## Copenhagen energy storage industry



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Copenhagen Infrastructure Partners is a global leader in renewable energy investments and makes significant and meaningful contributions to the green transition.

We manage 12 funds and have a market-leading portfolio of green energy projects that create long-term value for our investors, local communities and the planet.

Shaping a more sustainable future requires the best and the brightest. We have built a team of 500 passionate, collaborative, entrepreneurial and disciplined energy visionaries.

First power from Zhong Neng, a 300 MW offshore wind project off the coast of Changhua County in Taiwan, marks a significant step towards on-schedule completion of the project later in 2024.

Danish Center for Energy Storage, DaCES, is a partnership that covers the entire value chain from research and innovation to industry and export in the field of energy storage and conversion.

The ambition of DaCES is to strengthen cooperation, sharing of knowledge and establishment of new partnerships between companies and universities. Through these collaborations, DaCES seeks to ensure a long-term, focused and coordinated effort between all relevant players in areas of technology such as thermal energy storage, battery technology, system integration and Power-to-X.

In the future wind and solar energy should account for as much as possible of our energy supply. This creates new challenges in terms of securing accessible energy when demanded. Energy is only generated whenever the wind blows or the sun shines. As a result of these energy fluctuations it will be essential to balance supply and demand instantaneously and in a flexible way. It will also be important to combine the different energy sectors, such as electricity, gas, and district heating in order to store excess energy as e.g. heating or green fuels.

Denmark has a strong tradition for a triple helix cooperation between universities, industries and the government. We are pioneers in renewable energy and we have a high degree of sector coupling and digitization. This provides unique possibilities for research, innovation and export of novel solutions for energy storage and at the same time helps us to reach our national climate goal. However, this requires political focus and even more cooperation between knowledge-based institutions and businesses.

Batteries, in particular lithium ion batteries, are among the most well-known and economically feasible technologies for energy storage. As of today it is the only realistic solution for batteries in electric cars, mobile phones and similar mobile devices. But there is a downside. The batteries are based on lithium, a chemical element of limited deposits. However, the lithium battery beats electric cars when it comes to eco efficiency,



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and new technologies that are less resource demanding are already being examined.

The technology is promising, both in terms of balancing the electricity net of the future and when it comes to overcoming the challenges presented by emissions from heavy industry and transport. However, it will require extensive investments in research as well as innovation.

System integration is the art of connecting various energy systems and consumers with eachother. The term covers a physical element, meaning connecting electricity, gas, district heating systems and integration of PtX plants, as well as a digital element, that performs intelligent regulation of the energy system as a whole. This needs to be designed in a way that also includes the transport sector, the building stock, and flexible interaction with industry businesses.

If Denmark now and in the future is to possess competences for the development, production and implementation of future energy storage and conversion, it is necessary that our education system meets these needs. That is why the working group has been the driving force behind a flexible master in energy storage, which four Danish universities now jointly offer to experienced employees and self-employed people with a technical or scientific background who want to sharpen or expand their skills.

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