for REZ projects, including offshore wind initiatives and the Victoria-New South Wales Interconnector (VNI West), facilitated by Rewiring the Nation funds. To streamline offshore wind progress, Offshore Wind Energy Victoria (OWEV) has been established, aiming to kickstart a competitive procurement process by 2025 for achieving the 2 GW target by 2032.

Victoria has also allocated a significant $1.6 billion energy package to advance clean energy initiatives. Key projects include the Bulgana Green Power Hub, Victorian Hydrogen Hub, and Renewable Energy Zones. Victoria's emphasis on energy storage, targeting 2.6 GW by 2030 and 6.3 GW by 2035, will also provide additional impetus.

3.2 Regional Breakdown

There is generally only a small amount of renewable energy construction in the CitiPower and United Energy business regions. Most of Victoria's renewable energy construction takes place in the Powercor business region. On our calculations, around 90% of the value of Victoria's renewable energy construction over the past decade has taken place in the Powercor business region.

Consequently, all of the comments above regarding Victoria's renewable energy construction outlook applies equally to the Powercor region, and there is little to say about the other regions, which will remain relatively insignificant in their constructions to total renewable energy construction.

The project list and tables on the following pages provide further information and forecasts for construction activity by region. These tables are also provided in Excel format. The project list, in particular, is better viewed in Excel, where it has more information on expected year-by-year expenditure.

3.3 Forecasting Methodology

Our forecasting work for of renewable energy involves the collection of project information and other data and information on each segment of activity, in each region, as well as undertaking analysis on the drivers and trends in the industry and making projections.

The renewable energy data includes new power stations, hydro-electric generating plants, wind farms, utility-scale solar farms, and pumped hydro generation, as well as associated work to support generation assets. But it excludes rooftop photovoltaic solar systems, which are a notable portion of renewable energy generation.

Some potential limitations to the data include under-coverage of renewable investment due to unidentified projects, units not selected or reporting incorrectly, data reported in commodities other than electricity, and small-scale utility renewable projects not identified for tracking.

Our forecasts are based on both sourced information regarding future work programs and projects, as well as our own judgment and modelling of the economic drivers of this sector.

Renewable energy generation construction is also classified into two distinct categories based on their connection to the power grid and their generation capacity. The first category is the value of transmission-connected renewable generation. This encompasses large-scale projects with a capacity exceeding 200 megawatts (MW). These substantial installations are directly connected to the high-voltage transmission network, allowing them to feed large amounts of clean energy into the grid over long distances.

The second category is the value of distribution-connected renewable generation. This includes smaller projects with a capacity below 200 MW. These installations are typically connected to the local distribution network, often closer to the point of energy consumption.

Table 9
Major Renewable Energy Construction Projects - Victoria

Project	SA4 Region	Business Region	Type	Capacity (MW)	Construction Value ($M)	Start	End
Golden Plains Wind Farm - East (Stage 1)	203	Powercor	Wind	756	1350	2022/23	2025/26
Golden Plains Wind Farm - West (Stage 2)	203	Powercor	Wind	754	1350	2023/24	2027/28
Melbourne Renewable Energy Hub - 1,200MW battery	213	Powercor	Battery	1200	855	2023/24	2026/27
Stockyard Hill Wind Farm	201	Powercor	Wind	530	600	2018/19	2019/20
Dundonnell Wind Farm	217	Powercor	Wind	336	410	2018/19	2020/21
Corop Solar Farm	216	Powercor	Solar	400	510	2024/25	2026/27
Murra Warra Wind Farm - Stage 1	215	Powercor	Wind	226	370	2018/19	2019/20
Ryan Corner Wind Farm	217	Powercor	Wind	218	350	2021/22	2023/24
Bulgana Green Power Hub - Wind	215	Powercor	Wind	194	250	2018/19	2019/20
Moorabool Wind Farm North	201	Powercor	Wind	150	300	2018/19	2019/20
Moorabool Wind Farm South	201	Powercor	Wind	171	300	2018/19	2019/20
VICTORIAN BIG BATTERY 2	203	Powercor	Battery	600	300	2025/26	2027/28
Berrybank Wind Farm - Stage 1	217	Powercor	Wind	181	200	2019/20	2020/21
Mortlake South	217	Powercor	Wind	157.5	275	2018/19	2020/21
Murra Warra Wind Farm - Stage 2	215	Powercor	Wind	203	270	2020/21	2022/23
Mt Gellibrand	217	Powercor	Wind	138.6	220	2016/17	2018/19
Kiamal Solar Farm - Stage 1	215	Powercor	Solar	200	250	2018/19	2019/20
Prairie Solar Farm	202	Powercor	Solar	240	240	2025/26	2027/28
Cooba Solar Project	216	Powercor	Solar	270	240	2025/26	2026/27
Berrybank Wind Farm - Stage 2	217	Powercor	Wind	72	220	2020/21	2021/22
Crowlands Wind Farm	215	Powercor	Wind	82	150	2017/18	2018/19
Elaine Wind Farm (Lal Lal)	201	Powercor	Wind	84	185	2018/19	2019/20
Yendon Wind Farm (Lal Lal)	201	Powercor	Wind	144	185	2018/19	2019/20
Origin Mortlake Battery: a new 300 MW / 900 MWh battery in Mortlake, VIC	217	Powercor	Battery	300	200	2024/25	2026/27
Maoneng battery storage	214	United Energy	Battery	480	197	2022/23	2023/24
Axedale Solar Farm	202	Powercor	Solar	140	192	2024/25	2025/26
Golden Plains Wind Farm - 300MW battery storage facility	203	Powercor	Battery	300	180	2023/24	2026/27
Numurkah Solar Farm	216	Powercor	Solar	100	160	2018/19	2018/19
Victorian Big Battery (Renewable energy and battery project near Geelong)	203	Powercor	Battery	300	160	2020/21	2021/22
Woolsthorpe Wind Farm	217	Powercor	Wind	72	152	2024/25	2025/26
Bannerton Solar Park	215	Powercor	Solar	88	130	2017/18	2017/18
Yatpool	215	Powercor	Solar	94	100	2019/20	2019/20
FRV new 250 MW / 550 MWh battery in Gnarwarre	203	Powercor	Battery	400	150	2023/24	2025/26
Cooba Solar Project - Battery Energy Storage System (BESS)	216	Powercor	Battery	300	150	2025/26	2026/27
Carwarp Solar Farm - Stage 1	215	Powercor	Solar	121.6	144.8	2024/25	2027/28
Yaloak South	201	Powercor	Wind	28.7	115	2016/17	2017/18
Kiamal Solar Farm - Stage 2 - solar	215	Powercor	Solar	150	125	2022/23	2024/25
Kiamal Solar Farm - Stage 2 - storage (KESS)	215	Powercor	Battery	270	125	2022/23	2023/24
Hawkesdale Wind Farm	217	Powercor	Wind	97	120	2022/23	2023/24
Girgarre Solar Farm	216	Powercor	Solar	85	120	2023/24	2024/25
The Wunghnu Solar Farm	216	Powercor	Solar	90	112	2022/23	2023/24
Lancaster Solar Farm	216	Powercor	Solar	80	109	2025/26	2026/27
Salt Creek	217	Powercor	Wind	54	85	2017/18	2017/18
Horsham Solar Farm	215	Powercor	Solar	118.9	106	2023/24	2025/26
Derby Solar Farm	202	Powercor	Solar	85	100	2023/24	2024/25
Karadoc Solar Farm	215	Powercor	Solar	90	90	2018/19	2018/19
Carisbrook Solar Farm	201	Powercor	Solar	90	88	2025/26	2026/27
Gannawarra (Lalbert) Solar Farm	215	Powercor	Solar	50	75	2016/17	2017/18
Wungnhu solar farm	216	Powercor	Solar	75	80	2023/24	2024/25
Baringhup Solar Farm	202	Powercor	Solar	75	80	2024/25	2025/26
Kiata Wind Farm	215	Powercor	Wind	30	60	2016/17	2017/18
Koorangie Energy Storage System	215	Powercor	Battery	185	65	2024/25	2025/26
Red Cliffs solar farm	215	Powercor	Solar	60	64	2024/25	2025/26
Cohuna Solar Farm	215	Powercor	Solar	31	60	2018/19	2019/20
Bendigo Solar Farm	202	Powercor	Solar	55	60	2024/25	2025/26
Kerang Solar Farm	215	Powercor	Solar	40	50	2025/26	2026/27
Christies Beach Wastewater Treatment Plant	215	Powercor	Other RE	20	15	2018/19	2019/20
Axedale Solar Farm - BESS	202	Powercor	Solar	50	50	2024/25	2025/26
Waurn Ponds Microgrid Project	203	Powercor	Solar	7.3	30	2018/19	2019/20
Gannawarra Energy Storage System	215	Powercor	Battery	25	25	2017/18	2018/19
Ballarat Energy Storage System	201	Powercor	Battery	30	25	2017/18	2018/19
GVCE Mooroopna Solar Farm	216	Powercor	Solar	18	20	2024/25	2025/26
Swan Hill Solar Farm	215	Powercor	Solar	15	15	2017/18	2017/18
Carag Solar Farm	216	Powercor	Solar	12	15	2024/25	2025/26

Table 10
Estimated Value of Renewable Energy Construction - Citipower

$ Million - Constant 2021/22 Prices

Year Ended June	Citipower							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	1	-	-	-	0	-	1	-
2015	0	-	-	-	0	-	0	-
2016	1	-	-	-	0	-	1	-
2017	0	-	0	-	0	-	0	-
2018	0	37.1	0	37.1	0	37.1	0	37.1
2019	0	8.3	0	8.3	0	8.3	0	8.3
2020	0	1,579.4	0	1,579.4	0	1,579.4	0	1,579.4
2021	0	- 11.8	0	- 11.8	0	- 11.8	0	- 11.8
2022	1	277.8	1	277.8	0	277.8	2	277.8
2023	1	15.3	0	- 56.6	0	- 12.2	1	- 19.0
2024	0	- 68.2	0	- 15.6	0	- 16.7	1	- 45.8
Forecasts								
2025	0	- 60.0	0	- 60.0	0	- 40.0	0	- 53.3
2026	0	0.0	0	0.0	0	0.0	0	0.0
2027	0	200.1	0	200.1	0	0.0	1	114.3
2035	0	66.7	1	233.3	0	0.0	2	120.0
2029	0	- 0.0	1	- 0.0	1	389.2	2	35.4
2030	1	50.0	1	- 0.0	1	- 4.1	2	9.8
2031	1	- 0.0	1	- 0.0	1	4.3	2	1.2

Table 11
Estimated Value of Renewable Energy Construction - United Energy

$ Million - Constant 2021/22 Prices

Year Ended June	United Energy							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	2	-	-	-	0	-	2	-
2015	1	-	-	-	0	-	1	-
2016	1	-	-	-	0	-	1	-
2017	0	-	0	-	0	-	0	-
2018	0	37.1	0	37.1	0	37.1	0	37.1
2019	0	8.3	0	8.3	0	8.3	0	8.3
2020	0	1,579.4	0	1,579.4	4	1,579.4	4	1,579.4
2021	0	- 11.8	0	- 11.8	3	- 11.8	4	- 11.8
2022	1	277.8	1	277.8	12	277.8	14	277.8
2023	1	15.3	1	- 56.6	75	529.7	77	433.6
2024	0	- 68.2	0	- 15.6	124	65.5	125	62.4
Forecasts								
2025	0	- 60.0	0	- 60.0	2	- 98.5	2	- 98.2
2026	0	0.0	0	0.0	2	0.0	2	0.0
2027	1	200.1	1	200.1	2	0.0	3	33.5
2035	1	66.7	2	233.3	2	0.0	5	56.4
2029	1	- 0.0	2	- 0.0	22	1,109.0	25	442.5
2030	1	50.0	2	- 0.0	21	- 4.8	24	- 2.4
2031	1	- 0.0	2	- 0.0	22	5.0	25	4.3

Table 12
Estimated Value of Renewable Energy Construction - Powercor

$ Million - Constant 2021/22 Prices

Year Ended June	Powercor							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	724		-	-	0	-	724	-
2015	347	- 52.1	-	-	0	-	347	- 52.1
2016	681	96.6	-	-	0	-	681	96.6
2017	67	- 90.2	7	-	1	-	74	- 89.1
2018	343	414.9	244	3,415.2	7	1,370.6	594	702.9
2019	1,513	341.5	445	82.3	54	619.8	2,012	238.5
2020	1,767	16.8	216	- 51.4	23	- 56.7	2,007	- 0.3
2021	589	- 66.7	23	- 89.6	12	- 47.4	624	- 68.9
2022	444	- 24.7	85	277.8	202	1,552.5	731	17.2
2023	528	18.9	109	27.7	74	- 63.4	711	- 2.8
2024	801	51.7	334	206.8	320	332.0	1,454	104.6
Forecasts								
2025	829	3.6	577	72.8	432	35.3	1,838	26.4
2026	683	- 17.6	774	34.1	564	30.4	2,021	9.9
2027	376	- 44.9	621	- 19.8	485	- 13.9	1,483	- 26.6
2035	182	- 51.8	245	- 60.6	103	- 78.9	529	- 64.3
2029	89	- 50.8	125	- 49.0	83	- 19.5	297	- 43.9
2030	134	50.0	125	- 0.0	79	- 4.5	338	13.8
2031	134	- 0.0	125	- 0.0	83	4.7	341	1.1

Table 13
Estimated Value of Renewable Energy Construction - Other

$ Million - Constant 2021/22 Prices

Year Ended June	Other regions							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	4	-	0	-	0	-	4	-
2015	1	-	0	- 1.0	0	- 0.9	2	- 61.4
2016	2	-	0	- 1.5	0	- 2.3	3	62.1
2017	0	-	0	290.4	0	8,254.0	1	- 76.3
2018	0	37.1	1	37.1	0	35.6	1	36.9
2019	82	246,253.5	1	8.3	0	8.3	83	10,118.6
2020	1	- 99.3	118	16,884.4	3	1,579.4	121	45.4
2021	1	- 11.8	164	39.2	2	- 11.8	167	37.8
2022	2	277.8	109	- 33.3	9	277.8	120	- 28.1
2023	2	15.3	91	- 17.1	54	529.6	146	22.3
2024	47	1,907.0	123	35.8	169	214.9	338	131.1
Forecasts								
2025	162	245.1	390	216.9	596	253.3	1,147	238.9
2026	162	0.0	368	- 5.4	555	- 6.9	1,085	- 5.5
2027	646	299.9	298	- 19.0	393	- 29.1	1,338	23.4
2035	1,200	85.7	250	- 16.0	131	- 66.8	1,581	18.2
2029	1,430	19.2	57	- 77.3	30	- 77.2	1,517	- 4.1
2030	1,754	22.6	57	- 0.0	29	- 2.5	1,840	21.3
2031	1,662	- 5.3	57	- 0.0	30	2.6	1,748	- 5.0

Table 14
Estimated Value of Renewable Energy Construction - Victoria

$ Million - Constant 2021/22 Prices

Year Ended June	Total Victoria							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	732	-	0	-	0	-	732	-
2015	349	- 52.2	0	- 1.0	0	- 11.2	349	- 52.2
2016	686	96.4	0	- 1.5	0	- 6.0	686	96.4
2017	67	- 90.3	7	6,123.7	1	49,579.4	75	- 89.1
2018	343	414.7	245	3,192.9	8	929.8	595	695.9
2019	1,596	365.4	446	82.1	54	593.0	2,096	251.9
2020	1,768	10.8	335	- 24.9	29	- 45.5	2,132	1.7
2021	590	- 66.6	187	- 44.2	18	- 39.9	795	- 62.7
2022	448	- 24.1	196	5.1	223	1,157.8	867	9.1
2023	532	18.9	200	2.0	203	- 9.0	935	7.9
2024	848	59.3	458	128.5	613	202.1	1,918	105.1
Forecasts								
2025	991	16.9	967	111.3	1,030	68.2	2,988	55.8
2026	845	- 14.7	1,143	18.2	1,120	8.7	3,108	4.0
2027	1,024	21.1	920	- 19.5	881	- 21.4	2,824	- 9.1
2035	1,383	35.1	498	- 45.9	235	- 73.3	2,116	- 25.1
2029	1,521	10.0	184	- 63.0	135	- 42.4	1,841	- 13.0
2030	1,890	24.2	184	- 0.0	130	- 4.1	2,204	19.7
2031	1,798	- 4.9	184	- 0.0	135	4.3	2,117	- 3.9

Table 15
Estimated Value of Renewable Energy Construction
200MW or greater capacity – Citipower

$ Million - Constant 2021/22 Prices

Year Ended June	Citipower							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	1	-	-	-	0	-	1	-
2015	0	-	-	-	0	-	0	-
2016	1	-	-	-	0	-	1	-
2017	0	-	0	-	0	-	0	-
2018	0	37.1	0	37.1	0	37.1	0	37.1
2019	0	8.3	0	8.3	0	8.3	0	8.3
2020	0	1,579.4	0	1,579.4	0	1,579.4	0	1,579.4
2021	0	- 11.8	0	- 11.8	0	- 11.8	0	- 11.8
2022	0	277.8	1	277.8	0	277.8	2	277.8
2023	1	15.3	0	- 56.6	0	- 12.2	1	- 29.7
2024	0	- 68.2	0	- 15.6	0	- 16.7	1	- 40.5
Forecasts								
2025	0	- 60.0	0	- 60.0	0	- 40.0	0	- 55.0
2026	0	0.0	0	0.0	0	0.0	0	0.0
2027	0	200.1	0	200.1	0	0.0	1	133.4
2028	0	66.7	1	233.3	0	0.0	2	152.4
2029	0	- 0.0	1	- 0.0	0	389.2	2	22.0
2030	0	50.0	1	- 0.0	0	- 4.1	2	6.8
2031	0	- 0.0	1	- 0.0	0	4.3	2	0.9

Table 16
Estimated Value of Renewable Energy Construction
200MW or greater capacity – United Energy

$ Million - Constant 2021/22 Prices

Year Ended June	United Energy							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	2	-	-	-	0	-	2	-
2015	1	-	-	-	0	-	1	-
2016	1	-	-	-	0	-	1	-
2017	0	-	0	-	0	-	0	-
2018	0	37.1	0	37.1	0	37.1	0	37.1
2019	0	8.3	0	8.3	0	8.3	0	8.3
2020	0	1,579.4	0	1,579.4	3	1,579.4	4	1,579.4
2021	0	- 11.8	0	- 11.8	3	- 11.8	3	- 11.8
2022	1	277.8	1	277.8	11	277.8	13	277.8
2023	1	15.3	0	- 56.6	75	552.7	76	476.0
2024	0	- 68.2	0	- 15.6	124	66.0	124	63.8
Forecasts								
2025	0	- 60.0	0	- 60.0	2	- 98.6	2	- 98.4
2026	0	0.0	0	0.0	2	0.0	2	0.0
2027	0	200.1	0	200.1	2	0.0	3	25.9
2028	1	66.7	1	233.3	2	0.0	4	46.2
2029	1	- 0.0	1	- 0.0	21	1,124.2	23	531.7
2030	1	50.0	1	- 0.0	20	- 4.8	23	- 3.0
2031	1	- 0.0	1	- 0.0	21	5.0	24	4.5

Table 17
Estimated Value of Renewable Energy Construction
200MW or greater capacity – Powercor

$ Million - Constant 2021/22 Prices

Year Ended June	Powercor							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	167		-	-	0	-	167	-
2015	61	- 63.3	-	-	0	-	61	- 63.3
2016	580	849.0	-	-	0	-	580	849.0
2017	1	- 99.8	1	-	0	-	2	- 99.6
2018	1	37.1	1	37.1	1	37.1	3	37.1
2019	478	33,245.0	137	10,009.0	1	8.3	615	18,423.2
2020	853	78.6	157	15.0	10	1,579.4	1,020	65.9
2021	288	- 66.3	22	- 86.2	10	- 0.9	319	- 68.7
2022	298	3.6	82	277.8	192	1,895.4	572	79.4
2023	441	48.0	36	- 56.6	65	- 66.0	542	- 5.3
2024	723	63.9	30	- 15.6	311	375.6	1,064	96.3
Forecasts								
2025	750	3.7	86	185.8	395	27.0	1,231	15.7
2026	612	- 18.4	362	322.6	533	35.0	1,507	22.5
2027	361	- 41.0	442	21.9	483	- 9.5	1,285	- 14.7
2028	156	- 56.8	203	- 54.0	100	- 79.3	459	- 64.3
2029	64	- 59.2	120	- 40.9	63	- 36.8	247	- 46.2
2030	95	50.0	120	- 0.0	60	- 4.5	276	11.7
2031	95	- 0.0	120	- 0.0	63	4.8	279	1.0

Table 18
Estimated Value of Renewable Energy Construction
Less than 200MW capacity – Citipower

$ Million - Constant 2021/22 Prices

Year Ended June	Citipower							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	0	-	-	-	0	-	0	-
2015	0	-	-	-	0	-	0	-
2016	0	-	-	-	0	-	0	-
2017	0	-	- 0	-	0	-	0	-
2018	0	37.1	- 0	37.1	0	37.1	0	37.1
2019	0	8.3	- 0	8.3	0	8.3	0	8.3
2020	0	1,579.4	- 0	1,579.4	0	1,579.4	0	1,579.4
2021	0	- 11.8	- 0	- 11.8	0	- 11.8	0	- 11.8
2022	0	277.8	- 0	277.8	0	277.8	0	277.8
2023	0	15.3	- 0	- 56.6	0	- 12.2	0	508.3
2024	0	- 68.2	- 0	- 15.6	0	- 16.7	0	- 75.9
Forecasts								
2025	0	- 60.0	- 0	- 60.0	0	- 40.0	0	- 30.0
2026	0	0.0	- 0	0.0	0	0.0	0	0.0
2027	0	200.1	- 0	200.1	0	0.0	0	- 57.1
2028	0	66.7	- 0	233.3	0	0.0	- 0	- 1,466.7
2029	0	- 0.0	- 0	- 0.0	0	389.2	- 0	- 85.5
2030	0	50.0	- 0	- 0.0	0	- 4.1	0	- 221.1
2031	0	- 0.0	- 0	- 0.0	0	4.3	0	25.1

Table 19
Estimated Value of Renewable Energy Construction
Less than 200MW capacity – United Energy

$ Million - Constant 2021/22 Prices

Year Ended June	United Energy							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	1	-	-	-	- 0	-	1	-
2015	0	-	-	-	0	-	0	-
2016	0	-	-	-	0	-	0	-
2017	0	-	0	-	0	-	0	-
2018	0	37.1	0	37.1	0	37.1	0	37.1
2019	0	8.3	0	8.3	0	8.3	0	8.3
2020	0	1,579.4	0	1,579.4	0	1,579.4	0	1,579.4
2021	0	- 11.8	0	- 11.8	0	- 11.8	0	- 11.8
2022	0	277.8	0	277.8	0	277.8	1	277.8
2023	0	15.3	0	- 56.6	0	- 12.2	1	- 17.3
2024	0	- 68.2	0	- 15.6	0	- 30.1	1	- 44.0
Forecasts								
2025	0	- 60.0	0	- 60.0	0	- 66.9	0	- 63.6
2026	0	0.0	0	0.0	0	0.0	0	0.0
2027	0	200.1	0	200.1	0	0.0	0	105.7
2028	0	66.7	1	233.3	0	0.0	1	115.6
2029	0	- 0.0	1	- 0.0	1	840.4	2	89.3
2030	0	50.0	1	- 0.0	1	- 4.6	2	5.4
2031	0	- 0.0	1	- 0.0	1	4.8	2	2.3

Table 20
Estimated Value of Renewable Energy Construction
Less than 200MW capacity – Powercor

$ Million - Constant 2021/22 Prices

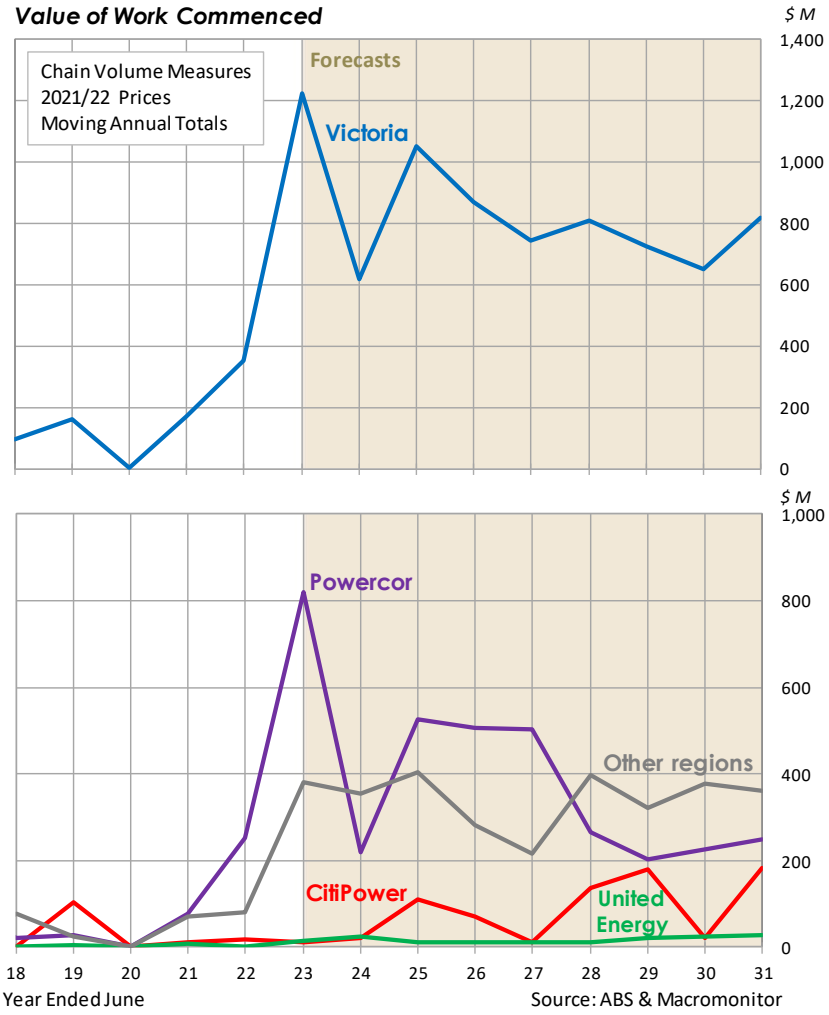
Year Ended June	Powercor							
	Wind		Solar		Battery & Other		Total renewables	
	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch	Annual	A%Ch
2014	557		-	-	0	-	557	-
2015	285	- 48.8	-	-	0	-	285	- 48.8
2016	101	- 64.5	-	-	0	-	101	- 64.5
2017	66	- 35.3	6	-	0	-	72	- 29.3
2018	341	421.0	243	3,974.2	7	5,782.5	591	725.5
2019	1,036	203.5	308	27.0	53	666.9	1,398	136.4
2020	914	- 11.8	59	- 80.8	14	- 74.5	987	- 29.4
2021	301	- 67.0	1	- 98.5	3	- 80.9	305	- 69.1
2022	146	- 51.6	3	277.8	10	277.8	159	- 47.9
2023	87	- 40.6	73	2,129.2	9	- 12.2	169	6.1
2024	77	- 10.7	304	314.6	9	0.8	390	131.4
Forecasts								
2025	79	1.9	491	61.6	37	329.4	608	55.7
2026	72	- 9.3	412	- 16.2	30	- 18.5	514	- 15.5
2027	15	- 78.4	179	- 56.5	3	- 91.1	197	- 61.6
2028	26	66.7	42	- 76.7	3	0.0	70	- 64.4
2029	26	- 0.0	5	- 88.4	19	618.9	50	- 28.7
2030	39	50.0	5	- 0.0	19	- 4.5	62	24.0
2031	39	- 0.0	5	- 0.0	19	4.7	63	1.4

4. Data Centre Building Forecasts

4.1 Outlook for Victoria

Data Centre construction in Victoria has become a booming sector with over $1.2 billion worth of project commencements in 2022/23, on our estimates. The widespread adoption of cloud services such as Amazon Web Services, Microsoft Azure and Google Cloud in both the public and private sector has prompted large scale investment in data centres, with Melbourne being the second largest market behind Sydney.

Chart 9
Data Centres – Victoria Regions
Value of Work Commenced



Source: ABS & Macromonitor

Federal and state governments have tightened practices regarding the storage of data, now ensuring public data is stored onshore. More recently, the rapid development of artificial intelligence has created the need for further expansion, requiring greater computing power and, in turn, larger and more energy intensive data centres. All these factors conflate into a surge of demand in Victoria, which has now begun to be met by both local and international data centre providers.

Commencements have been rapidly increasing since 2020/21 with the value of work commenced more than doubling each year from $170 million to $1.2 billion in 2022/23. Following this boom, we estimate a decline to $620 million in 2023/24 before lifting again to $1,053 million in 2024/25. For the remainder of the forecast period, we expect relatively stable investment, but with a slight trend decline.

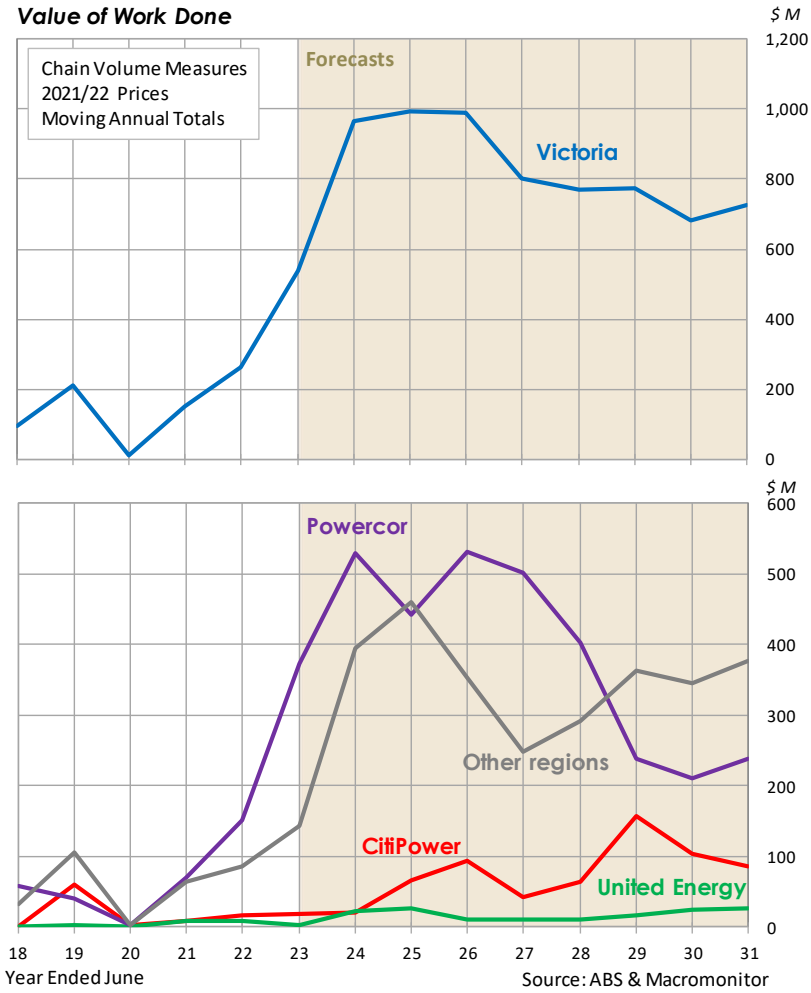
The overall downward trend from the 2022/23 peak, is due to the large amount of capacity being added during the current boom – as the industry is essentially established in Victoria. Future additions to capacity will not need to be as large every single year as they are currently, and demand growth can also partially be met by expansion of existing facilities which is cheaper than new developments. However, it should be noted that although commencements are forecast to decline, the average value of around $770 million from 2025/26 to 2030/31, is still a historically very high level for the sector.

Data centre building work done rose from a low of $10 million in 2019/20 to $151 million in 2020/21. The strong upturn continued in 2021/22 and 2022/23 with the value of work done increasing to $262 million and $538 million respectively. With the significant uptick of new commencements, building activity is forecast to increase further. We estimate $968 million in work done in 2023/24. As construction finishes on the initial wave of projects, new developments and expansions will keep building activity strong, recording $994 million and $989 million in 2024/25 and 2025/26 respectively. As the quantity of new projects is forecast to gradually taper off, so will building work done, reaching a low of $683 million in 2029/30.

4.2 Regional Breakdown:

Data centre construction is largely concentrated in specific geographic areas which have access to necessary infrastructure. For example, direct access to the electricity grid and fibre optic network connections are required. For this reason, Victoria's data centre construction is spread quite unevenly across the three business regions. On average over the last five years around 45% of work done has been in the Powercor business region. Followed by 16% and 3% for CitiPower and United Energy respectively, leaving 36% of work done in other Victorian regions.

Chart 10
Data Centres – Victoria Regions



Of note, the peaks in construction for CitiPower and Powercor are forecast to take place at different times. Work done in the Powercor region has been in line with the Victorian trend, rising since 2020/21 and is estimated to peak in 2023/24. However, known projects in the CitiPower business region are not forecast to commence until 2024/25, with a peak in work done during 2028/29 with a value of $178 million.

Table 21
Estimated Value of Data Centre Work Commenced

Chain Volume Measures - 2021/22 Prices

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch
2019	103		3		28		25		160	
2020	0	- 99.9	0	- 95.5	1	- 95.5	1	- 95.5	3	- 98.3
2021	12	9,226.7	9	6,039.6	78	6,039.6	70	6,039.6	170	6,191.2
2022	19	57.2	1	- 88.4	252	221.6	81	14.5	353	108.0
2023	12	- 36.2	13	1,216.5	820	224.8	380	371.5	1,225	247.2
2024	22	84.1	25	84.1	220	- 73.2	353	- 7.2	620	- 49.4
Forecasts										
2025	109	394.9	13	- 48.8	527	139.6	404	14.5	1,053	70.0
2026	72	- 34.0	10	- 20.0	507	- 3.8	283	- 30.0	872	- 17.2
2027	11	- 84.3	13	25.0	504	- 0.7	215	- 24.1	742	- 14.9
2028	135	1,096.9	10	- 20.0	267	- 47.1	396	84.7	808	8.9
2029	178	31.7	23	125.0	203	- 24.0	321	- 19.1	724	- 10.4
2030	23	- 87.3	25	11.1	225	11.1	379	18.1	652	- 10.0
2031	183	708.1	28	10.0	248	10.0	361	- 4.7	819	25.7

Source: ABS & Macromonitor

Table 22
Estimated Value of Data Centre Work Done

Chain Volume Measures - 2021/22 Prices

Year Ended June	CitiPower		United Energy		Powercor		Other Regions		Victoria	
	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch	$M	A%Ch
2019	61		2		40		106		209	
2020	4	- 94.0	0	- 86.5	3	- 92.5	3	- 97.5	10	- 95.4
2021	9	140.1	8	2,267.8	71	2,267.8	64	2,267.8	151	1,465.4
2022	16	88.2	8	- 1.4	151	113.1	87	36.6	262	73.5
2023	18	10.4	3	- 55.3	374	147.6	143	64.4	538	105.4
2024	21	13.7	23	560.0	529	41.6	395	176.6	968	79.9
Forecasts										
2025	66	217.9	27	17.4	441	- 16.6	460	16.6	994	2.7
2026	93	42.1	12	- 56.9	531	20.3	353	- 23.3	989	- 0.6
2027	42	- 54.8	11	- 3.5	502	- 5.4	248	- 29.8	804	- 18.7
2028	64	52.8	12	2.5	402	- 19.9	292	18.0	771	- 4.1
2029	157	143.5	16	40.5	238	- 40.9	363	24.0	773	0.4
2030	103	- 34.2	24	46.0	211	- 11.2	345	- 5.0	683	- 11.7
2031	87	- 15.9	27	12.4	237	12.4	377	9.4	728	6.6

Source: ABS & Macromonitor