

**DaCES HIGH LEVEL  
SUMMIT ON  
ENERGY STORAGE:  
A NATIONAL  
STRATEGY FOR  
BATTERIES**

NOVEMBER 5TH, 2025,  
THE OPERA HOUSE, COPENHAGEN



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## **DANISH CENTER FOR ENERGY STORAGE (DaCES)**

Denmark must become a pioneering leader in research, development, application and integration of energy storage technologies that are competitive to a global market thereby contributing to reducing the climate footprint of the planet.

DaCES is a neutral and independent forum, working to guide and advice national research, education and innovation in energy storage and conversion. We are member-driven, network based and bring together actors from research, industry and business in a professional manner.

We work across technologies and professional disciplines such as natural and engineering sciences with economics and humanities, etc. We think long term by acting short term. The goal is to create collaborations and partnerships that bring together knowledge institutions and companies to address major societal challenges and stimulate competitiveness and growth.

### **DaCES' working groups**

DaCES leads and facilitates four technical working groups in thermal storage, batteries, PtX and system integration, as well as a working group on education.

For membership: [www.daces.dk](http://www.daces.dk)

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## **FOREWORD**

Europe faces three interconnected megachallenges: securing resilient infrastructure, strengthening industrial competitiveness and developing clean technologies. We cannot in Denmark and Europe rely and depend on critical technologies from China and USA, and we must be leading in the green transition. The geopolitical situation emphasises the need for targeted investment in research strategies.

Energy storage and conversion —such as battery technology plays an important role in developing European technological autonomy. Sustainable and competitive battery solutions are instrumental elements of other clean technologies contributing to European industrial competitiveness, energy independence, security and climate neutrality.

The DaCES High Level Summit on Energy Storage 2025 brings together researchers, policymakers, and industry leaders to accelerate this transformation. The main objective is clear: to increase funding for applied research in battery and related technologies.

To reach this goal, Denmark must:

1. Develop a national battery, recycling, and materials strategy.
2. Join Nordic cooperation on energy storage, battery and mineral applied research and recycling.
3. Strengthen engagement in European initiatives on research and innovation across the battery value chain towards EU's next Framework Programme for Research (FP10, 2028–2034).

The five conference sessions reflect this shared journey: Setting the Stage, Shaping the Future, Why a Battery Strategy?, Flow Charge: From Minerals to Market, and United We Stand.

With the Danish EU Presidency, we call for global collaboration in energy storage innovation. We need to act now to develop next generation batteries, production and a value chain in Europe.

Anne Marie Damgaard  
CEO,  
Danish Center for Energy Storage

### Prelude to Action in 2025

In 1975 Danish grassroots sat out to free Denmark from oil dependency and make a greener society through renewable energy. Half a century later, solar panels and wind turbines are increasingly replacing oil rigs and gas pipes — yet familiar challenges echo the past: geopolitical tension, resource scarcity and an accelerating climate crisis. What began as protest became policy, and Denmark’s blend of research, innovation and political courage continues to define its green leadership.

Fifty years on from the first energy protests, Denmark’s story has become a European one — no longer driven by independence alone, but by integration and shared ambition.

### Aligning Europe and the Nordics

Europe’s green transition has reached its moment of truth. “Addressing European Research and Innovation Challenges – for System Transition in Energy and Mobility” published by the European Commission in 2024 marks a decisive shift from pilot projects to full-scale deployment — and with it come new pressures: global competition, fragile supply chains and the test of social fairness.

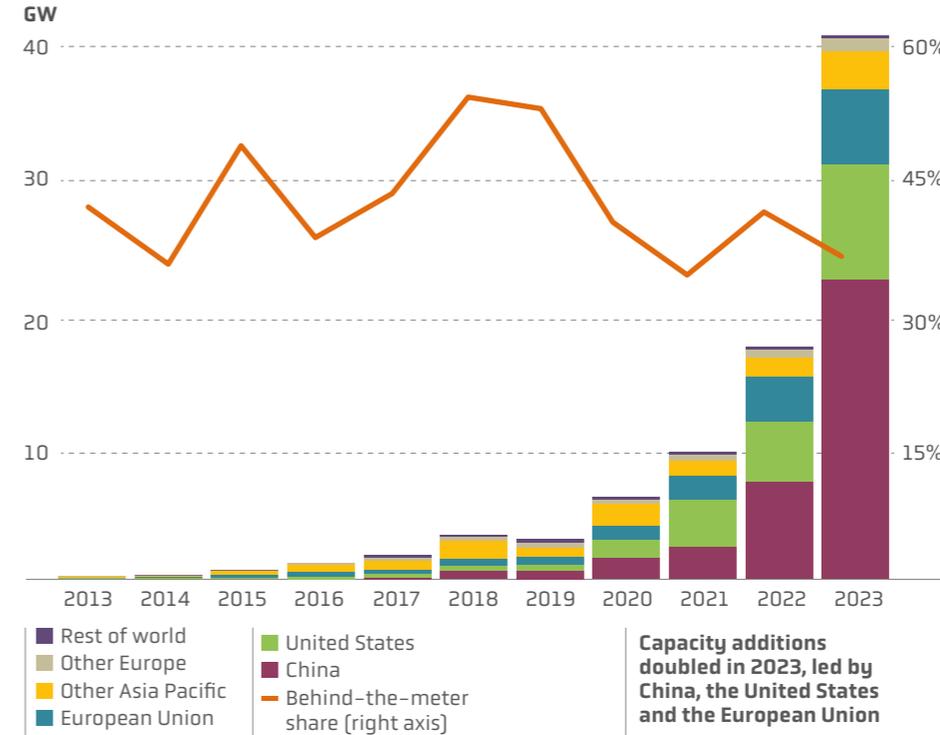
The Nordic Council’s “Programme for Energy 2025–2030” strikes the same note — calling for energy security, cross-border integration and renewed Nordic leadership in clean-tech innovation. Building on shared strengths in research, public trust and open markets, the Nordics show how Europe’s green ambitions can stay both competitive and socially sustainable.

Together, Europe and the Nordics point towards a resilient, innovation-led energy system — one built to weather shocks and keep the transition both fair and fast.

### The Energy Reality Check

Renewables are surging — but so is volatility. Behind the success story lies a tougher balancing act: stabilising prices, production and predictability across Europe. Once a costly curiosity, batteries have become a cornerstone of energy stability. Over the past decade, global storage capacity has leapt from gigawatt-hours to terawatt-hours, as large-scale systems plug directly into national grids and industries invest in flexible, on-site solutions.

Figure 1: Battery Storage Capacity Additions Worldwide, 2013–2023



Source: International Energy Agency (IEA), Batteries and Secure Energy Transitions, 2024.

### Denmark’s Renewable Leap

Denmark’s power system has been transformed. Renewables now supply more than 80% of the nation’s electricity — up from barely half in 2015. It’s a remarkable success — and a reminder that every leap forward brings new balancing acts.

Since 1994, renewable electricity has risen from 5% to 83%, driven by wind and solar. The curve tells a story of success — but also a warning: weather-dependent production creates volatility in both supply and price. Energy storage has become the next frontier of the green transition.

### From Niche to Necessity:

#### Battery Storage Boomed as Prices Fell

From costly curiosity to cornerstone technology — batteries now anchor the world’s clean-energy transition. Between 2013 and 2023, global capacity surged: in China, installations grew from 20% to 55% of new projects as capacity tripled to 23 GW; in the U.S., annual additions doubled to over 8 GW, driven by the Inflation Reduction Act; and in the EU, capacity climbed 70% to nearly 6 GW, led by Germany and Italy.

Meanwhile, prices plunged from 209 US\$/kWh in 2017 to about 110 US\$/kWh in 2025 — turning storage from an expensive experiment into essential infrastructure.

### Who Controls the Critical Minerals Supply?

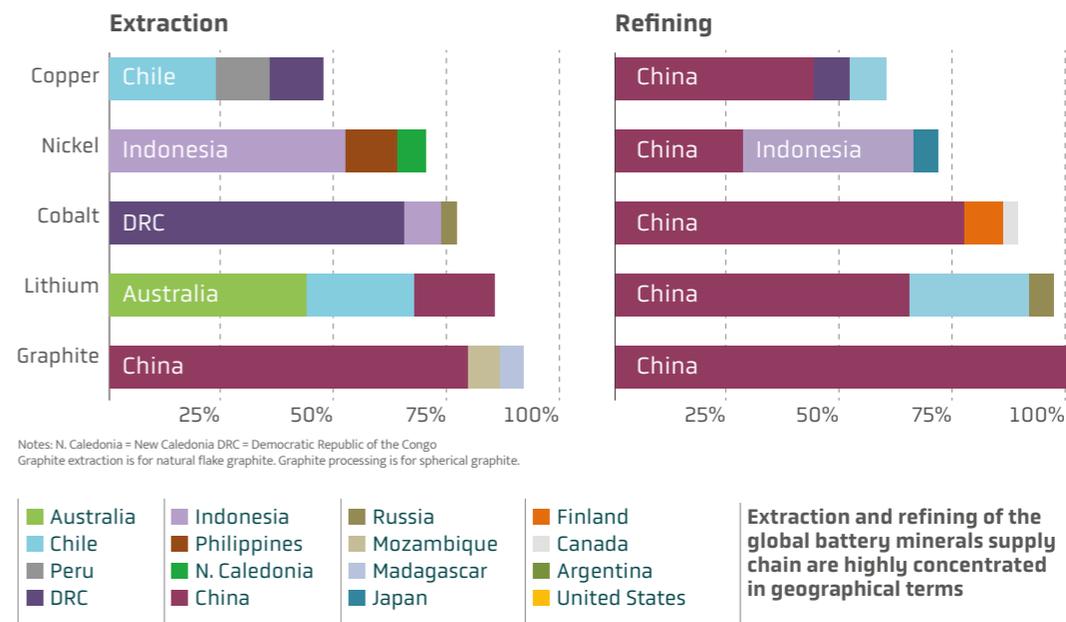
The battery boom is redrawing the global map of power — and China holds the pen. Lithium, cobalt and nickel are mined across continents, but around 70–80% of refining happens within Chinese borders. That dominance gives China decisive leverage over global supply chains and highlights Europe’s next big test: securing resilient, sustainable access to critical minerals.

### From Vision to Implementation – Towards a Danish Strategy for Energy Storage

Denmark and Europe have entered the deployment phase of the green transition. Re-newables dominate, batteries scale fast, and costs keep falling — but new dependencies emerge. The next step is clear: turning Denmark’s renewable leadership into storage strength.

With mature, affordable battery technology, Denmark can stabilise its power system, re-duce volatility and build the bridge from green vision to real-world impact. It is the natural next chapter in Denmark’s clean-energy story — from wind to storage, from ambition to implementation.

Figure 3: Share of extraction of critical minerals by country, 2023





### Speaker session 1:

#### **Christin-Marie Boudgoust,**

Chief Commercial Officer,  
Morrow Batteries

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Morrow's strategy is rooted in Europe's urgent need for energy independence and resilient infrastructure. As the first European manufacturer to scale LFP battery production the company can help reduce reliance on Asian supply chains, shorten lead times and enhance security for defence and critical infrastructure. Its circular value chain and renewable-powered factory support EU climate goals while ensuring technological sovereignty. Morrow's batteries — safe, long-lasting, and cost-efficient — are tailored for strategic segments like defence, grid stability, and industrial mobility. In a volatile geopolitical landscape Morrow offers Europe a reliable, homegrown solution to power its transition and protect its future.

”



### Speaker session 2:

#### **Anders Christian Solberg Jensen,**

Business Manager PhD, M.Sc.Eng,  
Green Energy Systems, Danish Technological Institute

“

For the foreseeable future, both the EU and Denmark will remain reliant on batteries from China and the US – unless we invest in building a resilient, integrated supply chain that covers everything from sourcing raw materials to manufacturing, system integration, and recycling. Crucially, Europe still holds strong technological expertise and industry capacity in advanced components and smart battery controls. These are essential for keeping our energy systems stable, safe, and reliable. It is therefore imperative that we protect and further reinforce this strategic part of the value chain to maintain European competitiveness and secure our energy sovereignty.

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### Speaker session 3:

**Jonathan Højberg,**  
R&D Director,  
Battery Materials, Topsoe

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The European battery industry seeks cost-competitive, localized, and sustainable alternatives to conventional battery materials. For cathode active materials lithium nickel manganese oxide (LNMO) has emerged as a promising candidate to achieve this without compromising energy density, which is crucial for applications such as electric vehicles. Topsoe Battery Materials, a subsidiary of Topsoe A/S, has been developing LNMO cathode active materials since 2012. Materials have been tested in specific cell systems with a broad range of partners globally and with a special focus on European cell producers, end users, and research institutions. The LNMO and cell technology is now matured to a point where LNMO based batteries are expected to reach commercialization in the coming years.

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### Speaker session 4:

**Jakob Kløve Keiding,**  
Chief Consultant, GEUS,  
Head of Danish Mineral Intelligence Centre

“

The green transition is highly material-intensive with battery production driving demand for raw materials that recycling alone cannot meet. Strengthening knowledge and supply security is therefore essential. The recently established Danish Mineral Intelligence Centre (D-MIC) supports this effort by analysing mineral value chains and developing solutions to future resource challenges. Such efforts are especially relevant in the Nordic region – including Greenland – whose diverse geology host significant resources of battery raw materials. These materials are cobalt, nickel, graphite, and vanadium, offering strong potential for sustainable production. This positions the Nordics as a potential reliable supplier to meet the EU's growing need for secure and responsibly sourced critical raw materials.

Building on abundant renewable energy, advanced technology, skilled industries, and high environmental standards, the region can – with coordinated investment, crossborder infrastructure, and harmonized Nordic-EU policies establish a low-carbon value chain.

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### Speaker session 5:

**Dr. Fabrice Stassin,**  
Secretary General of BEPA

“

Batteries is a key technology block for the decarbonisation of mobility, energy and industry, for the digital transition and for defence readiness. In the EU's next Multiannual Financial Framework (2028 – 2034) it is critical to increase support to the European Battery R & I within the new Framework programme for Research and Innovation (FP 10) and the Competitiveness Fund. We need to build a European position towards technological sovereignty, strategic autonomy, and resilience. With the public-private partnership Batteries for Europe operated by the BEPA – Batteries European Partnership Association, European research and industry are strongly collaborating.

Countries that participate in organisations like BEPA shape standards, influence funding priorities, and gain early access to joint research and industrial projects. For Denmark, limited representation means fewer opportunities to co-develop technologies, attract investments, and influence EU battery policies. Strengthening participation ensures that Denmark has a seat at the table where decisions are made – turning knowledge into competitive advantage and national impact.

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**Erik Schaltz**

Associate Professor,  
Leader of research group in E-mobility and Drives,  
AAU Energy

## **1 WHAT RESEARCH ARE YOU CONDUCTING WITHIN BATTERY TECHNOLOGY, AND CAN YOU MENTION A SPECIFIC CASE?**

My research activities within battery technology are focused on increasing the applicability of batteries, or to get as much out of them as possible, so to speak. In a gasoline powered vehicle it is easy to measure the actual fuel level, and this level is only influenced by engine fuel consumption. In a battery powered vehicle on the other hand, the available energy content is influenced by the temperature and power consumption, and as the battery is being used, the total capacity becomes smaller. To make an analogy to the gasoline-powered vehicle, this would be equivalent to the gas tank getting smaller over time. A lot of our research activities are therefore related to developing methods to estimate the state-of-charge (SoC) and state-of-health (SoH) of the batteries applied under real world conditions. As an example, in the BATNOSTIC and WABAT projects, together with the consortium partners, we developed a tool that unauthorized repair shops can use to estimate the condition of electric vehicle (EV) batteries for the secondhand EV market.

## **2 WHAT PROCESSES ARE NEEDED TO DEVELOP OUR OWN NEW CHEMISTRIES INTO COMMERCIAL PRODUCTS?**

I think it is important that new technologies and methods get the proper support in an early stage before the potential and business case is fully understood. This means that research institutions should have the possibility to explore new directions and companies should have room to mature the technologies.

## **3 Should our future commercial products be the best - or just good enough?**

I think it would be very difficult to compete in a mass market where it comes down to the cost of the raw materials and energy. From my point of view, we should focus on products and technologies which are far away from the state-of-the-art or on niche markets where high performance or other special features are required.



**Dorte Ravnsbæk**

Professor, Dir.,  
Center for Sustainable Energy Materials,  
Dept. of Chemistry, Aarhus University

## **1 WHAT RESEARCH ARE YOU CONDUCTING WITHIN BATTERY TECHNOLOGY, AND CAN YOU MENTION A SPECIFIC CASE?**

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My research focuses on the relationship between atomic structure and properties in electrode materials for rechargeable batteries. By understanding how structural features influence ion transport and stability, we can develop new materials that combine high performance with sustainability. A current focus in my research group is sodium-ion batteries, which represent a resource-efficient alternative to lithium-ion technology. Sodium is far more abundant, and by tailoring the atomic structure of electrode materials, we can achieve competitive energy densities without relying on critical raw materials.

## **2 WHAT PROCESSES ARE NEEDED TO DEVELOP OUR OWN NEW CHEMISTRIES INTO COMMERCIAL PRODUCTS?**

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Developing new commercial battery chemistries require risk-taking, long-term investment in both fundamental research and scale-up, and, most importantly, a close link between universities, testing facilities, and industry. We need to create an environment where unproven ideas can mature, and where materials can be deeply understood before being scaled. From my perspective, it is about daring to invest in knowledge building rather than quick wins.

## **3 Should our future commercial products be the best - or just good enough?**

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We should strive to excel in areas that make sense for us - for Denmark and for Europe. We should develop strategically differentiated solutions: Batteries that fit our value chains and energy systems. Batteries that make use of the resources available to us and align with our sustainability goals. We do not need to copy existing technologies. We should rather focus on creating solutions that best support our green transition.

## SPEAKERS



**Anders Christian Solberg Jensen**  
Business Manager PhD, M.Sc.Eng,  
Green Energy Systems,  
Danish Technological Institute



**Patrik Johansson**  
Professor, Dept. of Chemistry, Uppsala  
Uni. & Director of Battery 2030+



**Jakob Kløve Keiding**  
Chief Consultant, GEUS,  
Head of Danish Mineral  
Intelligence Centre



**Dr. Fabrice Stassin**  
Secretary General of BEPA



**Anders Hjarnø Jørgensen**  
Vice President,  
Vestas Plant & Energy Solution,  
DaCES board of Directors and  
Steering Committee



**Lars Aagaard**  
Minister for Climate,  
Energy and Utilities (M)



**Julia Kirch Kirkegaard**  
Professor, DTU Management



**Tejs Vegge**  
Professor, DTU Energy, Dir.,  
Pioneer Center CAPEX, EC Tech.  
Council Adv. Mater



**Alf Reistad**  
CEO, Rare Earths Norway



**Dr. Henrik Andersen**  
SDU Centre for Industrial  
Electronics (CIE)



**Anna Laybourn**  
CEO,  
Brain2Business



**Peter Alberius**  
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**Mette Rose Skaksen**  
Dept. CEO,  
Green Power Denmark



**Dorte Ravnsbæk**  
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**Dr. Julian Zahnow**  
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and Cell Production



**Dr. Philipp Ostrowicz**  
Senior Research Adviser,  
Copenhagen School of Energy  
Infrastructure, CBS



**Ida Ebbensgaard**  
Journalist, Moderator



**Christin-Marie Boudgoust**  
Chief Commercial Officer,  
Morrow Batteries



**Knud Erik Andersen**  
CEO and co-founder,  
European Energy



**Jonathan Højberg**  
R&D Director, Battery Materials,  
Topsoe



**Liviu Stirbat**  
Head of Unit,  
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Research and Innovation



**Dr. Erik Schaltz**  
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**Anne Marie Damgaard**  
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