

Battery storage: business models, market and regulation

Structure and FAQ



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1.1. Course description

Battery storage has a vital role to play in accelerating the transformation of the global energy sector. But driving this transition means building new expertise. It means developing innovative, disruptive business models while simultaneously assessing economic viability and investment risks. It means understanding how businesses can recover investment in next-generation energy storage systems and go on to generate revenue. It also means getting to grips with how public bodies and European legislation and policy will evolve or adapt.

The Battery storage: business models, market and regulation course empowers you to expertly assess the challenges, the main drivers, and the business opportunities of a changing energy system at different levels of the market. You will get a perspective on policy and regulation frameworks as a crucial part of any investment decision and strategy. And you will discover real business examples from leading companies that are ground-breaking in their sector.

1.2. Learning outcomes

This course empowers learners to:

- Reflect on crucial challenges within the new energy and relate them to new business opportunities within the new energy system
- Understanding the economic and financial viability of investments in energy storage projects at utility-scale
- Accurately appraise EU support for battery energy storage systems
- Explain European energy policy making based on examples of current targets and trends
- Relate your company's future plans or services to the objectives of the Paris Agreement and the Clean Energy for All Europeans package
- Explain the main cost concepts of battery energy storage solutions during their lifespan
- Understand and apply a mathematical model to assess the life costs of energy storage solutions and compare investment alternatives
- Reflect on real business examples from ground-breaking innovative companies in the energy sector

1.3. Course structure and content

Battery storage: business models, market and regulation is a fully online course that consists of five self-paced online modules (**Figure 1**) and optionally a follow-up by a topic specialist.



Figure 1: Structure of Battery storage: business models, market and regulation course

- **Module 1:** Getting a general introduction to business modelling, with a special focus on current and potential future business models within the energy sector.
- **Module 2:** Exploring new investment scenarios and innovative business models arising in the highly-mutable battery energy storage market.
- **Module 3:** Getting an overview of the European legislation and policy and how it can affect businesses related to the energy transition.
- **Module 4:** Understanding how we can do the cost assessment and analyse the economic feasibility of a battery-based storage solution.
- **Module 5:** Assessing a number of real-world examples of successful business at the different levels of energy storage applications.

The topics included under the five modules are as follows:

- **Module 1: Business modelling**
 - Business modelling in the energy sector
 - The business model canvas framework
 - Drivers for business model innovation
 - Business models: a network level perspective
 - Business models: a service level perspective
 - Challenges changing business model
 - The business model as a strategic tool
- **Module 2: Investment scenarios and business models for battery energy storage systems**
 - Crucial challenges of the new energy system
 - Business opportunities within the new energy system
 - When developing relevant business models
 - Investing in battery energy storage at home
 - Investing in battery energy storage at grid level
- **Module 3: European legislation and policy**
 - European legislative and policy background
 - Policy making: current targets and trends
 - Paris Agreement and Clean Energy for All European
 - Battery storage subsidies, tax benefits, and incentives in Europe
- **Module 4: Cost assessment of battery-based storage solutions**
 - Cost assessment of energy storage systems
 - Cost assessment of battery based storage solutions – Main concepts
 - Cost model – Input data
 - Cost model - equations
 - Cost model – example of application
- **Module 5: Business models and business examples**
 - Business example: SonnenFlat
 - Business models and regulation behind charging stations
 - How to roll out a reliable network of fast chargers
 - Urban transformation: the impact of electrifying public transport
 - Business examples electrical vehicles: Torrot group and Share & Charge

1.4. Who are the experts in the course?

This course was developed in collaboration with experts from the EIT InnoEnergy ecosystem, authorities in sustainable energy from the worlds of research and industry. Faculty for this course are:

Dietrich Sümmermann

CEO of Motionverk, entrepreneur, corporate company builder, sustainable energy enthusiast, and expert.

Francisco Díaz-González

Professor at the Universitat Politècnica de Catalunya in subjects linked with the grid integration of renewable energies. His current research interests include the fields of power electronics for electrochemical energy storage and renewable energies.

Iván Contreras

Founder and CEO of Torrot, a manufacturer of electric bicycles and scooters. Iván is specialised in knowledge management, high-speed organisations, and innovative product development.

Julian Jansen

Research and Analysis Manager at IHS Markit Technology, leading the global research on energy storage and provides insight into the value drivers and emerging business models driving storage deployment across Europe and N. America.

Magnus Lindén

Senior Consultant at Sweco's Energy Markets group with extensive experience of the Nordic electricity market.

Martin Vendel

Director of Academy at EIT Urban Mobility, having 25 years of industrial experience, mainly within the digital area working with strategy, product management, and marketing.

Peter Van Den Heede

Head of Sales Council – Electrification Benelux at ABB, working at ABB for more than 10 years in the fields of smart grids, electrification, and business development.

Staffan Movin

Program Director KTH Executive School, helping cities and infrastructural companies adopt digitalisation and sustainability based on applied research and consultancy experience.

Thomas Pellerin-Carlin

Research fellow at Jacques Delors Institute, working on the European energy policy. Main fields of interest are energy policy, climate policy, and European defence policy.

1.5. Target audience

This course is beneficial for anyone interested in understanding potential business models attached to battery storage and its applications as well as how to prepare for developing a relevant business model.

1.6. What qualifications does a learner need to join to the Battery storage: business models, market and regulation course?

In order to be able to follow and benefit from the Battery storage: business models, market and regulation course learners would need to have a general understanding of battery storage applications and their opportunities.

1.7. What is the expected time investment by each learner?

The required time investment is around 6-8 hours/week on average, including the course evaluation. Below you can view a suggested timeline (*Figure 2*).

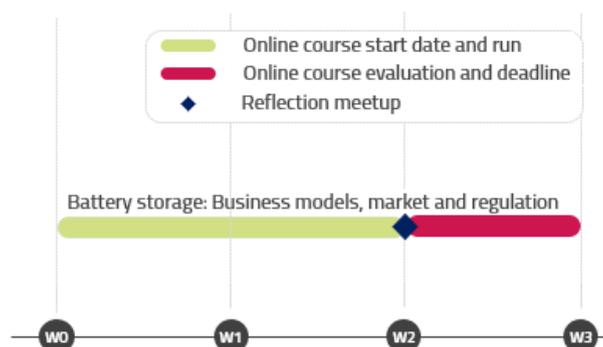


Figure 2: Suggested timeline for the Battery storage: business models, market and regulation course

1.8. What is the meaning of the deadline of the course?

With regards to the Battery storage: business models, market and regulation course dates:

- The online course's general assessment date is fixed, and learners would need to respect this. The online contents will be available at a certain start date and learners can start pursuing the contents at their usual study location, at a pace and rhythm that meets their schedule, while respecting the course's general assessment deadline. An end date is recommended to finalise the course content and allow enough time to submit the assessment.
- The submission of the general assessment is required by the deadline. It is recommended that learners are able to save their answers and come back later for submission prior to the respective deadlines.
- The contents of the course will remain open for the learners for a specific time period after the deadline and the end of the online course.

1.9. Interaction with the course leader

This online course has a dedicated course leader (topic specialist). The course leader shall be available for a (suggested) total of two hours throughout the course run to answer questions and give further explanations on the course content. Out of these two hours, one refers to a Reflection meetup (live session) at a predefined slot and the remaining one hour to asynchronous Q&A via the learning platform or other means. This is recommended to take place in a forum where all learners have access and can benefit from the answers or any discussion.

The course leader's profile is expected as follows: Industrial experience in the energy or power sector (renewables, distributed generation of electricity, smart grids etc.) with knowledge on battery storage applications predominantly from a business perspective. Additionally, EU-wide view of the electricity and energy storage market within the field. Preferred to have also a technical understanding of the main applications of battery storage. Good presentation skills. Preferred to have also pedagogical experience and experience in business modelling.

1.10. Course evaluation

To succeed in the Battery storage: business models, market and regulation course and receive a Certificate of Accomplishment, a learner needs to obtain a minimum score of 75 points in the general assessment. This general assessment serves as a test on the understanding of the course content by each learner. In-lesson quizzes are only meant for self-evaluation and do not count towards the final Certificate.

- The general assessment is composed of both automatically graded questions and open questions. The assessment requires an estimated time effort of 2-3 hours.
- It is recommended that the number of points per section is visible throughout the assessment.
- The automatically graded questions include multiple choice, single choice, fill in the blanks, and association questions.
- The open questions are graded by the course leader, and it is recommended that the results are available 1 week after the deadline.
- There is no negative grading. A wrong answer simply gives 0 points.
- If a learner does not pass the general assessment with the first attempt, it will be possible to retake it once more. It is recommended that the retake is available a week after the general assessment deadline of the last course and remains open for 1 additional week.