Question on Notice
No. 890
Asked on Tuesday, 22 August 2023

MR P WEIR ASKED MINISTER FOR ENERGY, RENEWABLES AND HYDROGEN AND MINISTER FOR PUBLIC WORKS AND PROCUREMENT (HON M DE BRENNI)

With reference to comments made by Minister Linard in Estimates 2023 where the Minister states the Pioneer-Burdekin Dam will 'only proceed if appropriate approvals are given'—

Will the Minister advise if any planning has been undertaken as to possible options should the Pioneer-Burdekin Pumped Hydro Project proposal not receive the necessary approvals, and if yes, what those options are?

ANSWER

Planning for all scenarios is already taken into account by the Queensland Energy and Jobs Plan. The Queensland SuperGrid Infrastructure Blueprint September 2022 indicates the following:

> "Coal-fired power stations will only be converted into modern clean energy hubs when energy reliability is assured and there is sufficient replacement generation, storage and supporting infrastructure in place. This process will commence in 2027, provided it does not impact reliability.
>
> The Government will establish a Queensland Energy System Advisory Board to provide expert technical advice and assessment of the Queensland energy transformation every two years and to support regular updates to this Blueprint.
>
> "Blueprint checkpoints" will enable the Government to check progress and confirm it is possible to move to the next phase of coal-fired power station modernisation. This progression will only occur once reliability is assured."

The Queensland Energy and Jobs Plan outlines the importance of long-duration pumped hydroelectric storage (PHES) as a foundational investment for Queensland's SuperGrid. Long duration PHES will be a critical component of Queensland's future energy system by providing a reliable energy supply even during times when energy generation from renewable energy sources of wind and solar are low.

Hydro power is one of the most well established and largest sources of low carbon energy on the planet providing over 60% of renewable energy globally. Pumped hydro itself accounts for around 94% of global energy storage and remains by far the lowest cost and most technologically mature option for long duration storage.

I am advised that modelling of alternative options to the pumped hydro energy storage projects outlined in the Queensland Energy and Jobs Plan, such as battery storage, has been considered, however presents a prohibitive cost and technology barrier. I am advised that an alternative plan using a battery of comparable size to the 120GWh Pioneer-Burdekin Hydro would cost over $80 billion and need to be replaced approximately six times over the lifetime of the PHES at a capital cost of up to $480 billion on today's prices.

PHES have an asset life of up to 100 years, whereas batteries require replacement after 10-15 years. This means an investment is PHES is the cheapest long term solution available on the market now.

Further, the storage capacity of Borumba and Pioneer-Burdekin PHES combined is approximately equivalent to over 860 Hornsdale batteries and more than 13 million household batteries. Finding suitable sites for such large numbers of Hornsdale-scale batteries is also a significant challenge in itself.

Countries around the world that are able to develop pumped hydro are taking advantage of that as part of a decarbonised system and Queensland is fortunate to have two world class opportunities.