

ODYSSEE database : energy savings calculation through top- down indicators

StreamSAVE+ Dialogue Workshop #02

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Data Coverage

Energy consumption data by energy carrier, sector and end-use and demand drivers

- Half energy consumption data and half non energy data
- 2/3 of data from horizontal sources (mostly Eurostat), 1/3 from national sources

Energy efficiency and CO2 indicators at macro or sectoral levels (200 to 300 indicators by country): from simple indicators of specific consumption/emission to advanced indicators, such as energy savings.

Temporal and geographical coverage

1990-2023 (from 2010 for most EnCs); 2024 for EU countries (from Eurostat + estimates for detailed indicators)

- 37 countries, EU average - Data collected in an Excel template and published in an online data base : harmonized time-series, scopes and definitions through a standardized template and data collection guidelines

Access

Free access to EU ministries, EU public universities and EU-funded projects – Accessible via paid subscription for other users.

ODYSSEE database update cycle for 2026



2024 Eurostat data to be updated in February- March for EU MS and the EU, in July for EnCs

2024 detailed national data to be published in October for EU MS and the EU ; in December for EnC countries

2025 early estimates to be published in November for all EU MS and the EU

KEY INDICATORS



A selection of around 30 key energy efficiency indicators by sector developed within the ODYSSEE MURE project from 2000 until 2024.

MARKET DIFFUSION



Showing the market diffusion of energy efficient technologies and practices as well as end-use renewables in the household, services and transport sector

DECOMPOSITION



Explaining the variation in energy consumption over a given period through a **decomposition** into different explanatory **effects**.

CO2 DECOMPOSITION



Explaining the variation in CO2 emissions from fuel combustion over a given period through a **decomposition** into different explanatory **effects**

COMPARISON



Enabling comparison of energy efficiency performance by sector between reference countries for the last year available.

ENERGY SAVING



Compiling trends and targets for primary and final energy consumption as well as energy savings.

ODYSSEE database and tools

Website analytics at end of December 2025:

- 2,527 active users; 5,000 database views.
- Most viewed tools: Key indicators (1st position); Decomposition (2nd position);
- Most viewed publications: Sectoral profiles (Transport)

The screenshot displays the ODYSSEE-MURE website interface. At the top, there is a navigation bar with the Enerdata logo, the site name 'Odyssee', and various utility links like 'UPDATE STATUS', 'HOW TO USE', 'OPTIONS', 'SUPPORT', and 'TERMS OF USE'. A user profile section shows 'Welcome Zineb Exit'. Below the navigation bar is a horizontal menu with icons for 'MACRO', 'INDUSTRY', 'TRANSPORT', 'HOUSEHOLDS', 'SERVICES', and 'CO2'. The main banner features a satellite-style image of Europe with the text 'Welcome to the Odyssee database' and 'The EU database on energy efficiency data & indicators'. A paragraph below the banner describes the database's history and support. A 'Key Features' section highlights three main areas: 'Database' (Build your own query), 'Odyssee data tools' (More data tools available on the website), and 'Odyssee publications' (Access publications on energy efficiency trends and policies). On the right side, there is a 'Partners' button and a 'ODYSSEE-MURE' header with a secondary navigation menu (Overview, Tools, Publications, Q&A, Updates, Contact). Below this is a section titled 'ODYSSEE PROJECT' with a sub-section 'ABOUT THE ODYSSEE DATABASE' and a 'ODYSSEE DATABASE' box containing a globe icon. At the bottom, a horizontal bar lists six categories: 'KEY INDICATORS', 'MARKET DIFFUSION', 'DECOMPOSITION', 'CO2 DECOMPOSITION', 'COMPARISON', and 'ENERGY SAVING', each with a gear icon.

Energy savings calculation in ODYSSEE

1

Calculation of ODEX index at sector level to assess energy efficiency trends:

- Trends are expressed as an index of variation of specific energy consumption by end-use or sub-sector,
- An average index for the sector is calculated, weighted by each end-use/sub-sector share in the sector's energy consumption.

2

Calculation of energy savings (ES) based on the energy efficiency index, ODEX.

ODEX is equal to the ratio between the energy consumption at year t (E) and a fictive consumption that *would have happened* without energy savings.

$$ES = E * ((100/ODEX)-1)$$

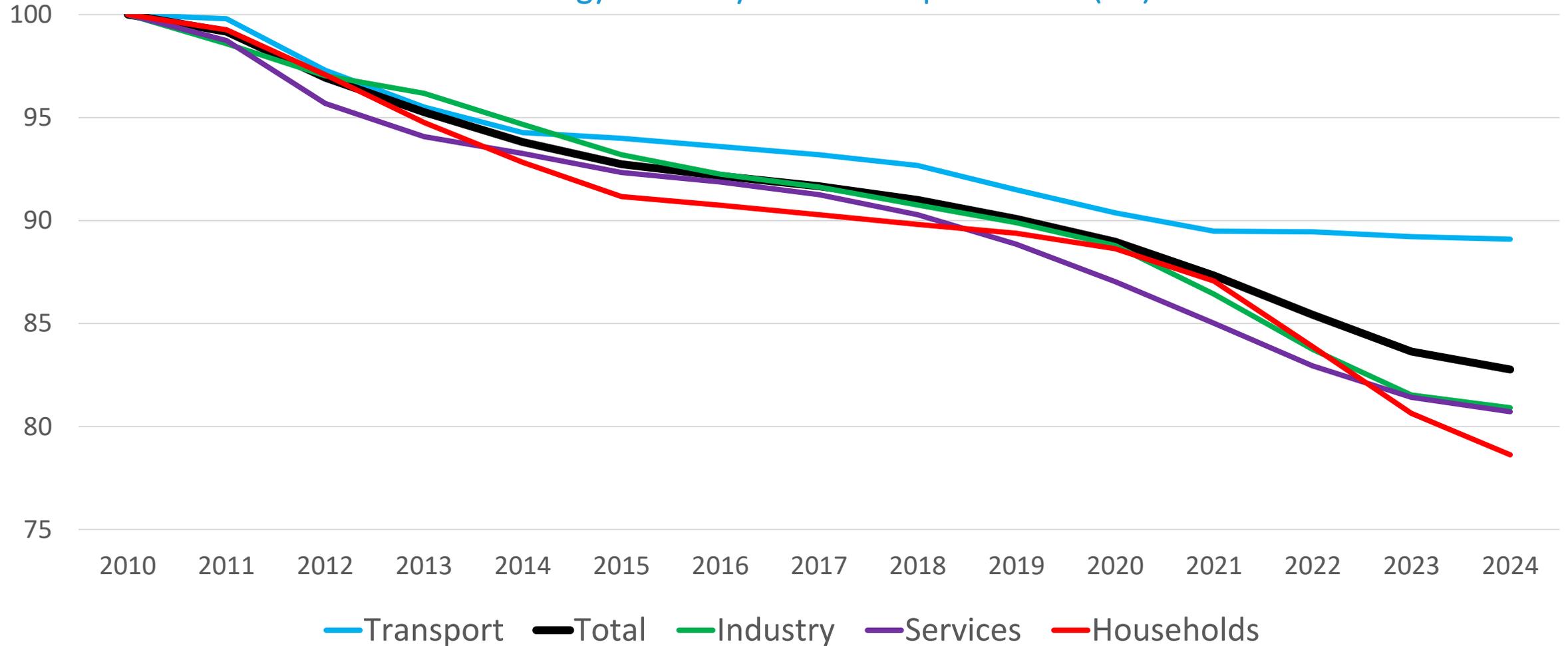
Energy savings calculation in Odyssee

In ODYSSEE, we consider that technical progress cannot reverse on the short term: in other words, energy efficiency cannot decrease → e.g. once an equipment or building has reached a certain level of efficiency, its efficiency cannot decrease.

- Introduction of the concept of “**technical efficiency**”, by opposition to apparent, or gross, efficiency.
- An increase in the indicators of specific consumption by sub-sector is not interpreted as a decrease in efficiency, but rather as the absence of energy efficiency progress: if the indicator of specific consumption **increases** in year t, it is considered to be due to **non-technical factors**, and the technical energy efficiency is frozen to the level of the previous year.

Energy savings calculation in Odyssee

Technical Energy efficiency index - European Union (EU) 2010= 100

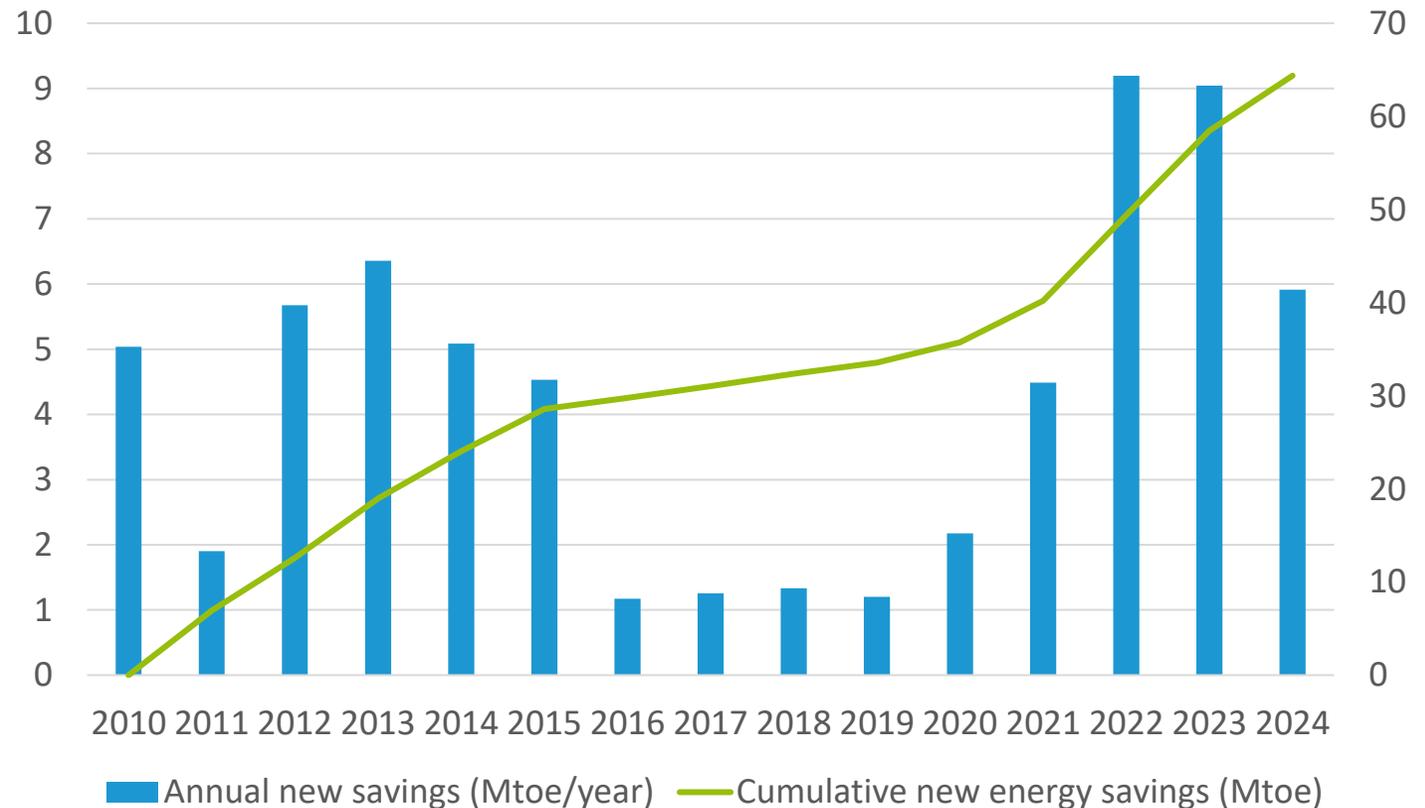


Energy savings calculation in Odyssee

In ODYSSEE, **energy savings** are first calculated as annual new energy savings in reference to the previous year (**blue bars**). These annual savings are then **cumulated** over a period (**green line**).

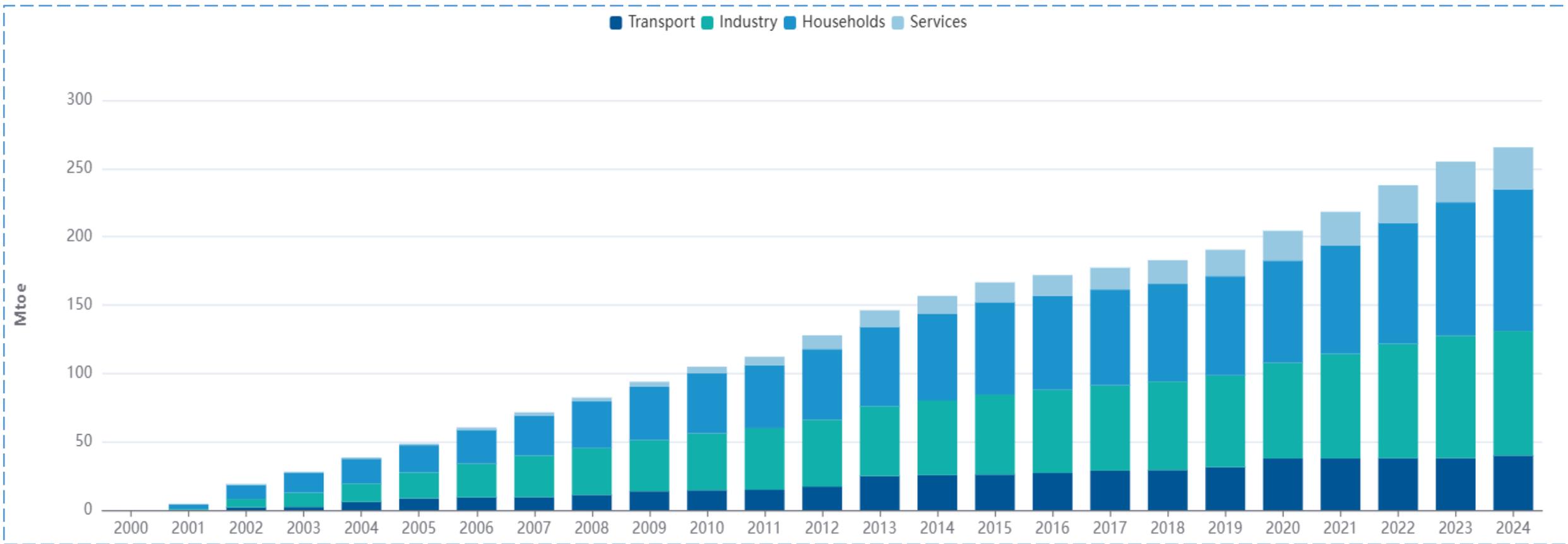
For instance, in 2024, “**cumulative new energy savings**” for households were close 65 Mtoe : this means that without savings since 2010, energy consumption would have been 65 Mtoe higher in 2024.

2 ways to express energy savings: the case of households (EU)



Energy saving tool

Final energy savings – European Union (2000 – 2024)



Decomposition tool: role of energy savings

Variation in final energy consumption – European Union (2000 – 2024)

