Towards 2030 and Beyond

Assessing Future Energy Efficiency Policies and Trends Using ODEX Methodology

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Goals and Objectives

Duration (June 2024 – June 2027)

Improve Capacity for Energy Savings Calculation

Enhance the ability of EU Member States to calculate and report energy savings, particularly under the updated Energy Efficiency Directive (EED).

Develop the Knowledge Hub

Create a central repository of methodologies, tools, and best practices to streamline energy savings calculations.

Facilitate Peer-to-Peer Cooperation

Encourage cooperation among nine Member States and six additional countries, focusing on policy improvements and knowledge sharing.

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Why This Matters

- Energy costs and climate pressures make efficiency a top political and economic priority
- Across the EU, there is still a **large gap between potential and realized energy savings**
- Energy efficiency is often called the **“first fuel”** because it is cost optimal and fastest to deploy
- Current monitoring systems are often **fragmented and inconsistent across countries**
- A **harmonized, transparent framework** is needed to track and compare progress across EU member states fairly

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What if we do nothing?

- Without policies, **Slovenia would use 67% more energy by 2050** compared to current plans
- For **Croatia**, the no-policy scenario leads to an **88% increase by 2050**
- These counterfactuals demonstrate the scale of avoided energy use thanks to policy
- The numbers show that **efficiency is not optional but critical for climate and security goals**
- **ODEX helps to quantify these impacts** in a way that policymakers can rely on

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Connecting Data with Reality

Source: https://apollo-magazine.com/wp-content/uploads/2020/10/5f5b5cacbc90d-Bild-HF-PM-1-scaled.jpg?w=730

Source: https://c8.alamy.com/comp/P3X74E/berlin-germany-vacant-fallow-ground-in-the-glasblaeserallee-on-the-stralau-peninsula-in-berlin-friedrichshain-in-the-background-new-buildings-for-apartments-P3X74E.jpg

Connecting Data with Reality

- While visiting Berlin, I noticed a **contrast between modern retrofitted buildings and old ones**
- This visual contrast raised a simple question: how do we measure real efficiency gains?
- Many existing indicators, like energy use per GDP, **hide more than they reveal**
- Develop a methodology that would capture **actual technological and behavioral improvements**
- **ODEX** has been recognized as a credible and practical solution

ODEX in a Nutshell

- The ODEX index is a **recognized EU-wide tool developed under ODYSSEE-MURE** initiative
- It tracks **sector-specific progress** in industry, transport, households, and services
- Indicators are expressed in **physical activity terms** (kWh/m², liters/100 km, etc.) rather than GDP
- This separation allows us to **distinguish technological advances from structural shifts**
- The result is a set of comparable, harmonized **efficiency trends** across Member States

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Our Contribution

- ODEX has been **extended beyond its traditional retrospective use** (ex-post)
- ODEX has been **applied to future-oriented (ex-ante) projections** to test policies forward in time
- A dual framework for both evaluation and foresight in energy efficiency has been developed
- Slovenia and Croatia were chosen as case studies due to **available data** and direct **contact with national energy balance experts**
- This work provides policymakers with a more **robust basis** for planning and **evaluation of future energy efficiency trends**

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Methodology Highlights

- ODEX is bui… consumption indicators
- Each subse… l energy use
- A three-yea… lity and anomalies
- We use bot… **al ODEX** (pure technologic…
- Input data … **energy models (MESAP, LE…**

		2022	2030	2040	2050
Industry					
Food, beverage and tobacco	[M EUR 2015]	NA	NA	NA	NA
Textile	[M EUR 2015]	NA	NA	NA	NA
Wood	[M EUR 2015]	NA	NA	NA	NA
Paper, pulp and printing products	[M EUR 2015]	100	105	108	111
Chemicals	[M EUR 2015]	100	112	117	121
Non-metallic minerals	[M EUR 2015]	100	114	120	126
Primary metals	[M EUR 2015]	100	91	108	109
Machinery & metal products	[M EUR 2015]	NA	NA	NA	NA
Transport vehicles	[M EUR 2015]	NA	NA	NA	NA
Other manufacturing industries	[M EUR 2015]	100	130	149	165
Mining and construction	[M EUR 2015]	100	137	161	179
Mining	[M EUR 2015]	NA	NA	NA	NA
Construction	[M EUR 2015]	NA	NA	NA	NA
Total industry	[M EUR 2015]	100	115	127	135
Transport					
Cars	[Mvkm]	23.4	25.4	24.7	23.9
Buses	[Mckm]	3.15	5.99	6.89	7.78
Motorcycles	[1000 veh]	155.1	172.4	166.6	167.6
Trucks	[Mvkm]	10.1	11.3	12.2	13.0
Rail	[Mtkbr]	13.4	20.4	22.8	25.3
Households					
Surface area	[Mm2]	67.6	71.6	74.5	77.4
Number of dwellings	[000 units]	792	820	831	842
Services					
Floor area	[Mm2]	24.74	28.99	35.34	43.07

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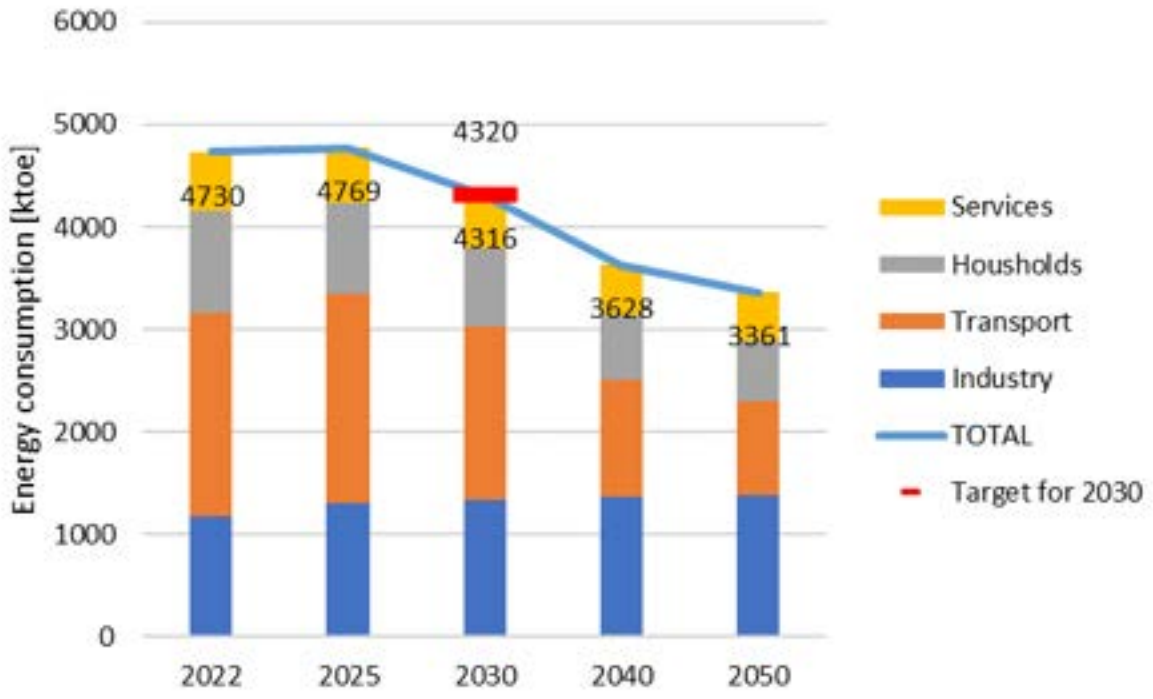
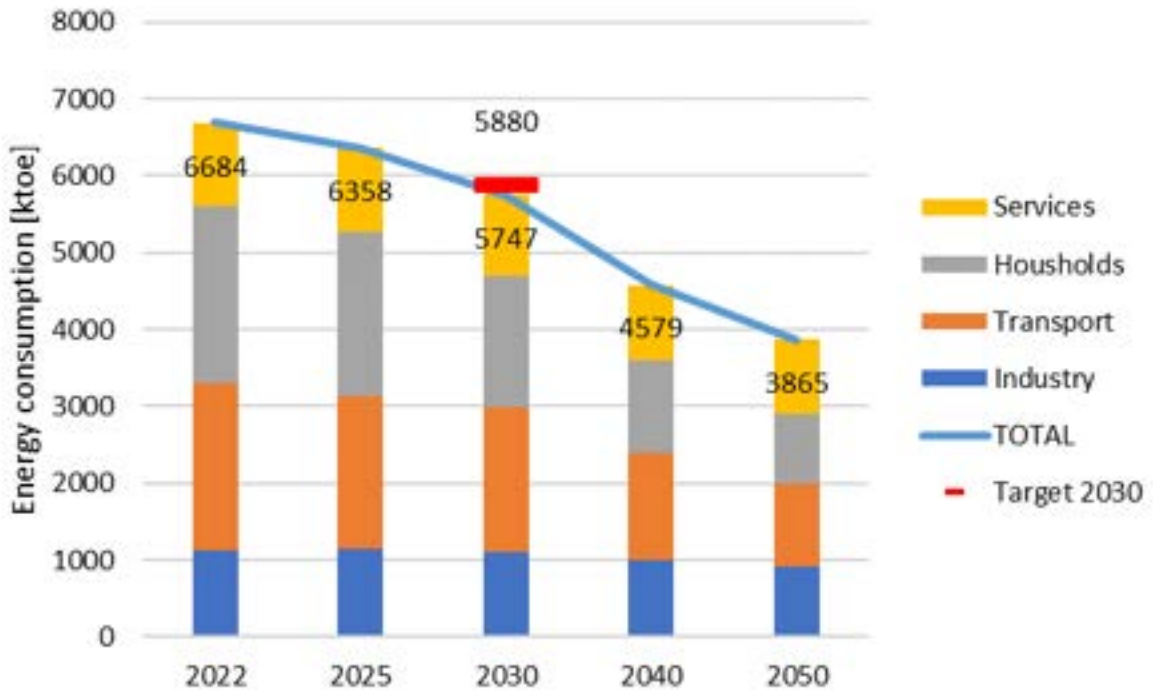
Slovenia vs. Croatia: Energy Use

Slovenia

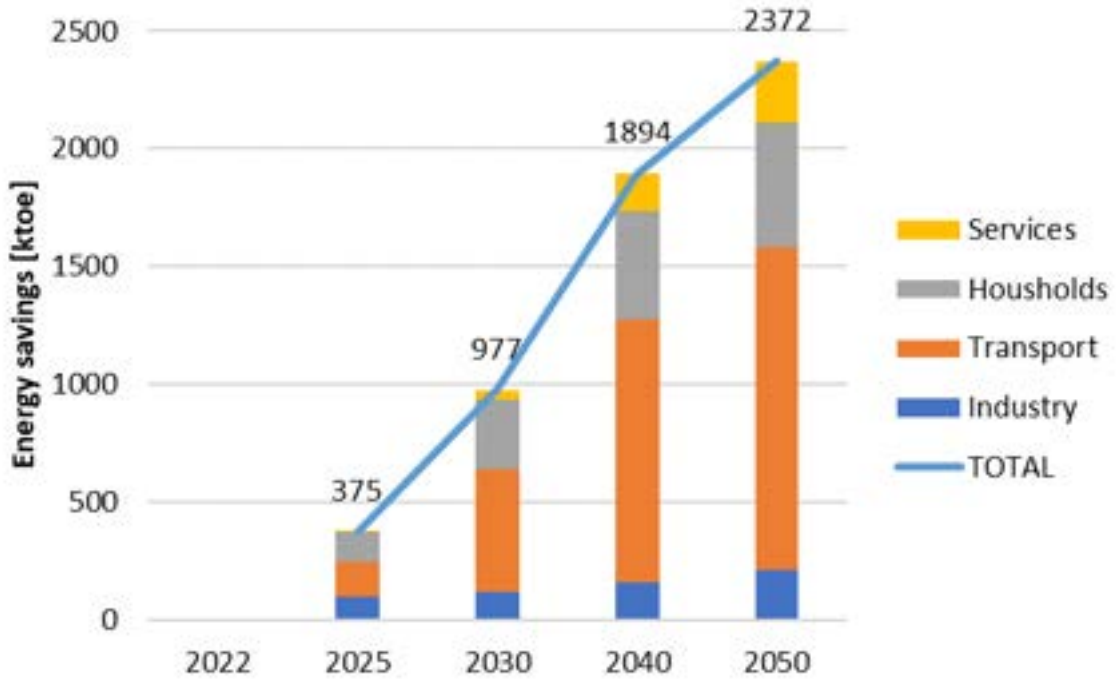


Croatia

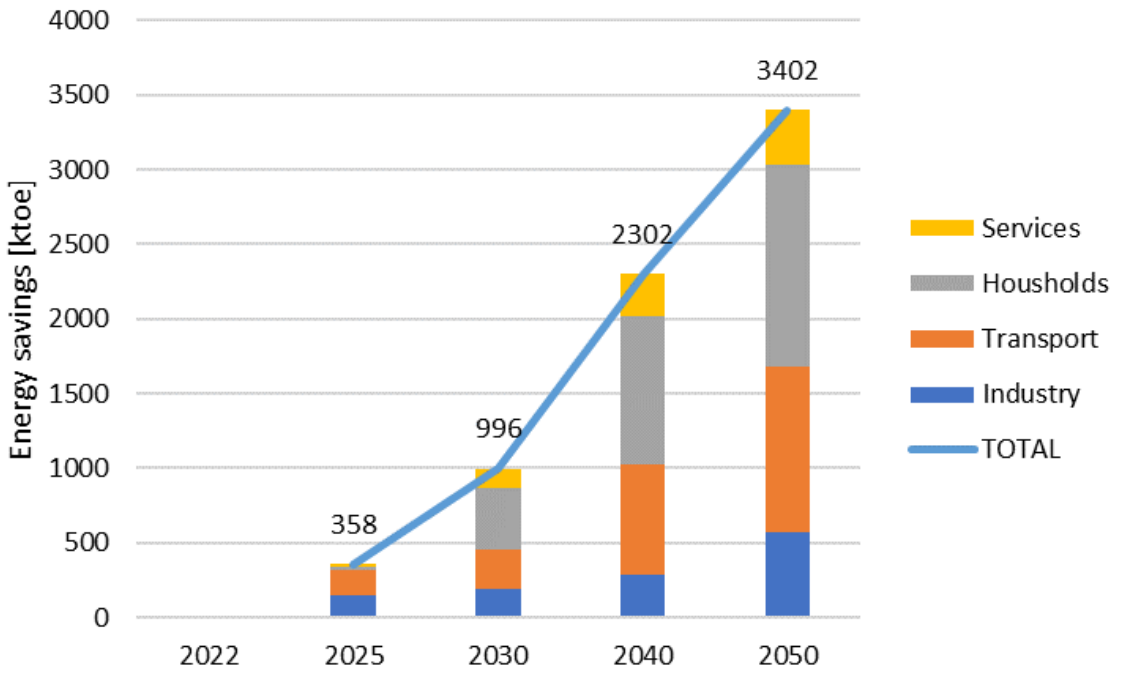


Slovenia vs. Croatia: Energy Savings

Slovenia



Croatia



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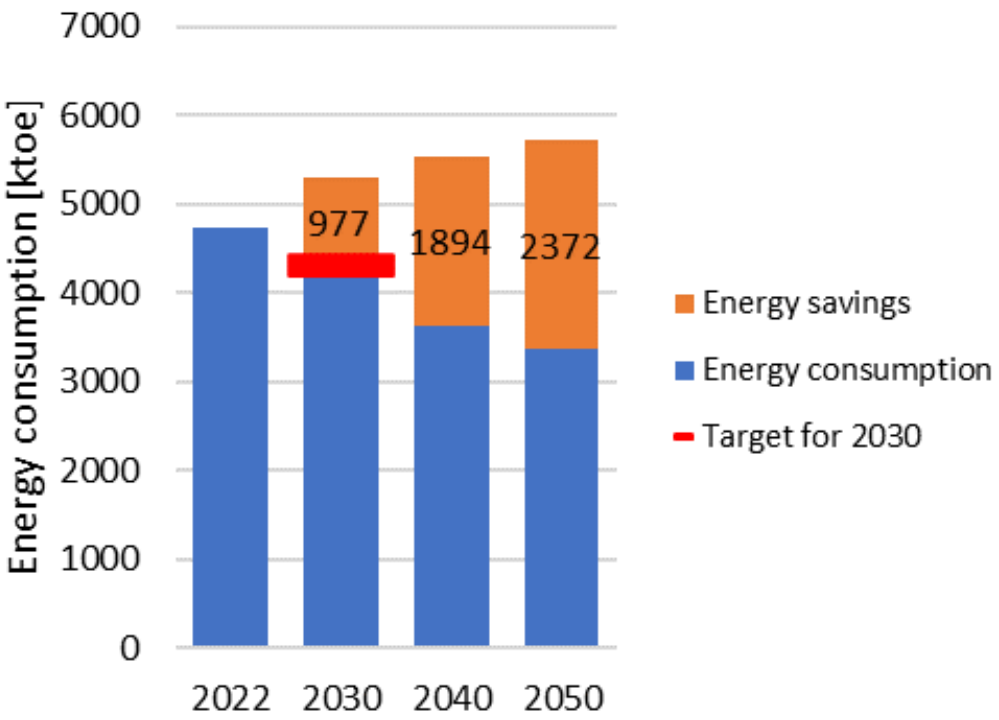
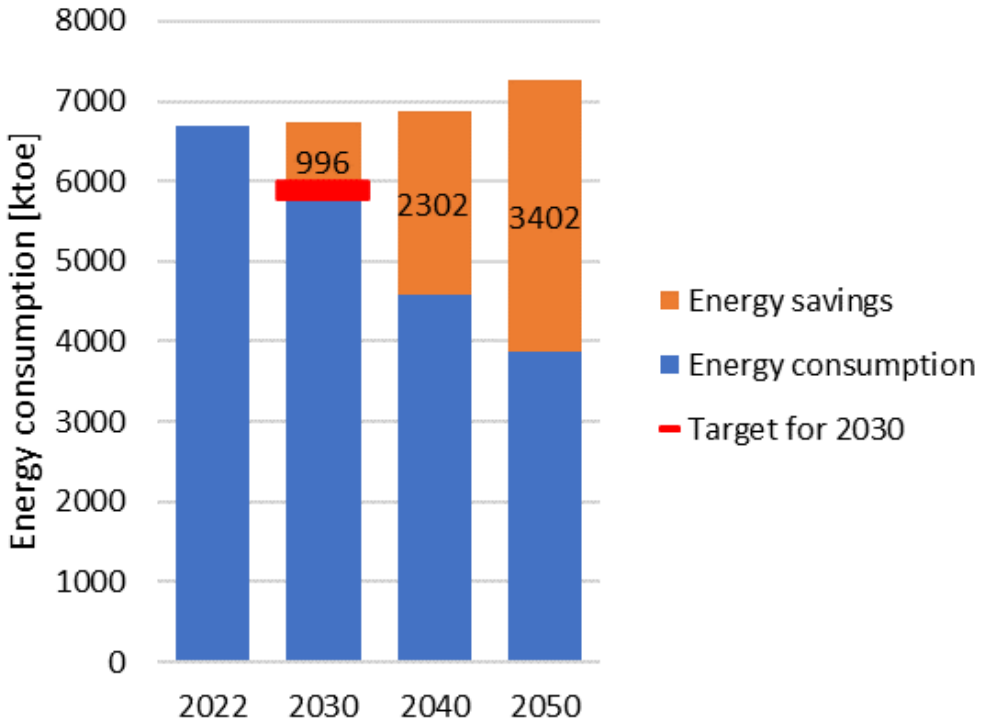
Slovenia vs. Croatia: With/Without Policy

Slovenia

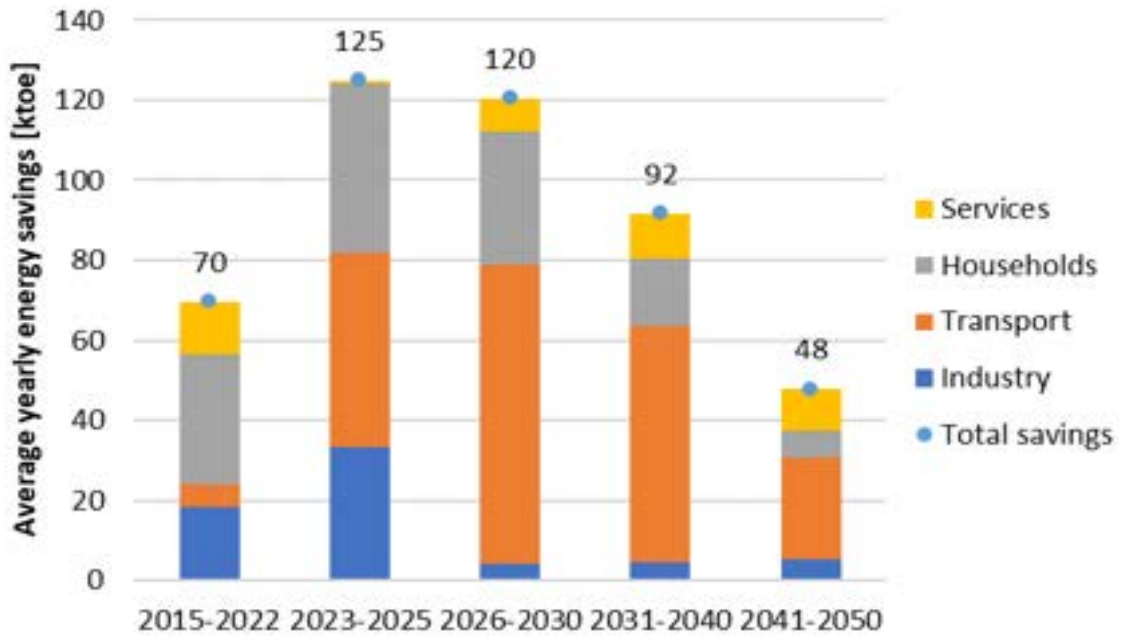


Croatia

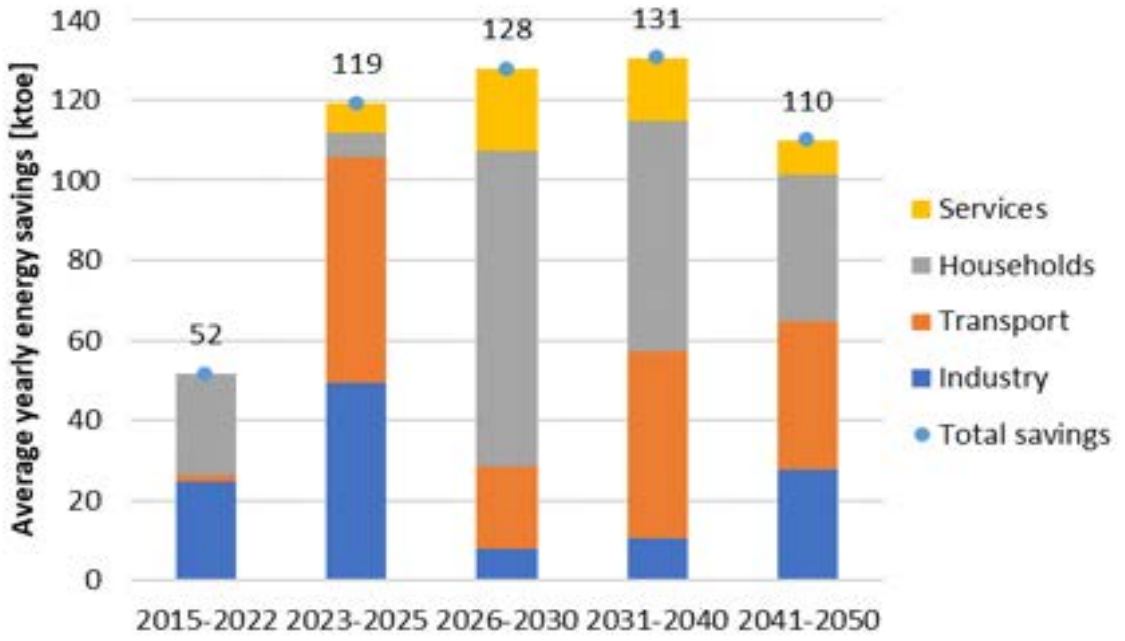


Slovenia vs. Croatia: Energy Savings [avg/y]

Slovenia



Croatia



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Key Takeaways

- ODEX is a **credible and harmonized framework for energy efficiency evaluation**
- The dual approach allows us to **bridge historical performance with future scenarios**
- Slovenia and Croatia illustrate **different sectoral strengths and weaknesses**
- Policies clearly work, but the **level of ambition must rise further to achieve the newly proposed 2040 goals**
- **Data gaps and inconsistencies** remain a major barrier to EU member states comparability

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To Go Further

- The full paper contains detailed charts, sectoral breakdowns, and methodological notes
- Future research will have to address **rebound effects, digitalization, and behavioral changes**
- Proposed methodology can be applied to an **EU-wide monitoring framework** under the Energy Efficiency Directive
- There is potential for application in other Member States and sectors
- **We invite collaboration**: let's exchange experiences, explore new applications, and work together to expand this research

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Project partners

Thank You

Get in touch for more information!

Project coordinator – Jiří Karásek, SEVEn

All project reports will be available for download on the streamSAVE+ website
www.svn.cz/streamsaveplus

And the platform
streamsave.flexx.camp/

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