

**JH Solar**

# **New zealand pumped hydro energy storage project**



## Overview

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Worldwide, pumped storage hydropower has been ramping up. In 2021, 4.7GW capacity was added, up from 1.5GW in 2020. If it continues, the Onslow project will be one of the largest PSH schemes in the world, adding up to 1.5GW of generation capacity. The proposed scale of the Onslow project requires a.

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The NZ Battery Project was set up in 2020 to explore possible renewable energy storage solutions for when our hydro lakes run low for long periods. A pumped hydro scheme at Lake Onslow was one of the options being explored. The Government stopped the Lake Onslow investigations in late 2023. MBIE is.

One of the options being investigated is the Onslow pumped storage hydropower (PSH) scheme. The Onslow project will comprise a 60km<sup>2</sup> reservoir in the existing Onslow and possibly Manorburn basins. Author provided, CC BY-SA A feasibility study is due to be completed and cabinet is expected to decide.

The New Zealand government will investigate the viability of establishing a pumped hydroelectric facility on the South Island. The project could provide up to 8.5 TWh of annual generation and storage capacity to support the nation's transition to 100% renewable electricity generation. From pv.

The decarbonisation of New Zealand's energy system will increase demand for electricity at the same time as fossil fuelled generation is phased out. Maintaining balance in the power system will become increasingly difficult as more variable generation is integrated and it is unlikely that the.

The government of New Zealand is considering the viability of pumped hydro

energy storage (PHES) among its options to plug energy deficits of between 3TWh and 5TWh. As the country increases its share of renewable energy on the grid, along with solar PV and wind, hydroelectric power (hydropower) will.

The Interim Climate Change Committee (ICCC) in New Zealand has recommended further investigation into pumped storage as an option to decarbonise the nation's energy system. Here, Earl Bardsley from the University of Waikato discusses the technology's potential in New Zealand. Hydropower provides. What are the environmental benefits of pumped hydro storage in New Zealand?

There are regional environmental advantages from operating a large pumped storage scheme like Onslow. New Zealand's scenic southern lakes (Hawea, Tekapo, and Pukaki) are presently used for seasonal hydro storage to maintain winter electricity supply when demand is highest and lake inflows are lowest.

Could a pumped hydroelectric facility be a viable option for New Zealand?

The New Zealand government will investigate the viability of establishing a pumped hydroelectric facility on the South Island. The project could provide up to 8.5 TWh of annual generation and storage capacity to support the nation's transition to 100% renewable electricity generation. From pv magazine Australia.

Will New Zealand build a pumped hydro system at Lake Onslow?

The government of New Zealand has confirmed that it will develop a detailed business case for a pumped hydro scheme at Lake Onslow, as it seeks to build "a resilient, affordable, secure and decarbonized energy system."

What is the NZ battery project?

The NZ Battery Project was set up in 2020 to explore possible renewable energy storage solutions for when our hydro lakes run low for long periods. A pumped hydro scheme at Lake Onslow was one of the options being explored. The Government stopped the Lake Onslow investigations in late 2023.

What is the importance of hydro power in New Zealand?

Hydro power provides nearly 60% of all electricity and the large hydro power plants on New Zealand's major rivers (Waikato, Waitaki and Clutha) provide the power system with great strength and reliability. Hydro resources also provide the majority of renewable energy storage, with a large proportion held

in lakes Pukakai and Tekapo.

What is pumped storage hydropower?

Pumped storage hydropower is an established technology. It accounts for more than 94% of the globally installed energy storage capacity. Worldwide, pumped storage hydropower has been ramping up. In 2021, 4.7GW capacity was added, up from 1.5GW in 2020.

## New zealand pumped hydro energy storage project

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### Massive hydro storage plan to be reassessed

New power scheme 'immense' for region Its report, which also considers electrifying up to half of New Zealand's vehicle fleet by 2035 and increasing the amount of renewable energy used instead of coal or ...

### New Zealand wants to build a 100% renewable electricity grid, but

A proposed multibillion-dollar project to build a pumped hydro storage plant could make New Zealand's electricity grid 100% renewable, but expensive new infrastructure ...



Standard 20ft containers



Standard 40ft containers



### New zealand pumped hydro energy storage

The Government will progress to the next stage of the NZ Battery Project, looking at the viability of pumped hydro as well as an alternative, multi-technology approach as part of the ...

### New Zealand considers 5TWh pumped hydro ...

The government of New Zealand is considering the viability of pumped hydro energy storage (PHES) among its options to plug energy deficits

of between 3TWh and 5TWh.



## Scrapping NZ battery project 'short-sighted'

An energy sector expert says the new government's decision to pull out of investigating battery projects in New Zealand is "short-sighted". On Sunday, the new government confirmed it was stopping work ...

## Insight into key developments in pumped storage hydropower projects

Insight into key developments in pumped storage hydropower projects Pumped storage plans are ramping up. IWP& DC gives an insight into key developments across ...



## Next steps developing clean energy for NZ , Beehive.govt.nz

The Government will progress to the next stage of the NZ Battery Project, looking at the viability of pumped hydro as well as an alternative, multi-technology approach as ...

## PUMPED HYDRO SCHEME

Investigate the ability of pumped hydro to address New Zealand's dry year problem by storing energy that can be converted to electricity during dry year events. Provide a backup to ensure ...



1075KWHH ESS

## **new zealand pumped hydro energy storage project construction**

Proposed Onslow hydropower project will cost billions--how can ... Pumped storage hydropower can deliver sustainability benefits but requires "careful upfront co-ordination to avoid ...

## **Executive summary - New Zealand 2023 - ...**

The project will provide comprehensive advice on the technical, environmental and commercial feasibility of potential energy storage projects, including, but not limited to, the Lake Onslow pumped hydro project.



## **New Analysis Reveals Pumped Storage ...**

Researchers analyzed the life cycle greenhouse gas impacts of energy storage technologies and found that pumped storage hydropower has the lowest global warming potential on average.

## Government eyes new \$4 billion hydro-power project

The government will spend \$30 million to investigate a potential \$4 billion hydro scheme in Central Otago to reduce the need for coal and gas-fired generation in dry years and create jobs in the



## Government announces plans to progress NZ Battery Project

The Government of New Zealand will progress to the next stage of the NZ Battery Project, looking at the viability of pumped storage hydropower as well as an alternative, ...

## Govt confirms it is dumping 'hugely wasteful' Lake ...

The new government has axed the \$16 billion pumped hydro scheme at Lake Onslow, which had been championed by its Labour predecessors. Energy Minister Simeon Brown said it was a wasteful ...



## List of Upcoming Pumped Hydro Energy Storage (PHS) Plant Projects ...

Search all the announced and upcoming pumped hydro energy storage (PHS) plant projects, bids, RFPs, ICBs, tenders, government contracts, and awards in New Zealand with our ...

## Pumped-hydro storage project takes shape in New Zealand

Pumped hydro-storage projects in the news pv magazine Australia recently published two insightful articles covering pumped-hydro storage development projects in New ...



## What potential is there for pumped storage in New Zealand?

The Interim Climate Change Committee (ICCC) in New Zealand has recommended further investigation into pumped storage as an option to decarbonise the ...

## New Zealand moves forward with 8.5 TWh ...

The pumped hydro scheme at Lake Onslow is expected to provide between 3 TWh and 8.5 TWh of annual generation and storage capacity, depending on the scope of the enlarged lake.

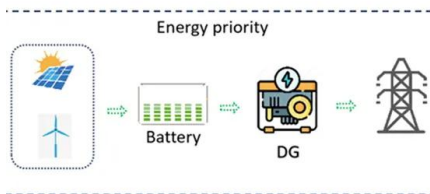


## Spotlight on New Zealand: Battery storage capacity expands as hydro

New Zealand's electricity system remains heavily dependent on hydro generation, especially in the South Island, where facilities like Manapouri and Clyde dams dominate. ...

## Pumped hydro doesn't have to be expensive: If it ...

Australian pumped hydro energy storage (PHES) project proposals tend not to be located at premium sites, which translates to higher cost projects. Australia has 300 premium (Class AA) pumped hydro

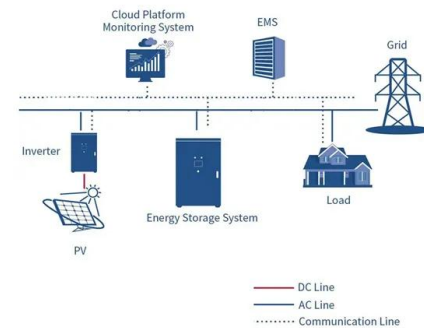


## What potential is there for pumped storage in New ...

The Interim Climate Change Committee (ICCC) in New Zealand has recommended further investigation into pumped storage as an option to decarbonise the nation's energy system. Here, Earl Bardsley ...

## NZ to progress 8.5 TWh pumped hydro project

The New Zealand government will further investigate the viability of establishing a pumped hydroelectric facility on the South Island that would provide up to 8.5 TWh of annual generation and storage ...



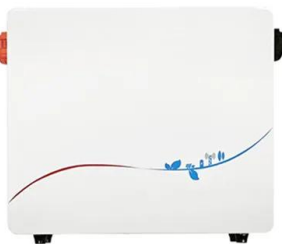
## New Zealand considers 5TWh pumped hydro project

The government of New Zealand is considering the viability of pumped hydro energy storage (PHES) among its options to plug energy deficits of between 3TWh and 5TWh. ...

## There is potential for pumped hydro energy storage in New

...

There is a lot to be gained from systematic evaluation of resources and optimisation of scheme designs. Here an overview of the technology, summary of previously proposed projects, and ...



## Pumped-hydro storage project takes shape in New Zealand

Lake Onslow, New Zealand, could become home to one of the world's largest pumped-hydro storage facilities. A local consortium is now conducting a feasibility study and is ...

## Proposed Onslow hydropower project will cost billions--how can ...

Return on investment in pumped storage hydropower is considerably better than for conventional batteries. The Onslow project is also likely to qualify for a climate bond ...



## Pumped Storage

The Pumped Storage team at Stantec has been providing global planning, design, and management for over 55 years. The energy storage industry is being shaped by design improvements at all stages of a project life cycle.

## Govt considering North Island pumped hydro scheme

While the NZ Battery project is looking at a range of pumped hydro and non-hydro solutions to New Zealand's dry year problem, in which low precipitation could limit the ...



## Pumped storage can support decarbonization of New Zealand energy ...

The report recommends advancing reforms to the permitting system for new renewable projects, finalizing an offshore wind regulatory framework, and providing timely ...

## Pumped Hydro Energy Storage

Supporting pumped storage at all stages We have one of the largest groups of pumped storage specialists in the international consulting field. Our services extend from due diligence and initial site selection through project ...



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