

Training workshop "Studying international practices in implementation of innovative energy efficiency technologies in the electric power industry. Methodology, goal and objectives of electricity and heat consumers energy survey" SEIT building, 62 Bayram Khan st, Mary, 13-18 March 2024

EU approach to energy efficiency promotion: lessons learnt and the way forward

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TOWARDS INTEGRATED ENERGY AND CLIMATE PLANNING







EU policy framework for integrated Energy and Climate planning

Green deal: GHG Emissions -55% by 2030						
	EU climate law: -55 GHG by 2030, Climate neutrality 2050				1	
$\begin{array}{c} \star^{*} \star \\ \star $	Renovation wave: Building sector -60% GHG by 2030, -14% FEC by 2030, increase renovation rate to 2% by 2030					
Taxonomy	RED II Building sector 49% RE in FEC	EPBD PEC targets of the EU MS	EED -39% PEC / -36% FEC by 2030	ETS &ESR -61% GHG (ETS) & -50% (ESR)by 2030	Governance Regulation EU	
					NECP	LTRS
National regulation						
	Renewables	Energy e	GHG			
Funded by the European Union Adopted from: Tobias Kropp, M.Sc. and UnivProf. DrIng. Kunibert Lennerts, Institute of Technology and Management in Construction, Division Excility Management						

Sustainable Energy Connectivity in Central Asia

Management in Construction, Division Facility Management

Evolution of energy policy planning process in EU





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National Energy and Climate Plan

NECP for 2021 – 2030 with the outlook to 2050



Five (5) dimensions:

- Energy Security
- Energy Efficiency as a primary fuel
- Decarbonization and Renewable
 Energy development
- Market integration
 - Cross-border connections
 - Harmonized Market rules
 - Addressing energy poverty and vulnerable customers
- Research and Innovation for new technologies



This approach requires close coordination across all ministries



Dimension 1: Energy security

- Medium- to long-term objectives and standards relating to security of supply, including with regard to diversification of energy sources and supply countries, infrastructure, storage, demand response, readiness to cope with constrained or interrupted supply of an energy source, and the deployment of alternative domestic sources
- The objectives should include regional cooperation and the policy measures to achieve these objectives should be regionally coordinated







Dimension 2: Energy market

 Policies and plans related to infrastructure development for connectivity with other EU Member States and Energy Community Contracting Parties (The Energy Community is an international organisation consisting of the EU, represented by the European Commission, Albania, Bosnia and Herzegovina, Georgia, the Republic of North Macedonia and Kosovo*. Moldova, Montenegro, Serbia, and Ukraine are known as the contracting parties)

 Policies and objectives related to market integration, deployment of flexibility in the power sector, roll-out of smart technologies, and smart grids





Dimension 3: Energy efficiency

- Existing and planned policies and measures related to achieving the future energy efficiency targets in the EU
- Special attention to measures and plans to reduce energy consumption in the building sector (i.e. building renovation, and investment programmes)
- Development and quantification of a trajectory towards 2030 including planned energy savings and final consumption
- The trajectory should specify the national contribution towards the EU energy efficiency targets





Dimension 4: Decarbonisation of the economy

- Policies and measures related to the reduction of GHG emissions in all key emitting sectors to meet 2030 targets:
 - in the EU (e.g. renewable energy targets), and
 - Nationally Determined Contributions (NDCs) under the Paris Agreement
- These should also contain an outlook towards becoming a low-carbon economy in 2050, including the trajectory for the share of renewables, projected electricity demand, relevant electricity producing technologies
- National policies and measures planned to support the decarbonisation of transport





Dimension 5: Research, innovation and competitiveness

• **Policies** and **measures** for accelerating the energy sector transformation, including funding programmes for R&D and subsidy schemes







Content of NECP

Narrative part **Current situation -** overview of the national energy system and policy context of the national plan across the five dimensions

Objectives, policies and measures for the five dimensions

Analytical basis

Integrated projections and indicators - a separate section on projections as an analytical basis of the plan, including reference and policy scenarios assessing the relevant impacts of the policies and measures proposed





Continuous monitoring of implementation progress and results

National Integrated Energy and Climate Plans (2021 to 2030) (preparation well before 2020)

National progress reports (from 2023, every two years)

European Commission monitoring (State of the Energy Union)







EE IN INDUSTRY







Policy elements and instruments/ tools for EE in Industry







Role of large enterprises



Number of Large enterprises in EU MS (2018 data)





Energy management tools

ENERGY AUDIT (EA) - systematic procedure with the purpose of obtaining adequate knowledge of the energy consumption profile of a facility, identifying and quantifying costeffective energy saving opportunities, and reporting the findings

ENERGY MANAGEMENT SYSTEM (EMS) -

set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective



Source: Certified EMS, ISO survey 2011-2019





Fit for 55 package: EED recast

Energy Management Systems and **Energy Audits -** subject of application is **shifted from enterprise size** to **energy consumption threshold**

- Enterprises with an average annual (energy) consumption higher than
 - 100 TJ → implement Energy Management Systems
 - 10 TJ \rightarrow subject to Energy Audit
- Results of energy audits including the recommendations must be transmitted to the management
- Ensure that quality checks are carried out to ensure the validity and accuracy of Energy Audits







EE IN BUILDINGS







Policy elements and instruments/ tools for EE in Buildings







Upcoming changes with EED 2023

EED 2018*:

Article 5: Exemplary role of public bodies' buildings

•Renovation: 3% of government buildings (>250 m²) renovated yearly for energy standards

•**Priority**: Target poorest performing buildings first

Exemptions: Historic, military (with exceptions), and religious buildings
 Flexibility: Excess renovations credited; replacements for demolished buildings qualify

*Not all requirements reflected ** Not yet transposed to EU MS national legislation



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EED 2023**:

Article 5: Public sector leading on energy efficiency

•Annual Reduction: Public bodies to reduce energy consumption by 1.9% yearly

•Exclusions: Possible to exclude public transport and armed forces •Exemptions: Units with <50,000 population (till 2026) and <5,000 (till 2029) exempt

•Lifecycle and Performance Considerations: encourage consideration of lifecycle carbon emissions and wider benefits

Article 6: Exemplary role of public bodies' buildings

Renovation: 3% of public bodies' buildings floor area to be renovated to nearly zero-energy/zero-emission standards annually

•Selection: Based on cost-effectiveness and technical feasibility

•Exemptions: Social housing, historically significant buildings, military buildings, and places of worship

•Negotiations: For leased buildings to meet standards

•Credit for New/Replaced Buildings: Towards the renovation rate if more energy and CO2 efficient

•Inventory: Establish/update biennially an inventory of public buildings over 250 m²



Evolution of Energy Performance Certification of Buildings concept



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

