

International Scientific Conference Renewable Energy Sources Transition – The Energy of the Future

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SECCA project – Practical application of EU best practices in promoting sustainable energy in Central Asia

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BRIEF INFORMATION ABOUT SECCA

General information on SECCA

Sustainable Energy Connectivity in Central Asia (SECCA):

EU-funded regional cooperation project between the European Union and its partner countries in Central Asia in the field of sustainable energy

Partner countries:

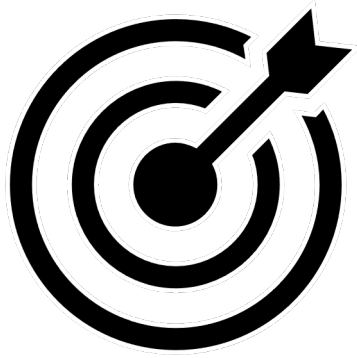
Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan



General information on SECCA

- **Contracting Authority:** EU Delegation to Kazakhstan
- **Duration:** 48 months starting 15 March 2022
- **Implemented by:**
 - ✓ STANTEC sa/nv in consortium with
 - ✓ Intec-GOPA (International Energy Consultants)
 - ✓ ACTED
 - ✓ Florence School of Regulation (FSR) - Energy

Project objective



Overall Objective:

to promote a more sustainable energy mix in the Central Asia region in line with EU best practices

Designated “State Partners” in the Beneficiary Countries

- Kazakhstan - Ministry of Energy
- Kyrgyzstan - Ministry of Energy
- Tajikistan - Ministry of Energy and Water Resources
- **Turkmenistan** - **Ministry of Energy**
- Uzbekistan - Agency for Strategic Reforms

Main examples of EU best practices promoted by SECCA

- Integrated Energy and Climate planning
- Quality control of Energy Audits (EAs) and Energy Performance Certificates (EPCs) of buildings
- Development of rooftop solar
- Horizon Europe
- Sustainable Energy Days (SEDs)



REGIONAL ACTIVITIES OF SECCA



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Regional Activities

- Regional Workshop on energy data collection and compilation of the statistics on final energy consumption (Tashkent, 11-13 July 2023) – **1 representative of Turkmenistan participated**
- Senior government officials and energy sector experts from the CA Countries visited Georgia (13-23 November 2023) for a study tour on “Sustainable Energy in Practice: Georgia’s Success and EU Best Practices” – **3 representatives of Turkmenistan participated**
- Students, young researchers and professionals - winners of the EU contest #Reels4 SustainableEnergy and representatives of the most EE schools from the CA Countries visited Latvia (27 November - 1 December 2023) for a study tour “Promotion of Energy Efficiency – Latvian Experience” – **1 representative of Turkmenistan participated**
- SECCA jointly with Green Hydrogen Diplomacy (H2-Diplo), has organized Central Asian & European Hydrogen Diplomacy Forum (Astana, 23 May 2024) - **2 representatives of Turkmenistan participated**

Regional Activities

- **Representatives of Turkmenistan participated (online)** in the **Workshop: Horizon Europe in Central Asia – Promoting Research Excellence and Collaboration for Sustainable Energy** (Astana, 14 May 2024)
- **Representatives of Turkmenistan participated (online)** in the **Regional Conference** “Prospects for Renewable Energy Development in the Republic of Tajikistan” (Dushanbe, 24-26 June 2024)
- **Representatives of Turkmenistan participated (online)** in the **Regional Technical Workshop** “ESCO – from theory to implementation practice” (Tashkent, 26 June 2024)
- **Regional Working Group on Energy Modelling** including **2 young professionals from Turkmenistan** (in Statistics and policies & Energy management) has been established



SECCA ACTIVITIES IN TURKMENISTAN – IMPLEMENTED AND PLANNED



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Implemented activities in Turkmenistan

- **Joint EU-Turkmenistan conference** on “Green energy and EU strategies for the use of hydrogen and the reduction of methane emissions” – **Ashgabat, 22-23 November 2022**
- **Lectures** for senior students at the State Energy Institute of Turkmenistan, in the areas of integrated energy and climate planning, renewable energy, energy efficiency, renewable energy project cycle, climate finance – **Mary, 12 September 2023**
- **A training workshop** “International experience in the development of regulations and technical documents in the field of energy saving and energy efficiency, as well as on the use of municipal solid waste as alternative energy sources” – **Mary, 13 September 2023**

EU-Turkmenistan Sustainable Energy Days 2023

- **EU-Turkmenistan Sustainable Energy Days (SEDs) - Mary, 14-15 December 2023**
 - ✓ **International Conference** “Sustainable energy in Turkmenistan: prospects and challenges”
 - ✓ **Lectures** for faculty members and students at the State Energy Institute of Turkmenistan
 - ✓ **Ecological Action** for schoolchildren
 - ✓ **Award ceremony** of the most EE school in Mary

EU-Turkmenistan Sustainable Energy Days 2023



Implemented activities in Turkmenistan

- **Training workshop** “International practices in implementation of innovative EE technologies. Energy survey” – **Mary, 13-19 March 2024**
- **International Conference** “Prospects for introduction of green innovative energy efficiency technologies in the electric power industry of Turkmenistan” – **Mary, 18 March 2024**

EU-Turkmenistan Sustainable Energy Days 2024

- **EU-Turkmenistan Sustainable Energy Days - Ashgabat, 27-30 April 2024, Turkmenbashi, 1-3 May 2024**
 - ✓ **Lectures and Round table** for Students of Higher Educational Institutions in **Ashgabat**
 - ✓ **International Conference** “Climate change – challenges and solutions for sustainable energy” in **Turkmenbashi**
 - ✓ **Lectures and Round table** for Students of Higher Educational Institutions in **Turkmenbashi**
 - ✓ **Ecological Action** for schoolchildren in **Turkmenbashi**
 - ✓ **Award ceremony** of the most EE school in **Turkmenbashi**

EU-Turkmenistan Sustainable Energy Days 2024



Joint Conference of EU Delegation to Turkmenistan and Ministry of Foreign Affairs of Turkmenistan

SECCA participated in the Joint Conference “The 30th Anniversary of Cooperation between Turkmenistan and the European Union: Working Together for a Better Future”, organised by the Ministry of Foreign Affairs of Turkmenistan and the EU Delegation to Turkmenistan (Ashgabat, 14 May 2024)



Planned activities in Turkmenistan for 2024

- **International Conference** "Horizon Europe program - Opportunities and development potential of cooperation in Turkmenistan" (Ashgabat, November 2024). Other events:
 - ✓ Lectures and round table on sustainable energy, energy efficiency, and the development of renewable energy for students of higher educational institutions located in the city of Ashgabat
 - ✓ Award ceremony of the most energy efficient school in Ashgabat
- **International Conference** "Sustainable Energy, in defense of the environment. Studying international experience" (Mary, December 2024). Other events:
 - ✓ Training seminar on the topic "Studying international experience in the implementation of energy efficiency technologies in residential and public buildings"
 - ✓ Award ceremony for the most energy efficient school in Mary

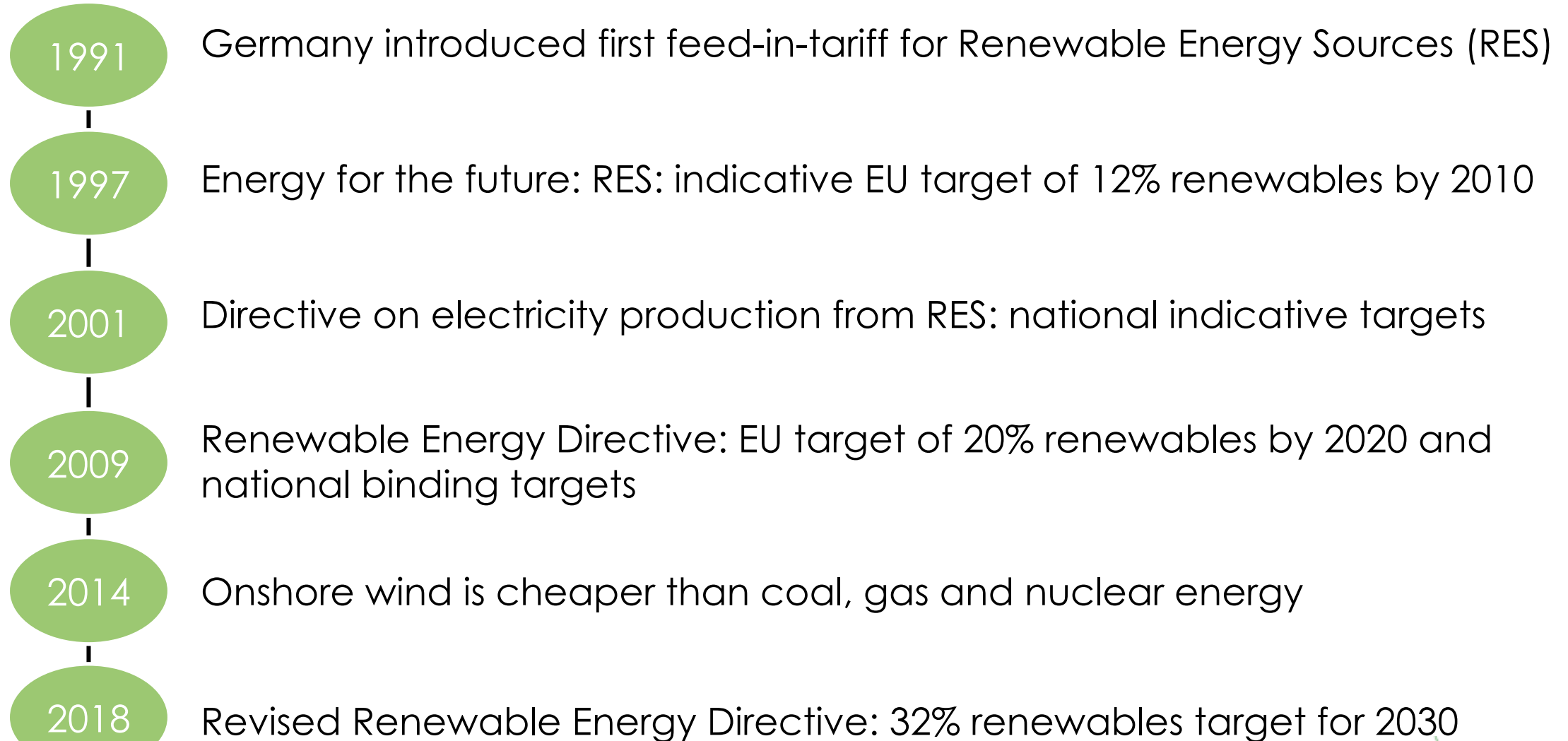


DEVELOPMENT OF RENEWABLE ENERGY IN THE EU



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Timeline for renewable energy in the EU



Timeline for renewable energy in the EU (2)

2021

Fit for 55: European Commission proposed to revise the directive and raise the target for 2030 to 40%

Fit for 55 is a package by the European Union designed to reduce the European Union's greenhouse gas emissions by 55% by 2030

2022

REPowerEU Plan: new EC proposal to further raise the renewable energy target

*REPowerEU Plan - a **plan** to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition*

20.11.
2023

Revised Directive EU/2023/2413 entered into force

Renewable Energy in the EU

Why is the EU increasing the share of renewables in its energy mix?

- Under the European Green Deal, renewable energy is a pillar of the clean energy transition

*The European **Green Deal** is the ambitious EU climate policy that aims for Europe to become the first climate neutral continent by 2050*

- It comes at a low cost and is home-grown
- It reduces Europe's dependency on external suppliers
- It contributes to achievement of EU's objective of climate neutrality by 2050

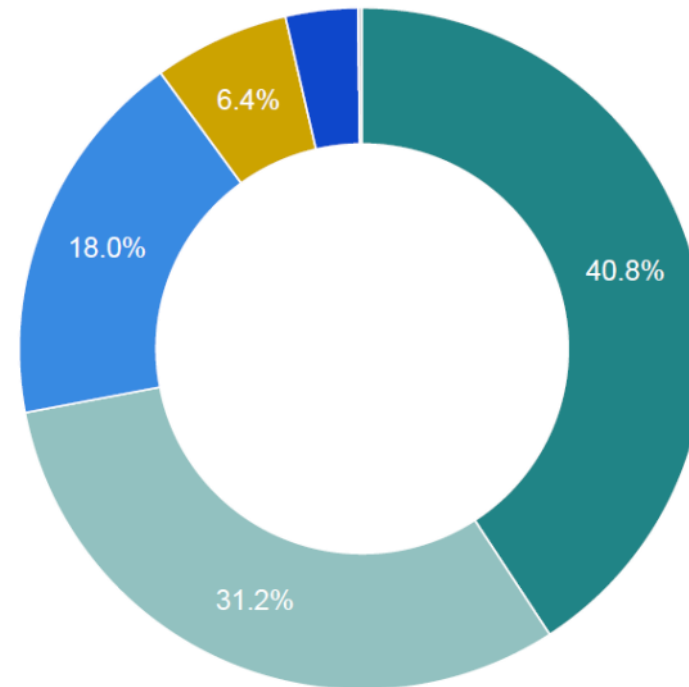
Renewable Energy in the EU (2)

- Globally EU leads technology development in renewables
- Since the introduction of the Renewable Energy Directive (2009/28/EC), the share of RES in EU energy consumption has increased from 12.5% in 2010 to 21.8% in 2021
- In July 2021, the Commission proposed a revision of the directive, raising the 2030 target to 40% (up from 32%)
- According to the revised Directive EU/2023/2413:
 - The share of energy from RES in the gross final consumption of energy in 2030 should be at least 42.5%
 - Member States shall collectively endeavor to increase the above share to 45%

Renewable energy in the EU (3)

- Shares of different energy sources in total EU energy production in 2021:

- **Renewable energy - 41%**
- Nuclear energy - 31%
- Solid fossil fuels - 18%
- Natural gas - 6%
- Crude oil - 3%

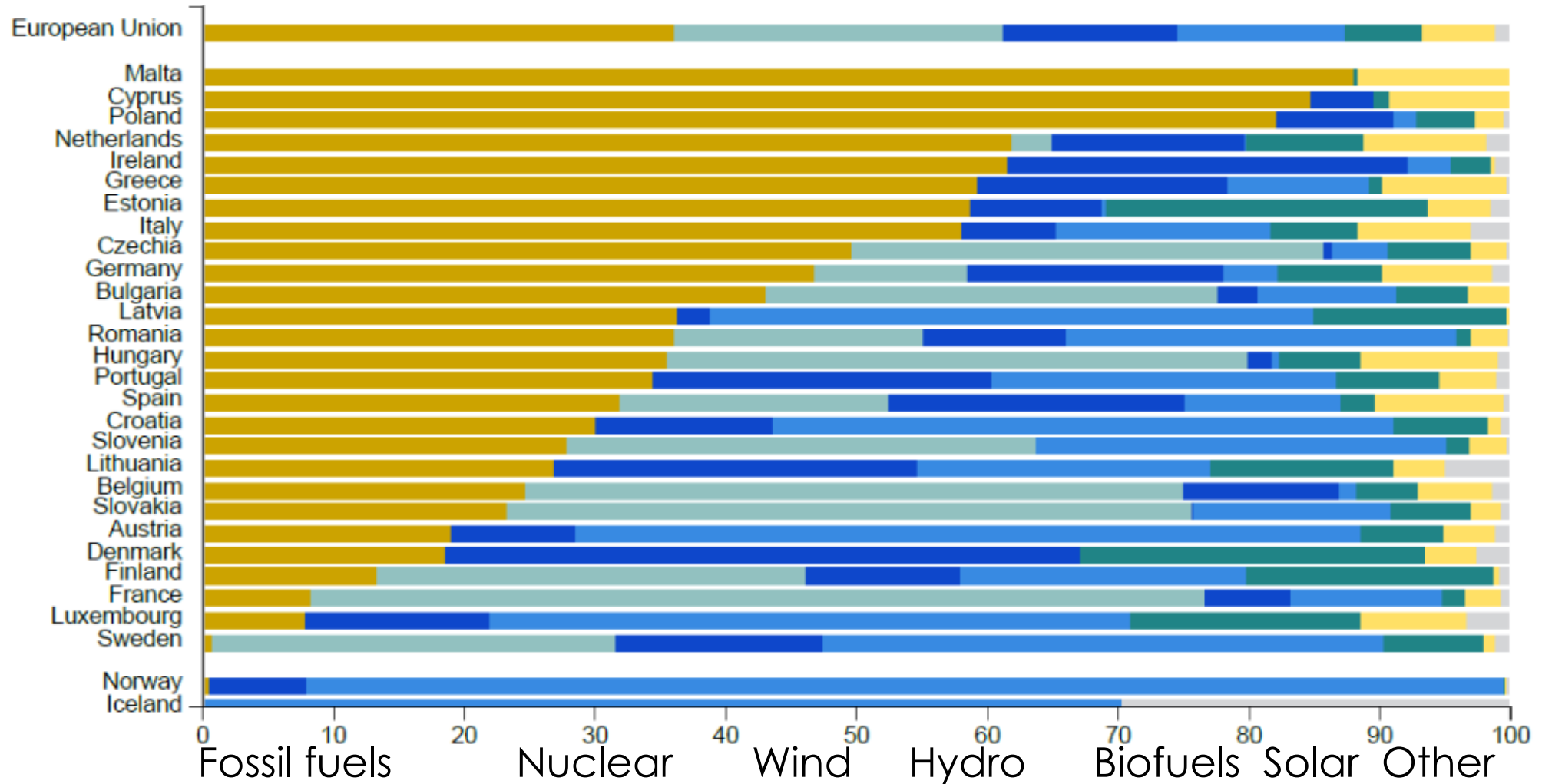


Renewable energy in the EU (4)

- Shares of different energy sources in electricity production in 2021:
 - **Renewable energy** - 38%
 - ✓ *Wind turbines* – 13%
 - ✓ *Hydropower plants* – 13%
 - ✓ *Biofuels* – 6%
 - ✓ *Solar power* 6%
 - Fossil fuels - 36%
 - Nuclear power plants - 25%

Renewable energy in the EU (5)

Production of electricity by source, 2021 (in %)





EXPERIENCE OF THE EU IN INTRODUCING ENERGY EFFICIENT SOLUTIONS AND TECHNOLOGIES IN THE BUILDING SECTOR



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Energy efficiency first principle (1)

- **Energy Efficiency** is **one of the key pillars** not only **to meet EU's climate objectives** but also to **reduce dependence on fossil fuels** and **increase security of supply** and the **use of renewable energy**
- **Energy efficiency first (EE1st) principle** is generally understood as a **guiding principle for energy-related policymaking, planning, and investments**
- The principle aims **to treat energy efficiency as a source of energy** in its own right in which the public and the private sector can invest ahead of other more complex or costly energy sources
- This includes **giving priority to demand-side solutions** whenever they are more cost-effective than investments in energy infrastructure to meet policy objectives

Energy efficiency first (EE1st) principle (2)

- The EE1st principle was formally introduced into EU legislation in the Governance Regulation (European Union 2018), which includes a formal definition and **requires Member States to report on the implementation of EE1st** in their **National Energy and Climate Plans (NECPs)**
- In essence, it is meant to **consider and prioritise** investments in both:
 - demand-side resources (end-use energy efficiency, demand response, etc.)
 - supply-side energy efficiency**whenever these cost less or deliver more value** than default energy infrastructure

Role of Building stock

- Buildings account for approximately **40% of final energy consumption**
- Investing in EE measures in buildings can yield **substantial energy savings**, while **supporting economic growth, sustainable development and creating jobs**
- Greater use of **energy-efficient appliances and technologies**, combined **with renewable energy**, are cost-effective ways of enhancing **the security of energy supply**

Building stock

- Public buildings, incl. Central Government Buildings
- Commercial sector buildings (offices, e
- Industrial Buildings
- Residential buildings
 - Multi-apartment buildings
 - Family houses



Each group/ type of buildings has different features - ownership, operation and maintenance models, etc.

Evolution of implementation of EE solutions

- 1) **Shallow/step-by-step renovation of buildings** - investment decisions are based on simple payback period calculation (replacement of windows, insulation of walls, etc.)
- 2) **Deep/complex renovation of buildings** - investment decisions are based on cost-benefit analysis (deep renovation, incl. ventilation system, etc.)
- 3) **Renovation to meet Minimum Energy Performance Requirements (MEPRs)** - investment decisions are based on cost-optimal studies
- 4) **Passive House (PH)**
- 5) **Nearly-zero Energy Buildings (NzEB)**
- 6) **Zero-emission buildings (ZEB)**

Start with energy performance requirements for **new buildings** followed by requirements for **existing buildings/ renovation**

The revised Energy Performance of Buildings Directive brings new changes

2020

All new buildings in EU must be **Near Zero Energy Buildings (NZEB)**

2025

Energy performance certificates (EPCs) must be based on a **harmonised energy performance scale** by **2025**

All buildings must have a **smart readiness indicator (SRI)** by **2026**, to assess their ability to integrate smart technologies

2030

All new buildings in the EU must be **zero-emission buildings (ZEBs)** from **2030**

2050

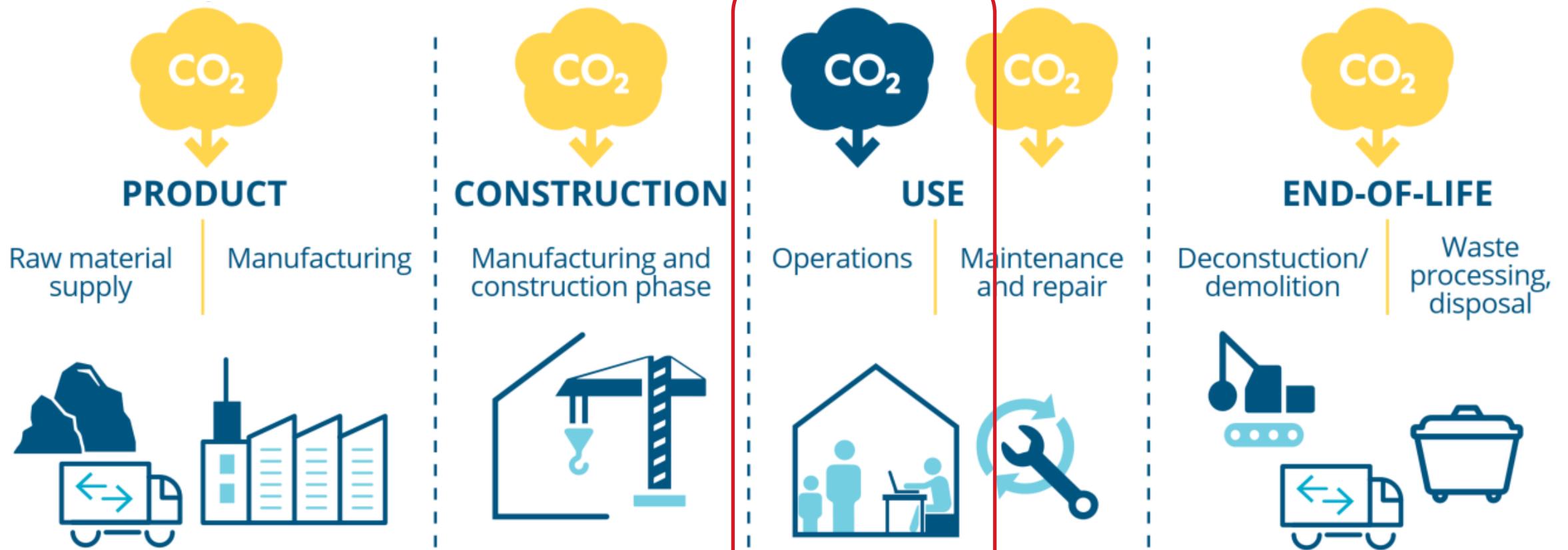
Existing public buildings must be **renovated to a high energy performance level**, with minimum energy performance standards set at EU level

Building **life cycle carbon emissions calculation** will be introduced

All new public buildings must be **zero-emission buildings (ZEBs)** from 2028

DECARBONIZED BUILDING STOCK IN 2050

Zero-emission buildings are a new aim for making buildings more climate friendly



The current scope of Performance evaluations

Challenges at the level of practical application

Achieving a more sustainable energy mix requires more smart technologies and solutions

- in promotion of the **use of RE** – smart grids and smart grid technologies (smart metering, demand response, smart appliances, etc.)



- in promotion of **EE in buildings** – smart readiness indicators, emerging technologies and approaches for decarbonization of the building stock, etc.

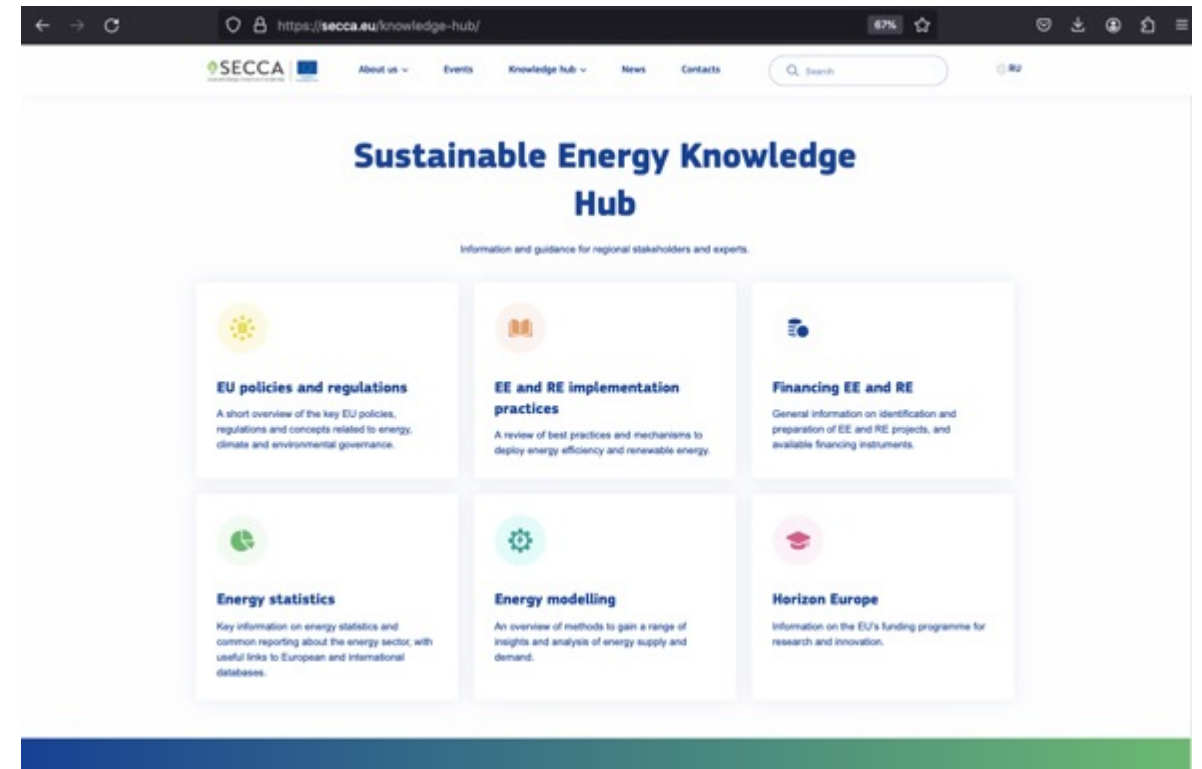
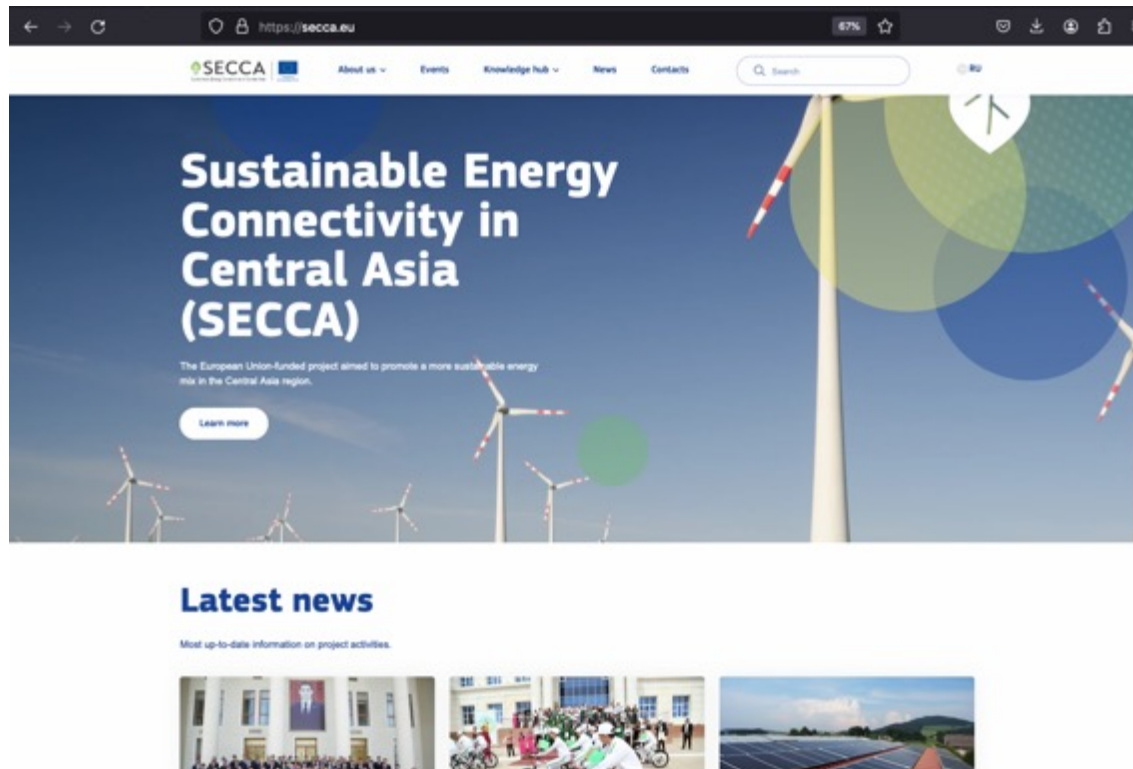
This opens opportunities for collaboration between EU-CA research institutions

More information on SECCA website

Latest News and Events

Sustainable Energy Knowledge Hub - EE and RE implementation practices

www.secca.eu



More information on SECCA website

Horizon Europe

