RENEWABLE PROJECTS QUARTERLY REPORT

Q3 2023

CLEAN ENERGY COUNCIL

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HIGHLIGHTS

New generation projects continue to lag behind required targets

The sluggish investment landscape for large-scale renewable energy generation projects in Australia continued in the third quarter of 2023, with just two new projects totalling 161 MW achieving financial commitment during the period.

The largest project committed was the Munna Creek Solar Farm in Queensland with a capacity of 120 MW. The second was the remote 41 MW hybrid wind/solar/storage project at Jundee Mine in Western Australia.

This result marked the fourth lowest installed capacity total since the Clean Energy Council began tracking project data in 2017. All three quarters of 2023 so far rank in the bottom five for lowest new capacity commitments since 2017.

This brings the total financial investment commitments for the 2023 calendar year to 509 MW. As recently described by the Clean Energy Council in its Power Playbook, the renewable energy sector needs to be seeing financial commitments in the order of 5000–7000 MW of new large-scale generation each and every year between now and 2030, in order to reach the Australian Government's 82 per cent renewable energy target.

The Clean Energy Council has once again revised down its rolling quarterly 12-month average by a further 13 per cent to 608 MW compared to the rolling average of Q2.

Storage fails to back up record-breaking second quarter

Large-scale energy storage projects did not replicate the lofty heights seen in the second quarter of 2023, with only 12 MW (installed capacity) / 13 MWh (energy) financially committed for the quarter. This storage came solely from the off-grid hybrid Jundee Mine Power Project in Western Australia, which also commenced construction in the same quarter.

This 13 MWh of energy marks the lowest return since the third quarter of 2021, and the rolling quarterly 12-month average for new financially committed energy decreased quarter-on-quarter to 1,254 MWh (-5.1 per cent).

Movement stagnates along project pipeline

Further along the project pipeline, 86 MW of generation installed capacity moved into construction, with the build getting under way with the Narromine Renewable Energy Project, the Wangaratta Solar Farm and the Jundee Mine Power Project.

Meanwhile, 212 MW / 813MWh in energy storage projects also commenced construction. Overall this totalled $702 million worth of investment for renewable projects commencing construction.

Two projects reached the final commissioned stage in the third quarter, totalling $310 million worth of investment. These were the Wyalong Solar Farm with an installed capacity of 75 MW, and the 250 MW / 250 MWh Torrens Island Battery.

HIGHLIGHTS

There are currently 108 generation and storage projects which have either reached financial commitment or are under construction. This equates to 12.6 GW generation project capacity, as well as 5.8 GW / 13.5 GWh of energy projects. Two-hundred-and-four generation and storage projects have now been commissioned since 2017, contributing 15 GW of installed capacity and 2 GW / 2.1 GWh of storage projects.

*Includes hybrid projects with a storage component

**Not all projects have publicly available investment figures

Clean Energy Council definitions

Financial commitment: publicly available information stating that a project's financing agreements have been signed and the owner can begin drawing on the financing to commence work on the project.

Under construction: publicly available information that a project started construction work.

Commissioned: publicly available information that a project is fully completed and operational (a project that is currently operational and not commissioned falls under the category under construction).

Note: Project data is retrospective, and so is subject to change depending on updated public information.

Q3 2023 PROJECT TRACKER

Name	Owner	Type	State	MW (MWh)
Jundee Mine Power Project	Zenith Energy	Hybrid (Wind, Solar, Storage)	WA	41 (13)
Munna Creek Solar Farm	Mytilineos	Solar	QLD	120

Table 1. Generation and storage projects reaching financial commitment

Name	Owner	Type	State	MW (MWh)
Jundee Mine Power Project	Zenith Energy	Hybrid (Wind, Solar, Storage)	WA	41 (13)
Kwinana Big Battery 2	Synergy	Storage	WA	200 (800)
Narromine Renewable Energy Project	MPower	Solar	NSW	5
Wangaratta Solar Farm	Cleanpeak Energy	Solar	VIC	40

Table 2. Generation and storage projects commencing construction

Name	Owner	Type	State	MW (MWh)
Torrens Island Battery	AGL	Storage	SA	250 (250)
Wyalong Solar Farm	Mytilineos	Solar	NSW	75

Table 3. Generation and storage projects reaching commissioning

View our **project tracker** for further details on all projects.

GENERATION PROJECTS

Calendar year 2023 is shaping up as the worst for large-scale renewable energy investment since the Clean Energy Council began tracking data in 2017. In the chart below there has been a clear steady downward trend in financial investment commitments since 2020, when the Large-scale Renewable Energy Target of 33,000 GWh of renewable electricity generation was achieved.

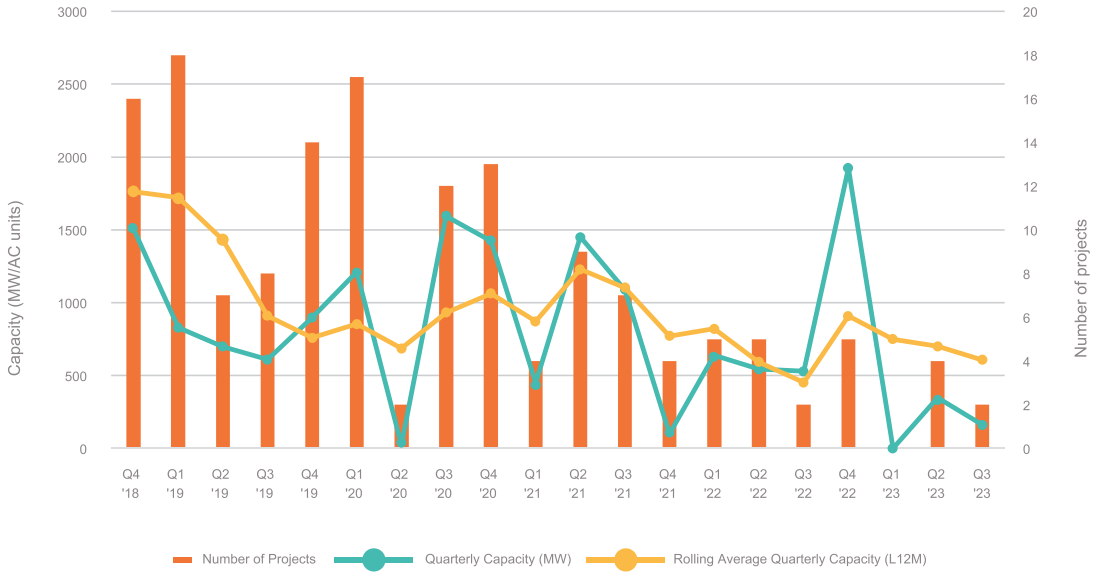

Chart 1. Financially committed generation projects and capacity (by quarter)

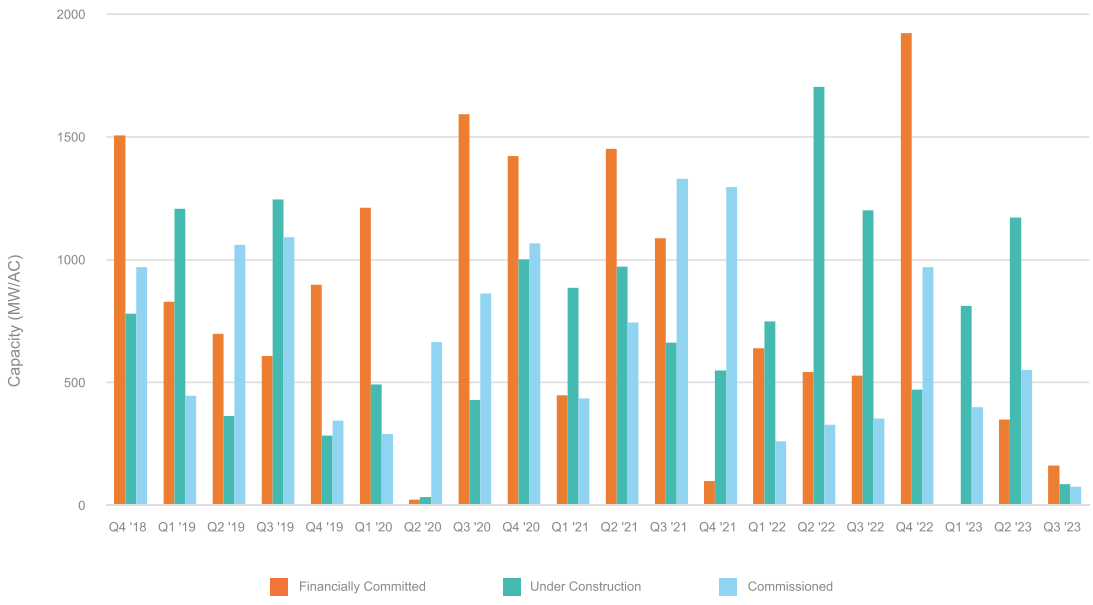

Chart 2. Total capacity of generation projects by development status, quarterly

Quarter 3 changes in projects

2
financially committed*

3
started construction

1
commissioned

Quarter 3 capacity by development stage

161MW
capacity from financially committed projects*

86MW
capacity from under construction projects

75MW
capacity from commissioned projects

2023 projects by status in Australia

6
financially committed

15
under construction

7
commissioned

2023 capacity by development stage

509MW
capacity from financially committed projects

2069MW
capacity from under construction projects

1026MW
capacity from completed (commissioned) projects

*The Jundee Mine Power Project reached multiple stages in the same quarter, and so has been counted in each group

INVESTMENT

The investment value of new large-scale renewable energy project in the third quarter was just $150 million, representing the fourth-lowest quarterly total for financial commitments since the Clean Energy Council started tracking project investment in Australia in 2017. This is $1 billion less than the new rolling quarterly 12-month average for investment of $1.2 billion. The rolling average has now decreased for the last three quarters in a row.

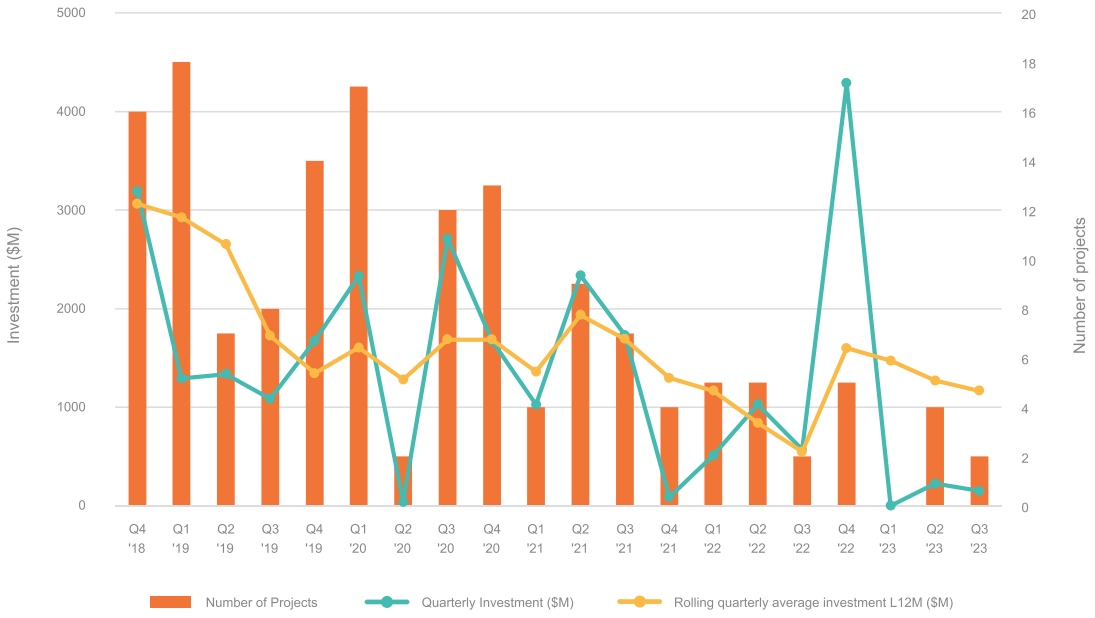

Chart 3. Financially committed generation projects and investment ($), by quarter.

Quarterly investment by development stage

$150 M

investment in financially committed projects

$52 M

investment in under construction projects

$130 M

investment in commissioned projects

2023 investment by development stage

$1.1 B

investment in financially committed projects

$3.8 B

investment in under construction projects

$2 B

investment in commissioned projects

CAPITAL INVESTMENT SPEND PER MW

The below chart shows the relationship between the amount of capital investment required for each MW of capacity of generation projects. Expressed in terms of millions, all solar and onshore wind projects that reached financial commitment from 2017 onwards have been included to view the trend over time. It is typically expected that, as a product matures along its life cycle, costs will decrease, and this is reflected in the downward trend seen for both these technology types.

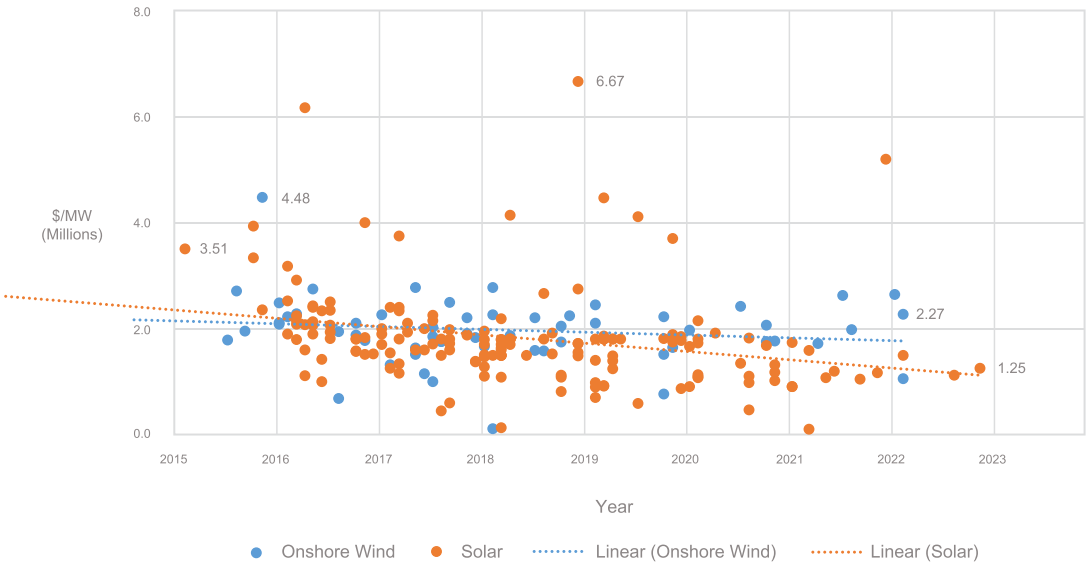

Chart 4. $/MW for wind and large-scale solar projects

PROJECTS BY STATE

Just six large-scale renewable energy generation projects reached financial close across Australia between 1 January and 30 September 2023, totalling 509 MW. Only Queensland, Victoria and Western Australia have seen a renewable generation project reach financial commitment so far in 2023.

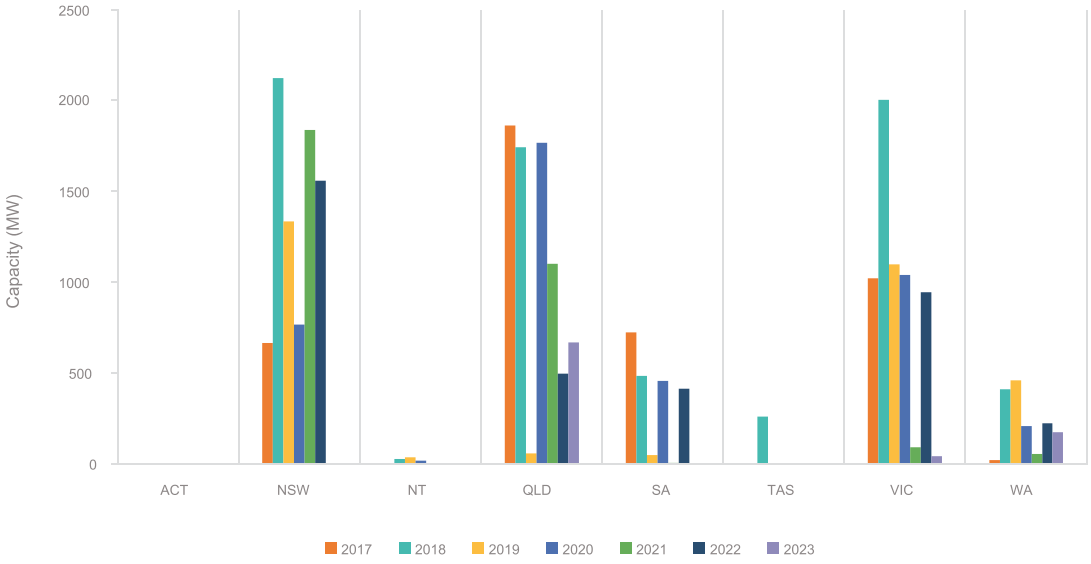

Chart 5. Total annual financial commitments for large scale generation, by state (MW)

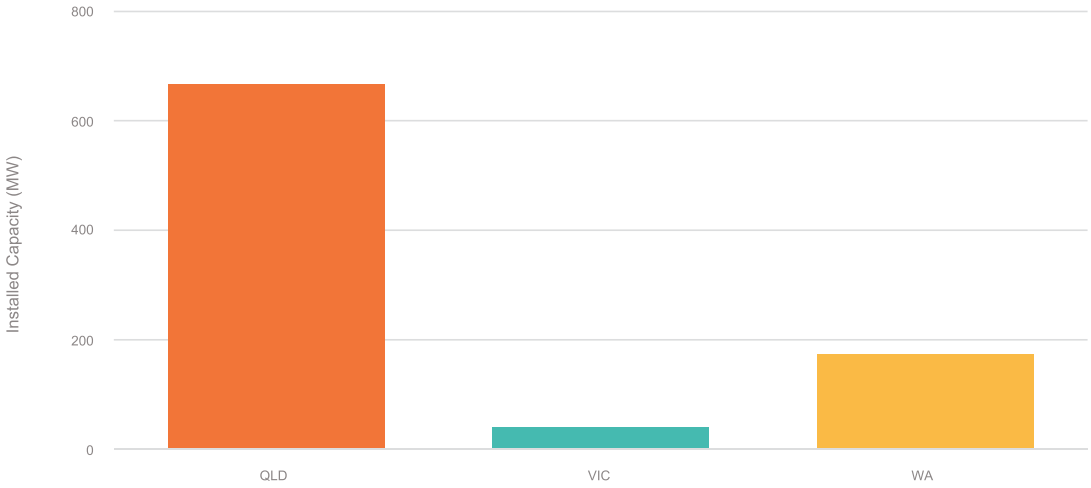

Chart 6. Total capacity of projects financially committed in 2023, by state

On average across Australia, it takes solar projects seven months less than wind projects to progress from financial commitment to the final commissioned stage. South Australia leads all states when it comes to average commissioning time for all technology types.

Commissioned project duration by state & technology (months)

State	Solar	Onshore wind	Storage
VIC	17	24	19
NSW	20	29	-
QLD	21	-	-
SA	16	21	17
WA	19	-	-
State average by technology:	**18**	**25**	**18**

Table 6. Project completion time – from Financial Commitment to Commissioning**

*Average based on solar, onshore wind and storage projects that have reached the commissioned stage since 2017.

**The stated timeframe excludes the project development phases (eg. project design, planning & environmental assessments etc) prior to financial commitment.

***Each technology type needs to have at least five commissioned projects in a state for the average to be included.

STORAGE PROJECTS

The strong showing in financial commitments for large-scale storage projects in Q2, was not repeated in the latest quarter, with just 12 MW / 13 MWh worth of energy reaching financial commitment in Q3. This came entirely from the Jundee Mine Power Project, a hybrid generation/storage project in Western Australia.

This quarterly result pales in comparison to the rolling quarterly 12-month average of financially committed energy of 1,254 MWh, which fell 5 per cent compared to the previous quarter.

Quarterly projects by development stage

1

financially committed*

2

started construction

1

commissioned

13MWh

generation from financially committed energy storage projects

813MWh

generation from under construction energy storage projects

250MWh

generation from completed (commissioned) energy storage projects

N/A

investment from financially committed energy storage projects

$650 M

investment from under construction energy storage projects

$180 M

investment from commissioned energy storage projects

2023 projects in Australia

8

reached financial commitment

4

began construction

6

commissioned

4215MWh

generation from current financially committed energy storage projects

3293MWh

generation from current under construction energy storage projects

723MWh

generation from current commissioned energy storage projects

$2.5 B

investment from financially committed energy storage projects

$1.2 B

investment from under construction energy storage projects

$780 M

investment from commissioned energy storage projects

* Jundee Mine Power Project reached multiple stages in the same quarter

FINANCIAL COMMITMENTS

Chart 7. Financially committed storage projects by energy (MWh), quarterly

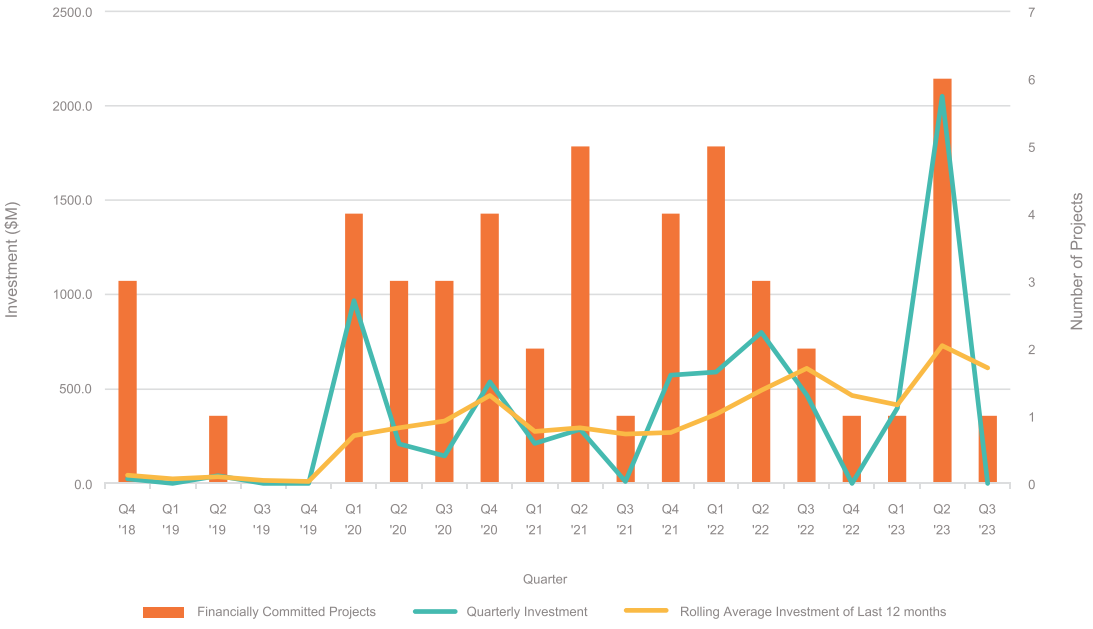

Chart 8. Financially committed storage projects by investment, quarterly

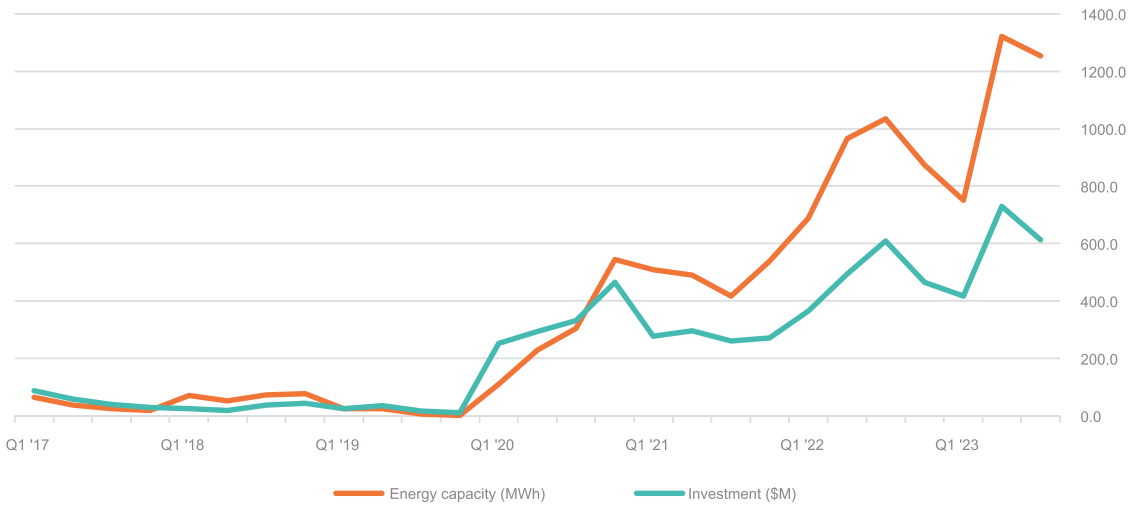

Chart 9. Financially committed energy and investment of storage projects, rolling quarterly average

PROJECTS BY STATE

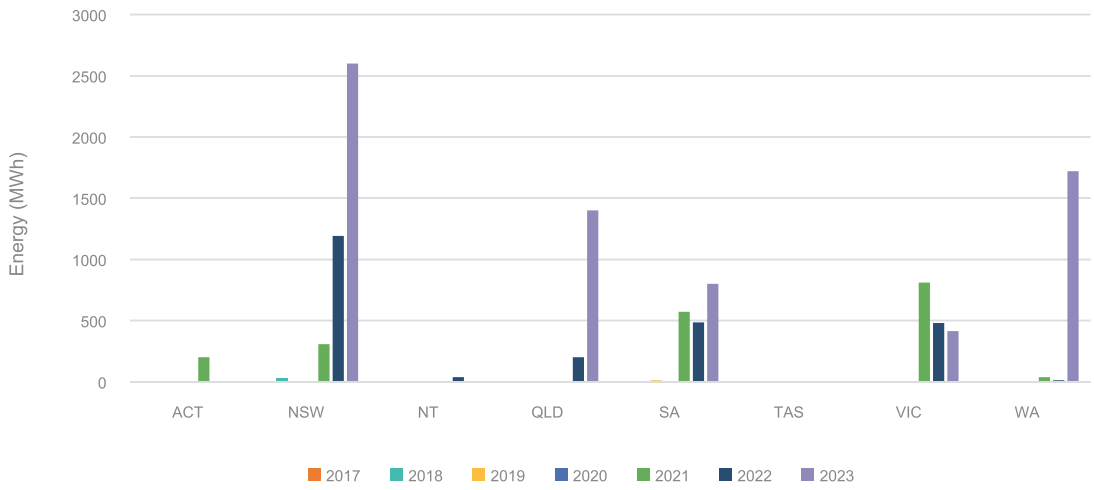

Chart 11. Financially committed and under construction energy storage projects by state (MWh)

COMMISSIONED PROJECTS BY YEAR

	2017	2018	2019	2020	2021	2022	2023
Number of projects	1	3	4	2	5	4	6
Investment ($M)	90.0	128.9	71.6	131.6	373.8	86.9	780.0
Capacity (MW)	100.0	90.0	155.0	163.0	431.7	69.0	597.0
Generation (MWh)	129.0	115.0	185.0	198.0	693.0	101.0	723.0

Table 8. Commissioned energy storage projects

CAPITAL INVESTMENT SPEND PER MWH

The below chart shows the relationship between the amount of capital investment required for each MWh of energy for storage projects. Expressed in terms of millions, all storage projects which reached financial commitment from 2017 onwards have been included to view the trend over time. It is typically expected that as a product matures along its life cycle that costs will decrease, and this is reflected in the downward trend seen for energy storage.

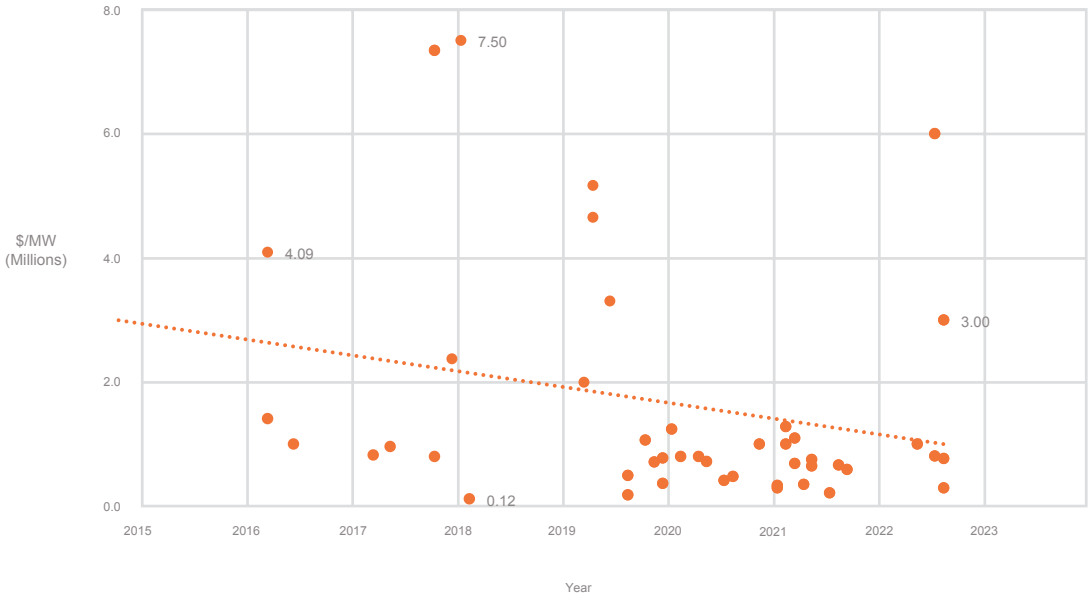

Chart 10. $/MWh of storage projects

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