InnoEnergy Skills Institute

Understanding Energy Storage: The Battery Revolution

Last revised: 2023 March

Change is happening fast in the field of energy storage. As our technology develops, the need for effective ways to store energy is evident.

This certification aims to provide learners with knowledge on the most promising energy storage technologies, such as batteries, how they can help address these needs, and how they affect the future of the transportation and power sectors. Specifically, learners will explore why energy storage is important. They will examine how the battery revolution is already underway, and what this means for our society and the environment. They will look briefly into the lithium-ion battery production supply chain and manufacturing process. Lastly, learners will examine the benefits of using battery energy storage for industrial products – underground mining – and mobility. In line with current advancements in battery technologies, this certification mostly focuses on lithium-ion batteries.

Learning outcomes

Upon completion of the certification, learners will be able to:

- Apply knowledge of current status and developments in energy storage and how they can affect the power and transportation sectors
- Describe the supply chain in large-scale lithium-ion battery production
- Identify the benefits of battery energy storage solutions in underground mining
- Describe the current electric vehicle market and identify different types of EV charging

Certification structure

The certification is delivered fully online and is self-paced, making it easy for participants to learn without having to take time off work.

The certification consists of 10 self-paced online lessons and is structured as follows:

Lesson 1: Need for Energy Storage and Storage Alternatives

- Explore different energy storage alternatives and why energy storage is important for our future

Lesson 2: Energy Storage in the Power and Transportation Sectors

- Examine energy storage needs and models in the power and transportation sectors

Lesson 3: The Battery Supply Chain Step-by-Step

- Acquire insights into the supply chain for batteries

Lesson 4: The Battery Manufacturing Process

- Examine the manufacturing process of batteries.

Lesson 5: Will Electrification Disrupt the Sector of Underground Mining?

- Discover how electrification in underground mining can reduce overall costs, potentially disrupting the sector

Lesson 6: The Business Case of Electrification for Underground Mining

- Explore the business case of electrification in underground mining

Lesson 7: Environmental Considerations of Batteries for Underground Mining

- Explore how electrification in underground mining can reduce CO_2 emissions, and more

Lesson 8: Battery for Electric Vehicles - Price Development and Trends of Use

- Gain insights into the market of electric vehicles

Lesson 9: Charging Infrastructure

- Learn about the charging infrastructure for electric vehicles

Lesson 10: Vehicle-to-Home and Vehicle-to-Grid Business Models

- Explore emerging business models linked to electric vehicles

Instructors

The certification is led by experts from the EIT InnoEnergy ecosystem. Instructors on this certification are:

Bo Normark

Industrial Strategy Executive and core member of European Battery Alliance at EIT InnoEnergy, Bo has more than 35 years of industrial experience in ABB in development, design, project management, and global management of the Power Systems business.

Erik Svedlund

The Global Marketing Manager – Electrification at Epiroc. He held several positions over the years, at Atlas Copco. Erik is an innovative and visionary leader committed to electrifying the mining world.

Jan Verveckken

Worked in the quality control department of Audi Brussels. He recently was working under EBA Academy at EIT InnoEnergy and. Currently, a professor of electrochemical engineering, energy transition and power at the Rotterdam University of Applied Sciences.

Yann Laot

Director of Services, Support, and Solutions for Energy Storage Solutions at SAFT. He has focused on Li-ion topics, i.e., markets, products, technologies, manufacturing, and competitive landscape analysis.

How will you learn?

This is an online certification and can be taken at your usual study location. The certification has 10 self-paced lessons.
Duration: 5 Hours

Is it right for you?

This certification is designed for anyone interested in developing their knowledge of energy storage and enhancing their professional development.

Prerequisites: In order to be able to follow and benefit from the Understanding Energy Storage: The Battery Revolution certification, learners would need to have a basic understanding of the energy system.

Certificates of Achievement

We offer two pathways for issuing of certificates, **InnoEnergy Skills Institute Certificate** and **EDC (European Digital Credentials),** each with its own unique set of benefits, allowing your organization to choose the one that best suits the objectives. **The Achievement recognition will be awarded at a >75% course assessment pass rate.**

InnoEnergy Skills Institute Certificates

What is it?

The InnoEnergy Skills Institute serves as the certificate issuer, verifying learners' progress and achievements with the course material.

What are the benefits?

InnoEnergy Skills Institute certificates are highly adaptable for recognizing various learning levels and achievements. We offer Participation, Completion, and Achievement certificates for learners who complete online courses through the Skills Institute platform.

What that means for you?

You will receive a digital credential that you can store in your personal digital credential wallet. You can also add and share these credentials on your social media platforms. The authenticity of the credentials can be verified online by anyone seeking credential verification.

European Digital Credentials (europass)

What is it?

European Digital Credentials provide an online record of an individual's personal achievements and qualifications. Recognized by employers across the continent, InnoEnergy Skills Institute can issue European Digital Credentials, which learners can add to their European Digital Credentials wallet. For this type of credentials, we only offer Achievement certificates, awarded at a >75% course assessment pass rate.

What are the benefits?

It allows learners to signal their skills and qualifications using the European Learning Model — a semantic standard that helps the recognition of qualifications and digital credentials across Europe. It also combats fraud, and greatly reduces administrative costs.

What that means for you?

You can be confident in the authenticity of your credentials and showcase your skills in a way that is understood in the context of the European Learning Model. You'll also be able to access everything quickly and easily via your online European Digital Credentials wallet.