



European Standardization Organizations

# Linking standards to the Net Zero Industry Act Academy

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# Making standards for Europe



International



Regional (European)





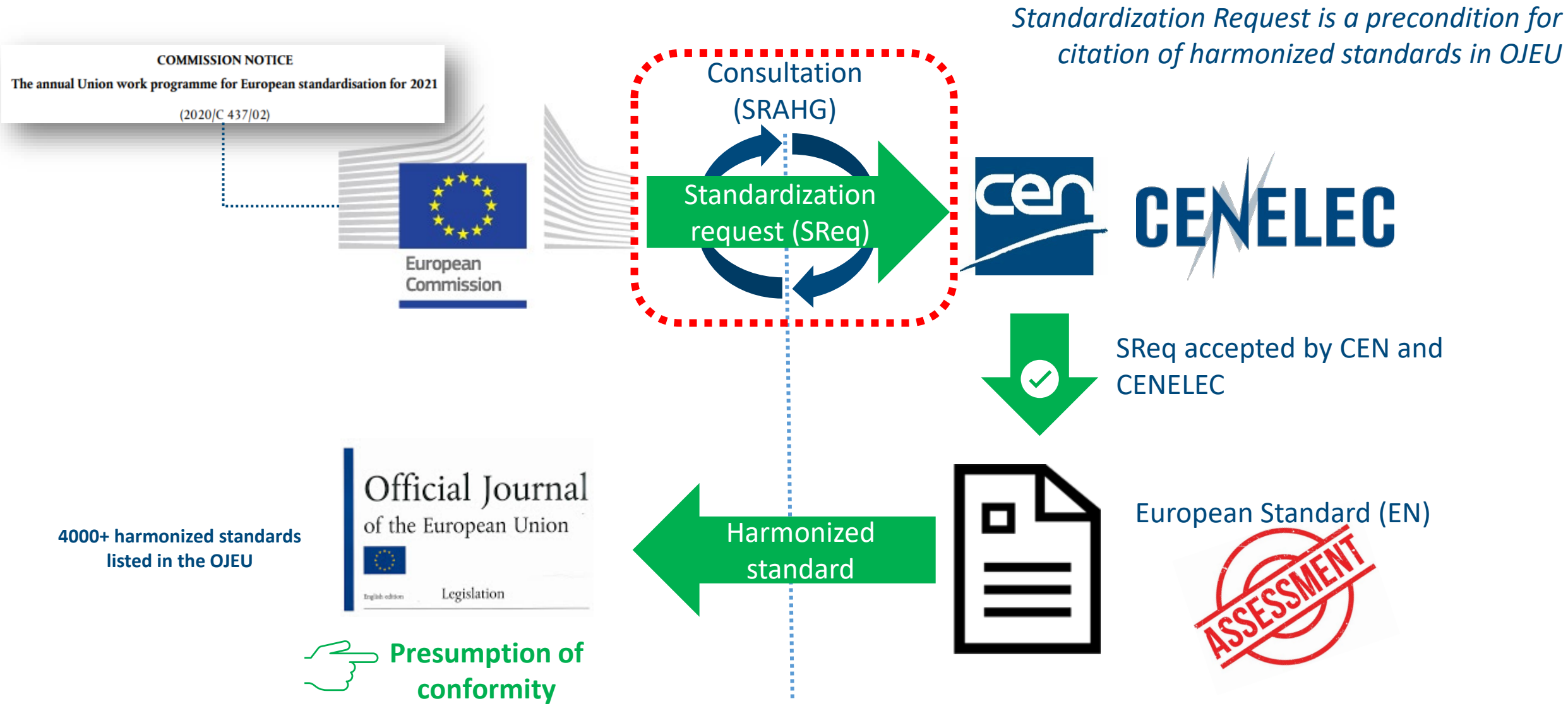
National



# European standardization system



# Standards in support of legislation





# Strategic Net-Zero Technologies

Ongoing standardization activities



# Solar photovoltaic and solar thermal technologies

- ▶ **CLC/TC 82 'Solar photovoltaic energy systems'**, develops standards from the conversion of light to the interfaces to the public grid or users.
- ▶ **CEN/TC 312 'Thermal solar systems and components'** prepares standards to cover terminology, general requirement, characteristics, test methods, conformity evaluation and labelling of thermal solar systems and components.



# Batteries and storage

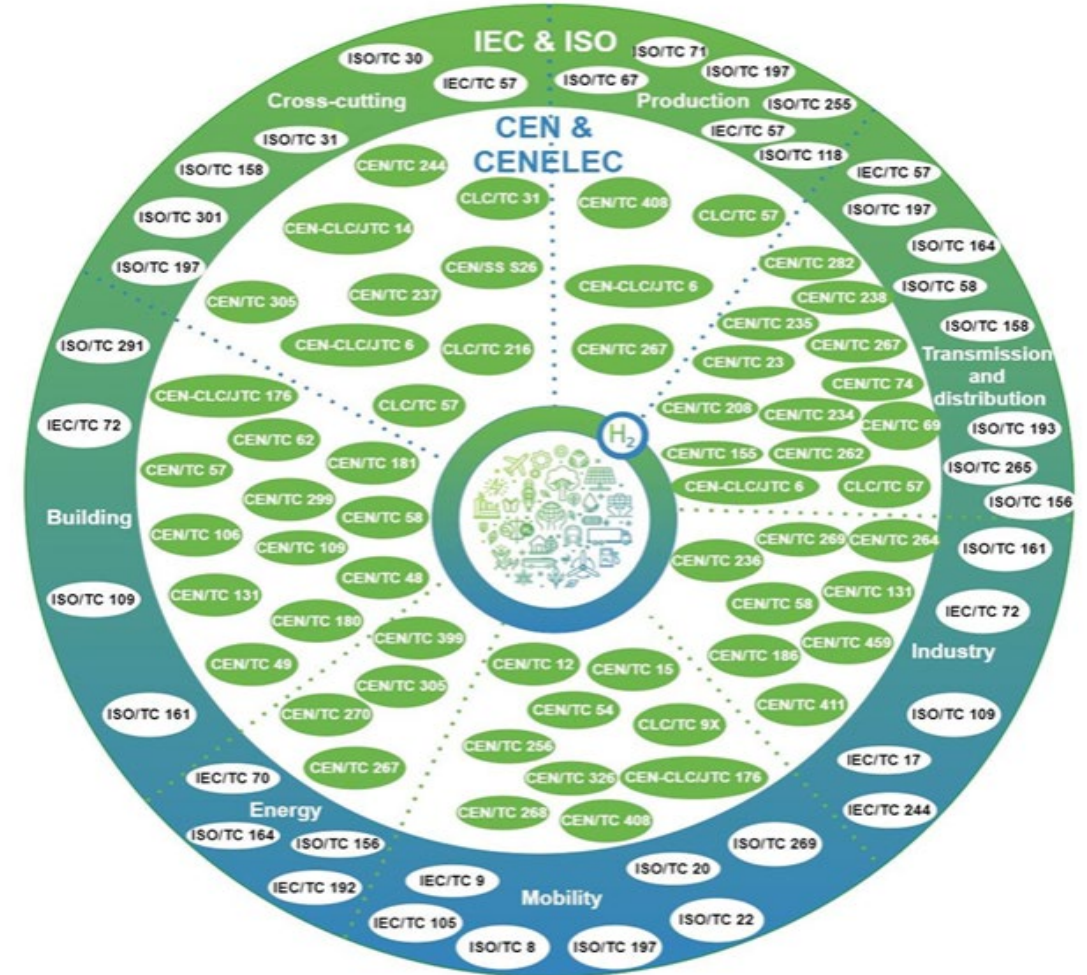
- ▶ **CLC/TC 21X 'Secondary cells and batteries'** addresses the requirements covering the aspects of safety installation principles, performance, applications, dimensions, labelling and testing.
- ▶ **CLC/SR 35 'Primary cells and batteries'** develops European Standards for primary cells and batteries, particularly those relating to specifications, dimensions, performance, along with guidance on environmental and safety matters.





# Electrolysers and fuel cells

- ▶ **CLC/SR 105 Fuel cell technologies** adopts standards developed by IEC TC 105 (secretariat held by CENELEC member DKE)
- ▶ **CEN and CENELEC experts** have developed and are developing standards allowing the wider deployment of hydrogen technologies in Europe along the whole hydrogen value chain





- ▶ **CLC/TC 88 'Wind turbines'** develops standards that address site suitability and resource assessment, design requirements, engineering integrity, modelling requirements, measurement techniques, test procedures, operation and maintenance.



# Sustainable biogas/ biomethane

- ▶ **CEN/TC 383 Sustainably produced biomass for energy applications** is very active on the topic
- ▶ **CEN/TC 408 Natural gas and biomethane for use in transport and biomethane for injection in the natural gas grid** is adopting standards from ISO/TC 255 'Biogas' on domestic and industrial methanisation of wet biomass and gasification of dry biomass



# Carbon capture and storage

- ▶ **CEN/TC 474 Carbon dioxide Capture, transportation, Utilisation, and Storage** new Technical Committee on CO<sub>2</sub> capture, transportation, utilization, storage (CCUS) and carbon accounting, established in 2024, with secretariat hold by the Dutch Standardization Institute (NEN)





# Heat pumps and geothermal energy

- ▶ **CEN/TC 113 Heat pumps and air conditioning units** develops standards of testing and requirements for the performance of factory assembled heat pumps, air conditioning units
- ▶ CEN workshop agreement (CWA) 17914 'Guidelines for an integrated approach of building retrofitting projects based on enhanced shallow geothermal technologies' from October 2022





# Grid technologies

- ▶ Since 2011, CEN and CENELEC have developed more than 300 European standards that support the deployment of smart grids in Europe
- ▶ TCs involved:
  - ▶ **CLC/TC 8X** 'System aspects of electrical energy supply'
  - ▶ **CLC/TC 64** 'Electrical installations and protection against electric shock'
  - ▶ **CLC/TC 13** 'Electrical energy measurement and control'



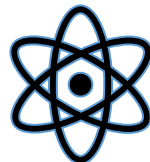
# Enhancing skills

What role standards can play?

- ▶ Future generations of executives, engineers, entrepreneurs and lawyers need to know:
  - ▶ how to use standards
  - ▶ how to take part in the standards making process
  - ▶ how to reap the full benefits standardization can offer
- ▶ European Standardization System needs future standardization experts:
  - ▶ to address new technological challenges, including clean energy technologies
  - ▶ to successfully implement global ambitions



# CEN-CLC Education & Training initiatives



Target Audience

**Standards drafters**

**Societal stakeholders**

**Research & Innovation community**

**Students**

Approach

Webinars for Standards Drafters’ targeting anyone drafting CEN and/or CENELEC standards.

CEN and CENELEC provide a range of supporting tools for societal stakeholders tailored to their specific interests.

Raising awareness among about the benefit of participating in standardization

Increasing relevance of standardization among curricula of Universities and HEI

More information

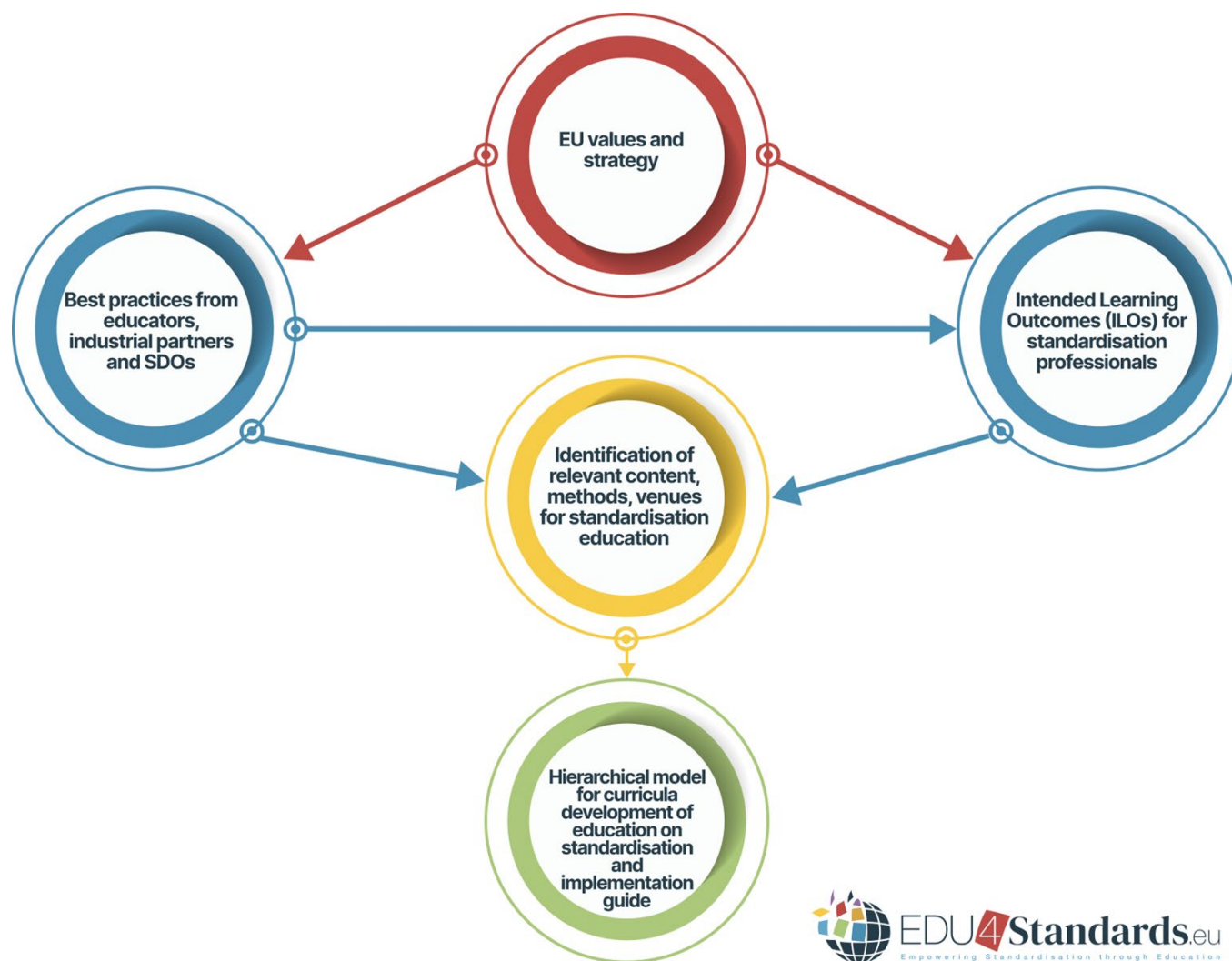
<https://www.cencenelec.eu/news-and-events/news/2024/new-sletter/ots-51-standards-drafters/>

<https://www.standard4all.eu/>

<https://www.standardspouselearning.eu/>

<https://www.edu4standards.eu/>





## Best Practices and Expertise Integration:

- Collect best practices from educators, industrial partners, and (SDOs).

## Curriculum Development and Learning Outcomes:

- Identify content, methods, and educational venues
- Formulate Intended Learning Outcomes (ILOs)

## Educational Framework and Guidance:

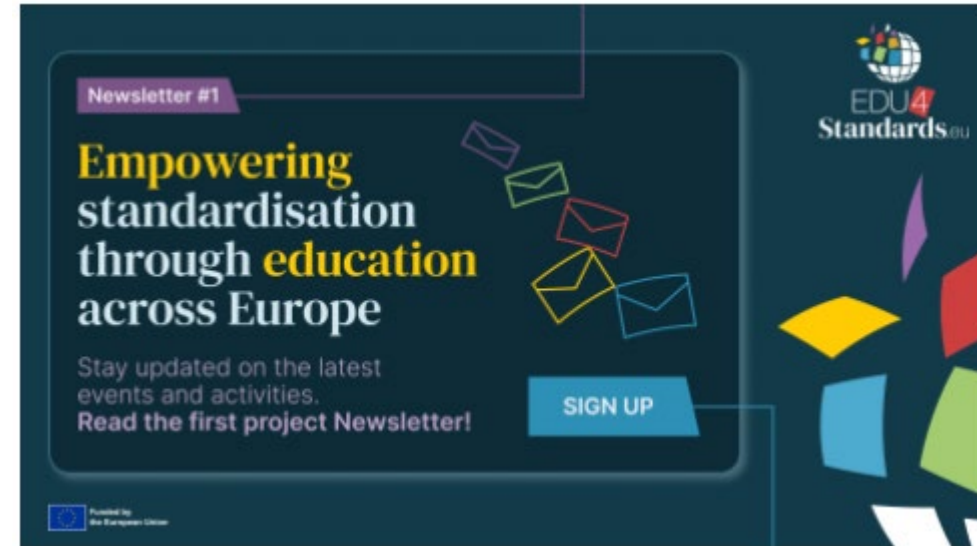
- Design a hierarchical curricula development model dedicated to the education on standardisation after testing in **5 different pilots**.
- Create a comprehensive implementation guide to apply the model which will be promoted via dedicated **Academic Standardisation Days**

# EDU4Standards community



## Download our project flyer

<https://zenodo.org/records/10966317>



## Subscribe to our newsletter

<https://www.edu4standards.eu/#newsletter>

# Stan4SWAP: Standardization Roadmap for swappable battery system



## Planned for 2025:

collection of education and training content about the role of standardization in Mobility industrial ecosystem and batteries for electric mobility



## Stan4SWAP newsletter

Read about our project and latest updates.

### Education and Training

Coming soon. Sign up to the [Stan4SWAP newsletter](#) to stay updated.





# More information

## Standards and Research & Innovation

Click on any topic below or use the menu above to jump to any chapter



[www.standardsplusinnovation.eu](http://www.standardsplusinnovation.eu)

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*Thank you!*

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