

# FME BATTERY

Centre for Next-generation and Improved Circular Sustainable Battery Technology Value Chain

## ANNUAL REPORT 2025



Norwegian Centre  
for Environment-friendly  
Energy Research



fmebattery.no



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# 2025 in numbers

3 scientific publications  
28 plenaries and keynotes  
48 key researchers  
31 user partners  
7 conferences and workshops  
6 webinars  
5 newsletters  
15+ master's degrees in the making

## **Postdoctoral fellows and PhD research fellows with financial support from the centre budget**

1 Postdoctoral fellow  
6 PhD research fellows

## **Postdoctoral fellows and PhD research fellows working on projects in the centre with financial support from other sources**

3 Postdoctoral fellows  
13 PhD research fellows

## **Gender balance**

50 % of the management team are women (including work package leaders and core management group)

68 % of the researchers hired at the university and institute sector are men

86 % of the PhD research fellow group are men



Chair of the Board at FME BATTERY  
**Ronny Gløckner**

## Message from the Board

Ten years ago, many people asked whether hydrogen or batteries would ultimately prevail as the leading replacement for fossil-fuel vehicles. Norway is now well-established as the world's foremost electric-vehicle nation, a model for others seeking to electrify substantial parts of their transport sectors.

The strong optimism surrounding the emerging Norwegian battery industry has perhaps softened during FME BATTERY's first year, influenced in part by relocations and challenging economic realities. However, if Europe is to achieve genuine independence from Asian battery supply chains, industrial actors and battery researchers must collaborate closely, precisely as we do within FME BATTERY. Step by step, the Centre continues its work while the political framework surrounding the industry evolves.

Our first year has been dedicated to establishing the structures and ways of working that best equip us to deliver on the Centre's ambitions. Events such as conferences and webinars play a vital role in this, providing arenas where representatives from academia, industry and public administration can meet, exchange perspectives and build both formal and informal partnerships.

The Board's task is to shape the strategic direction of FME BATTERY and to ensure that it remains at the forefront of industrial development. In a time of global uncertainty, even more elements come into play, and batteries increasingly form a critical component in preparedness and resilience planning. As the world transitions toward a future powered by renewable energy, batteries also play a key role in enabling greater use of wind and solar power, strengthening grid flexibility and supporting long-term climate change mitigation.

There is little doubt that batteries will continue to surround us and shape our society over the next decade. We look forward to FME BATTERY reporting further milestones in the years to come, as we continue working towards a more circular and sustainable value chain for battery technology.

# 2025 in Summary: Reflections from the Directors



*FME BATTERY's Director Hanne Flåten Andersen and Deputy Director Odne Burheim.*

During this first year, we have arranged several centre meetings. Looking back, the intensity of the kick-off event with more than 100 participants, the jointly organised Battery Academy with the Federation of Norwegian Industries and Battery Norway, and the consortium meeting remain the largest events so far. Our collaboration with FME SOLAR and Renewables Norway to host several webinars also stands out, providing attractive platforms for meeting, networking and sharing the latest knowledge.

## **Losses and gains**

Last year began on a rather challenging note, with several key partners withdrawing, limiting opportunities and planned activities. However, after rain, the sun usually appears. Among the highlights of 2025 was the opportunity to welcome two new partners: Wavetech and Kunnskapsbyen Lillestrøm.

## **Trials and ideas ahead**

Throughout the autumn, partners have noticed the regular release of the FME BATTERY newsletter. Our growing presence and increased activity on LinkedIn have also been positive developments; surpassing 1500 followers gives us confidence that we are indeed generating interest and enthusiasm.

As research activities continue to gain momentum, we are also planning a new service for the community: paper-published webinars. These sessions will offer key take-home messages and explanations of core concepts, as well as opportunities to ask follow-up questions directly to the researchers.

## **Financial update**

Although 2025 began under difficult circumstances, increased activity among the remaining partners has helped to revitalise the financial situation of our centre. Without going into too much detail, we would like to express our sincere gratitude for this engagement and commitment. This collective effort has also resulted in increased support from the Research Council of Norway for 2025.

It is truly the joint efforts made throughout this first year that carry us forward with renewed enthusiasm.

# FME BATTERY's vision and objectives



**FME BATTERY is an 8-year centre for environment-friendly energy research (FME) established in 2024, bringing together more than 40 leading partners to drive research on next generation, sustainable and circular battery technologies.**

The centre brings together leading Norwegian research institutions and a broad industrial consortium to build worldclass competence across the entire battery value cycle, from materials and processing, to manufacturing, system integration, sustainability and recycling. By combining scientific excellence with user-driven innovation, FME BATTERY aims to support a competitive, knowledge-based and future-oriented battery industry in Norway and Europe.

*The vision of FME BATTERY is to unite and evolve Norwegian competence around research-driven activities that enable a competitive, innovative, sustainable and future-oriented battery industry, strengthening Norway's emerging battery value chain and supporting national ambitions for green industrial development.*

The centre's scientific foundation is built on four higher order elements: sustainability, digitalisation, innovation and the battery value cycle as a whole. These elements guide all research activities, from next generation materials and chemistries to advanced manufacturing processes, diagnostic tools and novel recycling technologies. FME BATTERY contributes directly to Norway's national strategies, including Energi21 and Norway's Battery Strategy, which highlight the need for strong education, skills development and sustainable value creation. By addressing the shift from how batteries can be made to

how they should be made, the centre focuses on environmentally responsible production, reduced energy consumption, improved material circularity, and a holistic transition from waste management to resource utilisation in battery recycling.

Through its integrated work packages and close collaboration with industry partners, the centre supports innovation, accelerates the development of advanced battery materials and processes, and prepares a highly skilled workforce. With Norway's rapidly expanding industrial landscape, FME BATTERY acts as a catalyst for sustainable growth, contributing to new green jobs, improved battery technologies and strengthened energy security for future renewable energy systems.

To accelerate the entire battery value cycle, FME BATTERY is divided into work packages (WPs) that highlight different areas of the value chain:

- WP1: Sustainability
- WP2: Processing and recycling
- WP3: Materials and chemistry
- WP4: Manufacturing
- WP5: Diagnostics and system integration
- WP6: Digitalisation
- WP7: Innovations and prospects
- WP8: Education integration



## FME centres provide a unique opportunity for academia and industry to collaborate

**Academic partners are expected to be inclusive, while user partners are encouraged to engage proactively.**

The FME centres are distinguished by their eight-year duration, which provides a stable foundation for long-term research, robust collaboration, and resilience through market fluctuations. This extended timeframe enables participants to undertake ambitious projects and develop meaningful partnerships that contribute to the overall success of the centre.

Another defining characteristic is the requirement for active collaboration between academia and industry partners. Unlike many research initiatives where industry involvement is limited to advisory roles or occasional input, FME centres ensure that industry partners not only shape the research agenda but also actively participate by contributing their own research efforts. This

hands-on engagement strengthens the relevance and applicability of the outcomes.

A core principle frequently emphasised within FME BATTERY is the mutual responsibility of both academia and industry: academic partners are expected to be **inclusive**, while user (industry) partners are encouraged to **engage** proactively. By fostering this active and reciprocal collaboration, the centre aspires to create an environment in which research is both innovative and relevant.

Ultimately, the FME model is designed to serve as a bridge between academia and industry, ensuring that new knowledge and technological advancements are effectively translated into real-world applications.

Research partners:



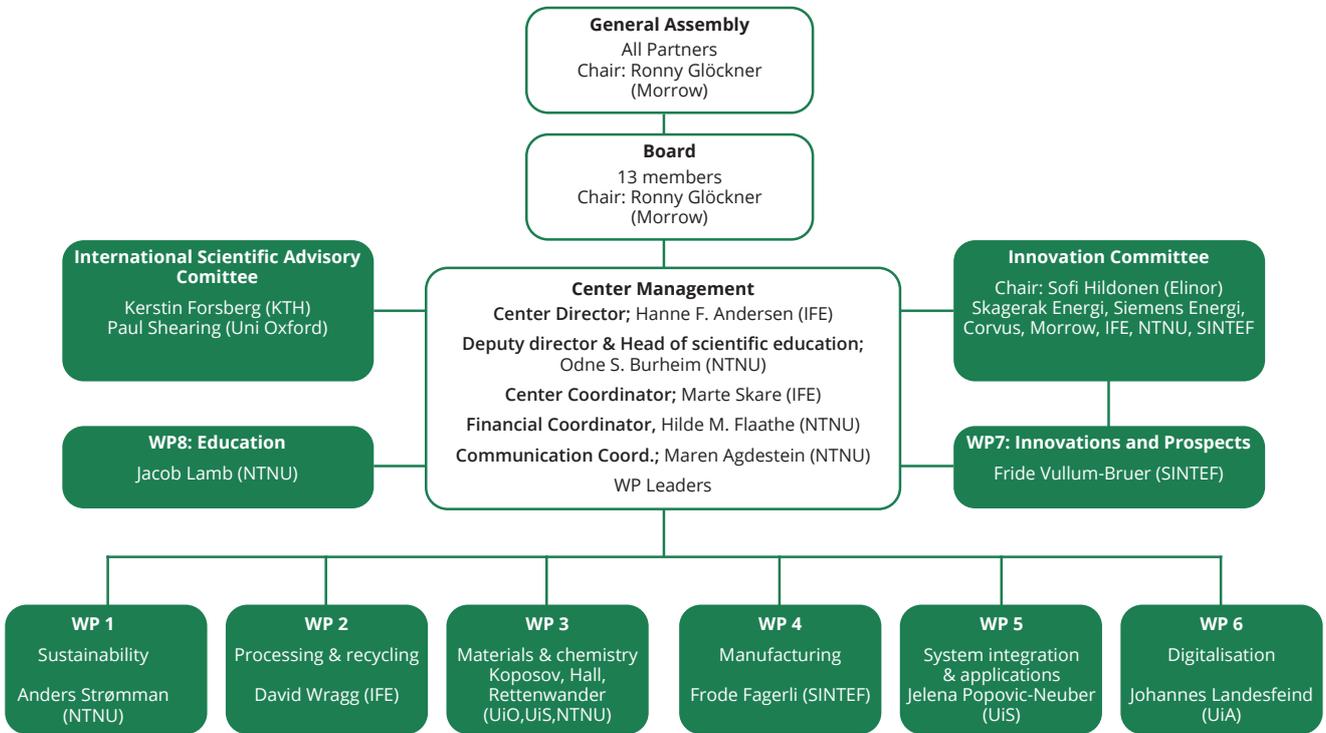
User partners:



International partners:



# Centre organisation



Core Management Team at FME BATTERY (from the left): Maren Agdestein, Hilde Mogård Flaathe, Odne Stokke Burheim, Hanne Flåten Andersen and Marte Skare. Photo: FME BATTERY

# Work package leaders



**Anders Strømman**  
Lead WP1  
Sustainability  
(NTNU)



**David Wragg**  
Lead WP2  
Processing & recycling  
(IFE)



**David Hall**  
Lead WP3  
Materials & chemistry  
(UiS)



**Alexey Koposov**  
Lead WP3  
Materials & chemistry  
(UiS)



**Daniel Rettenwander**  
Lead WP3  
Materials & chemistry  
(NTNU)



**Frode Fagerli**  
Lead WP4  
Manufacturing  
(SINTEF)



**Jelena Popovic-Neuber**  
Lead WP5  
Diagnostics & systems integration  
(UiS)



**Johannes Landesfeind**  
Lead WP6  
Digitalisation  
(UiA)



**Williams Agyei Appiah**  
Lead WP6  
Digitalisation  
(UiA)



**Frida Vullum-Bruer**  
Lead WP7  
Innovations & prospects  
(SINTEF)



**Jacob Lamb**  
Lead WP8  
Education integration  
(NTNU)

# FME BATTERY Board



**Ronny Glöckner**  
*Morrow Batteries*

## Board members:



**Arne Fredrik Lånke**  
*Elinor*



**Jørgen Nyhus**  
*Skagerak Energi*



**Lars Barstad**  
*Siemens Energy*



**Christine Pettersen**  
*Hydrovolt*



**Frank Richter**  
*Greenectra*



**Gunstein Skomedal**  
*Vianode*



**Terese Løvås**  
*NTNU*



**Arve Holt**  
*IFE*



**Arve Solheim**  
*SINTEF*



**Øystein Lund Bø**  
*UiS*



**Anne Catherine Gjørde**  
*UiA*



**Stian Svelle**  
*UiO*

# Scientific activities and results

**The centre's inaugural year shows strong momentum, with researchers, industry partners and newly recruited PhD research fellows and postdoctoral fellows already laying the groundwork for ambitious scientific and industrial collaboration. Early plans, new activities and strengthened international engagement signal a research environment taking shape.**

All work packages demonstrate an accelerating first year for the centre. Much of the work requires a period of foundation-building before reports can be produced, and several new activities within the centre were initially outlined and planned during 2025.

Graduates (PhD research fellows and postdoctoral fellows) have been appointed roughly according to schedule, and much of their equipment, digital tools and project plans have begun to take shape. The work packages also report early engagement from master's students, with initial contributions already materialising.

The research institutes also report that their first efforts have been successful, and that collaboration with both

universities and industry partners, nationally and internationally, has taken its first crucial steps.

Industry (user partners) likewise shows strong engagement across the various work packages. Notably, the Innovation Committee, led by industry representatives, has held its first meetings and begun developing plans and operational procedures for strengthening collaboration between the centre's researchers and user partners, with ambitions for new, useful and applied concepts.

A welcome development from the Research Council of Norway in 2025 was the allocation of additional research fellowships from outside Europe, providing two extra researchers for the centre, who will start their activities in 2026.



*Preparing a battery lab experiment in the laboratories at IFE. Photo: IFE*

# First publication: Cracking the cold code



*In time, knowledge from this research may improve batteries for EV's in winter conditions. Photo: colourbox.dk*

## **The first publication from the FME BATTERY family can help predict battery performance in colder conditions, more quickly and at a lower cost.**

To predict and optimise battery behaviour, researchers need to understand how temperature affects the battery's voltage, a relationship influenced by a thermodynamic property called entropy.

"This work offers fast and cheap alternatives for cell entropy estimation alongside experimental potentiometric and calorimetric methods," says Burba Svenas, PhD research fellow at the University of Agder (UiA).

Electric vehicles and large-scale energy storage systems rely on lithium-ion batteries that must perform reliably in all kinds of weather. But here's the challenge: batteries behave differently at different temperatures. Cold conditions, in particular, can reduce efficiency and shorten range. To predict and optimise battery behaviour, researchers need to understand how temperature

affects the battery's voltage, a relationship influenced by a thermodynamic property called entropy.

"In this work we propose faster data-driven and empirical entropy estimation methods that use cell charge/discharge voltage profiles at various operating temperatures from 100Ah prismatic lithium-iron-phosphate/graphite cell to estimate entropy coefficient," says Burba Svenas, PhD Candidate at the University of Agder (UiA). He explains that the research demonstrate increased model voltage prediction accuracy across a range of temperatures, with best predictions at low temperatures.

"This work offers fast and cheap alternatives for cell entropy estimation alongside experimental potentiometric and calorimetric methods," says Svenas.



<https://chemistry-europe.onlinelibrary.wiley.com/doi/full/10.1002/batt.202500533>

# Collaboration starts with connection



*The FME BATTERY family in November 2025, at the consortium meeting in Trondheim.*

## **Both the official launch of the research centre in 2025 and the first FME BATTERY consortium meeting were well received and well spent**

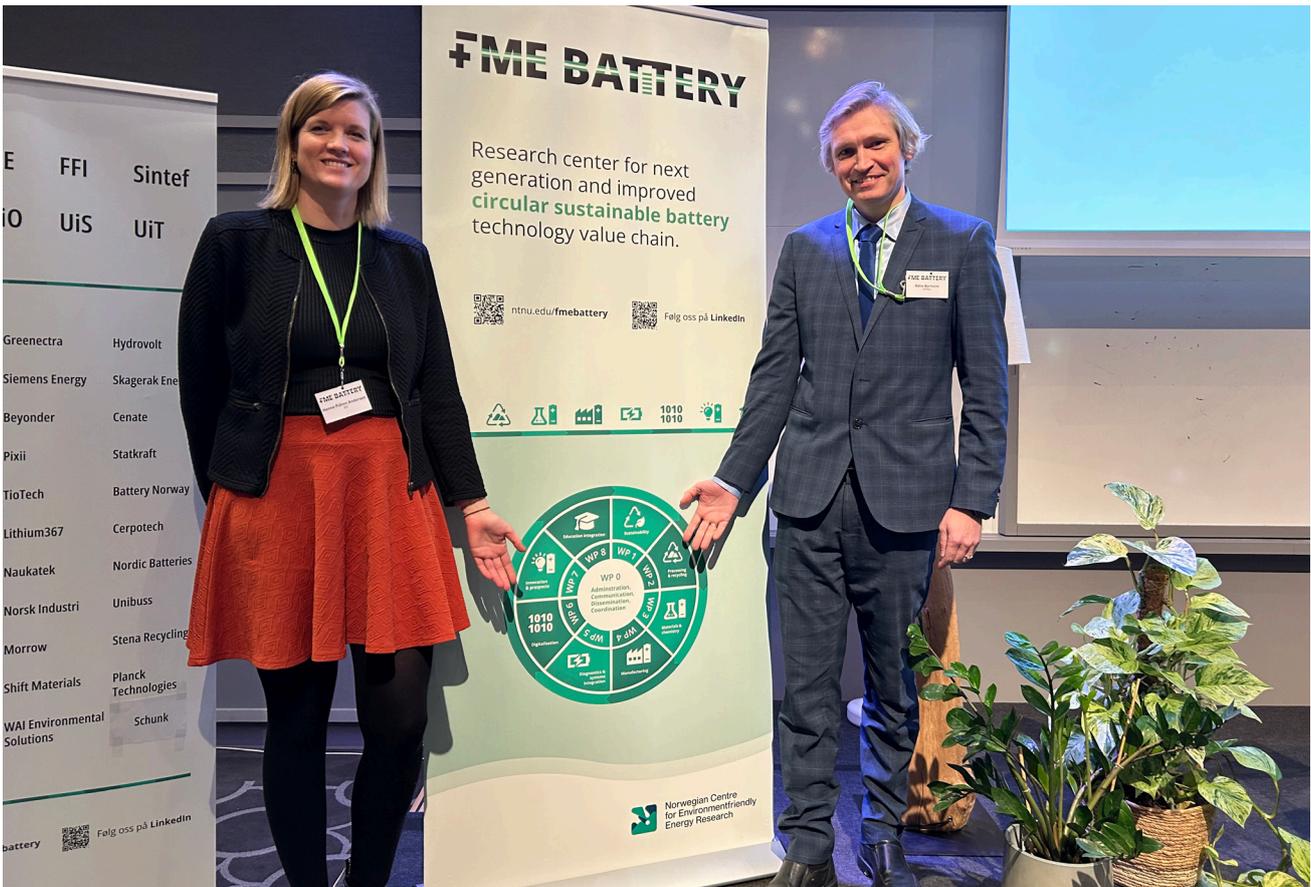
In January 2025, we gathered all our partners at Soria Moria in Oslo for two days of networking, planning and discussing the future direction of the battery industry in Norway. With nearly 100 participants sharing their ambitions and hopes for the industry, we had incredibly relevant and lively discussions.

From insightful presentations to collaborative brainstorming sessions, we set the stage for a future filled with sustainable energy solutions.

## **The consortium meeting recapped many achievements**

We began our two-day programme at Rica Nidelven in Trondheim in November with a recap of the many achievements from our first year. “While we have seen some setbacks and headwinds within the Norwegian battery industry, we have also witnessed renewal,” said Hanne Flåten Andersen, Centre Director.

The recap was followed by an inspiring example from our ‘bigger brother’ centre in the UK: the Faraday Institution. Although the Faraday Institution’s annual budget is around twenty times larger than that of FME BATTERY, many found it reassuring to see that our centre is structured along similar lines to leading international initiatives. “We have a strong framework to build and expand upon in the years ahead, and that is quite assuring to see,” said Professor Burheim, Deputy Centre Director.



Centre Director Hanne Flåten Andersen and Deputy Centre Director Odne Burheim. Photo: Pia Johansen/NTNU.

### Encouragement and progress reports

The morning session concluded with insights into how the Intergovernmental Panel on Climate Change (IPCC) and its transport chapter operate, and how we can all contribute. It was led by one of our work package leaders, Professor Anders Strømman, who sits on the panel as a lead author.

Several industry partners shared updates, demonstrating that the light at the end of the tunnel is visible. Many reported progress in their businesses, while others hinted that major announcements are just around the corner.

Meeting the graduate candidates of FME BATTERY was an inspiration too, as all could learn more about the directions and output of the next few years. The consortium meeting concluded with discussions on future research directions and shared ambitions.

### Work package 1: Sustainability

**WP1 entered 2025 with the mandate to turn complex sustainability modelling into insights industry can use. The work package moved from theoretical development to practical influence.**

In 2025, WP1 used public presentations and industrial outreach to translate complex sustainability modelling into tools with real-world relevance. From the kick-off event in Oslo to a well-received presentation at FME



Sofi Hildonen, Elinor.

BATTERY Academy, WP1 demonstrated how its process-based models of lithium-ion battery production can reveal both environmental impacts and economic trade-offs. The response from industry, particularly Hydrovolt's interest in applying these methods to recycling, showed that the research is beginning to feed directly into the strategies of companies navigating an increasingly circular battery economy. Although formal partnerships are still under development, the year marked a clear shift from conceptual groundwork to early industrial uptake.



*Dr. Sina Orangi has conducted research on engineering-based life cycle assessment models for hydrometallurgical recycling of batteries.*

### ***New work on battery recycling***

WP1 expanded its scientific scope, presenting new work on battery recycling at the FME Battery Consortium Meeting and contributing to an international publication with partners in Germany. These activities strengthened the methodological foundations of the centre while ensuring that Norwegian industry remains closely connected to leading European research efforts. Discussions with WP7 on applying the NTNU developed framework to sodium ion batteries, combined with the supervision of master's students, further support a steady pipeline of new expertise and knowledge.

WP1 was also the first work package to recruit a graduate researcher, with Dr Sina Orangi joining as a postdoctoral fellow from January 2025. By the end of the year, the first scientific paper was ready for internal consortium review, with its findings also presented as an extended graduate research contribution during the FME BATTERY consortium days in November 2025. The paper showcases WP1's progress in making value chain research frameworks, rooted in techno economic environmental models, accessible and applicable for broader use.

### **Work package 2: Recycling**

**Through new recruitment, strengthened scientific collaboration and deeper engagement with industry, the work package positioned itself to build a circular and resilient battery-recycling ecosystem.**

In 2025, WP2 advanced its mission to shift battery end-of-life processing from waste management to true resource utilisation by expanding research capacity and strengthening its scientific foundations. The recruitment of a new PhD research fellow, Ruddy Medina, marked an important step in building expertise, with his work on lithium recovery designed to feed directly into both fundamental research and industrially relevant solutions. His project is closely connected to ongoing experimental and modelling efforts within WP2, as well as to wider centre activities in digitalisation and sustainability assessment. This integrated approach ensures that insights generated within WP2 contribute meaningfully to the broader development of a circular battery value chain.



*PhD research fellow Ruddy Medina works with lithium recovery designed to feed directly into both fundamental research and industrially relevant solutions.*

### **Deepening the work across recycling routes**

Looking ahead, WP2 is set to deepen its work across key recycling routes, including hydrometallurgical and pyrometallurgical processes and direct recycling, while placing strong emphasis on student involvement as a driver of long-term skills development. Master's and PhD students will engage with topics ranging from process analysis to direct lithium extraction, reinforcing knowledge transfer between academia and industry.

WP2's collaboration with partners such as Hydrovolt, Vianode, Stena Recycling and Lithium367 ensures the research remains anchored in real industrial challenges and opportunities. As the work package seeks to broaden industry engagement further ahead, it continues to position itself as an essential link between cutting-edge research and the rapidly evolving needs of the battery recycling sector.





*PhD research fellow Mikael Dahl Kanedal works on low-modulus solid electrolytes and their cell integration.*

### **Work package 3: Materials and chemistry**

**With growing student participation and steady collaboration with industry partners, the work package continued to build its scientific foundation in 2025 through work on solid electrolytes.**

In 2025, WP3 strengthened its scientific foundation through continued work on closo-borate solid electrolytes. This includes detailed studies of pressure-dependent transport and phase behaviour. This work provides important insight into densification and interfacial limitations in composite electrodes. During 2025, it was decided to tune the focus with shift towards dry-processing strategies compatible with pouch cell fabrication, as well as the synthesis and characterisation of oxy-halide electrolytes with low elastic modulus and improved processability. These activities aim to address key bottlenecks in solid-state battery manufacturing and contribute to TRL 3–4 demonstrations. In addition to focusing on sodium, the plan now includes further investigation of potassium batteries in the near future, which is especially relevant since two affiliated postdoctoral fellows with this focus will soon begin their work at UiO.

### **Student and industrial involvement**

Student involvement is a key element of WP3. The work package currently includes PhD research fellow Mikael Dahl Kanedal working on low-modulus solid electrolytes and their cell integration. Master's students have been engaged in materials synthesis, characterisation, modelling and cell integration topics, supporting knowledge transfer between academia and industry. These started during 2025 and will hopefully deliver their theses during the spring of 2026.

Industrial involvement was an important component of WP3 during 2025. The work package collaborates with partners such as Bergen Carbon Solutions (CNT materials for composite cathodes), TioTech (TiO<sub>2</sub>-based materials for Na-ion chemistry), and Shift Materials (LFP/LMFP materials). These collaborations ensure alignment with industrial needs and provide practical perspectives on manufacturability and upscaling. WP3 will continue to strengthen its industrial engagement to support innovation potential and contribute to the development of competitive battery technologies in Norway.



*New equipment for battery coating production was among the highlights presented by the Battery Group at WMG at the University of Warwick. Photo: FME BATTERY*

#### **Work package 4: Manufacturing**

WP4 moved through 2025 with steady progress, and structured collaboration with expert pilot-line groups abroad helped strengthen the groundwork for the experimental activities planned for the coming years.

The year 2025 passed swiftly, and despite significant effort, various challenges limited the amount of physical results achieved within this work package. Nevertheless, substantial learning, knowledge exchange and preparation for upcoming experimental work have taken place. One of the major highlights was a series of online meetings focused on sharing pilot-line expertise and practical know-how between the Norwegian partners and our international collaborators at the Fraunhofer Institute and the University of Warwick.

This collaboration also led to a laboratory visit in October for selected colleagues from IFE, NTNU and SINTEF. Overall, these interactions have proven highly valuable, allowing the centre to benefit from the experience of leading European groups. Given the complexity of battery production and the limited parameter specifications available in the literature, such insight has been essential for the Norwegian partners.

#### **Initiating round-robin tests for pilot lines**

In terms of specific activities, the work package has concentrated on initiating round-robin tests for both pilot-line cell assembly and pilot-line graphite anode production. To ensure high-quality electrodes and to increase relevance for the main industrial partner, Morrow, it was decided to use anodes and cathodes from Morrow's scale-up line as baseline electrodes. During the latter part of the year, electrode rolls were shipped to IFE and SINTEF, where they were cut and prepared for cell assembly.

In 2026, the plan is to continue the cell-assembly round robin before progressing towards a more structured investigation of pilot-line parameters, with the aim of enabling a failure mode and effects analysis (FMEA). Although outcomes remain uncertain, there is a clear need for more systematic testing across the national pilot lines. Ideally, this structured approach will also support the graphite-anode round robin by helping to identify potential differences between Norwegian pilot-line facilities. With these achievements during the first year, we remain optimistic about the coming years and expect to gain significant insight into producing battery cells with high reproducibility as well as fidelity.



NTNU PhD research fellow Belfun Arslan.



UiS PhD research fellow Kaan Kizmaz. Photo: private

### Work package 5: Systems and diagnostics

**Two new PhD research fellows joined WP5 in 2025, and their arrival helped consolidate a multidisciplinary effort spanning experimental methods, modelling approaches and safety-related investigations.**

The new PhD research fellows joining WP5 are Kaan Kizmaz from UiS and Belfun Arslan from NTNU. Both of them completed their initial scientific and technical training, laying the foundation for the experimental and modelling work now under way. Kizmaz has begun investigating in-situ electrochemical degradation mechanisms at both material and cell levels using self-built cells, while Arslan has focused on degradation behaviour in commercial cells and packs/modules, including lithium and sodium chemistries as well as several types of anode materials.

### DREAMS reinforced FME BATTERY

WP5 has collaborated with the associated KSP project called DREAMS – Diagnostic Requirements for Evaluating and Advancing Module Safety. This collaboration includes an additional FME associated PhD research fellow, **Cuong Van Nguyen**, who is developing experimental tools to investigate thermo mechanical effects in Li ion and Na ion cell degradation. The DREAMS initiative reinforces the already well established FME BATTERY partnership between industry, research institutes and universities.

Bridging with the associated KSP project DREAMS strengthens this further, with yet another PhD research fellow (FME-associated), Cuong van Nguyen, establishing experimental tools for thermo-mechanical implications in Li- and Na-ion cell degradation. The DREAMS project further strengthens the already existing FME BATTERY collaboration between industry, institutes and universities.



Testing a calibration machine in a battery lab at SINTEF. Photo: Thor Nielsen/SINTEF

### Moving towards a workshop

Research institutes also advanced their dedicated activities, with SINTEF developing components for battery management system (BMS) modules and IFE and FFI working on safety-related parametrisation for first- and second-life batteries. Initial reports from these efforts started taking draft shapes during 2025. Meanwhile, early discussions with industrial partners have opened the door to aligning their ongoing R&D activities with the work package. The group's diversity, spanning multiple disciplines and institutions, has prompted productive exchanges that have clarified promising collaboration pathways.

These dialogues, culminating in the FME consortium meeting, have also underscored the need for a more focused, technical workshop on degradation measurement methods. Planning for this workshop was also briefly initiated during 2025.

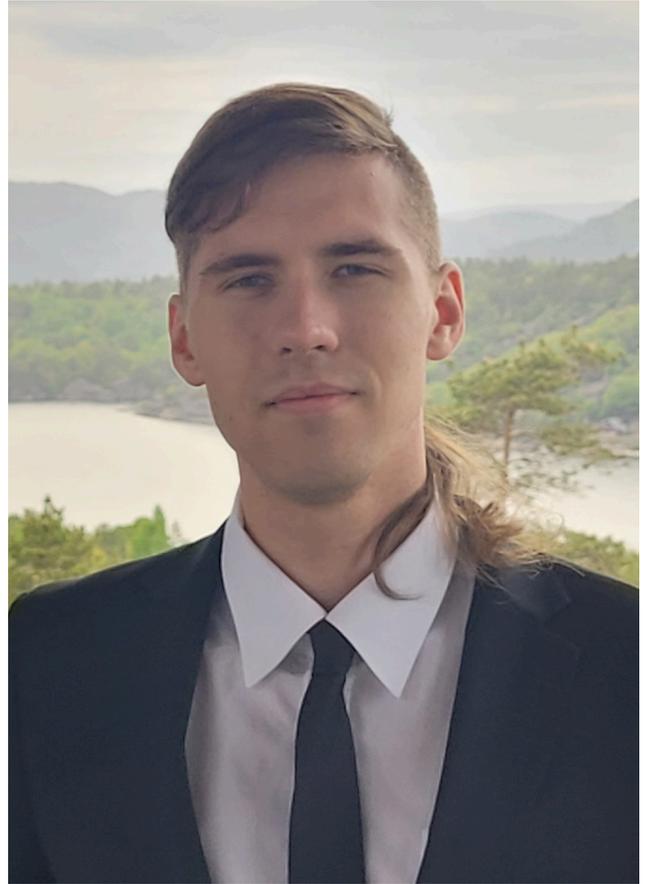
### Work package 6: Digitalisation

WP6 began 2025 by laying the groundwork for a digitalisation framework that will help interpret, predict and support battery behaviour across a wide range of operating conditions.

To design better batteries within FME BATTERY, we need to understand how they react or behave during various operating conditions, such as sub-zero temperatures and fast-charging conditions. In simple terms, this means 'giving batteries a voice' so we can monitor, predict and support their performance as they degrade over time, fail unexpectedly, or recover through intervention, effectively the digitalisation of electrochemical performance. To achieve this, WP6 has initiated substantial work on developing and innovating battery digitalisation platforms that integrate computational models and data analytics with cutting-edge experimental technologies from across the centre.



*PhD research fellow Ivan Fernandez.*



*PhD research fellow Svenas Burba.*

### **Talents recruited**

Two PhD candidates have been recruited to help launch this effort: Svenas Burba from UiA and Ivan Fernandez from NTNU, who are working on high-throughput parameter-estimation for hybrid models. Moreover, WP6 has recruited two talented young researchers; Dr Meghana Sudarshan from IFE and Dr Shaheer Ansari from UiA, in order to contribute to the objective of the

work package and FME BATTERY. Dr Sudarshan and Dr Ansari represent extensions of the existing FME funding and will enable FME BATTERY to grow further in 2026.

A first research paper was also published during 2025, with many more in preparation. This reflects a very positive start-up year for this work package.



### Work package 7: Innovations and prospects

Long-term fundamental research remains the backbone of technological progress and forms a central pillar of FME Battery, yet the battery sector is evolving at remarkable speed. WP7 works to accelerate the path from scientific discovery to industrial implementation by strengthening dialogue between researchers and companies.

This includes identifying where new knowledge can offer competitive advantages, mapping regulatory and market landscapes, and ensuring that promising research outputs are positioned for use by Norwegian stakeholders across the value chain. By maintaining strong outreach efforts and building international visibility, WP7 helps ensure that Norwegian innovation stays aligned with, and remains relevant within, the global battery race.

#### Highlighted innovation opportunities

Throughout 2025, WP7 deepened collaboration with the Innovation Committee through regular meetings, joint planning and collective evaluation of workshop outcomes. Workshops at both the January kick-off and the November consortium meeting gathered input from industry on priority areas for market analysis and highlighted innovation opportunities across the FME research portfolio, helping align research trajectories with industrial needs.

#### From a first draft report to Arendalsuka

WP7 also delivered a first draft report on regulations and standards, an evolving document developed with input from all partners. In parallel, the work package played a key role in organising major outreach events, including the Arendalsuka session 'Flatt Batteri for norsk batteriindustri? (Flat battery for the Norwegian battery industry?) and the Nordic Battery Summit in Lillestrøm, which brought together more than a hundred participants from Nordic industry and academia. These activities strengthened the connection between research and practice, ensuring that insights generated within FME BATTERY are actively utilised and further developed by participating companies.

### Work package 8: Education integration

WP8's first year established the basic structures for a coordinated national approach to battery-related education. Early mapping efforts and strong partner engagement made 2025 a foundational year for building an integrated, industry-aligned training framework.

The first year of FME Battery became a formative period for WP8, laying the structural foundations for how education, research and industry will be interwoven throughout the eight-year programme. WP8 began by conducting the first comprehensive mapping of battery-related educational programmes across all participating universities, creating a national overview that will guide long-term coordination and development of training programmes. This work highlighted opportunities for resource sharing and areas where academic curricula may need to evolve in order to keep pace with industry needs.

#### The Battery Academy as a cornerstone

A strong sense of momentum was built early through major gatherings such as the January Kick-off and the inaugural FME BATTERY Academy in May, which brought researchers, students and industry representatives together to discuss market trends, future skill needs, and how education can better support Norway's growing battery sector. Hands-on workshops and technical sessions helped establish the Academy as a cornerstone for professional development within the centre.

#### Shaping the next generation of battery expertise

Later in the year, the first consortium meeting in Trondheim deepened this dialogue by connecting partners across the value chain for two days of knowledge exchange, technical updates and student participation. For WP8, the meeting delivered valuable structured input from industry and research partners on how educational pathways should evolve and how the centre can better support the transition from university to industry roles. Engagement from companies, ranging from co-organising workshops to offering in-kind support, demonstrated clear industrial commitment to shaping the next generation of battery expertise. Collectively, these activities made 2025 a foundational year in building shared understanding, strengthening collaboration and establishing WP8 as a key driver of a unified, research-based and industry-aligned educational ecosystem.



Sustainability



Processing  
& recycling



Materials &  
chemistry



Manufacturing



Diagnostics &  
systems  
integration



Digitalisation



Innovation  
& prospects



Education  
integration

# Events hosted by FME BATTERY



The first Battery Academy in an annual series to come was held for two days in May 2025. Photo: IFE



Battery conversations on stage about challenges and possibilities ahead, by Erik Sauar, CEO Cenate, Tove Nilsen Ljungquist, CEO Beyonder, Pål Brun, EVP Morrow, Arne Fredrik Lånke, CEO Elinor, Harald Solverig, CEO Federation of Norwegian Industries, State Secretary Vegard Grøslie Wennesland and Arne Eik, Federation of Norwegian Industries. Photo: IFE

## The FME BATTERY Academy brought Norway's battery community together for a two day programme designed to strengthen knowledge exchange, insight and collaboration across the entire value chain.

Day 1 was held at NHO in Oslo and gathered nearly 100 participants for a joint seminar organised by the Federation of Norwegian Industries, Battery Norway and FME BATTERY. The programme featured a strong mix of industry and research perspectives, with presentations from partners such as Rystad Energy, Vianode and Cenate, as well as a European outlook from Ilka von Dalwigk of RECHARGE.

### Contextual frames

Several FME partners contributed technical talks, and a key highlight was a panel discussion where representatives from Morrow, Beyonder, Cenate, Elinor and the Federation of Norwegian Industries discussed the challenges of scaling battery production in Norway. State Secretary Vegard Wennesland (The Norwegian Labour Party) responded to the concerns on behalf of the government, creating a valuable dialogue between industry and policymakers.

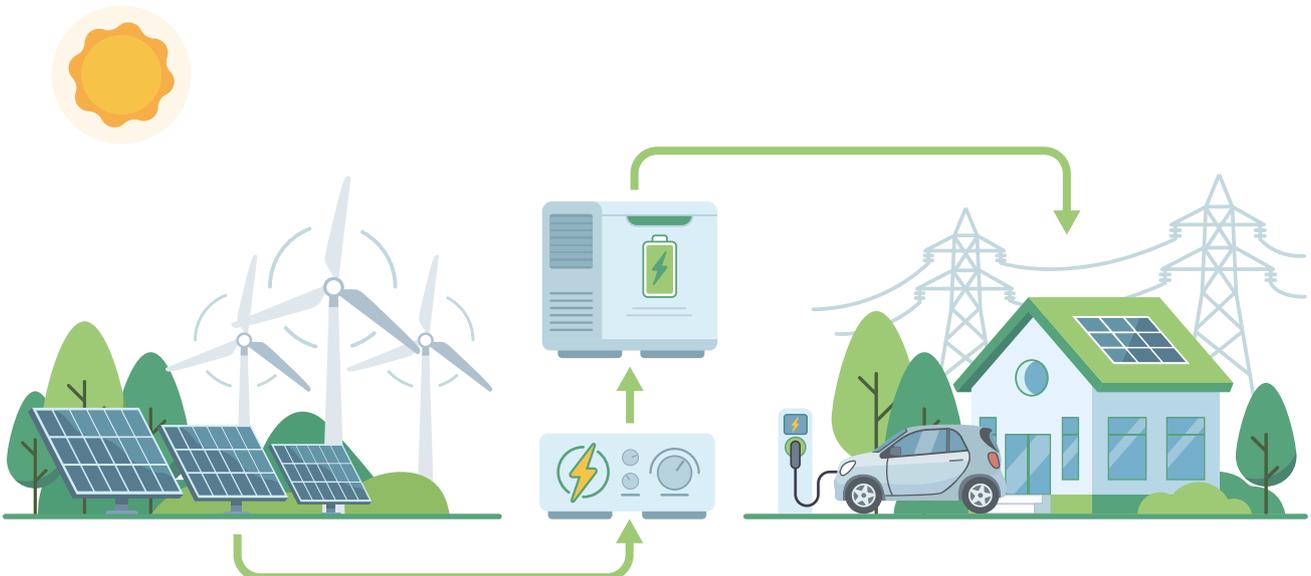


The group which took the theoretical lab course during Battery Academy, with Dr Frank Richter (Greenectra) in front. Photo: Marte Skare/IFE

**Theoretical frames**

Day 2 took place at IFE, offering participants a set of hands-on and theoretical courses delivered by partners and the battery department. The programme included an introduction to Li-ion batteries and testing with Greenectra, a practical lab course on slurry preparation and coin cell assembly, a tour of the new NABLA pilot line, and a data analysis workshop using Cellpy. Around 30 participants circulated through the different modules, gaining first-hand insight into the breadth of battery research and infrastructure at IFE.

Building on the success of the former 'Battery Days' under FME MoZEEs, the FME BATTERY Academy continues to unite stakeholders from across the Norwegian battery value chain – from materials and component development to cell manufacturing and recycling. The Academy serves as a national arena for knowledge sharing, skills development and networking, and preparations for next year's programme are already underway.





*From the left: Frode Håskjold Fagerli (SINTEF), Marius Uv Nagell (IFE), Stig Yngve Martinsen (SINTEF), Odne Stokke Burheim (NTNU), Louis Piper (WMG), Gerard Bree (WMG) and Rob Gruar (WMG).*

## Reaching out across national borders

With a Norwegian research centre focused on the battery value chain and with most activity taking place in Norway, it is perhaps natural that the first year showed a somewhat inward-looking perspective. As many of the centre-funded initiatives have been rooted within Norway, researchers have actively reached out across national borders to build broader collaboration.

Strengthening alignment with what may be seen as our larger counterpart in England, the Faraday Institution, has already proved highly valuable during the first year. Representatives from FME BATTERY attended its annual conference in 2025, which in turn led to their Head of Innovation, Ian Ellerington, joining our own consortium meeting to share insights and experiences on bringing universities, research institutes and industry partners together.

FME BATTERY also visited the Warwick Manufacturing Group to learn more about the production of battery electrodes and cells. This visit paved the way for a shared ambition to enable staff exchanges in the future, with the aim of accelerating learning in this strategically important field. In addition, researchers at NTNU, together with German partners at TU Braunschweig and Fraunhofer IST, established a joint platform for value-chain modelling, targeting scientifically and engineering-based predictions for sustainable growth.

With such ambitious efforts and achievements in the very first year, we can only imagine the potential as the budget indicates that this type of activity will increase significantly from 2027 onwards.

### Warm welcome at Warwick

**During a visit to the Battery Materials and Cells Group at Warwick Manufacturing Group (WMG), representatives from FME BATTERY were met with promising prospects for future collaboration.**

On October 20th, a delegation from FME BATTERY travelled to the heart of England to visit WMG, part of the University of Warwick.

“We were particularly interested in WMG’s pilot line, which has been operational since 2014. With over a decade of experience, they have a great deal to teach us,” said Frode Håskjold Fagerli, leader of Work Package 4: Manufacturing at FME BATTERY and researcher at SINTEF.

### Exploring deeper collaboration

Discussions during the day touched on several avenues for collaboration, including digital courses hosted by WMG, reciprocal visits to FME partners and the potential for extended research stays at WMG by FME BATTERY personnel.

“The pilot line community at WMG is significantly larger than in Norway, with many specialists in place. It would be a golden opportunity to spend more time learning from them, but to do this, securing additional funding will be essential,” Fagerli added.

# Other highlights from 2025

## Webinar series with FME SOLAR and Renewables Norway

In 2025, FME BATTERY joined the successful webinar series on the integration of photovoltaic (PV) systems and battery energy storage systems (BESS) together with FME SOLAR and Renewables Norway.

The series is designed for a broad professional audience, including industry stakeholders, researchers, technology developers, utilities, policymakers and students seeking an updated understanding of the rapidly evolving PV-BESS landscape.

A key strength of the series has been the collaboration with our organising partners. The partnership has also strengthened ties across national and international networks, supporting FME BATTERY's ambition to act as a central hub in the Norwegian and Nordic energy storage ecosystem.

The webinar sessions have consistently attracted strong participation, with between 50 and 100 participants each session. Across the series, we have covered a wide range of topics, including:

- Trends in PV-BESS deployment and market development
- System design principles and sizing methodologies
- Grid services enabled by storage coupled solar
- Operational strategies and control approaches
- Safety considerations and regulatory perspectives

Based on this positive response, the series will continue in 2026, with an extended focus on practical case studies, demonstrations, and upcoming regulatory and technological developments.



*Not exactly a flat battery for the Norwegian battery industry, at an event led by WP7 during Arendalsuka*

**Norwegian industry momentum at Arendalsuka**  
Arendalsuka 2025 served as an important arena for dialogue between policymakers, industry, researchers and the public. FME BATTERY played a key role, highlighting the status, challenges and opportunities within Norway's battery ecosystem.

A breakfast meeting co hosted by SINTEF, NTNU and FME BATTERY challenged the public perception that the Norwegian battery industry is primarily a cost burden. Examples such as Corvus, holding 50 % of the global maritime battery market and having repaid public support many times over, illustrated the long term value potential of strategic investments.





The happy group visiting UiA and Morrow during the SUMBAT summer gathering. Photo: IFE

### Several key industry players reported significant progress

- Vianode has become Europe's largest graphite producer for battery anodes and recently secured a multi billion kroner contract with General Motors.
- Morrow launched LFP battery production in Arendal, marking Europe's first large scale facility of this type.
- Elinor and Beyond continue planning to establish Norwegian factories, while currently operating production in China.

FME BATTERY's Centre Director, Hanne Flåten Andersen, emphasised that although parts of the industry face challenges, Norwegian battery research is thriving.

### Industrial decarbonisation

In another session, FME BATTERY collaborated with FME ZeMe and NTNU Energy Transition to discuss pathways for decarbonising Norwegian industry. Topics included supply security, competitiveness and the implications of the EU's Clean Industrial Deal for European and Norwegian battery markets.

### Strategic imperatives for Norway's battery future

Across events and informal discussions, three overarching themes emerged:

1. Collaboration across borders and sectors
2. Public support as strategic investment
3. Better regulatory conditions

Arendalsuka 2025 demonstrated strong engagement, and the next step is turning this momentum into concrete action.

### SUMBAT summer gathering at UiA and Morrow

This summer, representatives from the battery community gathered in Grimstad for an event highlighting developments across Norway's evolving battery industry. The programme opened with presentations offering insights into the sustainable battery sector, including progress from the Green Platform project SUMBAT – Sustainable Materials for the Battery Value Chain, and key updates from across the Norwegian battery value chain. FME BATTERY co-hosted this event, and representatives from both management and our industry partners attended. It was another great networking arena to strengthen partnerships and bonds.

Participants also visited the laboratories and activities at Morrow Batteries and the University of Agder (UiA), gaining a closer look at ongoing research and industrial innovation.

The day concluded with a boat trip through the Grimstad archipelago, providing a valuable arena for informal discussions and knowledge sharing among partners and colleagues.

We extend our sincere thanks to Future Materials, UiA and Morrow Batteries for their warm hospitality and for hosting an engaging and well organised event.

## Podcast at TU

# Rivende utvikling for batterier – tross store utfordringer

Norske miljøer bidrar til den raske utviklingen innen batterier, som vil bli både billigere, lettere og få økt energitetthet i løpet av få år.



Listen to the podcast here:



Vi har snakket med Erik Sauar fra Cenate (f.v.), Hanne Flåten Andersen fra IFE og Odd Richard Valmøt fra NTVA om det norske bidraget til utviklingen av batterier.  
Foto: Jan M. Moberg

## Community followers in numbers

- 2540 unique visitors to fmebattery.no
- 1500+ followers on LinkedIn
- 300+ subscribers to the newsletter FME State of Battery
- 163 members of the internal FME BATTERY file sharing site (Teams)

## Podcast at TU: Rapid developments

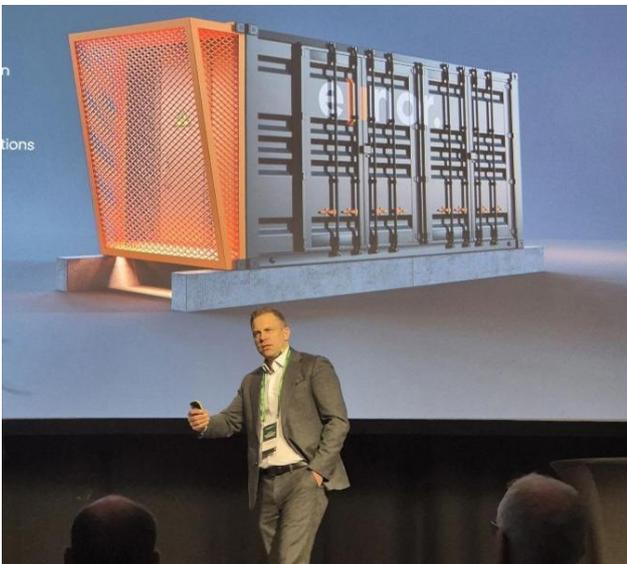
Listeners of the podcast Teknisk Sett from Teknisk Ukeblad heard interviews in December with both Director Hanne Flåten Andersen and Erik Sauar from Cenate AS (a user partner).

TU summed it up with the headline that, despite major challenges, there is rapid development in the battery sector in Norway.

# Part of the energy transition



Director Hanne Flåten Andersen was on stage for discussions about green industries in Norway.



CEO of Elinor Batteries Arne Fredrik Lånke talked about innovation along the value chain.



How can the FMEs underpin and support the development? This topic was under discussion when Deputy Director Odne Burheim was on stage. Photos: Martin Hansen/FME NTRANS

The Energy Transition Week in Trondheim is a set of conferences, workshops and networking events in Trondheim. Organised annually since 2018, the week is aimed at academics, industry representatives and policy-makers, but is open to everyone.

During Energy Transition Week 2025, FME BATTERY was represented by user partners and members of the management team.

# Personnel

## Key researchers

Name	Institution	Main research area
Hanne Flåten Andersen	IFE	Centre director, WP leader, WP0 - Administration
Marte Skare	IFE	Centre coordinator, WP0 - Administration
David Wragg	IFE	WP leader, WP2 - Processing and recycling
Asbjørn Ulvestad	IFE	WP2 - Processing and recycling
Nienke Visser	IFE	WP2 - Processing and recycling
Jan Petter Mæhlen	IFE	WP4 - Manufacturing
Carl Erik Lie Foss	IFE	WP4 - Manufacturing
Marta Koposova	IFE	WP4 - Manufacturing
Theresa Nguyen	IFE	WP4 - Manufacturing
Marius Uv Nagell	IFE	WP4 - Manufacturing
Preben Vie	IFE	WP5 - Diagnostics and system integration
Jonathan Fagerström	IFE	WP5 - Diagnostics and system integration
Julia Wind	IFE	WP5 - Diagnostics and system integration
John Ostrander	IFE	WP5 - Diagnostics and system integration
Jan Petter Mæhlen	IFE	WP6 - Digitalization
Jinsong Hua	IFE	WP6 - Digitalization
Julia Wind	IFE	WP5 - Diagnostics and system integration and WP6 - Digitalization
Amund Ruud	IFE	WP4 - Manufacturing
Odne Burheim	NTNU	Centre deputy Director and Head of Research Based Education, WP0-2 and 4-6
Hilde Mogård Flaathe	NTNU	Centre Financial Advisor, WP0 - Administration
Maren Agdestein	NTNU	Centre Communication Advisor, WP0 - Administration
Pia Johansen	NTNU	Centre Communication Advisor, WP0 - Administration
Ida Kristin Antonsen	NTNU	WP0 - Administration
Anders Hammer Strømman	NTNU	WP leader, WP1 - Sustainability
Daniel Rettenwander	NTNU	WP leader, WP3 - Materials and chemistries
Jacob Joseph Lamb	NTNU	WP leader, WP8 - Education Integration
Sulalit Bandyopadhyay	NTNU	WP2 - Processing and recycling
Mohsen Sadeqi Moqadam	NTNU	WP3 - Materials and chemistries
Rune Bredesen	Sintef AS	WP4 - Manufacturing
Paul Inge Dahl	Sintef AS	WP4 - Manufacturing
Frode Fagerli	Sintef AS	WP leader, WP4 - Manufacturing
Charifa Hakim	Sintef AS	WP4 - Manufacturing
Ingeborg Kaus	Sintef AS	WP4 - Manufacturing

Name	Institution	Main research area
Simon Clark	Sintef AS	WP6 - Digitalization
Tuukka Mäkitie	Sintef AS	WP1 - Sustainability
Xavier Raynaud	Sintef AS	WP6 - Digitalization
August Johansson	Sintef AS	WP6 - Digitalization
Francesca Watson	Sintef AS	WP6 - Digitalization
Stig Martinsen	Sintef AS	WP4 - Manufacturing
Killian Stokes-Rodriguez	Sintef AS	WP4 - Manufacturing
Flores Eibar	Sintef AS	WP6 - Digitalization
Fride Vullum-Bruer	Sintef Energi	WP leader, WP7 - Innovations and prospects
Edel Sheridan	Sintef Energi	WP7 - Innovations and prospects
Giuseppe Guidi	Sintef Energi	WP5 - Diagnostics and system integration
Bendik Nybakk Torsæter	Sintef Energi	WP5 - Diagnostics and system integration
Jacob Hadler-Jacobsen	Sintef Energi	WP5 - Diagnostics and system integration
Judit Sandquist	Sintef Energi	WP7 - Innovations and prospects
Johannes Landesfeind	UiA	WP leader, WP6 - Digitalization
Williams Appiah	UiA	WP6 - Digitalization
Martin Choux	UiA	WP1 - Sustainability
Reyn O' Born	UiA	WP1 - Sustainability
Jelena Popovic-Neuber	UiS	WP leader, WP5 - Diagnostics and system integration
Linda Natalie Borho	UiS	WP3 - Materials and chemistries
David Scott Hall	UiS	WP3 - Materials and chemistries
Sachin Maruti Chavan	UiS	WP3 - Materials and chemistries
Anne Håkansson	UiT	WP6 - Digitalization
Chiara Bordin	UiT	WP6 - Digitalization
Torleif Lian	FFI	WP5 - Diagnostics and system integration
Knut Bjarne Gandrud	FFI	WP5 - Diagnostics and system integration
Alexey Yevgenyevich Kuposov	UiO	WP leader, WP3 - Materials and chemistries

## Postdoctoral researchers with financial support from the Centre budget

Name	Stipendiat	Period	Gender	Topic
Sina Orangi	NTNU	Jan 25–Jan 29	M	WP1 – Sustainability

## Postdoctoral researchers working on projects in the centre with financial support from other sources

Name	Stipendiat	Period	Gender	Topic
Simon Birger Byremo Solberg	NTNU	June 24–June 26	M	WP4, 5, and 6
Ejikeme Raphael Ezeigwe	NTNU	Aug 22–Aug 26	M	WP4, 5, and 6
Erik Prasetyo	NTNU	Jan 24–Dec 26	M	WP2

## PhD students with financial support from the Centre budget

Name	Stipendiat	Period	Gender	Topic
Ivan Fernandez	NTNU	Mar 25–Mar 28	M	Development of battery digitalisation methods for parameter identification
Belfun Arslan	NTNU	May 25–May 28	F	Investigation of Reciprocal Degradation Effects between Battery System and Cell by Experimental and Numerical Methods
Mikael Dahl Kanedal	NTNU	Aug 24–Aug 27	M	Enabling Thick Na-S Cathode via Gradient Charge Carrier Pathways and Hydroborate Solid Electrolyte
Kaan Kizmaz	UiS	Apr 25–Apr 28	M	Development and implementation of electrochemical methods for degradation
Ruddy F. Medina Choque	NTNU	Jun 25–Jun 28	M	Lithium recovery from Spent Batteries
Svenas Burba	UiA	Sep 25–Sep 28	M	Towards Battery Digitalization: An Autonomous Framework for Parametrization of Electrochemical Models

## PhD students working on projects in the centre with financial support from other sources

Name	Institution	Period	Gender	Topic
Ronan Dunne	NTNU	Aug 24–July 28	M	Drying of electrodes for cell production
Van Cuong Nguyen	NTNU	July 25–June 28	M	Ageing and degradation of cells
Zelalem Deress	NTNU	Aug 24–July 27	M	Electrodialysis and NMC recycling
Eirik Odinsen	NTNU	Aug 24–Jan 28	M	Battery modelling and parameterisation
Nadiia Piiter	NTNU	Mar 25–Feb28	F	Machine learning for electrode design
Vamsi Garapati	NTNU	Jan 24–Dec 26	M	Battery life-time estimation
Sandeep Mechani	NTNU	Sep 24–Aug 27	M	Degradation and health status prediction
Hizbullah Malik	NTNU	May 24–Apr 28	M	Understanding Precipitation of Lithium, NMC and Iron Phosphate Compounds from Industrial Process Streams
Muhammad Sarmad Khan	NTNU	Jan 25–Dec 28	M	Valorization of Iron from Industrial process streams for Industrial Symbiosis
Hammad farooq	NTNU	Jan 25–Dec 26	M	Recycling Graphite and Lithium from End-of-Life Lithium-Ion Batteries Driven by Characterization Techniques
Valeria Armendariz Cabral	UiO	2025–2028	F	Understanding the interphases in silicon-graphite composites
Alina Toktamyssova	UiO	2025–2028	F	Understanding sodiation mechanisms in hard carbon
Johannes Bakkelund	UiA	2025–2028	M	Multiscale modeling of electrolyte salt inhomogeneities in cylindrical cells

## Master degrees finalized in 2025

Name	Institution	Period	Gender	Topic
Huaxing Fan	NTNU	2025	F	Driving Circularity Transition pathways for EV Battery Industry in Europe
Svenas Burba	UiA	2025	M	Data-derived entropy-dependent OCV estimation for large format lithium ion batteries
Arnstein Røskar Nisja	NTNU	2024/2025	M	Second Life of Lithium-Ion Batteries
Carl August Engene	NTNU	2024/2025	M	Modelling lithium half cells

# Accounts

## A2 Statement of Accounts

(All figures in 1000 NOK)

Funding 2025	Funding
The Research Council of Norway	10 028
The host institution (NTNU)	4 012
Research partners	391
Enterprise partners	10 210
	<b>24 641</b>

## COSTS

(All figures in 1000 NOK)

Costs 2025	Funding
The host institution (NTNU)	7 935
Research partners	9 489
Enterprise partners	7 217
	<b>24 641</b>

# Scientific publications

## Articles

1. Data-Driven Entropy Coefficient Estimation for Large Format Lithium-Ion Batteries, Svenas Burba, Johannes Bakkeland, Rikesh Kumar, Ankit Singh, Mukul Parmananda, Williams Agyei Appiah, *Batteries & Supercaps* 2026, 9, e202500533, <https://doi.org/10.1002/batt.202500533>
2. Understanding Degradation in Single-Crystalline Ni-Rich Li-Ion Battery Cathodes, Matthew J. W. Ogle, Beth I. Johnston, David S. Hall, and Louis F. J. Piper, *Chemical Reviews* 2025 125 (20), 9774-9806, DOI: 10.1021/acs.chemrev.5c00330
3. Mechanical deformations in battery current collectors observed by operando X-ray diffraction on Si/graphite anodes, Anders Brennhagen, Dipankar, Saha, Izar Capel Berdiell, Andrew Pastusic, Marta Kuposova, David Wragg, Dennis Becker, Dmitry Chernyshov, Carl E.L. Foss, Alexey Y. Kuposov, *Chemical Communications* 2025, 98 (60), <https://doi.org/10.1039/d5cc04995d>

## Dissemination measures for the general public:

### Popular science publications

1. Norsk batteriindustri er fortsatt veldig viktig, Hanne Flåten Andersen, Odne Stokke Burheim, *dn.no*, 13.12.2024

### New publications in the media

1. Nye forskningssentre for miljøvennlig energi til IFE, Hanne Flåten Andersen, *NTB Kommunikasjon*, 11.04.2024
2. Inntil 1,28 milliarder kroner til å utvikle nye miljøvennlige energiløsninger, Hanne Flåten Andersen, *regjeringen.no*, 11.04.2024
3. Forskningssatsing styrker Norge som global energi- og klimaleder, Jacob Lamb, *fremtidensbygg.no*, 11.04.2024
4. Skal bruke 1,3 milliarder på å etablere nye forskningssentre, Hanne Flåten Andersen, *khrono.no*, 11.04.2024
5. Her blir gamle elbilbatterier til nye råvarer, Helge Refsum, Hanne Flåten Andersen, *Teknisk Ukeblad*, 11.06.2024
6. Forsker på batteriverdikjeden, Odne Stokke Burheim, *elmagasinet.no*, 09.09.2024
7. Forsvarer utskjelt bransjer: Et robust kraftsystem trenger både batterier og hydrogen, Odne Stokke Burheim, *Europower*, 30.05.2025
8. Rivende utvikling for batterier – tross store utfordringer, Hanne Flåten Andersen (IFE), Erik Saugar (Cenate), *Teknisk Sett*, 04.12.2025

## Dissemination measures for users: Reports, memoranda, articles, presentations held at meetings/conferences for project target groups

1. FME BATTERY and Skagerak Energi, Hanne Flåten Andersen, invited presentation at Skagerak Energi meeting, 03.10.2024
2. FME BATTERY and recycling, Hanne Flåten Andersen, invited presentation at Direct Recycling Battery Conference, Germany, 29.10.2024
3. FME BATTERY research centre, Hanne Flåten Andersen, invited presentation at BattChain Viken workshop, 29.01.2025
4. Li ion batteries and hydrometallurgy in a Norwegian context, Odne Stokke Burheim, invited presentation at 11th seminar in Hydrometallurgy, 12.03.2025.
5. Batteriforskning på Institutt for Energiteknikk, Kjeller, Hanne Flåten Andersen, invited presentation at Tekna Fagkveld, 08.05.2025
6. Battery Market Update, Lars Lysdahl, Rystad Energy, presentation at FME BATTERY Academy, 12.05.2025
7. Vianode – GM, a partnership amid political turmoil, Andreas Forfang, Vianode, presentation at FME BATTERY Academy, 12.05.2025
8. Noise reduction enabling battery improvements, Martin Kirkengen, Cenate, presentation at FME BATTERY Academy, 12.05.2025
9. The critical role of battery education in today's industry, Frank Richter, Greenectra, presentation at FME BATTERY Academy, 12.05.2025
10. Why we need pilot lines for battery research, Frode Fagerli, FME BATTERY Academy, 12.05.2025
11. Electrochemical materials for batteries: an odyssey, Jelena Popovic-Neuber, presentation at FME BATTERY Academy, 12.05.2025
12. The complexity of battery recycling and Hydrovolt's solution, Christine Pettersen, Hydrovolt, presentation at FME BATTERY Academy, 12.05.2025
13. What are the expectations of batteries used in different applications?, Lars Barstad, Siemens Energy, presentation at FME BATTERY Academy, 12.05.2025
14. Techno-Economic and Environmental Footprint Assessment of Li-ion Batteries from a Process-Based Modelling Perspective, Sina Orangi, presentation at FME BATTERY Academy, 12.05.2025
15. A research centre to advance battery technology in Norway, Hanne Flåten Andersen, invited presentation at OsloMet Green Energy Lab opening, 15.05.2025
16. Data-driven entropy dependent OCV estimation, Williams Appiah, UiA, Poster presentation at Digibatt workshop, 13.06.2025
17. Flatt batteri for norsk batteriindustri?, Frida Vullum-Bruer, Hanne Flåten Andersen, innledere ved NTNU/SINTEF/FME BATTERY arrangement på Arendalsuka, 12.08.2025
18. Derfor må vi fortsatt avkarbonisere prosessindustrien, Hanne Flåten Andersen, innleder ved NTNU/SINTEF/FME BATTERY arrangement på Arendalsuka, 13.08.2025
19. FME BATTERY og prosessindustrien, Hanne Flåten Andersen, Kristine Lunde-Fuglestad, invited presentation at Prosess2030 Conference, 02.09.2025

20. Assessing the science related to climate change - The 7th Assessment Cycle of the IPCC: Status and Plans, Anders Strømman (NTNU), presentation at Consortium Meeting, 04.11.2025
21. Techno-environmental considerations of LIB recycling, Sina Orangi (NTNU), presentation at Consortium Meeting, 04.11.2025
22. What's new in manufacturing, Frode Fagerli, (SINTEF) presentation at Consortium Meeting, 04.11.2025
23. Elinor Batteries – status November 2025, Sofi Hildonen (Elinor), presentation at Consortium Meeting, 04.11.2025
24. Battery materials production by spray pyrolysis, Leif Olav Jøsang (CerpoTech), presentation at Consortium Meeting, 04.11.2025
25. Norsirk – Extended Producer Responsibility for Batteries in Norway, Morten Onsrud (Norsirk), presentation at Consortium Meeting, 04.11.2025
26. Battery Electric Bus Operations in Oslo – Managing Energy and Battery Systems on Depot, Lena Alexandra Wendelborg (Unibuss), presentation at Consortium Meeting, 04.11.2025
27. How made-in-Norway hard carbon and sodium-ion battery enable a resilient, low-carbon and sustainable future, Gang Xin (WAI ES), presentation at Consortium Meeting, 04.11.2025
28. Accelerating Battery Manufacturing Through Modeling: Status and Future Possibilities, Mukul Parmanda (Morrow), presentation at Consortium Meeting, 04.11.2025
29. Utvikling i batteriteknologi-kommer det et kvantesprang? Hanne Flåten Andersen (IFE), invited presentation at Elektrodagene, 19.11.2025
30. Batterier – Innovasjon og teknologi, Hanne Flåten Andersen (IFE), invited presentation at NTVA meeting, 25.11.2025

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