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Sustainable Energy Connectivity in Central Asia

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# The European Union – Uzbekistan: Sustainable Energy Days 2024

Sustainable Energy Future for Uzbekistan: Lectures on Energy Efficiency in Buildings

Tashkent, 20 November 2024

## Overall policy and legal framework for the promotion of EE in buildings in the EU

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# WHY ENERGY EFFICIENCY FIRST?

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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

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# 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

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# OPPORTUNITIES AND CHALLENGES IN THE BUILDING SECTOR

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# 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**

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# Building stock

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

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

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# OVERALL APPROACH TO THE PROMOTION OF EE IN BUILDINGS

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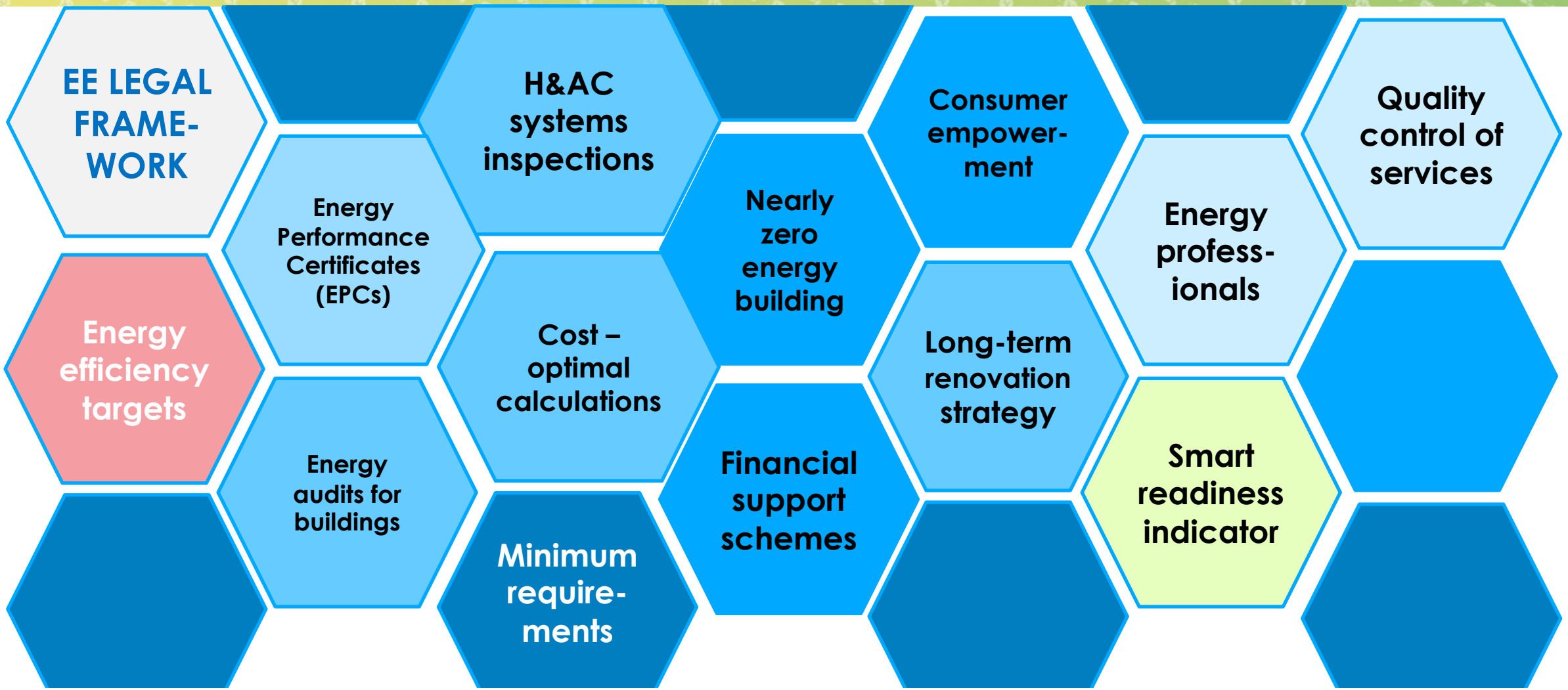
# Policy elements and instruments/ tools for EE in Buildings

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# Key tools for promotion of EE improvement in Building life cycle

Building refurbishment (renovation) OR upgrade

Building design

Building construction

Building use (operation and maintenance)

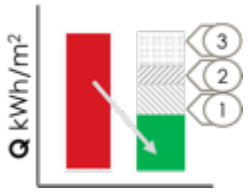
Building demolition (End-of-Life)

**Tools:**

① Project EPC

② Energy performance certificate

③ H&C Inspection




④ Energy audit for building

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# The revised Energy Performance of Buildings Directive brings new changes

2020 — 2025 — 2030 — 2050

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

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

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

**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**

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# Energy Performance of Buildings Directive

- As of **2030 all new buildings must be zero-emission**; new public buildings must be zero emission already by 2027


- The **worst-performing 15% of the EU building** stock will have to be upgraded from Energy Performance Certificate (EPC) **label G to at least label F by 2030,** public and non-residential buildings leading the way by 2027. Residential buildings should be renovated from G to at least F by 2030, and to at least E by 2033

- The **obligation to have an energy performance certificate is extended to buildings undergoing major renovation**, buildings for which **a rental contract is renewed and all public buildings**

- Requirement to roll out **charging infrastructure for electric vehicles in residential and commercial buildings** and to promote dedicated parking space for bicycles


- Buildings or building units which are **offered for sale or rent must have an energy performance certificate**, and the energy performance class and indicator should be stated in all advertisements

- National Building Renovation Plans will be fully integrated into National Energy and Climate Plans to ensure comparability and tracking of progress – they will need to include **roadmaps for phasing out fossil fuels in heating and cooling by 2040 at the latest**

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# Sustainable and energy efficient building certifications

**EU legislative requirements:**

- **Energy performance certificates (EPCs)** and **Minimum energy efficiency requirements (MEPRs)**
- **Nearly zero-energy building (NzEB)** and **Zero-emission buildings (ZEB) requirements** (starting from 2028) for new buildings
- Upcoming: $CO_2$ life cycle perspective and Level(s) framework

**Voluntary sustainable building certification shames:**

- BREEAM - Building Research Establishment's Environmental Assessment Method
- LEED - Leadership in Energy and Environmental Design
- DGNB - German Sustainable Building Council
- PH – Passive House
- EDGE - green building certification from International Finance Corporation (IFC), a member of the World Bank Group
- ..

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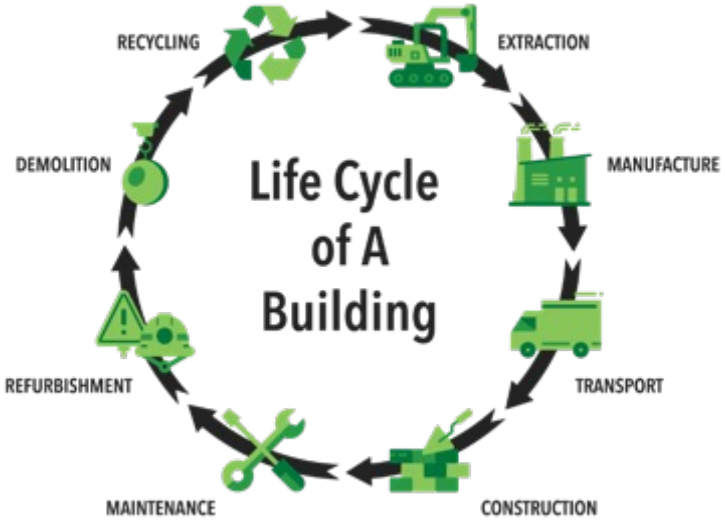
# EU initiative that joins up sustainable building thinking across the EU

- **Sustainable building certifications,** also known as green building rating tools, evaluate and acknowledge buildings meeting specific sustainability criteria
- **These certifications serve to reward companies and organizations** for constructing and operating environmentally friendly buildings

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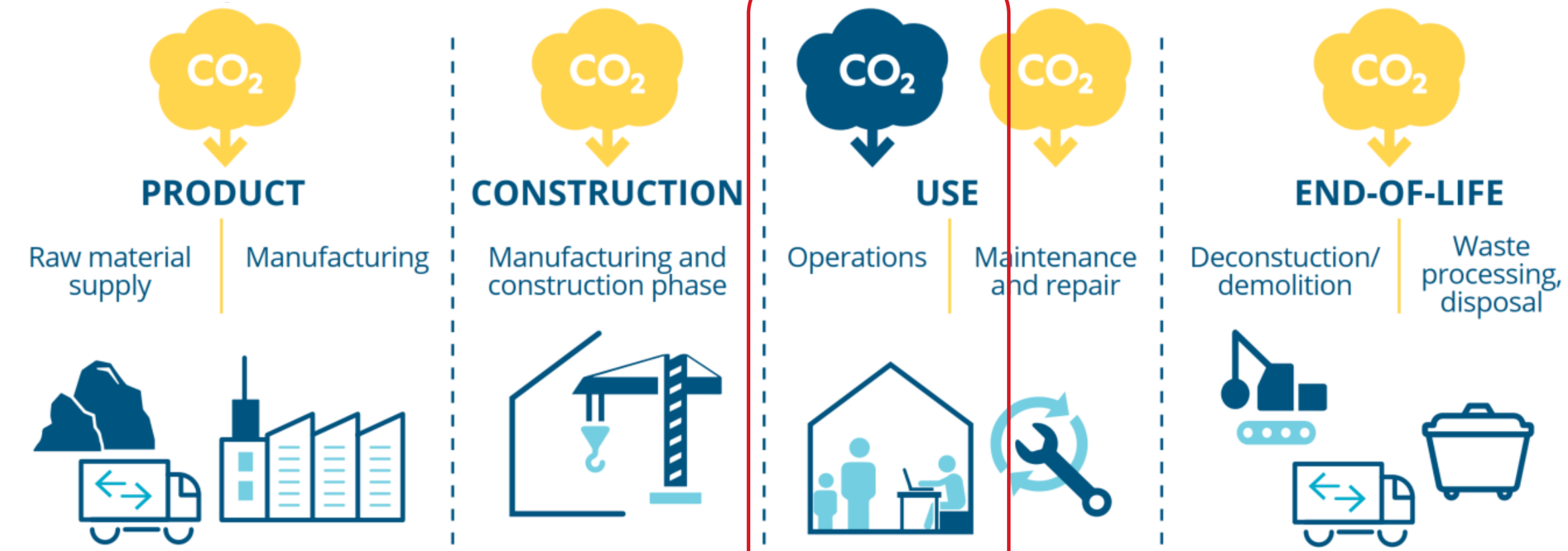
# Zero-emission buildings are a new aim for making buildings more climate friendly

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# 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**

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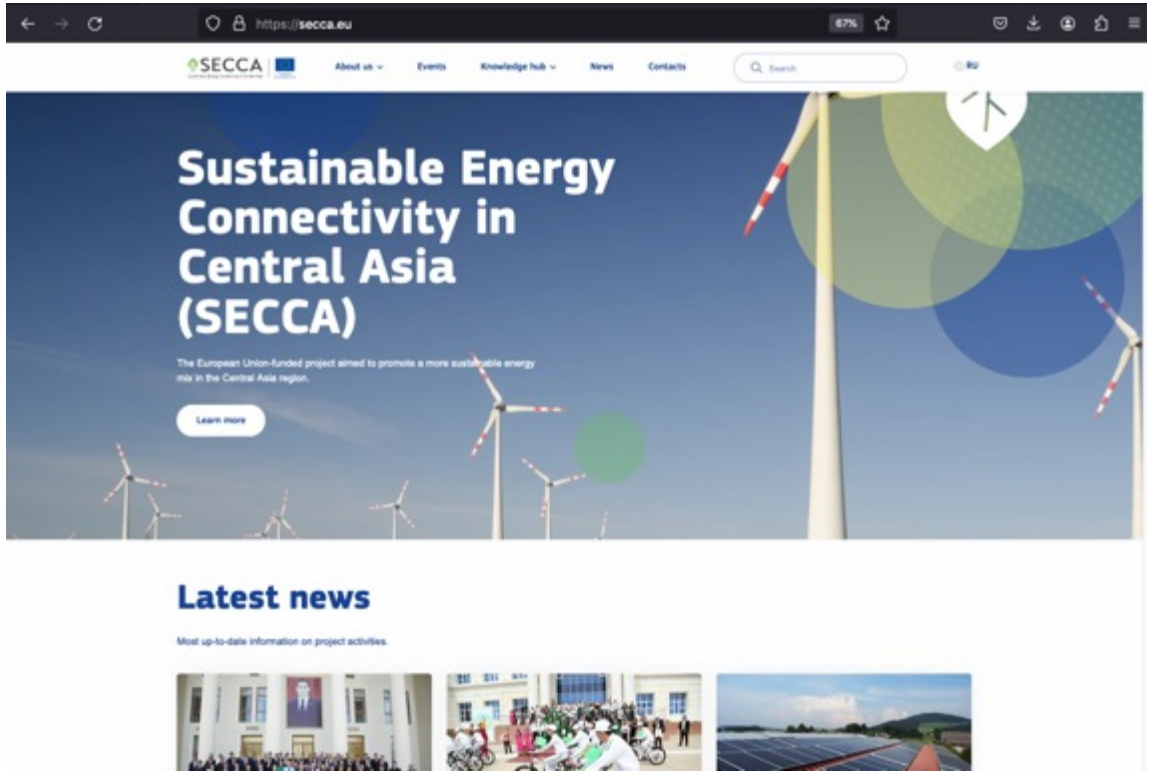
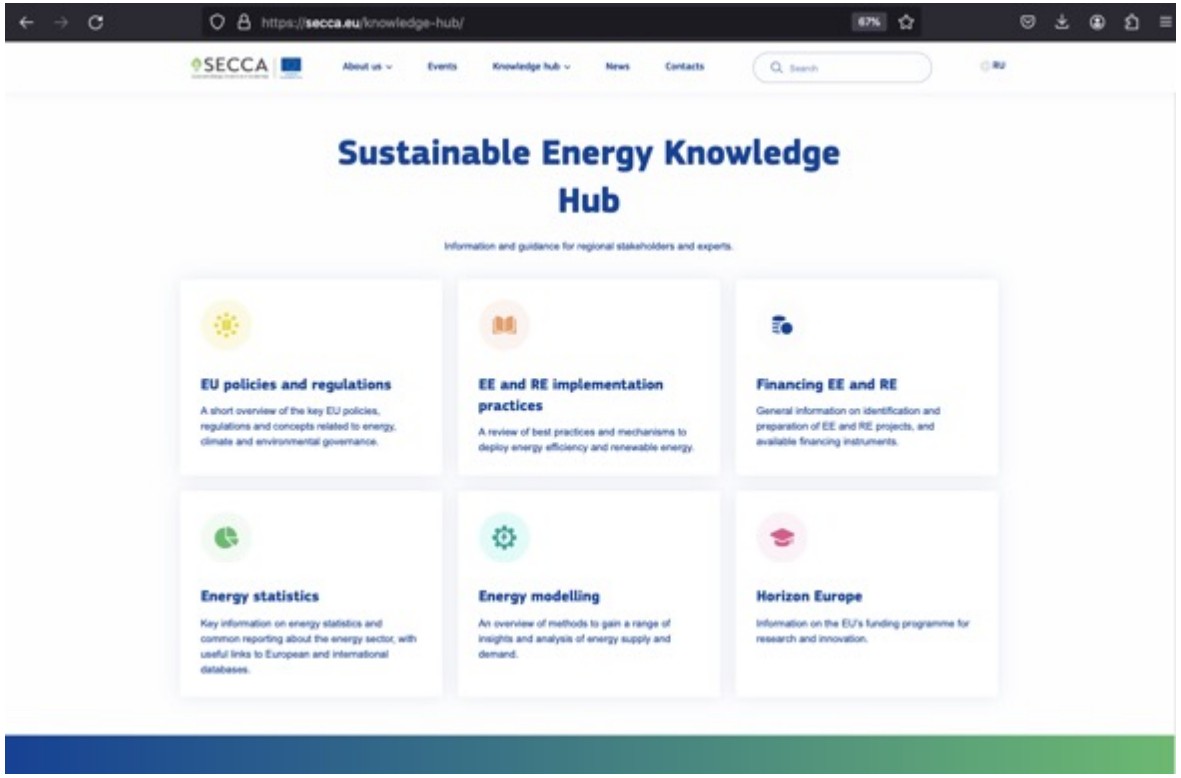
# More information on SECCA website

## Latest News and Events

## Sustainable Energy Knowledge Hub - EE and RE implementation practices

www.secca.eu

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