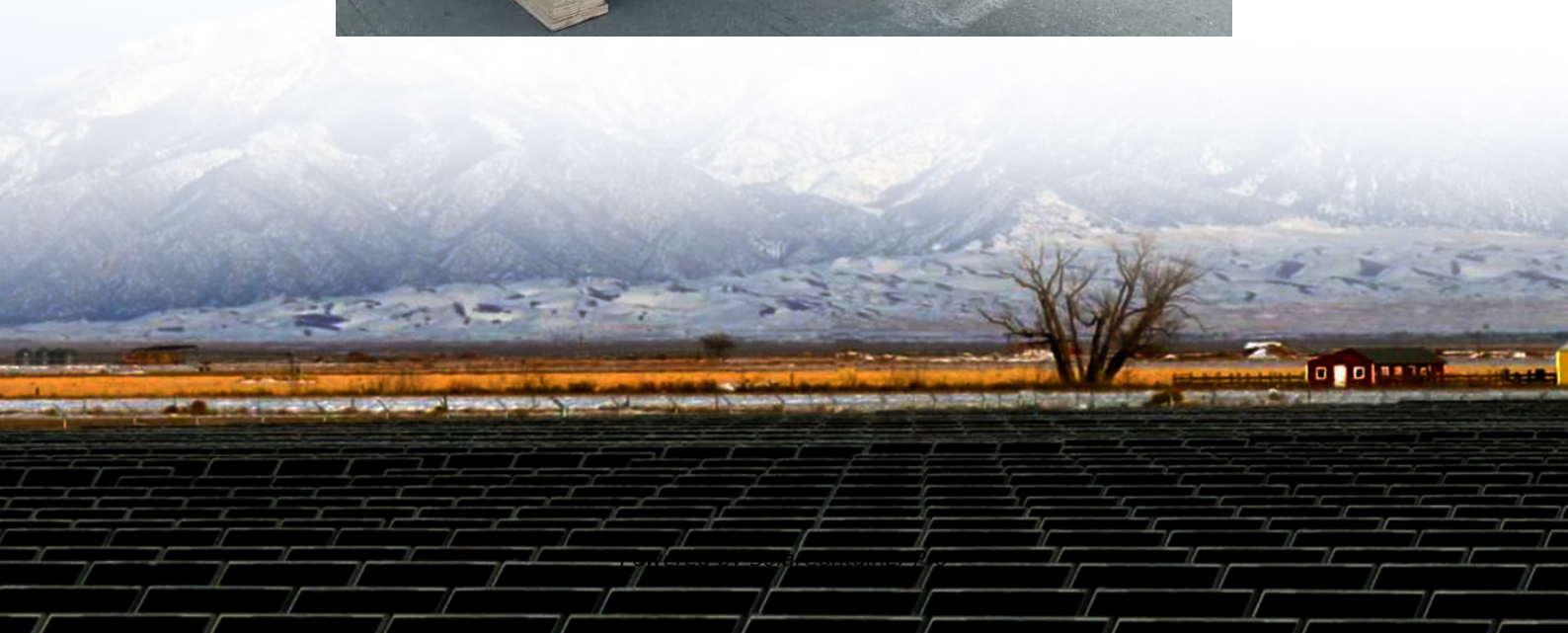


Floating wind energy storage





Overview

Integrating storage systems such as pumped hydro storage or batteries with floating wind platforms can stabilize energy supply and ensure a reliable flow of electricity, even when the wind is not blowing. Pumped hydro storage is a well-established technology that has been used onshore for decades. Can energy storage systems be deployed on floating offshore wind & hydrogen?

Fig. 6 shows a full picture of investigated energy storage technologies in this study for enabling 'floating offshore wind + hydrogen'. Table 3 outlines the characteristics of corresponding energy storage technologies. Overall, energy storage systems can be deployed on the floating offshore platforms or on the seabed.

Can a floating wind farm use a battery energy storage system?

Modular Li-ion battery energy storage systems are deployed on the seabed and connected to floating wind turbines and offshore platforms via flexible cables. The seawater can effectively transfer and store the heat generated by the battery energy storage system. There is still no concrete solution for floating offshore wind farms.

What are the advantages of floating energy storage?

Overall, energy storage systems can be deployed on the floating offshore platforms or on the seabed. In summary, there are several advantages of floating energy storage. First, energy storage devices can take advantage of space on the decks of floating wind turbines in mode 3 of decentralized offshore electrolysis.

Could Subsea energy storage be an enabler for 'floating offshore wind + hydrogen'?

Subsea energy storage remains the weakest link in the integration of 'floating offshore wind + hydrogen + subsea energy storage' due to the relatively low TRLs. Subsea energy storage could be an enabler for 'floating offshore wind + hydrogen', however, it is not the only option.



Could wet storage be the future of offshore wind?

This could happen in the water at portside or at another location close to shore. The concept of wet storage for offshore wind could become more prevalent in floating projects than it has been for fixed foundation offshore wind.

Can wind energy storage be integrated with hydrogen energy storage?

Abdelghany et al. investigated the feasibility and evident benefits of integrating wind with hydrogen energy storage and battery energy storage by elaborating on energy management and control [4, 5]. Similarly, this could also be a viable solution for floating offshore wind .



Floating wind energy storage



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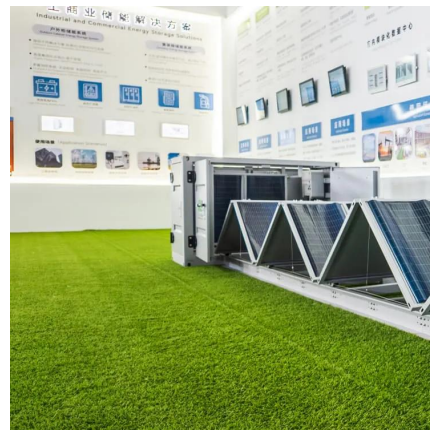
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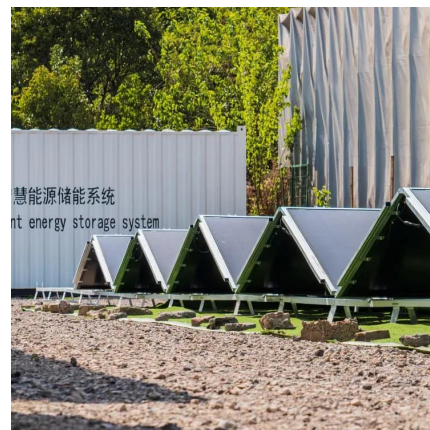
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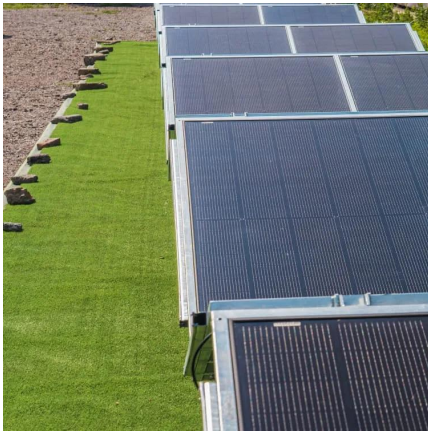
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