ENERGY EVALUATION EUROPE CONFERENCE 2025

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Ex-post evaluation of legislative framework for energy efficiency in buildings in Croatia within Better Regulation framework

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Content of presentation

- Background & motivation
- Croatian legal and policy framework for energy efficiency and energy efficiency in buildings
  - Scope of ex-post analysis: public sector lead-by-example
  - Scope of ex-post analysis: combining legislative and policy analysis
- Ex-post evaluation
  - Process overview
  - Results and recommendations
- Key takeaways and lessons learned

Context & motivation

- EU Better Regulation (BR): evidence-based policymaking
- Tools: ex-ante & ex-post evaluations, consultations, foresight
- Croatia adopted BR Act in 2024 (OECD accession reforms)
- Evaluation question:
  - Does EE legislation deliver results?

Croatian legal framework for EE in buildings

- Main legal acts for EE:
  - **Energy Efficiency Act** (OG nr. **127/14**, 116/18, 25/20, 32/21, 41/21, 40/25)
  - **Construction Act** (OG nr. **153/13**, 20/17, 39/19, 125/19, 145/24)
- These acts (and accompanying secondary legislation) meet the requirements of the following EU directives relevant for EE in buildings:
  - Directive (EU) 2018/2002 and 2012/27/EU on energy efficiency
  - Directive (EU) 2018/844 and 2010/31/EU on energy performance of buildings
  - Regulation (EU) 2018/1999 governance of Energy union and climate activities
- The transposition processes for new directives has started:
  - **Directive (EU) 2023/1791 on energy efficiency – transposition deadline: Oct 2025**
    - ✓ **New EE Act** -> Ministry of Economy
  - **Directive (EU) 2024/1275 on energy performance of buildings – transposition deadline: May 2026**
    - ✓ **New Act on EE in Buildings** -> Ministry of Physical Planning, Construction and State Assets

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Scope of ex-post analysis: public sector lead-by-example

EE Act

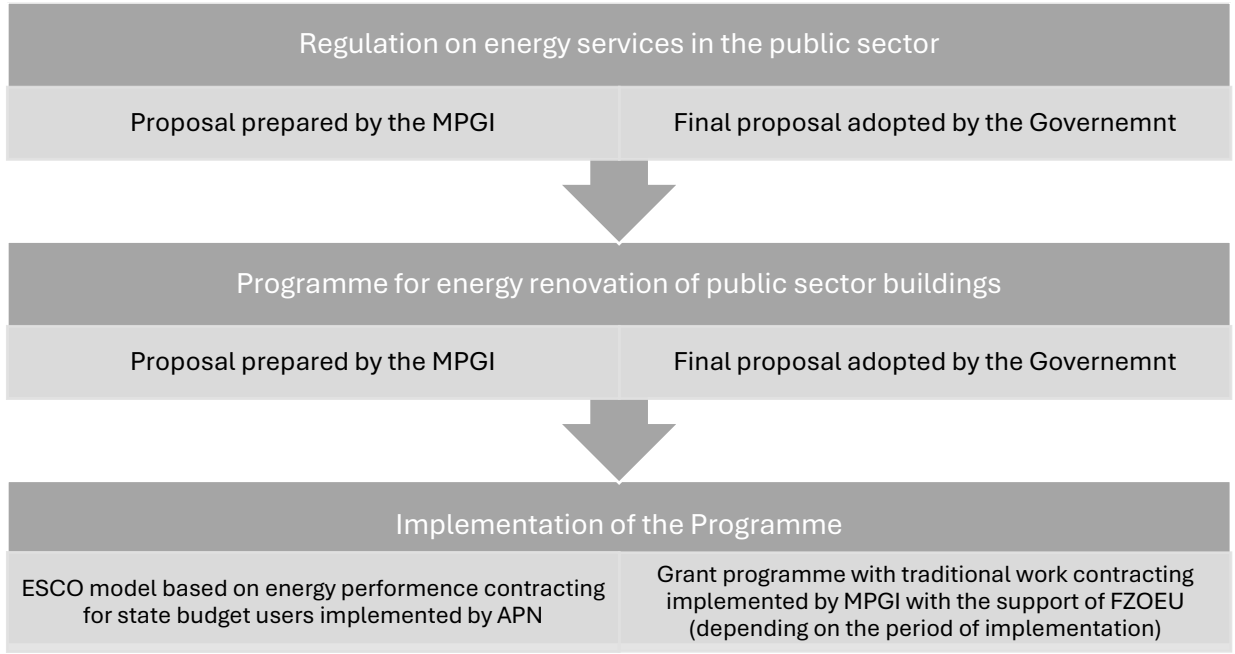
(Ministry of Economy - MINGO)

- Energy renovation of building definition
- 3% annual obligation for renovation of central government buildings (MPGI)
- Energy management system in public sector buildings
- ***Energy performance contracting (ESCO model) for renovation of public sector buildings (APN)***
- ***Energy renovation programme for public sector buildings (MPGI)***

Construction Act

(Ministry of Physical Planning, Construction and State Assets - MPGI)

- Energy renovation of building definition
- Technical requirements for EE in new and renovated buildings
- Energy performance certificates
- Long-term building renovation strategy until 2050 (LTRS)
- ***Energy renovation programmes***



Evaluation questions and hypotheses

- Have the MPGI and APN implemented their legal obligations in the optimal manner, i.e. have they complied timely and efficiently to attract the public sector entities to renovate their buildings and to attract companies to transform their business to the ESCO model?
  - Process evaluation
- What are the results of undertaken activities, in terms of savings achieved, ESCO market development, recognition of and interest in energy renovation and EE in general among public sector entities? Has the compliance with the EU policy requirements (EED and EPBD specifically) been ensured?
  - Results evaluation
- Did these legal provisions contribute to long-term targets for the decarbonisation of national building stock? Would the impacts be the same if these provisions and related regulations and programmes were not in place?
  - Impacts evaluation

- Hypothesis no. 1 – Implementation of selected legal provisions was successful and contributed to long-term targets for achievement of energy efficient and decarbonised building stock
- Hypothesis no.2 – New legal provisions should be more specific in prescribing the obligation to the public sector entities to renovate their buildings and to implement an energy service model

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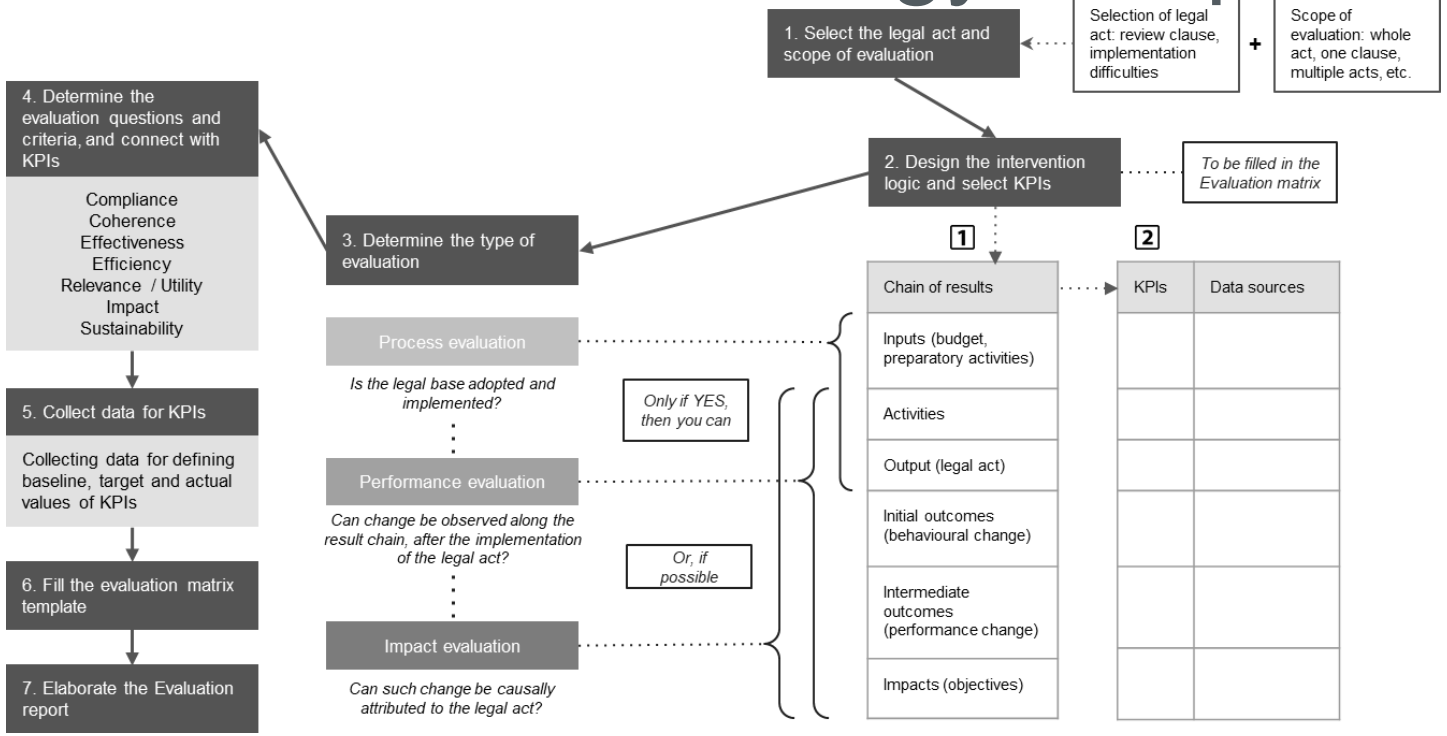
Ex-post evaluation methodology and process



- **Intervention logic**
- **Evaluation questions** for each evaluation criteria
- **KPI**, data sources, values

- Desktop research of data bases and other available sources
- Meetings / interviews
- Survey among public sector

- Focus groups (depending on the survey results)
- Stakeholder workshop (discussion of preliminary evaluation results)

- Consolidating the main findings
- Preparing Evaluation form as prescribed by Regulation

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Intervention logic

Stage in the intervention logic		Key performance indicator (KPI)	Data source
Inputs (I)	I.1 Human resources	Number of employees (real vs. needed; % of staff needed)	Ministry, Agency, EE Fund (workload analysis)
	I.2 Financing for implementation	Allocated budget (EUR); Share in the total budget needed according to Programme (%)	Budgets of Ministry, Agency, EE Fund
	I.3 Financing for renovation	Used budget (EUR)	Budgets of Ministry, Agency, EE Fund; SMiV
Activities (A)	A.I Preparation of the Programme	Time between start of drafting to adoption (months); Number of included stakeholders	Ministry (internal records and assessment)
	A.II Implementing ESCO model	Number of workshops for mobilising interest, expressions of interest, feasibility studies, public procurements, concluded contracts, fulfilled contracts, terminated contracts	Agency (internal records and assessment)
	A.III Monitoring and evaluation	Number of projects recorded in SMiV and ISGE Issued penalties	SMiV, ISGE, Agency (internal records and assessment)
Outputs (OP)	OP.1 Public sector buildings renovated	Number of renovated buildings; Energy savings achieved (kWh/a; cumulative)	SMiV eObnova
	OP.2 Cost-effectives of renovation	(€/kWh) in ESCO model vs. traditional grant model	SMiV
Outcomes (OC)	OC.1 Awareness of the public sector	Number of energy service contracts not related to the Programme	Electronic system for public procurement (EOJN)
	OC.2 Development of ESCO market	Number of companies offering energy services/energy performance contracting	Electronic system for public procurement (EOJN)
Impacts (IM)	IM.1 Contribution to decarbonisation targets	Achieved vs. targeted renovation of public sector buildings (m2; %)	SMiV LTRS
	IM.2 Contribution to energy savings targets	Achieved vs. targeted cumulative energy savings for public sector buildings (kWh; %)	SMiV, NECP NECP report 2025

Ex-post evaluation plan

Process evaluation

- Compliance
  - ✓*Is the legal base adopted and implemented?*
  - ✓*Timely? With sufficient capacities?*

Performance evaluation

- Effectiveness
  - ✓*What were the cost of energy renovation per m^2, per kWh and t_{CO2} saved?*
- Efficiency
  - ✓*What results have been achieved in terms of renovated building and improved EE? Are they in line with targets?*
  - ✓*How many public bodies participated? How many have implemented energy service model outside the Programme?*
  - ✓*How many ESCOs participated?*
- Coherence
  - ✓*Are provisions in line with EU policies and legislation?*
- Relevance
  - ✓*What level of significance the provisions hold for the target group, and how effectively does it cater to their needs?*

Impact evaluation

- Impact
  - ✓*What is the contribution of the Programme to the targets set in LTRS?*
  - ✓*What is the contribution of the Programme to the targets set in NECP?*
- Sustainability
  - ✓*What is the probability that the provisions will be relevant in the long-term?*

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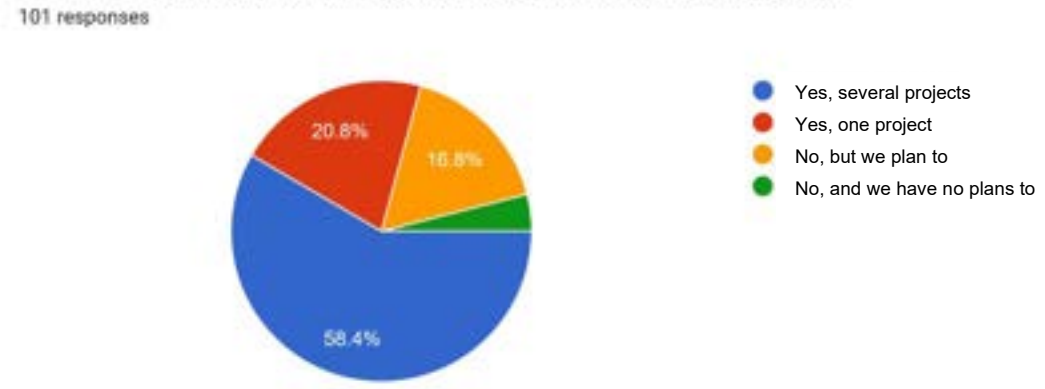
Stakeholder consultations

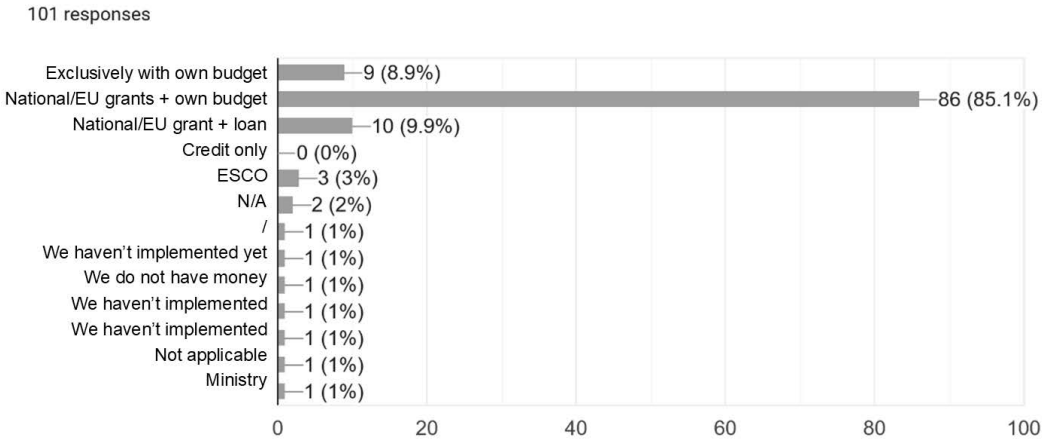
	MPGI	APN	FZOEU	Other public bodies	Owners of public sector buildings	ESCOs construction companies
Drafting the proposal of the Regulation	Responsible	Heavily involved		MFIN – consulted (public budgeting and accounting issues)	Informed	
Drafting proposal of the Programme	Responsible	Heavily involved	Consulted (national funding)	MRRFEU – consulted (EU funding)	Informed	
Implementing the Programme – grant based	Responsible		Heavily involved (intermediate body)	HBOR – loan to public sector entities	Beneficiary	Works providers
Implementing the Programme – ESCO based		Responsible	Involved (grant component)		Beneficiary	Service providers

2. Have you implemented energy renovation projects of public buildings so far?



No control group possible!

3. How did you finance energy renovation projects (Choose all applicable)



Key takeaways:

- High (huge) preference for grants
- ESCO more suitable for large central buildings
- limited ESCO market in buildings but stronger in public lighting

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Ex-post evaluation results

Process evaluation

- Well established procedures
- The signing of the contract itself is identified as most critical part of the process
  - ✓Negative consequences on the perception of the ESCO model and commitment of the public sector by energy service providers

Performance evaluation

- The specific objective of the EE Act has been largely achieved (energy savings, renovation outputs, and market development)
- The key achievements include:
  - ✓**896 buildings** renovated under the Programme, encompassing over **1.65 million m²** of floor area
  - ✓Cumulative energy savings reached 1,520 GWh, and emission reductions exceeded 70,000 tonnes of CO_2 per year
  - ✓The ESCO market in Croatia has been significantly stimulated, with more than 20 providers active and 534 energy service contracts implemented even beyond the formal Programme
- Data on costs of saved energy demonstrate that the regulation not only delivered results but did so **cost-effectively**, especially when leveraging private sector expertise and risk-sharing through energy performance contract

Impact evaluation

- Contribution to NECP targets – savings in 2021-2024 31% of national target
- Contribution to LTRS targets – 100,000 m^2 renovated annually on average (290,000 m^2 targeted) - > significant effect expected by mid 2026 and finalisation of RRP
- The provisions of the EE Act will remain not only relevant but fundamental to national energy and climate policy in the years ahead (EED & EPBD)

No control group possible!

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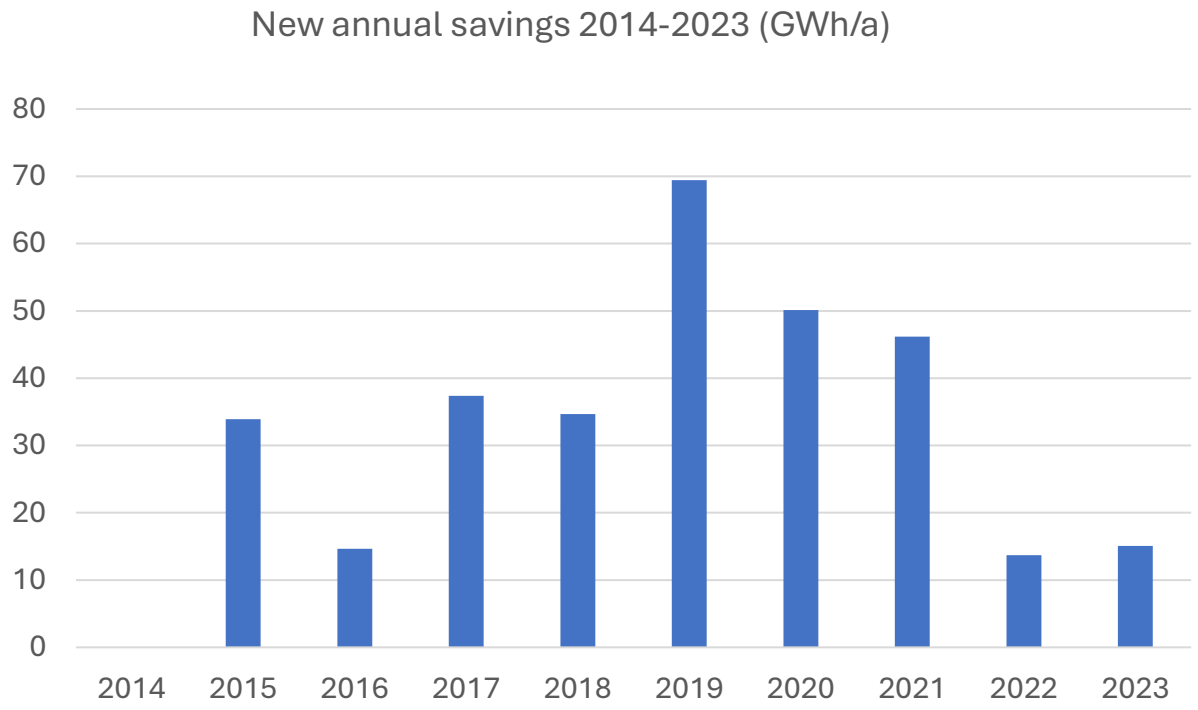
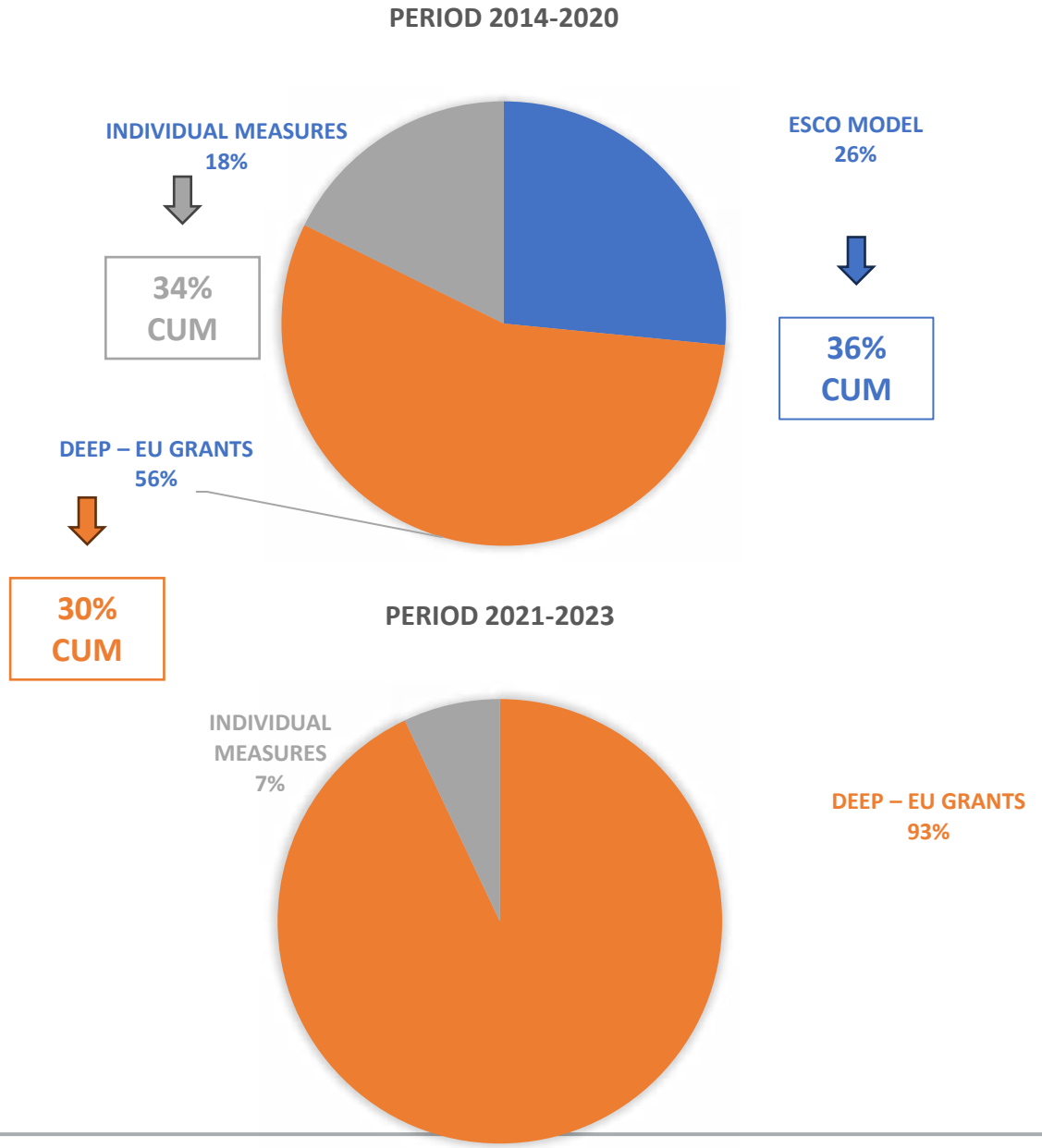
Achieved results





National target for public buildings 2014-2020 770 GWh (2,77PJ) -> 93% achieved

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Non-binding recommendations and conclusion of ex-post evaluation

1. Introduce a legal obligation for public sector entities to renovate buildings (EED, art 6)
2. Introduce a legal obligation for energy service assessments for large public buildings (EED, art 29)
3. Strengthen the role of ISGE and obligation for data delivery by public sector
4. Formalize the role of energy performance contracts in meeting minimum energy performance standards (EPBD, art. 8 and 9)
5. Ensure institutional responsibility and support mechanisms (e.g. one-stop-shops)
6. Utilise Energy Efficiency Obligation Scheme (EEOS) to stimulate energy services in renovation of public sector buildings

The EE Act provisions have laid a strong and adaptable foundation, but to remain effective and compliant in the long term, strategic legal upgrades and institutional reinforcements will be essential. Their core principles - structured renovation programmes, energy performance contracting, and public sector leadership - will remain central to Croatia's decarbonisation pathway well beyond 2030, especially as the EU advances toward its 2050 climate neutrality goal.

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Key takeaways and lessons learned

- On ex-post evaluation within BR framework
  - Ex-post evolution – often a missing link in the legislative/policy making cycle
  - Clear BR framework facilitates the process – Guidelines and Evaluation form template provide clear and understandable support in the analysis
  - Especially needed in policy areas that are governed by EU policy
    - Provide not only the answer what has been done, but also what could have be done (better) and what can be done (better) in the future:
      - inputs in both national and EU legal processes (positions during new directives proposals and negotiations at EU level)
      - inputs in national policy design (enhancement of policy measures to deliver targets)

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Thank you for your attention!

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