

Ministry of Energy and Water Resources of Republic of Tajikistan



Green Diplomacy Week – a global just energy transition **EU-Central Asia Sustainable Energy Days** International Conference Energy Efficiency in Tajikistan: prospects and challenges Dushanbe Serena Hotel, 25-26 October 2023 Energy performance certification of buildings – role, key elements and eu best practices Karolis Janusevicius, Expert in energy audits, SECCA

THE OUTLINE OF PRESENTATION

- Why the building sector is important in Tajikistan?
- How do you understand what EPC is?
- Why should we care about energy efficiency if we have a low-carbon energy supply?
- How may Energy performance certification (EPC) help?
- What are the main approaches to defining the performance of a building?
- What benefits does it bring to the country's economy?
- What makes people demand EPC?
- How can EPC demand be stimulated from the policy level?
- What infrastructure is needed to run the EPC system?



THE BUILDING SECTOR IS THE LARGEST ENERGY CONSUMER IN TAJIKISTAN



Source: https://www.iea.org/countries/tajikistan

EVEN WITH LOW CARBON ENERGY SUPPLY ENERGY EFFICIENCY PROVIDES BENEFITS

ENERGY EFFICIENCY IMPROVEMENT

- Efficiency ensures optimal use of RES
- Reduced energy demand decreases infrastructure costs and prolongs RES system's lifespans
- Efficiency reduces the scale RES of installations needed
- Energy-efficient buildings reduce grid loads, ensuring stability and resilience during supply interruptions

SUSTAINABLE & OPTIMIZED ENERGY

Using energy wisely with renewables saves money, helps nature, strengthens our systems, and prepares us for a green future RENEWABLE ENERGY SOURCES UTILIZATION

- Renewables, though sustainable, aren't infinite
- While renewables are cleaner, their production has environmental costs

ENERGY PERFORMANCE CERTIFICATION SHOULD BE UNDERSTOOD AS RATING SYSTEM GIVING MARK FOR A BUILDING FOR THE PERFORMANCE



ENERGY PERFORMANCE CERTIFICATION is a rating* scheme to summarize and express the performance of the building in a simplified way.

ENERGY PERFORMANCE CERTIFICATE (EPC) is a document that shows the energy performance of a building. It provides information on the building's energy consumption (calculated or measured), and additional information like carbon dioxide emissions, and gives indicative recommendations on how to improve its energy performance





ENERGY PERFORMANCE CERTIFICATES MAKE BUYERS AND OWNERS LIVES EASIER BY INFORMING THEM ABOUT THE STATE OF THE BUILDING

Energy Performance Certificates (EPCs) make it easier to understand how good in terms of energy consumption the building is. They help customers know more and aim for better than just the minimum standards.



ENERGY PERFORMANCE DESIGN DESCRIBES HOW THE BUILDING SHOULD BE BUILT TO MEET ENERGY PERFORMANCE REQUIREMENTS

Energy Performance Design (project EPC) sets the requirement how building should be built if specific energy performance class should be reached. It ensures that energy performance goals are set and detailed since the building design stage.



ENERGY PERFORMANCE CERTIFICATION HELPS TO SET AND CORRECT THE COURSE OF BUILDING PERFORMANCE IN ITS LIFE CYCLE



THE PERFORMANCE OF THE BUILDING COULD BE EXPRESSED BY CALCULATING OR MEASURING THE PERFORMANCE

MEASURED

(Operational) rating

A methods that evaluates a building's **energy performance** based on:

Rely on built-in design and construction information. This method uses standardized conditions and calculation procedures to estimate the theoretical energy needs, without considering actual operational patterns.

CALCULATED (ASSET)

rating

Rely on actual energy consumption data obtained from direct measurements. It reflects real-world energy use, influenced by occupant behaviour, maintenance, and external influences.

Asset (calculated) rating Operational (measured) rating Both ratings No data

THE CONSTRUCTION SECTOR IS POSITIVELY IMPACTED BY BETTER UNDERSTANDING OF ENERGY PERFORMANCE CERTIFICATES



* î *

WILLINGNESS TO USE EPC IS INFLUENCED BY **MULTIPLE FACTORS**



REGULATORY COMPLIANCE COST OPTIMALITY IN PROMISED RESULTS **MARKET DIFFERENTIATION ACCESS TO INCENTIVES AND FINANCING** TRUST

WILLINGNESS TO **USE ENERGY** PERFORMANCE CERTIFICATES

DATA-DRIVEN DECISION MAKING

POSITIVE PUBLIC PERCEPTION

The key enabler for willingness to use the EPC is the trust that promised results will be delivered.

MAIN REASON OF EPC POPULARITY – ECONOMIC RATIONALE BASED ON COST OPTIMALITY

1. Cost-optimal calculations allow the identification of what should be minimum energy performance requirements:



2. Energy performance class and minimum energy performance requirements are aligned with costoptimal calculation results



It ensures that:

1. Obligation to reach specific energy performance class when building new or renovating existing building delivers cost-effective result.

2. The recommendations given by EPC are also cost-effective

THE EPC WAS BLENDED IN CONSTRUCTION AND REAL ESTATE SECTOR LEGISLATION IN EU AND EC COUNTRIES



TYPICAL REQUIREMENTS SET IN THE EU Member States AND EnC contracting parties LEGISLATION:

REQUIREMENT FOR PUBLIC BUILDINGS

The certificate has to be publicly showcased (initially for buildings >500m² later >250m²)

SELLING, RENTING OR LEASING THE PROPERTY

The information must be provided in the advertisement. And EPC must be added to the agreement documents

BEFORE AND AFTER THE RENOVATION

The EPC calculation procedures are used as a basis for investment planning and as a proof of achieved result

FOR NEW CONSTRUCTION BUILDINGS

To complete the construction process building has to be certified to show the compliance with requirements

THE RESULT OF ISSUING EPC SHOULD LEAD TO UNDERSTANDABLE DOCUMENT INFORMING THE CONSUMER



Examples of various EU countries:



IN LITHUANIA, EPC HELPED TO STIMULATE EE IMPROVEMENT IN NEW CONSTRUCTION AND RENOVATIONS



Lithuania

2,8 mln. Citizens 2,6 mln buildings - 235.3 mln. m²

- Requirements for building thermal properties since 1992
- EU member state since 2004
- The EPC system was introduced in 2007, that resulted in +354k of EPC in total, 30k in average annually

The sharp increase in numbers was due to mandatory EPC requirement when selling, renting or leasing the building or part of it.



THE RELATIVE NUMBER OF EPCs IS UNEQUALLY DISTRIBUTED OVER THE EU MEMBER STATES DUE TO IMPLEMENTATION DIFFERENCES AND LOCAL ASPECTS

Different market penetration is related to various implementation aspects and local context.

High penetration:

- The number of real estate transactions influences the number of issued EPCs. (UK)
- **Digitalised and automated process** of issuing the certificate (Belgium)
- The early introduction of EPC in the market (Denmark)

Low penetration:

- In Bulgaria, the complex ownership structures in multifamily buildings
- The country is relatively small, with a low total number of buildings (e.g. Malta and Estonia)



THE TECHNICAL INFRASTRUCTURE IS NEEDED TO ENSURE PROPPER OPERATION OF THE SYSTEM



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THE PUBLIC DATABASES ENSURES THE TRANSPARENCY AND QUALITY

Typically, in EU and EC countries EPC are stored in the centralized databases, ensuring that the information is publicly available.

Information in the public database must be validated by passing through quality control.

The public databases also serve another important purposes for quality control:

Collected data allows to perform benchmarking and performance monitoring over time.

The data in the database could be used to identify outliners and select them for detailed review due to the higher risk of poor-quality



EPC HELPS TO UNDERSTAND THE NATIONAL BUILDING STOCK AND ITS PERFORMANCE

ESTABLISH THE BRIGHTER PICTURE OF THE SITUATION IN THE BUILDING STOCK

Identifying Renovation Priorities: Pinpoint less energyefficient buildings/areas for prioritized renovations.

Tailoring Regional Strategies:

Address specific energy efficiency needs and challenges of different regions..

Protect Vulnerable Consumers:

Identify regions at risk of energy poverty and develop support measures.

Develop Renovation Strategies:

Forecast future energy demands and prioritize renovation areas.

Evaluate Policy Impact:

Monitor changes in EPC ratings to assess policy effectiveness

SUMMARY: KEY TAKE AWAYS

- THE BUILDING SECTOR IS THE LARGEST ENERGY CONSUMER IN TAJIKISTAN
- EVEN WITH LOW CARBON ENERGY SUPPLY ENERGY EFFICIENCY PROVIDES BENEFITS
- ENERGY PERFORMANCE CERTIFICATION SHOULD BE UNDERSTOOD AS RATING SYSTEM GIVING MARK FOR A BUILDING FOR THE PERFORMANCE
- ENERGY PERFORMANCE CERTIFICATES MAKE BUYERS AND OWNERS LIVES EASIER BY INFORMING THEM ABOUT THE STATE OF THE BUILDING
- ENERGY PERFORMANCE DESIGN DESCRIBES HOW THE BUILDING SHOULD BE BUILT TO MEET ENERGY PERFORMANCE REQUIREMENTS
- THE PERFORMANCE OF THE BUILDING COULD BE EXPRESSED BY CALCULATING OR MEASURING THE PERFORMANCE
- THE CONSTRUCTION SECTOR IS POSITIVELY IMPACTED BY BETTER UNDERSTANDING OF ENERGY PERFORMANCE CERTIFICATES
- MAIN REASON OF EPC POPULARITY ECONOMIC RATIONALE BASED ON COST OPTIMALITY
- THE RESULT OF ISSUING EPC SHOULD LEAD TO UNDERSTANDABLE DOCUMENT INFORMING THE CONSUMER
- THE RELATIVE NUMBER OF EPCs IS UNEQUALLY DISTRIBUTED OVER THE EU MEMBER STATES DUE TO IMPLEMENTATION DIFFERENCES AND LOCAL ASPECTS
- THE TECHNICAL INFRASTRUCTURE IS NEEDED TO ENSURE PROPER OPERATION OF THE SYSTEM
- EPC HELPS TO UNDERSTAND THE NATIONAL BUILDING STOCK AND ITS PERFORMANCE

ENERGY PERFORMANCE CERTIFICATION OF BUILDINGS – ROLE, KEY ELEMENTS AND EU BEST PRACTICES

THANK YOU FOR YOUR ATTENTION



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"Helping to Unlock the Value of Energy Efficiency and Sustainability for a More Resilient Future "



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