Better anticipating future trends

Insights from streamSAVE+ project:

Assessing Future Energy Efficiency Policies and Trends Using ODEX Methodology

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streamSAVE+ Dialogue Workshop #02

Streamlining Energy Savings Calculations

'Data for energy savings calculations: insights from key databases at EU and national level'

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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

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What if we do nothing?

- Without projected efficiency measures, final energy consumption in 2040/2050 would be dramatically higher: **Slovenia +71%, Croatia +88%, Lithuania +33%, Belgium +56% and Greece +37%**
- The gap between policy and no-policy scenarios widens over time, becoming **most pronounced after 2040**
- **Transport electrification** and **residential renovation** are the main drivers of avoided energy use
- In smaller economies (e.g. Croatia and Slovenia), the relative impact of efficiency policies is particularly strong
- **Energy efficiency policies** determine long-term energy demand and **are essential for meeting climate and security objectives**

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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 VA or 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

Our Contribution

- ODEX has been **extended beyond its traditional retrospective use** (ex-post)
- The innovation lies in **applying ODEX to projected policy scenarios (ex-ante)**, allowing direct comparison between historical performance and planned transformation
- 5 EU countries (Slovenia, Croatia, Belgium, Lithuania, Greece) 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

Data sources include:

- **ODYSSEE/MURE** database
- National Energy and Climate Plan (**NECP**s)
- **National energy modelling assumptions**
- **Activity data** very difficult to obtain
- **External experts** do the modelling

		2022	2030	2040	2050
Industry					
Food, beverage and tobacco	[M EUR 2015]	1476	1987	2290	2854
Textile	[M EUR 2015]	372	456	477	533
Wood	[M EUR 2015]	316	392	452	564
Paper, pulp and printing products	[M EUR 2015]	519	451	519	647
Chemicals	[M EUR 2015]	394	530	489	457
Non-metallic minerals	[M EUR 2015]	626	479	529	629
Primary metals	[M EUR 2015]	74	64	67	76
Machinery & metal products	[M EUR 2015]	1974	1909	2445	3351
Transport vehicles	[M EUR 2015]	332	318	428	609
Other manufacturing industries	[M EUR 2015]	596	764	776	837
Mining and construction	[M EUR 2015]	2868	3254	3751	4675
Mining	[M EUR 2015]	95	210	242	301
Construction	[M EUR 2015]	2773	3045	3509	4374
Total industry	[M EUR 2015]	9545	10604	12223	15233
Transport					
Cars	[Mvkm]	22.6	22.5	22.2	23.3
Buses	[Mckm]	0.3	0.2	0.2	0.2
Motorcycles	[1000 veh]	155.7	158.5	162.5	163.1
Trucks	[Mvkm]	5.0	4.7	4.8	4.9
Rail	[Mtkbr]	10.2	10.2	10.2	10.2
Households					
Surface area	[Mm2]	146.2	130.0	134.3	138.9
Number of dwellings	[000 units]	1650	1436	1465	1498
Services					
Floor area	[Mm2]	76.7	84.8	93.9	101.8

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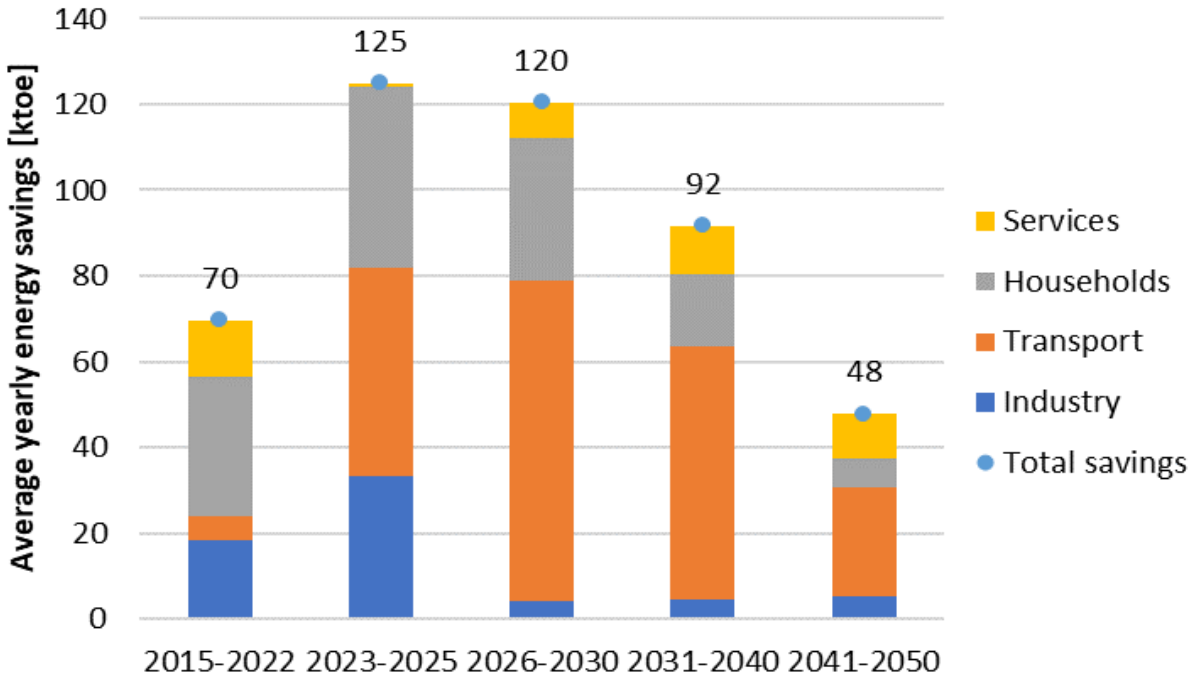
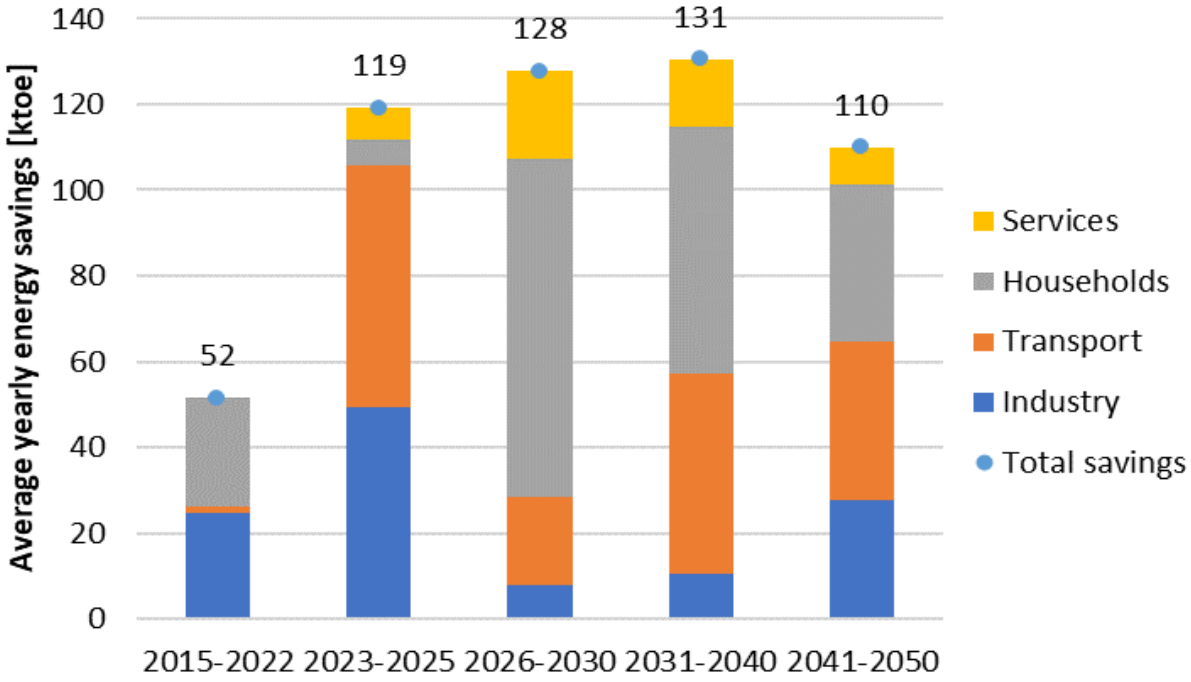
Slovenia vs. Croatia: Energy Savings [avg/y]

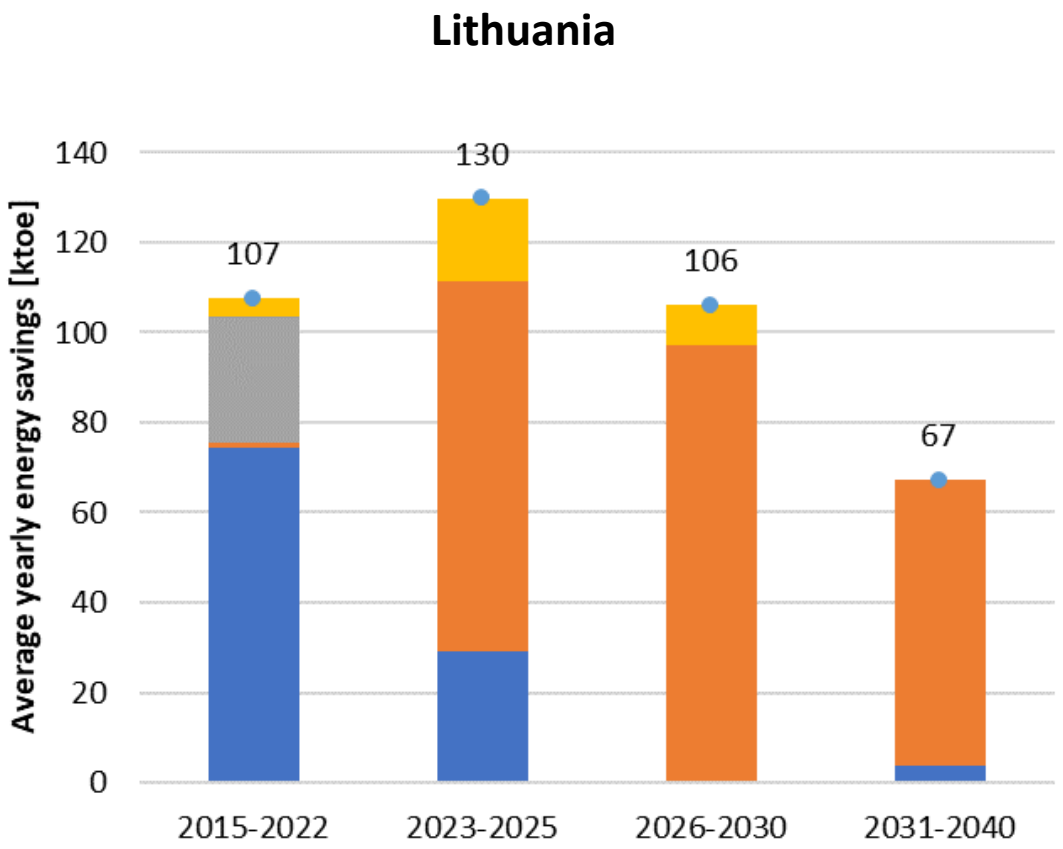
Slovenia

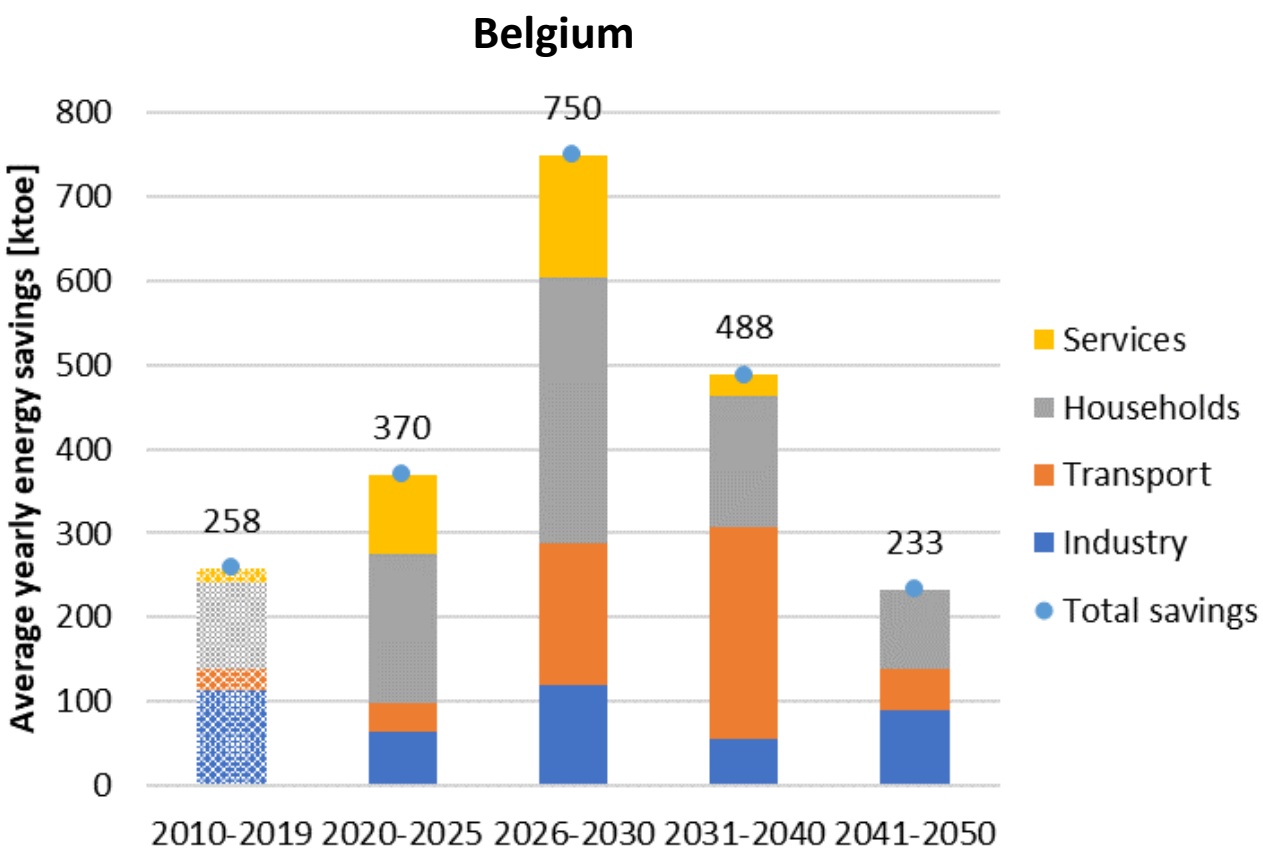


Croatia

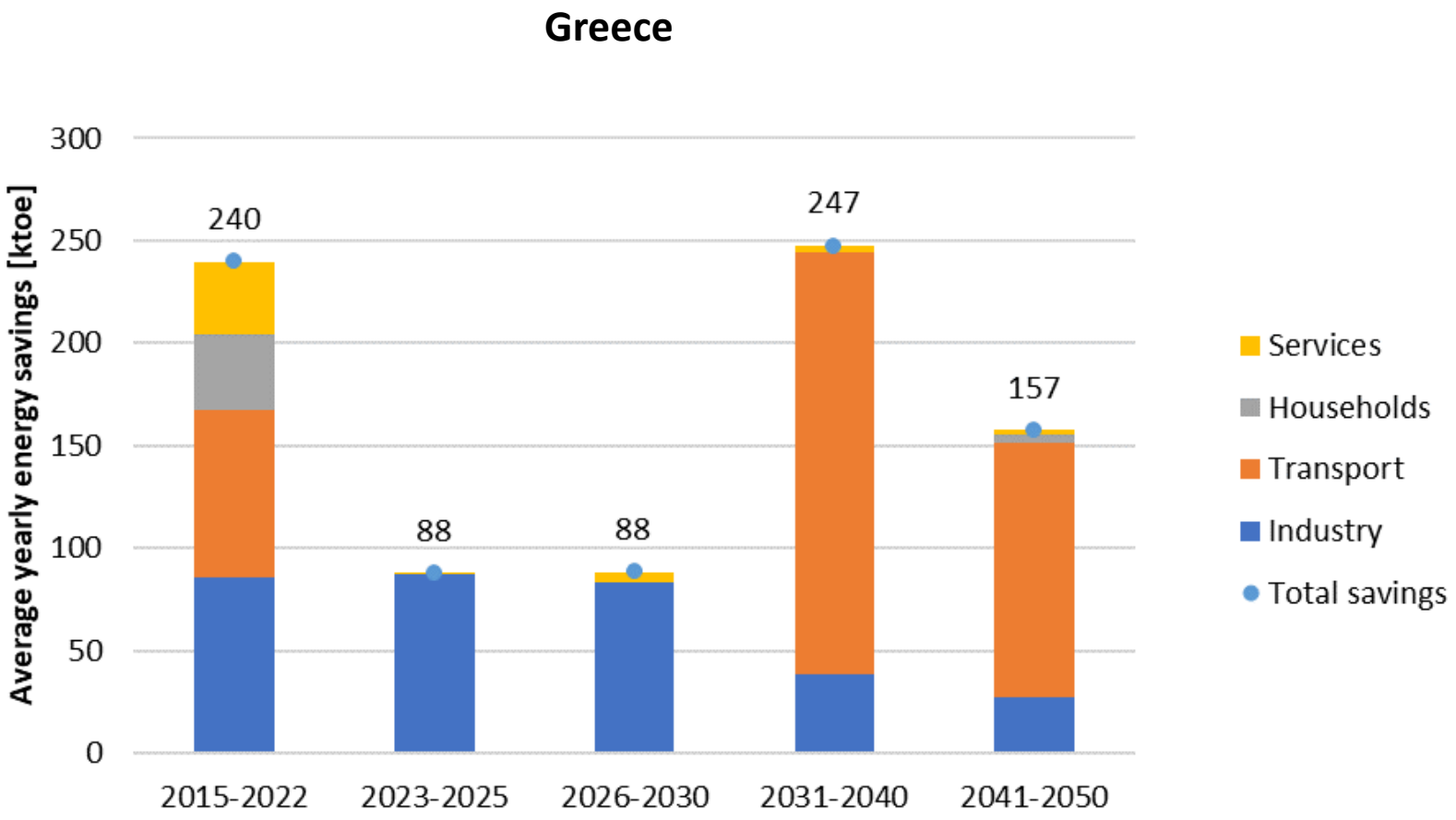


Lithuania vs. Belgium: Energy Savings [avg/y]

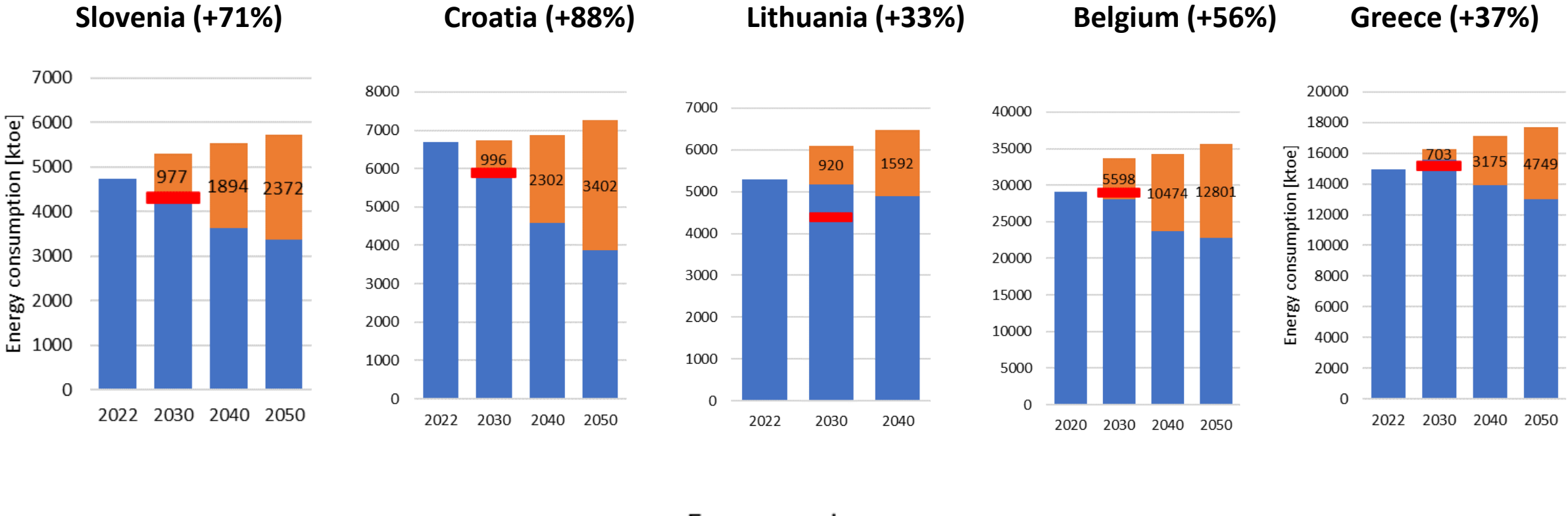




Greece: Energy Savings [avg/y]



Slovenia vs. Croatia: With/Without Policy



Executive Summary: Achieving EU climate goals requires a structural break from the past.

The Goal

All five analysed countries project compliance with 2030 Article 4 targets. However, the buffer is narrow—implementation must be flawless.

The Driver

Transport and Households are the primary engines of of future savings. Transport savings are heavily back-loaded to the 2030–2040 period.

The Reality Check

Future annual savings must be ~2x higher than historical averages (2015–2022). The era of 'low-hanging fruit' is over.

The Tool

The technical ODEX indicator is essential. It filters out economic noise (e.g., recessions) to reveal true technological progress.

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**
- Case studies 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 challenge to EU member states comparability

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To Go Further

- Research 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 assessment framework** under the Energy Efficiency Directive taking into account NECPs projections
- 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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To Go Further

Energy Efficiency (2025) 18:107
https://doi.org/10.1007/s12053-025-10399-x

RESEARCH

Check for updates

Towards 2030 and beyond: assessing future energy efficiency policies and trends using ODEX methodology

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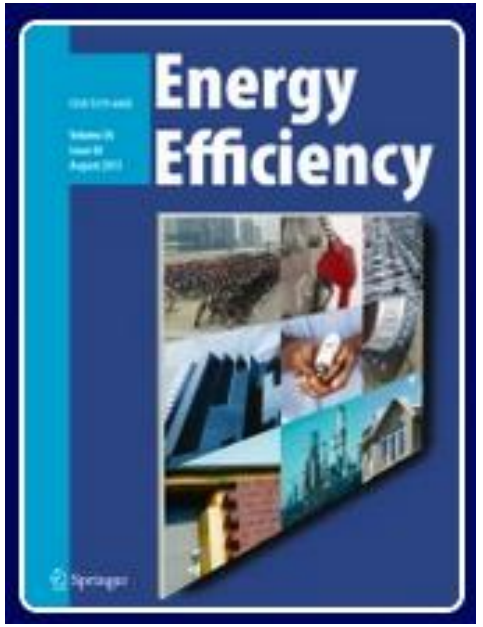

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Project partners

Thank You

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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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