

CLEAN  
ENERGY  
COUNCIL

# RENEWABLE PROJECTS QUARTERLY REPORT

Q2 2023

# CONTENTS

<b>HIGHLIGHTS</b> .....	3
<b>Q2 2023 PROJECT TRACKER</b> .....	5
<b>GENERATION PROJECTS</b> .....	7
Quarter 2 changes in generation projects .....	8
Quarter 2 generation capacity by development stage .....	8
Current generation project status in Australia .....	8
2023 generation capacity by development stage .....	8
<b>GENERATION INVESTMENT</b> .....	10
Quarterly generation investment figures by development stage .....	10
2023 generation investment figures by development stage .....	10
<b>RENEWABLE PROJECTS BY STATE</b> .....	12
<b>STORAGE PROJECTS</b> .....	15
Quarterly energy storage projects by development stage .....	15
2023 energy storage projects in Australia .....	16



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Front cover image: Akaysha Energy <https://www.akayshaenergy.com.au/projects/waratah-super-battery>

We respectfully acknowledge Aboriginal and Torres Strait Islander people as the Traditional Custodians of the lands and waters on which we work and live. We commit to collaborate with First Nations communities, to promote sustainable practice, protect ancient sites and culture with equitable access to the benefits of clean energy. Sovereignty has never been ceded. We acknowledge Elders, past and present, and their continuing culture and connection to Country.





## HIGHLIGHTS

### Storage leads renewable energy investment in Q2

Large-scale energy storage projects led renewable energy investment in the second quarter of 2023 (ending 30 June), with 1497 MW (capacity) / 3802 MWh (storage) reaching financial commitment\*. This was largely thanks to the Waratah Super Battery in NSW, boasting 850 MW / 1680 MWh of capacity and storage alone.

This quarterly result was 2480 MWh more than the rolling quarterly average for generation over the last 12 months, which increased quarter-on-quarter to 1321.5 MWh (+8.23 per cent).

In terms of investment, storage records were smashed as projects broke the billion-dollar barrier during a quarter for the first time. In Q2, \$2 billion worth of storage and hybrid projects reached this critical stage. As a result, the rolling quarterly average for investment reached \$729.5 million – a new record and an increase of \$512.5 million (+236 per cent) compared to the previous quarter.

Notably, all three large-scale storage projects that reached financial commitment during the quarter received funding or concessional financing from a government body.

### Lowest first-half total capacity for generation projects

Despite the stronger-than-average investment in energy storage projects in Q2, generation projects have had their slowest first half of the year since the Clean Energy Council began tracking project data in 2017. Four generation projects, totalling 348 MW of generation capacity, reached financial commitment, the largest among them being the Ardandra Storage and Solar Project in Queensland, with a capacity of 175 MW.

While this quarterly result was an improvement on Q1 2023, when there were no large-scale generation projects committed, investment levels so far this year are 50 per cent below the rolling 12-month quarterly average (on a capacity basis) of 699 MW and are a long way off the pace necessary for Australia to achieve an 82 per cent renewable energy share by 2030.

In terms of investment, the combined investment value of these four generation projects is \$225 million. This is over \$1 billion less (-82.3 per cent) than the rolling quarterly average over the last 12 months, which fell to \$1.3 billion.

\*Includes Hybrid projects with a Storage component

\*\*Not all projects have investment figures publicly available

Image: Wambo Wind Farm officially launches <https://statements.qld.gov.au/statements/97890>

## Movement seen across all stages of project pipeline

Looking further along the project pipeline, we saw five generation and storage projects commence construction in Q2. This included nearly 1.2 GW worth of generation and, overall, \$2.9 billion worth of investment, the third-highest level of quarterly capital commencing construction since the Clean Energy Council began tracking project data in 2017.

Nine projects reached the final commissioned stage in Q2, totalling \$1.3 billion worth of investment. The total capacity for generation projects reached 551 MW, while there was 305 MW / 460 MWh worth of storage projects. The average time for these nine projects to progress from financial commitment to commissioned stage was 25 months.

Currently 108 generation and storage projects have either reached financial commitment or are under construction. This equates to 12.3 GW generation project capacity, as well as 7.5 GW / 17.2 GWh of storage projects. The second quarter saw the milestone of 200 generation and storage projects commissioned since 2017, contributing 15.9 GW of installed capacity and 1.8 GW / 2.1 GWh of storage projects.

### Clean Energy Council definitions

<b>Financial commitment:</b>	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.
<b>Under construction:</b>	publicly available information that a project started construction work.
<b>Commissioned:</b>	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: Some minor adjustments and reclassifications have been made to the project data since the Q2 2022 Renewable Projects Quarterly Report due to new information becoming available. Project data is retrospective, and so is subject to change depending on updated public information.

## Q2 2023 PROJECT TRACKER

Table 1. Projects reaching financial commitment

Name	Owner	Type	State	MW (MWh)
Ardandra Storage and Solar Project	Octopus Australia	Hybrid (Wind, Solar, Storage)	QLD	175.0 (400)
Collie Battery - Stage 1	Neoen	Storage	WA	219.0 (877)
Port Hedland Hybrid Project Stage 1	Alinta	Hybrid (Solar, Storage)	WA	45.0 (30)
Wangaratta Solar Farm	Cleanpeak Energy	Solar	VIC	40.0
Wangaratta Solar Farm BESS - Stage 1	Cleanpeak Energy	Storage	VIC	7.5 (15)

Table 2. Projects commencing construction

Name	Owner	Type	State	MW (MWh)
Bellevue Gold Hybrid Power Station	Zenith Energy	Hybrid (Wind, Solar, Storage)	WA	88
Flat Rocks Wind Farm - Stage 1	Enel Green Power	Onshore Wind	WA	76
Golden Plains Wind Farm - Stage 1	TagEnergy	Onshore Wind	VIC	756
Wambo Wind Farm - Stage 1	Cubico Sustainable Investments/Stanwell Corporation	Onshore Wind	QLD	252
Waratah Super Battery	NSW Government	Storage	NSW	850 (1680)

Table 3. Projects reaching commissioning

Name	Owner	Type	State	MW (MWh)
Bango Wind Farm	Squadron Energy Group	Onshore Wind	NSW	244
Berrybank Wind Farm Stage 2	Global Power Generation	Onshore Wind	VIC	109 (20)
Bouldercombe Battery Project	Genex Power	Storage	QLD	50 (100)
Hazelwood Battery	Engie/Macquarie Group	Storage	VIC	150 (150)
Kwinana Big Battery	Synergy	Storage	WA	100 (200)
Mica Creek Solar Farm Stage 1	APA Group	Solar	QLD	44
Mica Creek Solar Farm Stage 2	APA Group	Solar	QLD	44
Moura Solar Farm	Mytilineos	Solar	QLD	110
Phillip Island Community Energy Storage System	Mondo	Storage	VIC	5 (10)



## GENERATION PROJECTS

Four generation projects began construction in Q2 2023, representing 1172 MW, while five generation projects were commissioned, contributing a total of 551 MW to the network. The average time for these projects to get from financial commitment to commission was 28 months. The Bellevue Gold Hybrid Power Station reached the first two stages of financial commitment and construction in the same quarter.

Image: Golden Plains Wind Farm <https://goldenplainswindfarm.com.au/about-golden-plains-wind-farm/>

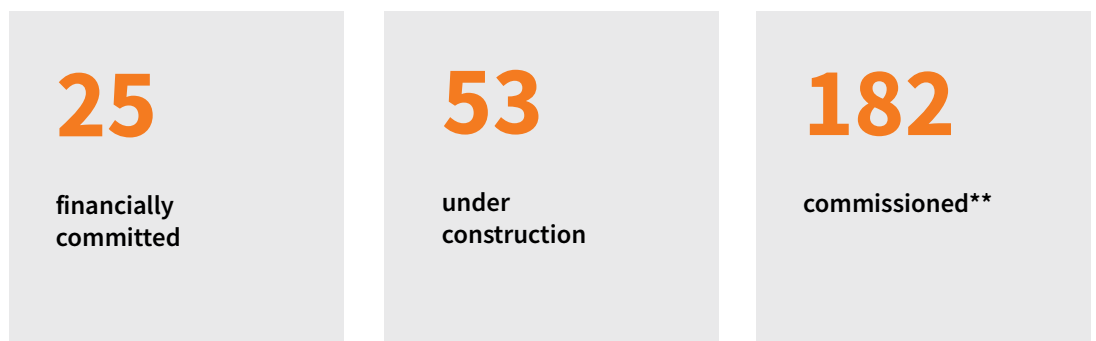
## Q2 changes in generation projects



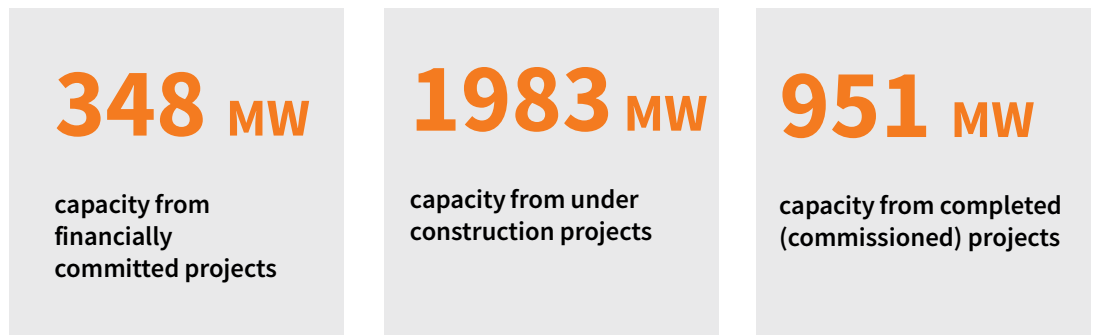
## Q2 generation capacity by development stage



## Current generation project status in Australia



## 2023 generation capacity by development stage



\*The Bellevue Gold Hybrid Power Station reached multiple stages in the same quarter, and so has been counted in each group

\*\*Projects captured from 2017 onwards



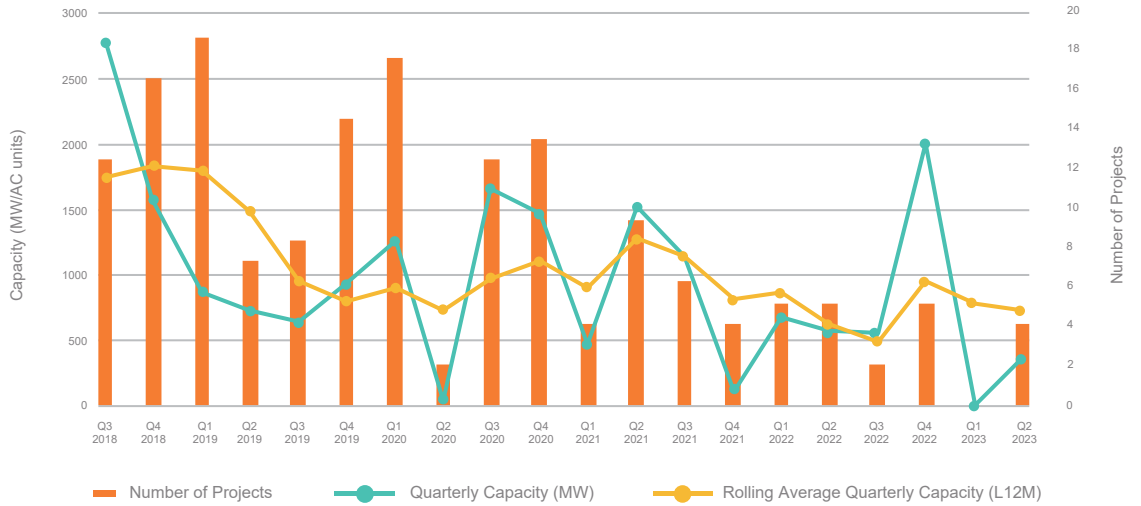


Chart 1. Financially committed generation projects and capacity, quarterly



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

# GENERATION INVESTMENT

The concerning investment trend continues for generation projects, with Q2 being the fourth-lowest quarterly capacity total for financial commitments since the Clean Energy Council started tracking large-scale project investment in Australia in 2017. Stage 1 of the Port Hedland Hybrid Project contributed the largest share of investment with a value of \$180 million.

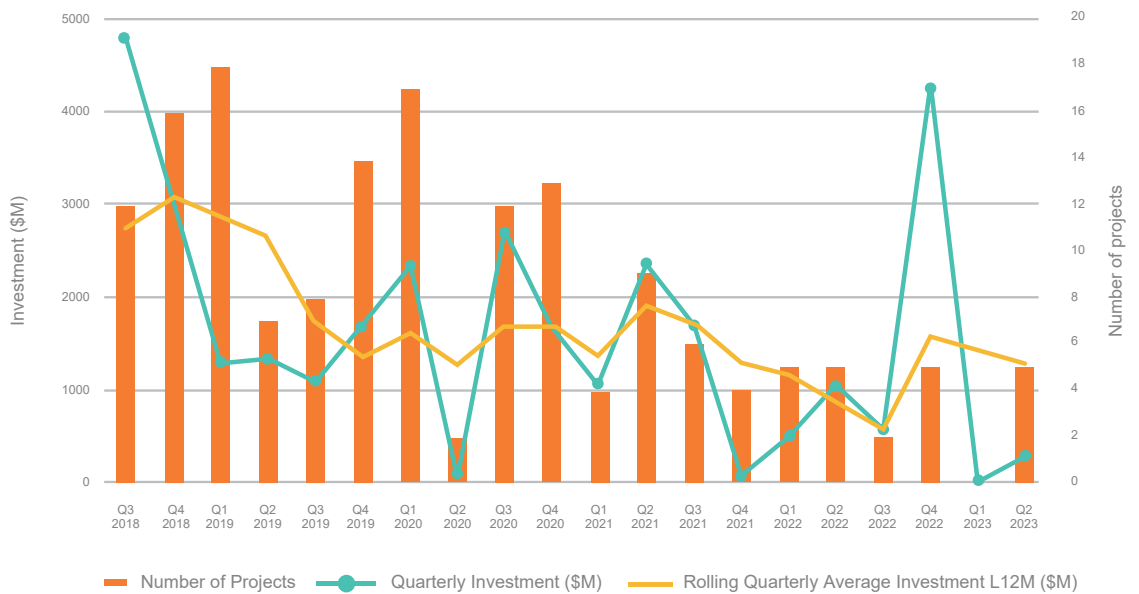


Chart 3. Financially committed generation projects and investment, quarterly

## Quarterly generation investment figures by development stage



## 2023 generation investment figures by development stage



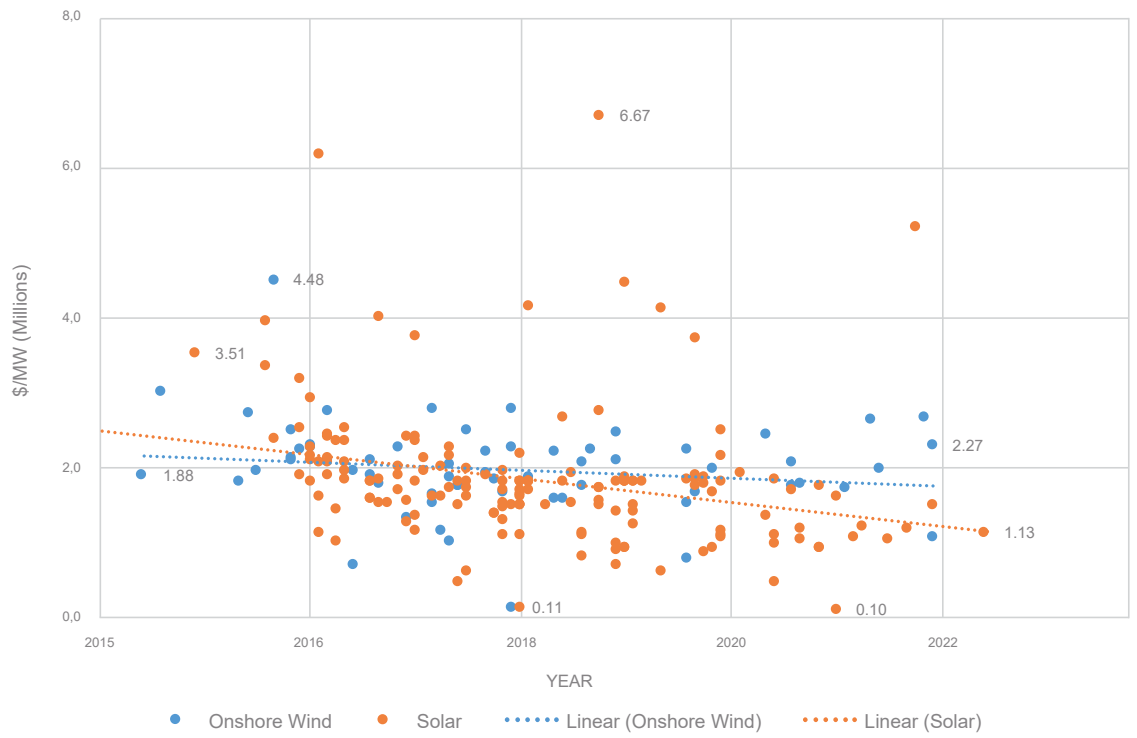


Chart 4. \$/MW for wind and large-scale solar projects



# RENEWABLE PROJECTS BY STATE

A total of four generation and four storage projects reached financial close across Australia in Q2 2023. Western Australia led the way with the most projects to reach financial commitment in Q2 with four, reaching a total of 552 MW and \$1.5 billion worth of investment.

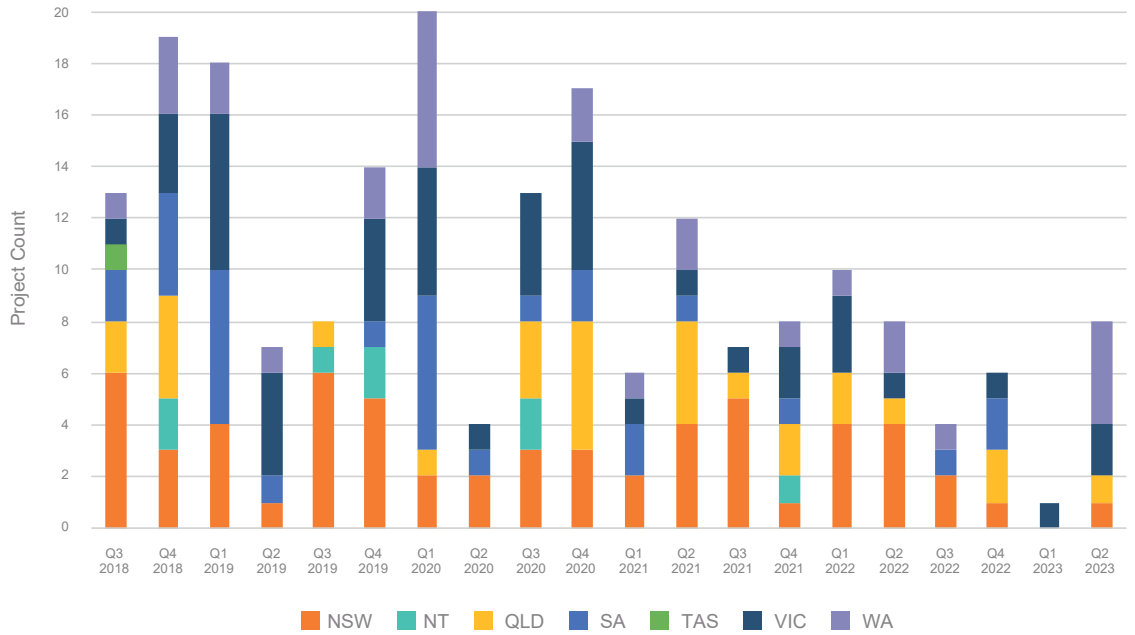


Chart 5. Total financially committed renewable projects by state, quarterly

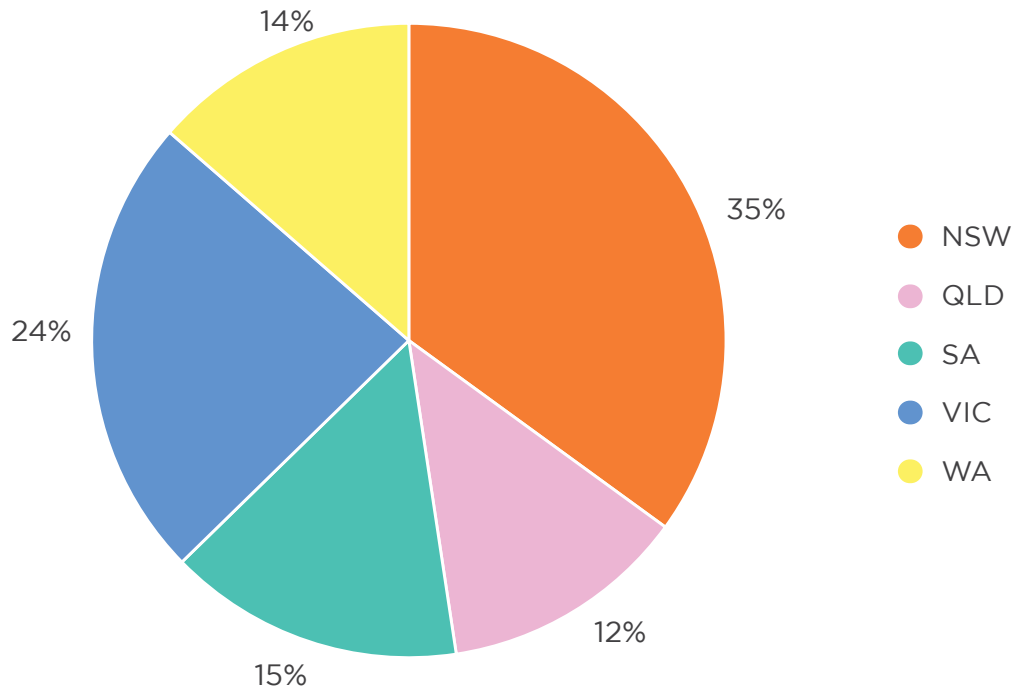


Chart 6. Share of total financially committed capacity by state, last 12 months

Table 4. Generation and storage projects commencing construction in Q2 2023

State	Project count	Capacity (MW)	Capital cost (\$M)
QLD	1	252.0	192.5
NSW	1	850.0	500.0
VIC	1	756.0	2000.0
SA	0	0.0	0.0
WA	2	164.0	200.0
TAS	0	0.0	0.0
NT	0	0.0	0.0
ACT	0	0.0	0.0
<b>TOTAL</b>	<b>5</b>	<b>2022.0</b>	<b>2892.5</b>

Table 5. Generation and storage projects commissioned in Q2 2023

State	Project count	Capacity (MW)	Capital cost (\$M)
QLD	4	248.0	235.0
NSW	1	244.0	500.0
VIC	3	264.0	375.0
SA	0	0.0	0.0
WA	1	100.0	155.0
TAS	0	0.0	0.0
NT	0	0.0	0.0
ACT	0	0.0	0.0
<b>TOTAL</b>	<b>9</b>	<b>856.0</b>	<b>1265.0</b>

[View our project tracker for further details on all projects.](#)

On average, across Australia, it takes solar projects 6.2 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 time to commission both solar and wind projects at 15.6 and 21.3 months, respectively.

Table 6. Project completion time\*\*

**Commissioned project duration by state & tech (months)**

State	Solar	Onshore Wind	Storage
VIC	16.7	23.8	18.5
NSW	19.5	28.9	N/A
QLD	21.2	N/A	N/A
SA	15.6	21.3	N/A
WA	19.3	N/A	N/A
<b>Total Average by Tech:</b>	<b>18.5</b>	<b>24.7</b>	<b>18.5</b>

\*Average based on Solar, Onshore Wind and Storage projects that have reached commission since 2017.

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

## STORAGE PROJECTS

Batteries with a larger energy potential are becoming more frequent, with three batteries reaching financial commitment in the second quarter, each contributing over 200 MW / 800 MWh – the largest being the Waratah Super Battery with a significant 850 MW / 1680 MWh. The Waratah Super Battery also began construction in Q2 2023, being the sole storage project to do so.

### Quarterly energy storage projects by development stage



\* Waratah Super Battery and Kwinana Big Battery 2 reached multiple stages in the same quarter

## 2023 energy storage projects in Australia

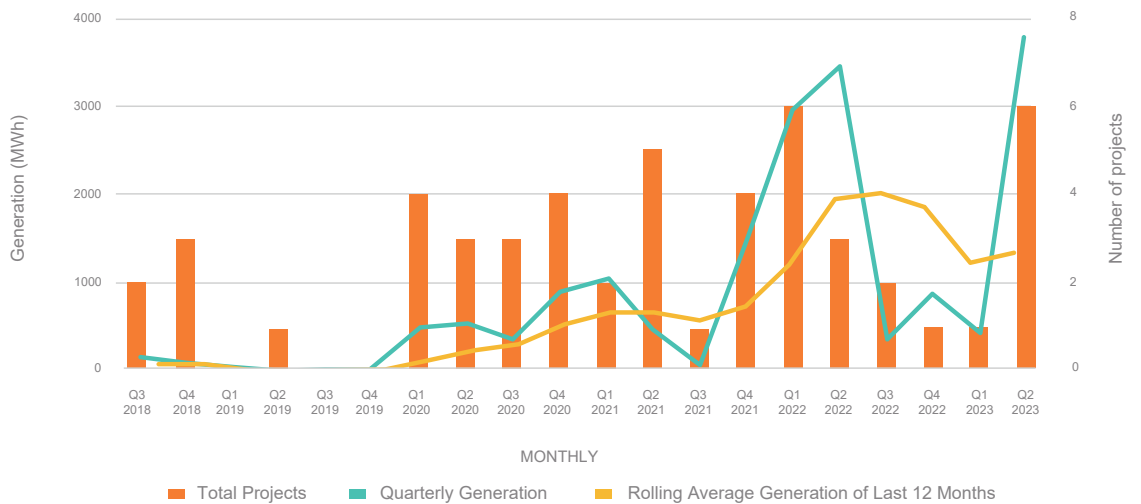


Chart 7. Financially committed storage projects by energy (MWh), quarterly



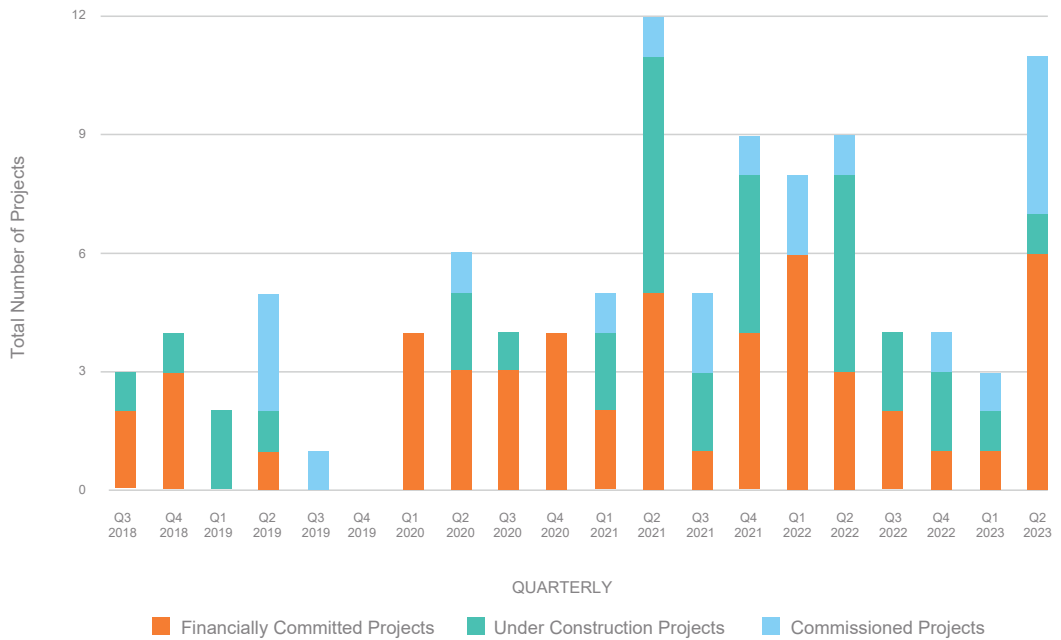


Chart 8. Total project count of energy storage projects by development stage, quarterly

Image: Neoen

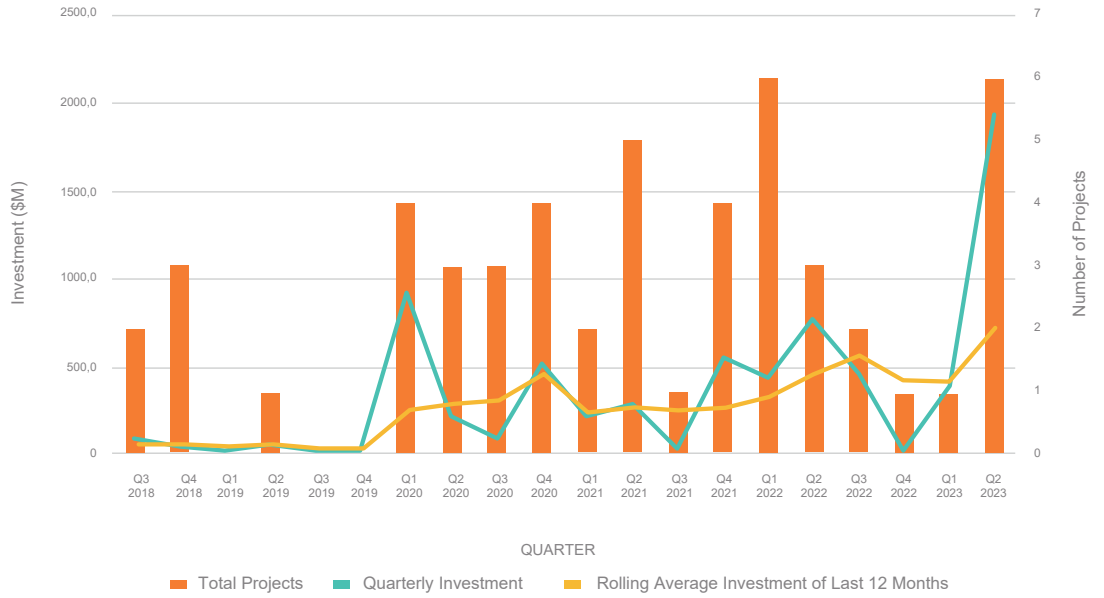


Chart 9. Financially committed storage projects by investment, quarterly

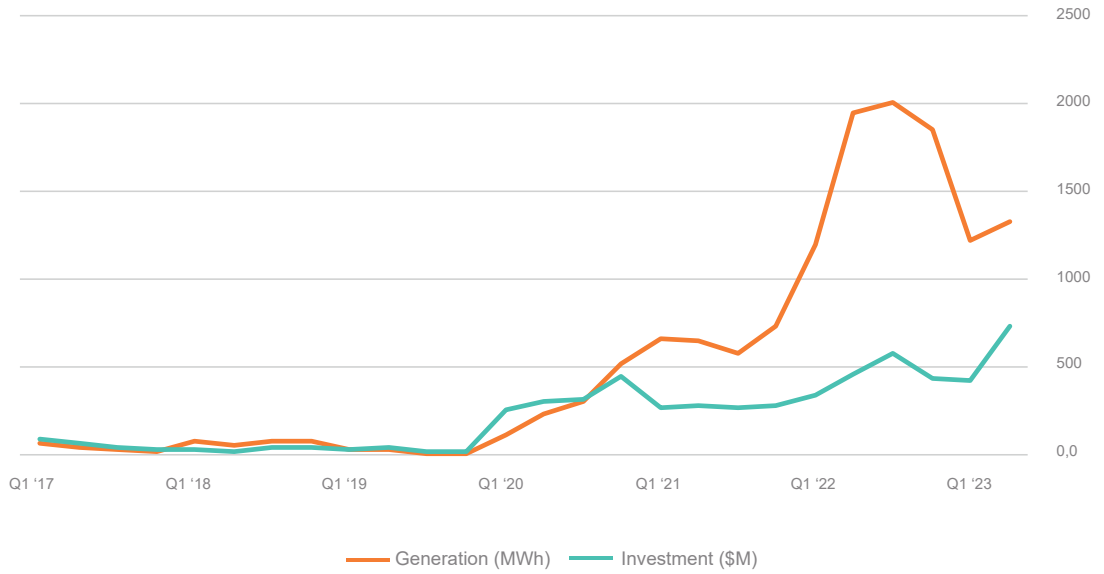


Chart 10. Financially committed storage generation and investment, quarterly average L12M

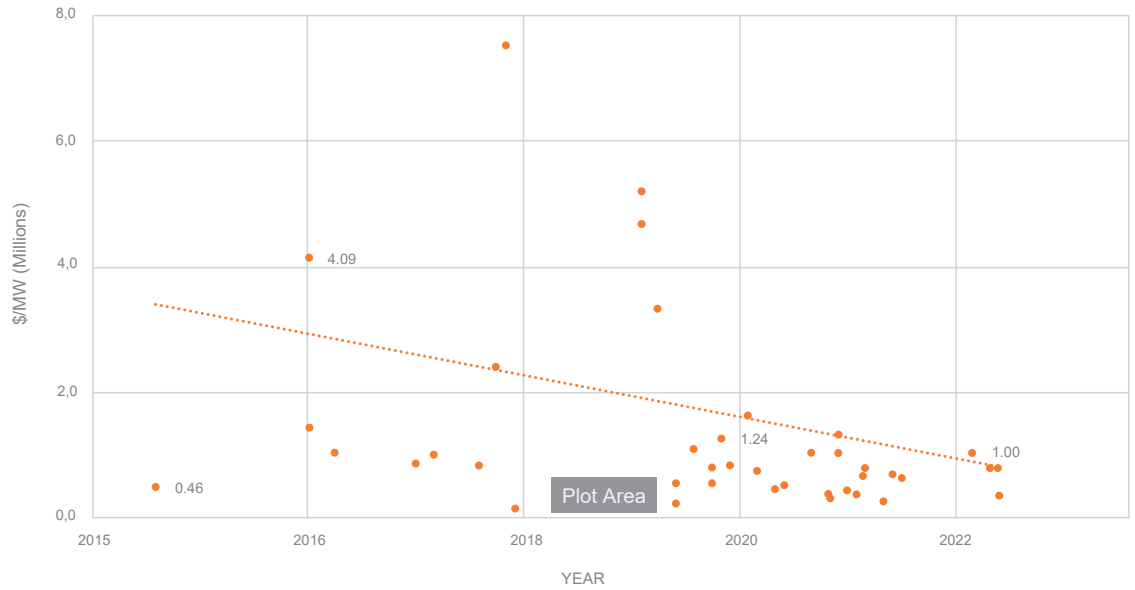


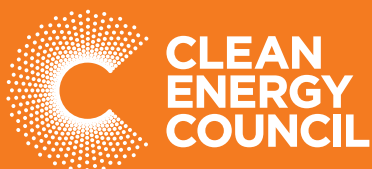
Chart 11. \$/MWh of storage projects

Table 7. Financially committed and under construction energy storage projects by state

State	Project count	Capacity (MW)	Storage (MWh)	Total investment (\$M)
ACT	1	100.0	200.0	0.0
NSW	13	3126.0	8166.0	2362.8
NT	2	41.0	38.5	38.3
QLD	2	275.0	600.0	150.0
SA	7	1187.0	2864.0	1006.2
TAS	0	0.0	0.0	0.0
VIC	4	650.5	1707.0	878.0
WA	7	606.0	1754.0	1633.8
<b>TOTAL</b>	<b>36</b>	<b>5985.5</b>	<b>15329.5</b>	<b>6069.2</b>

Table 8. Commissioned energy storage projects

State	2017	2018	2019	2020	2021	2022	2023
Number of projects	1	3	4	2	5	4	5
Investment (\$M)	90.0	128.9	71.6	131.6	373.8	86.9	600.0
Capacity (MW)	100.0	90.0	155.0	163.0	431.7	69.0	347.0
Generation (MWh)	129.0	115.0	185.0	198.0	693.0	101.0	473.0



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