



Europe's national energy efficiency champion

The European energy efficiency
2023 scoreboard

An ecee & ODYSSEE-MURE joint project

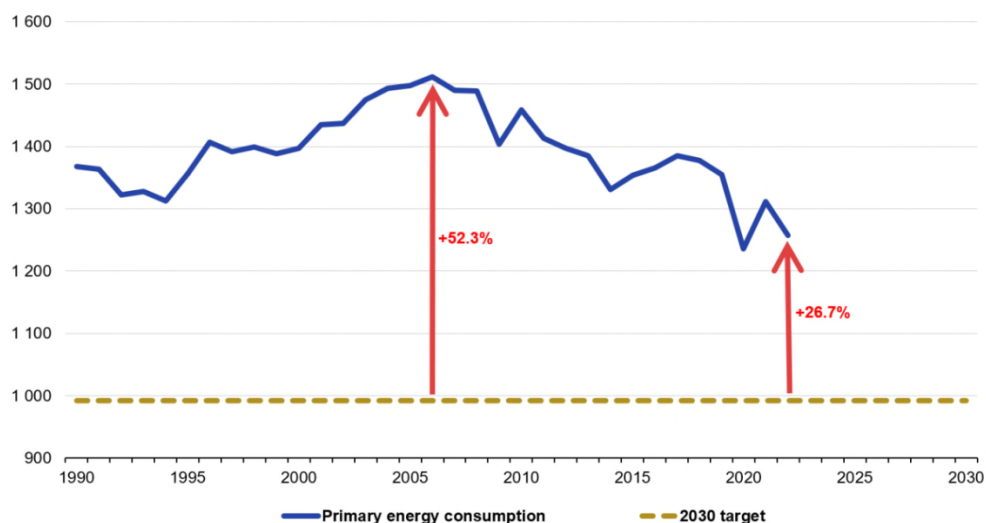
Dr Wolfgang Eichhammer
Fraunhofer ISI

Nils Borg
ECEEE

ecee webinar 7 February 2024

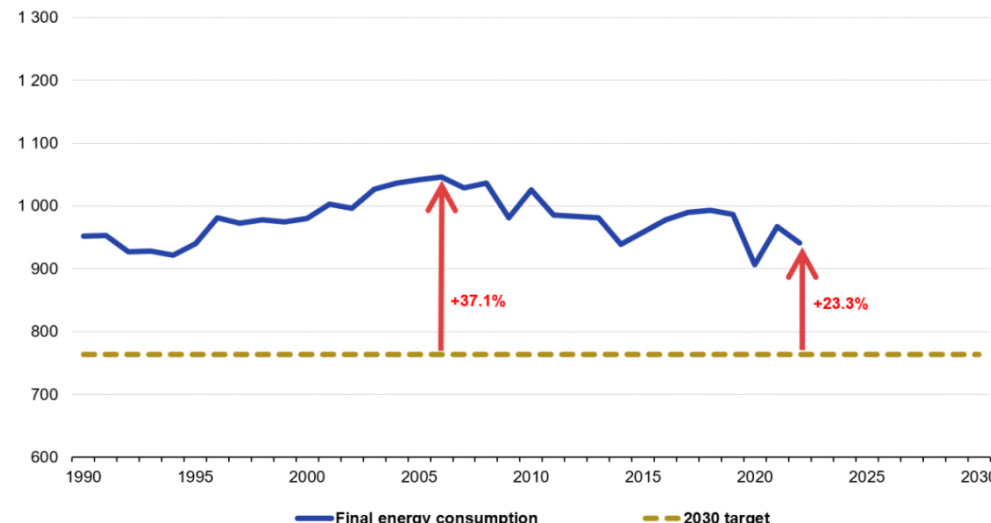
Why this Scoreboard?

Distance to 2030 target for primary energy consumption, EU



Source: Eurostat (online data code: nrg_ind_eff)

Distance to 2030 target for final energy consumption, EU

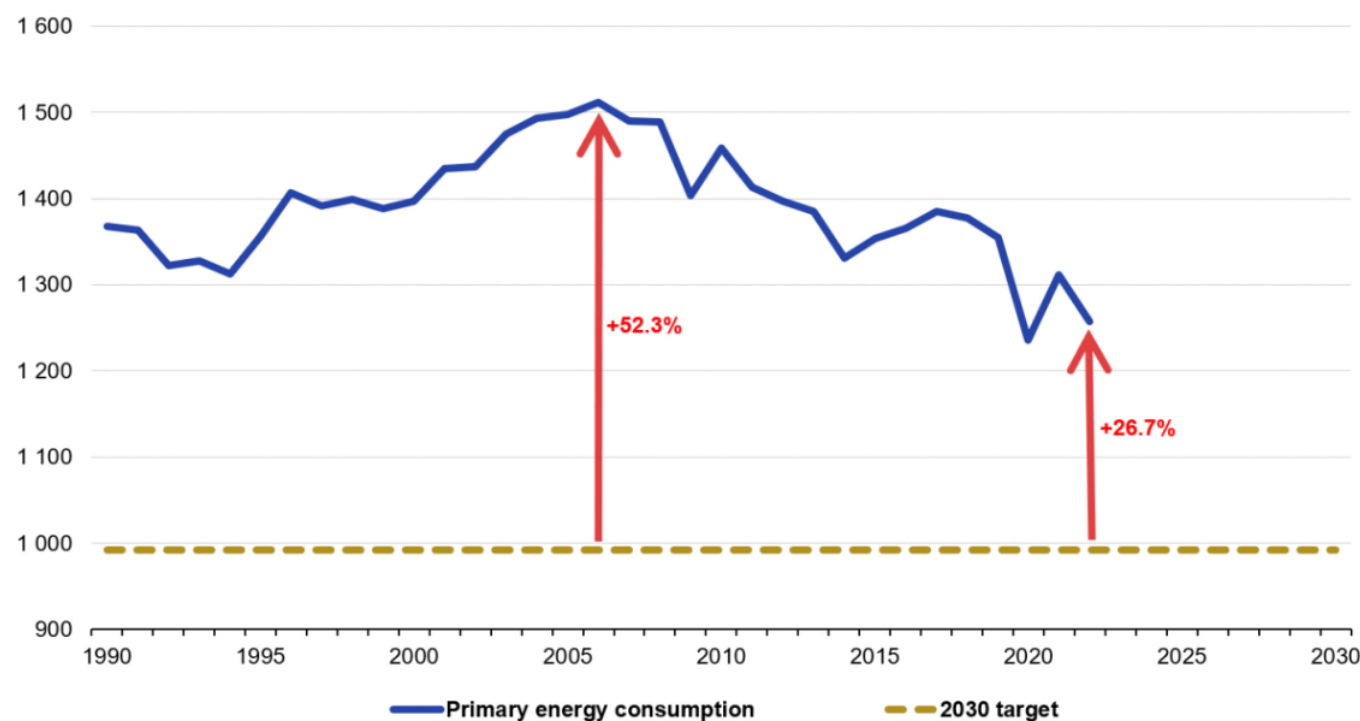


Source: Eurostat (online data code: nrg_ind_eff)

- Scoring the achievements and efforts of the EU Member States helps to understand where we have to speed up efforts.

Why this Scoreboard?

Distance to 2030 target for primary energy consumption, EU



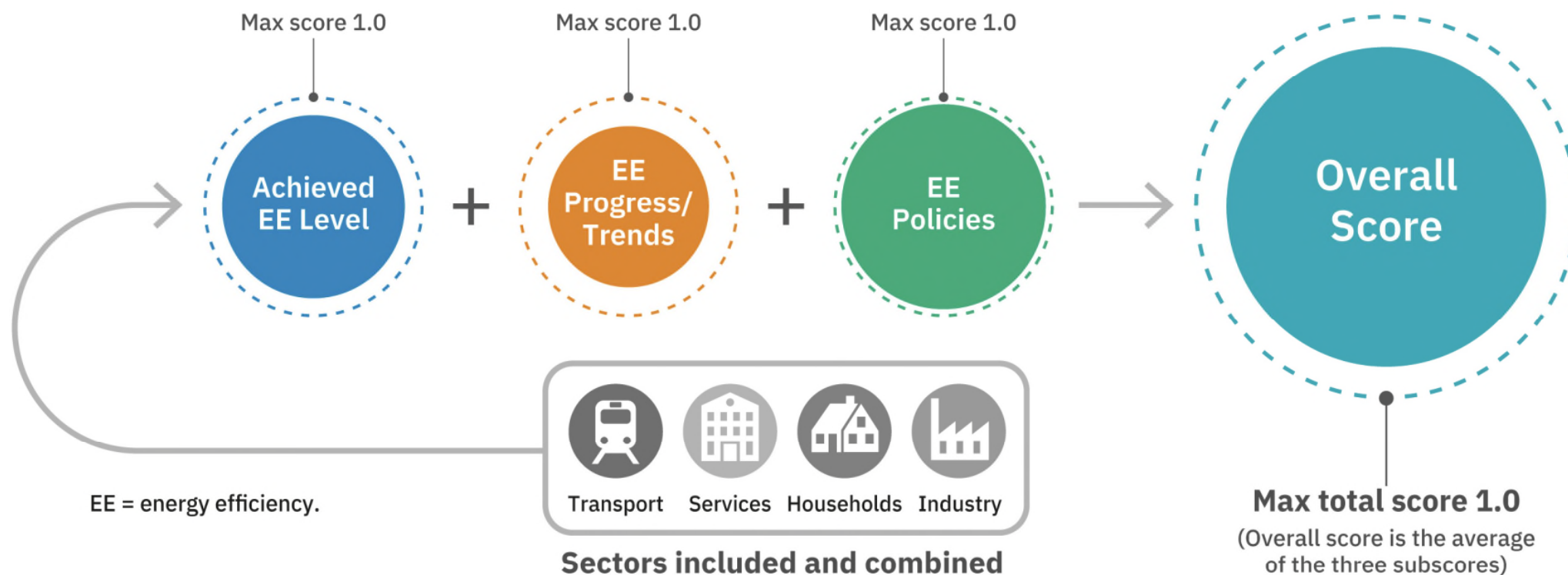
Source: Eurostat (online data code: nrg_ind_eff)



What is the eceee & ODYSSEE-MURE energy efficiency scoreboard?

- *Scores are based on data from (www.odyssee-mure.eu):*
 - the **ODYSSEE database** on energy efficiency **indicators**
 - the **MURE database** on energy efficiency **policies**.
- A **benchmarking tool** to compare the impacts of energy efficiency policies and developments amongst European countries. It is intended to paint a well-rounded picture of how a country is performing with respect to energy efficiency, relative to its peers in Europe.
- The first energy efficiency scoreboard to account for **quantitative impacts of policies** (output-based scoring).
- It accounts for **several decades of statistical data as well as future impacts of current energy efficiency programmes**.

How does the ODYSSEE-MURE scoring method work?





A deeper view to households



Households: Which country scores best on “Level”?

Netherlands

Lithuania

Finland

Sweden

Denmark



Households: Netherlands gets the best score 2023 on “Level”

Level – Household Sector ranking top 5

Rank	Country	Score
1	Netherlands	1.0
2	Denmark	0.97
3	Finland	0.96
4	Sweden	0.92
5	Lithuania	0.92



Households

Which country scores best on EE "Trend"?

Croatia

Netherlands

Latvia

Luxembourg

Ireland

Households: Luxembourg has the highest score 2023 on “Trend”

Trend – Household Sector ranking top 5

Rank	Country	Score
1	Luxembourg	1.0
2	Croatia	0.91
3	Netherlands	0.89
4	Latvia	0.87
5	Ireland	0.87

***Note: baseline year changed from 2000 to 2010 in 2023 UPDATE**

Households: List of indicators used to calculate the scores



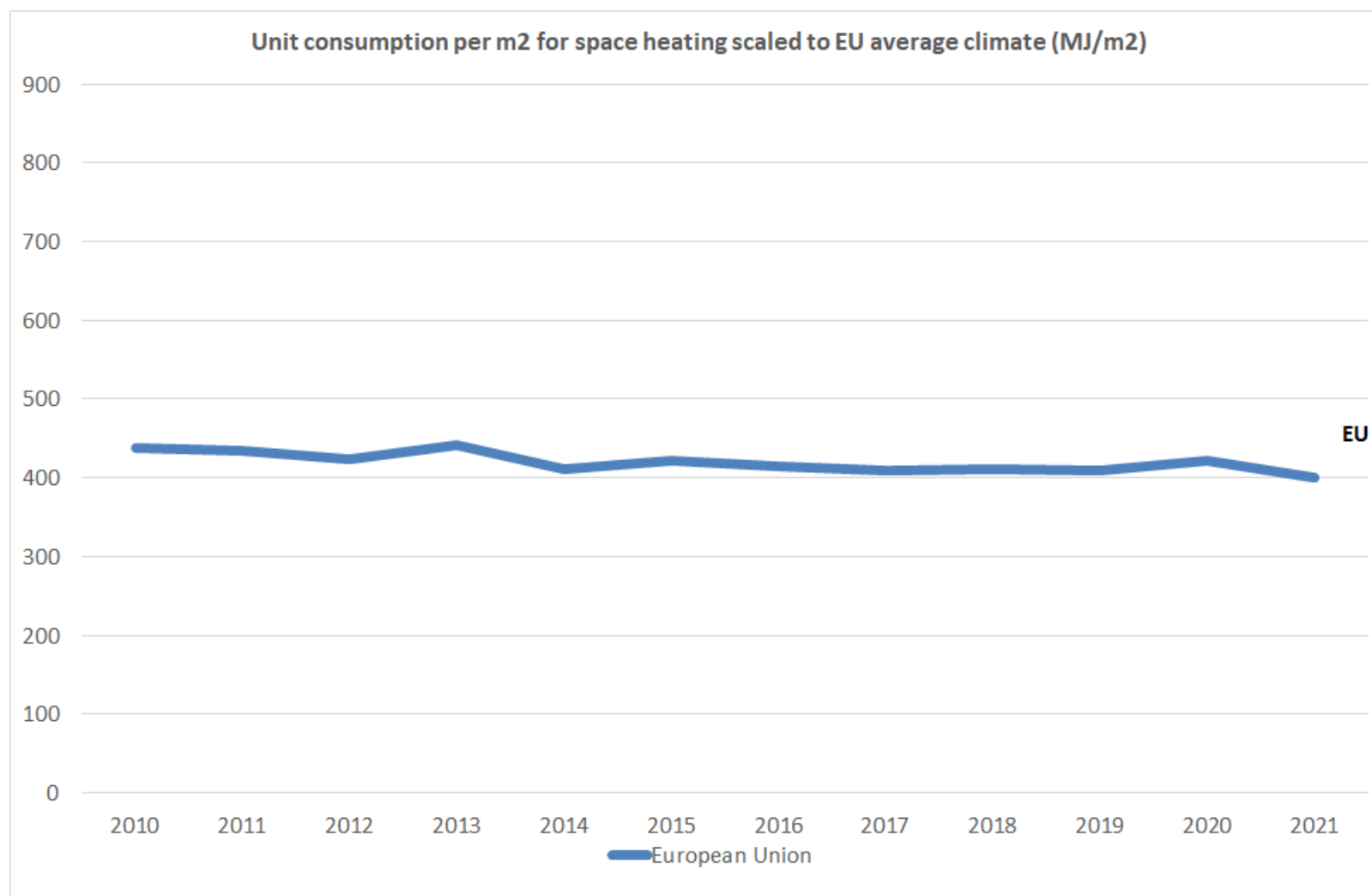
Households

End-use	Indicator	Weighting factor
Heating	Consumption for heating per m ² scaled to EU climate and equivalent to central heating ³	Share of heating in total households consumption
Other thermal uses	Consumption per dwelling for cooking and water heating	Share of cooking + ½ of water heating in total households consumption
Appliances	Specific consumption of electricity per dwelling for appliances (including AC) and lighting	Share of appliances (incl. AC) & lighting in households consumption
Solar penetration	% of dwellings with solar water heater	½ share of water heating in households consumption

Trends/Levels: Space heating households (since 2010)

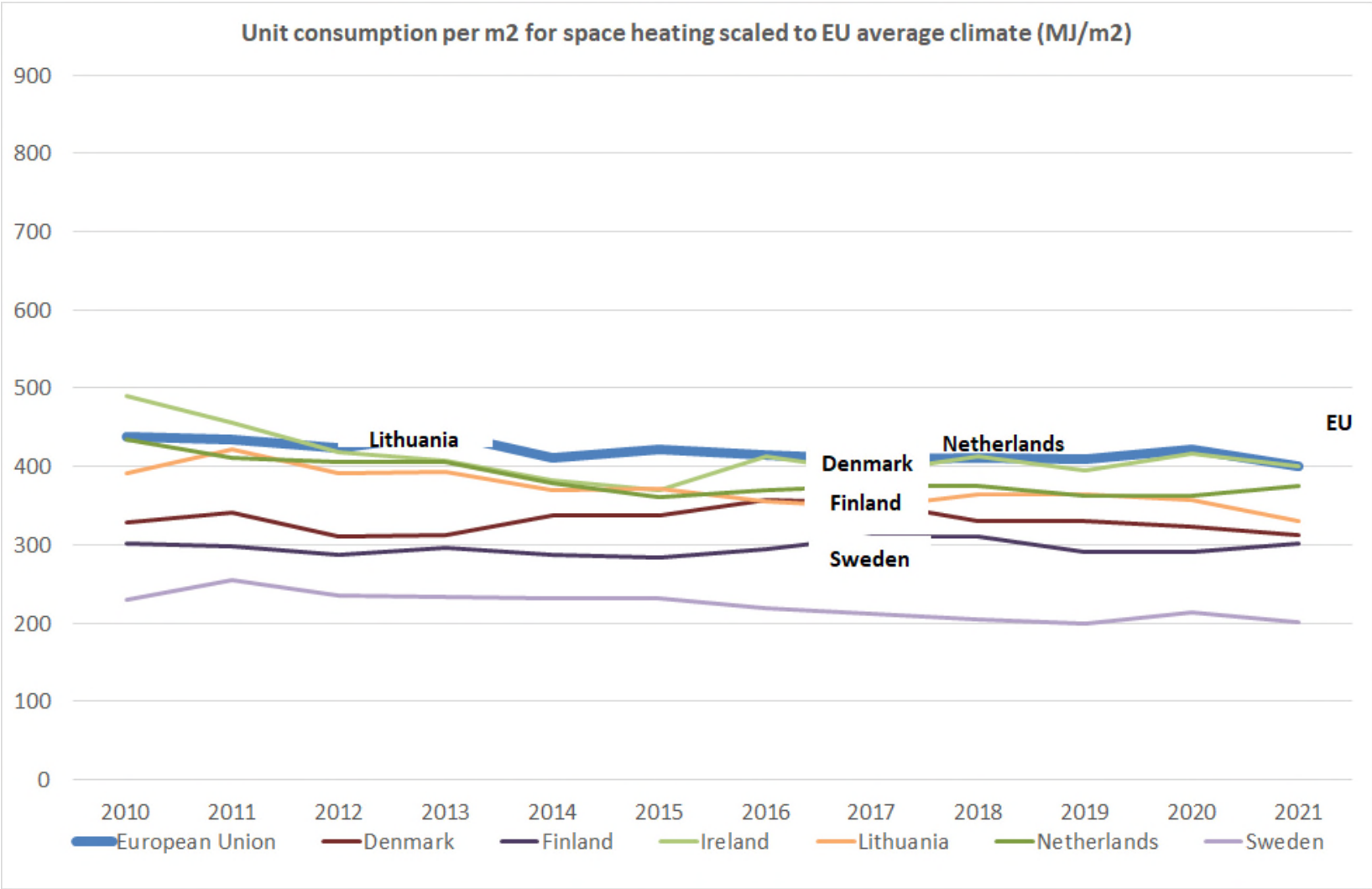


ODYSSEE-MURE



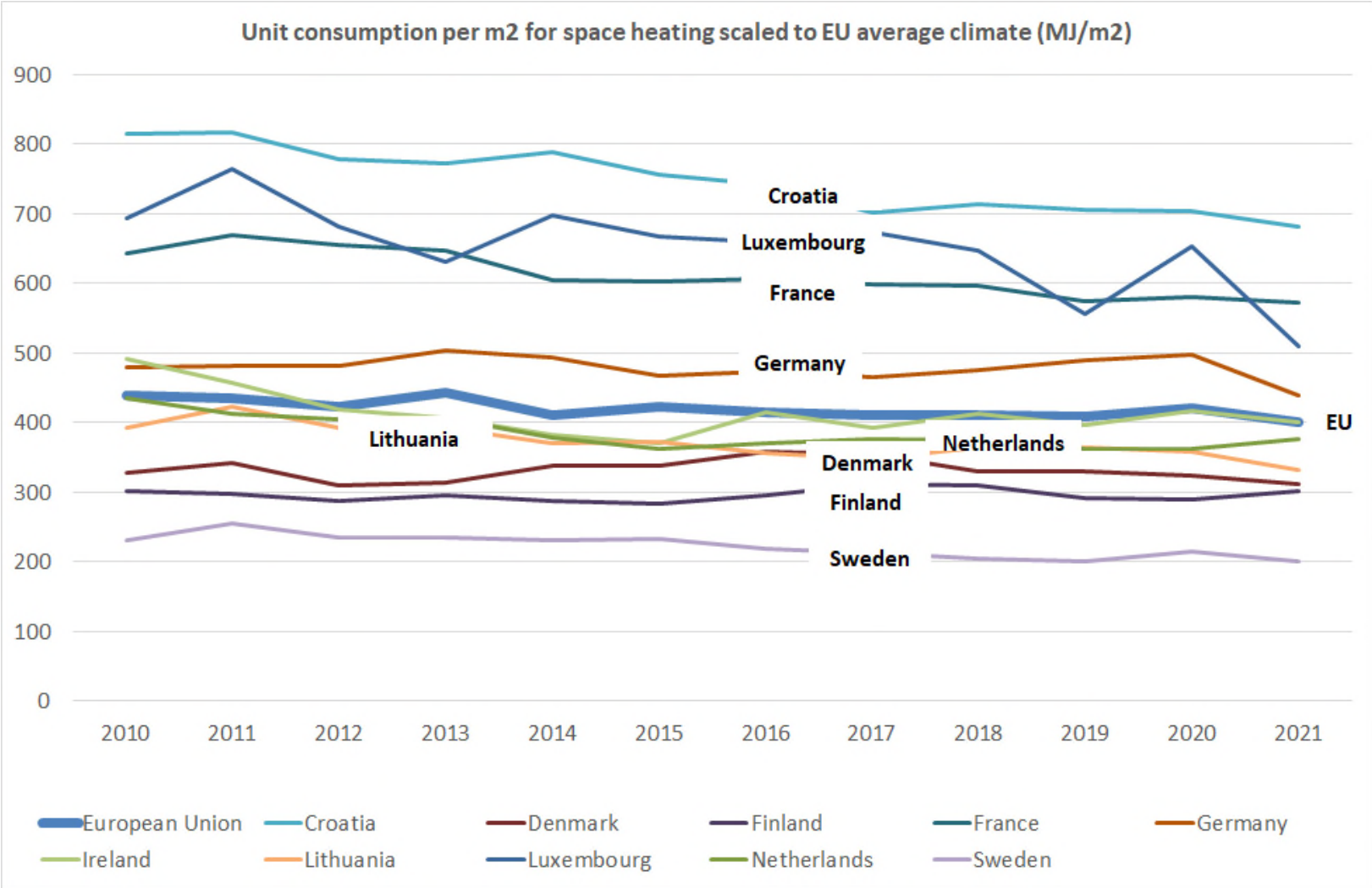
The ecee & ODYSSEE-MURE energy efficiency scoreboard for 2023

Trends/Levels: Space heating households (since 2010)



The eceee & ODYSSEE-MURE energy efficiency scoreboard for 2023

Trends/Levels: Space heating households (since 2010)



The eceee & ODYSSEE-MURE energy efficiency scoreboard for 2023

**Households:
Which country scores best on "Policy"?**

France

Germany

Luxembourg

Romania

Poland



Household sector: Germany gets the best score 2023 on „Policy“

Policy – Household Sector ranking top 5

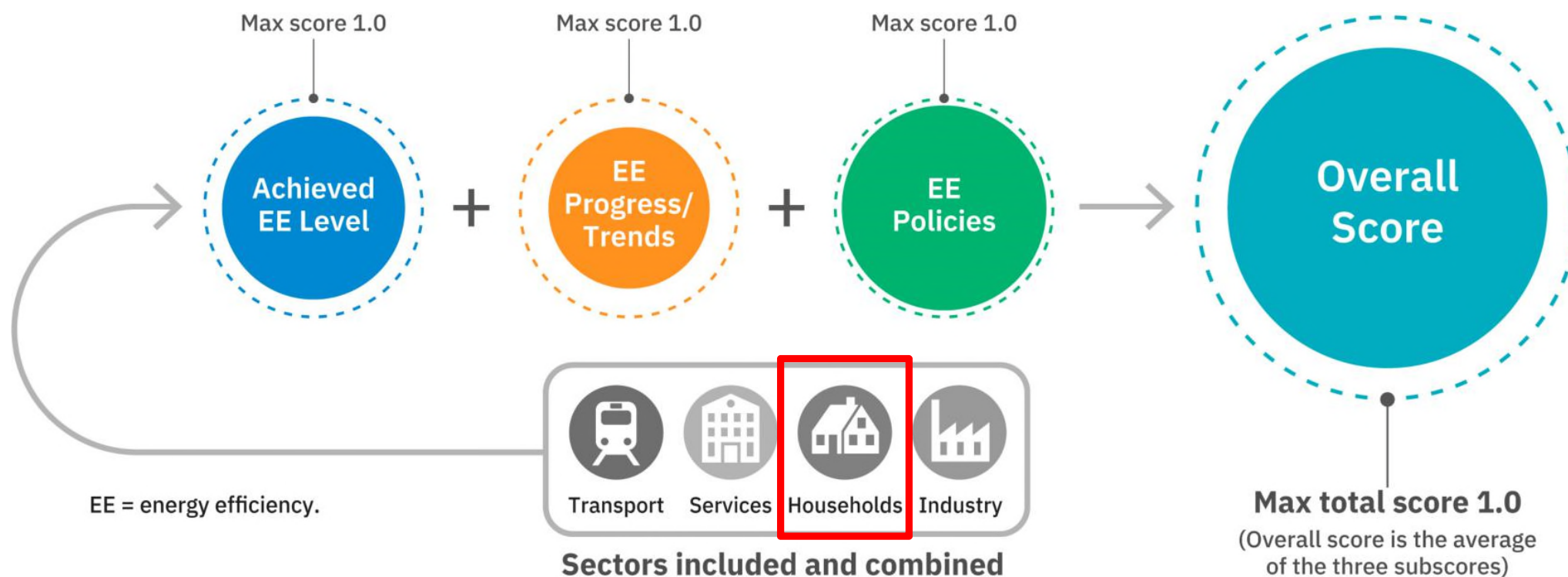
Rank	Country	Score
1	Germany	1.0
2	Romania	0.72
3	Luxembourg	0.69
4	Poland	0.67
5	France	0.63

Households: The “Policy” score – examples of Household Energy Efficiency policies



- **Germany:** Tax incentives for energy efficient building refurbishment (Steuerliche Förderung der energetischen Gebäudesanierung). The tax incentive is limited to individual measures in owner-occupied apartments and residential buildings. The subsidy is provided in the form of a deduction from tax liability over a period of three years. 20% of the investment costs are deductible. The maximum subsidy amount is EUR 40,000. Start 2020 (expected impact in 2030: 52 PJ)
- **Poland:**
 - * Thermo-modernization tax relief (expected impact in 2030: 24 PJ)
 - * Agreements with municipalities: The municipalities issue a call for applications in their area among the residents - the final beneficiaries. These are individuals, owners of flats in multi-family houses, tenants of flats owned by the municipality and housing communities with 3-7 flats. (expected impact in 2030: 18 PJ)
- **France:**
 - * Mandatory standards for buildings (expected impact 2030 in households: 118 + 8,8 PJ)
 - * Subsidy for thermal renovation of private dwellings (MaPrimeRénov') (expected impact in 2030 in households: 9 PJ)

Household Sector: Combined Score





Household Sector: European Energy Efficiency Scoreboard 2023

Who is doing best in 2023?

France

Germany

Latvia

Luxembourg

Netherlands

Households: Luxembourg is Europe's 2023 energy efficiency champion

Overall Score – Household Sector ranking top 5

Rank	Country	Score
1	Luxembourg	0.83
2	Germany	0.80
3	Netherlands	0.72
4	France	0.66
5	Latvia	0.62



A glimpse on transport

Transport: Luxembourg is Europe's 2023 energy efficiency champion

Overall Score – Transport Sector ranking top 5

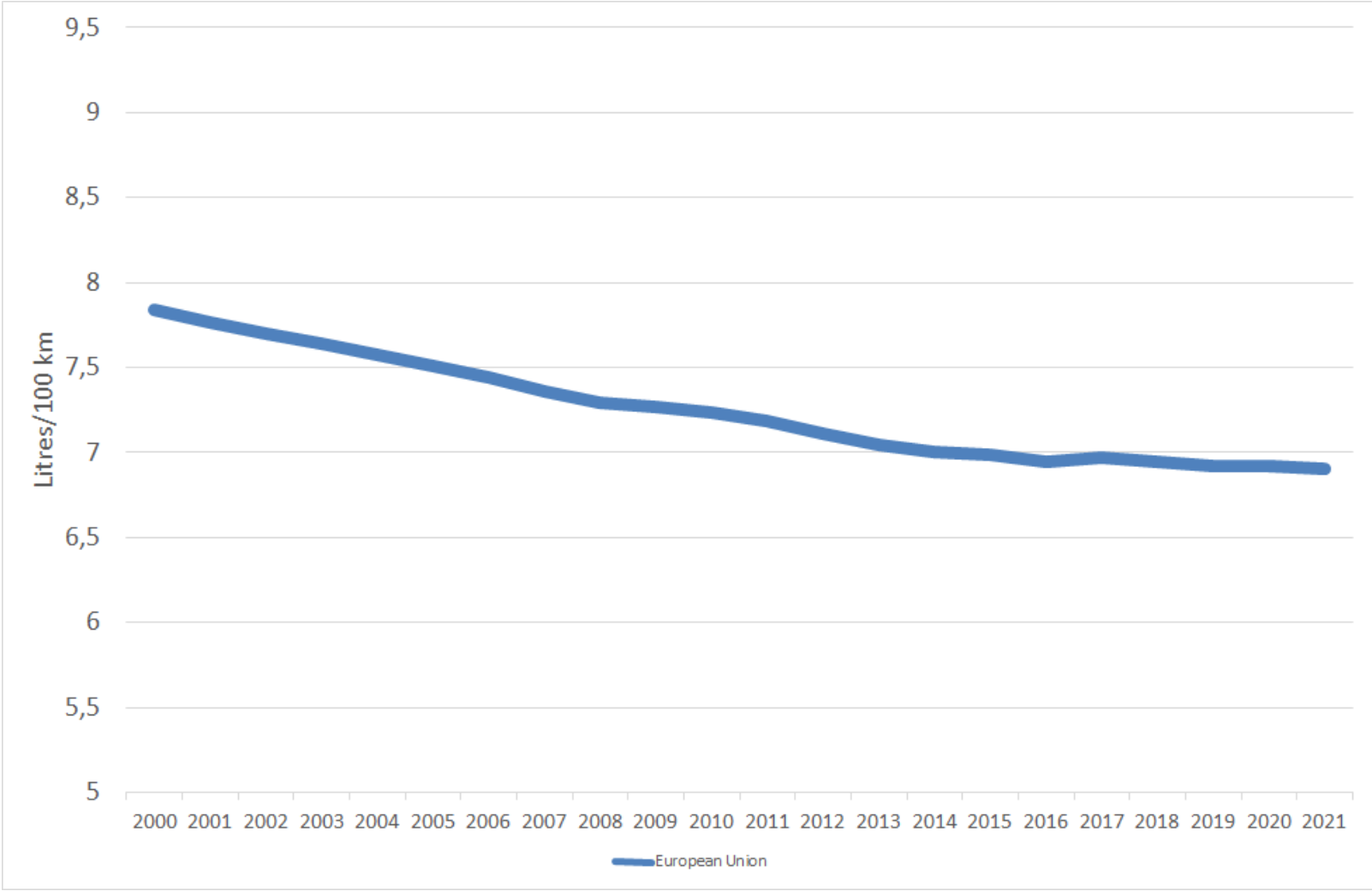
Rank	Country	Score
1	Luxembourg	0.84
2	France	0.64
3	Latvia	0.56
4	Spain	0.56
5	Greece	0.55

Example of how transport scores for level and trend are composed

Transport

Modes	Indicator	Weighting factor
Cars	Specific consumption (goe/pkm)	Share of cars in total transport consumption
Trucks and light vehicles	Specific consumption (goe/tkm)	Share of trucks and light vehicles in total transport consumption
Air	Specific consumption (koe/pass)	Share of air in total transport consumption
Modal split: -Passengers	% of traffic by public mode	Share of buses and rail passengers in total transport consumption
-Goods	% of traffic by rail and water	Share of water and rail freight consumption in total transport

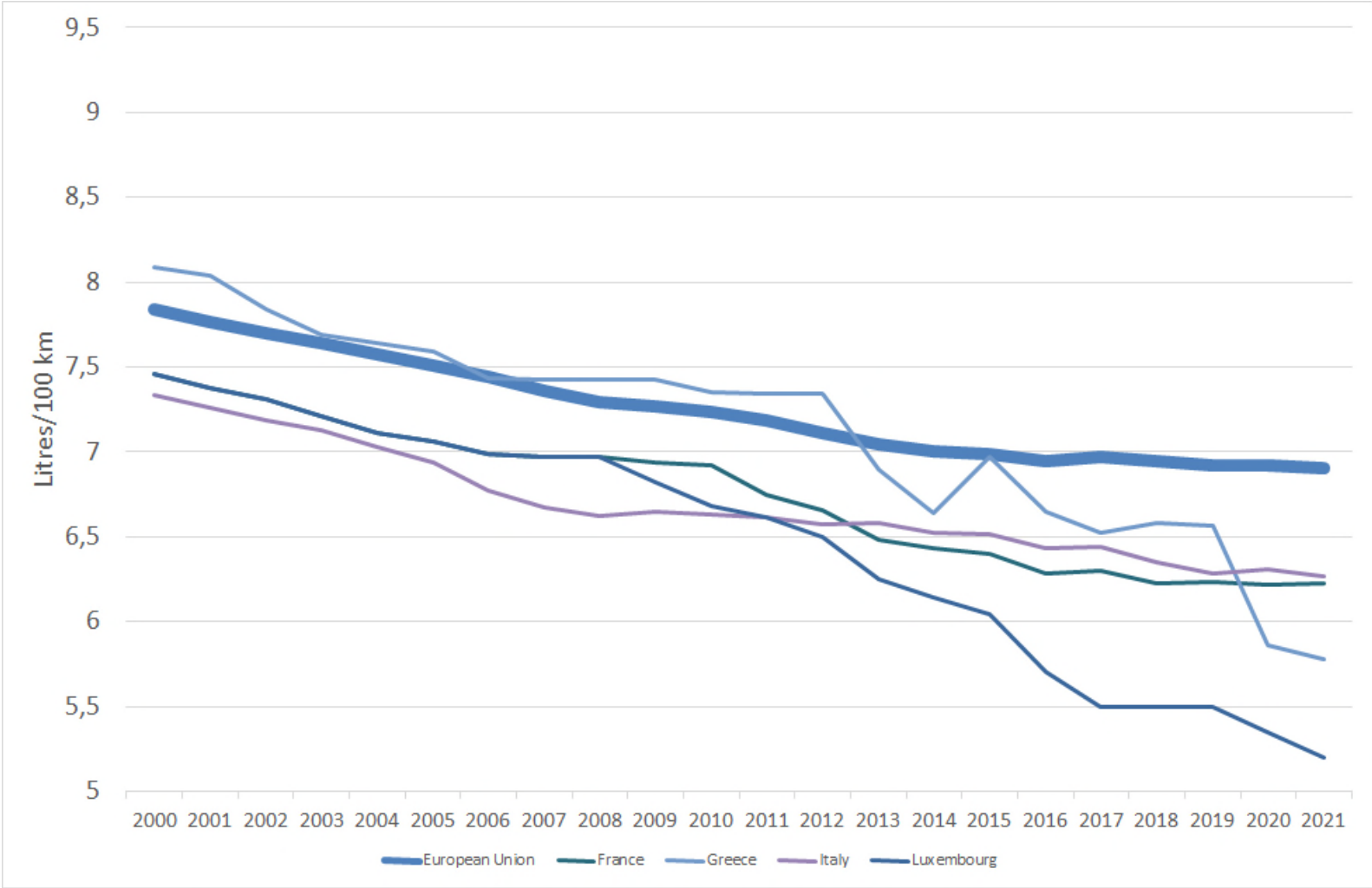
Transport - where many/all countries are weak: cars



EU27

The ecee & ODYSSEE-MURE energy efficiency scoreboard for 2023

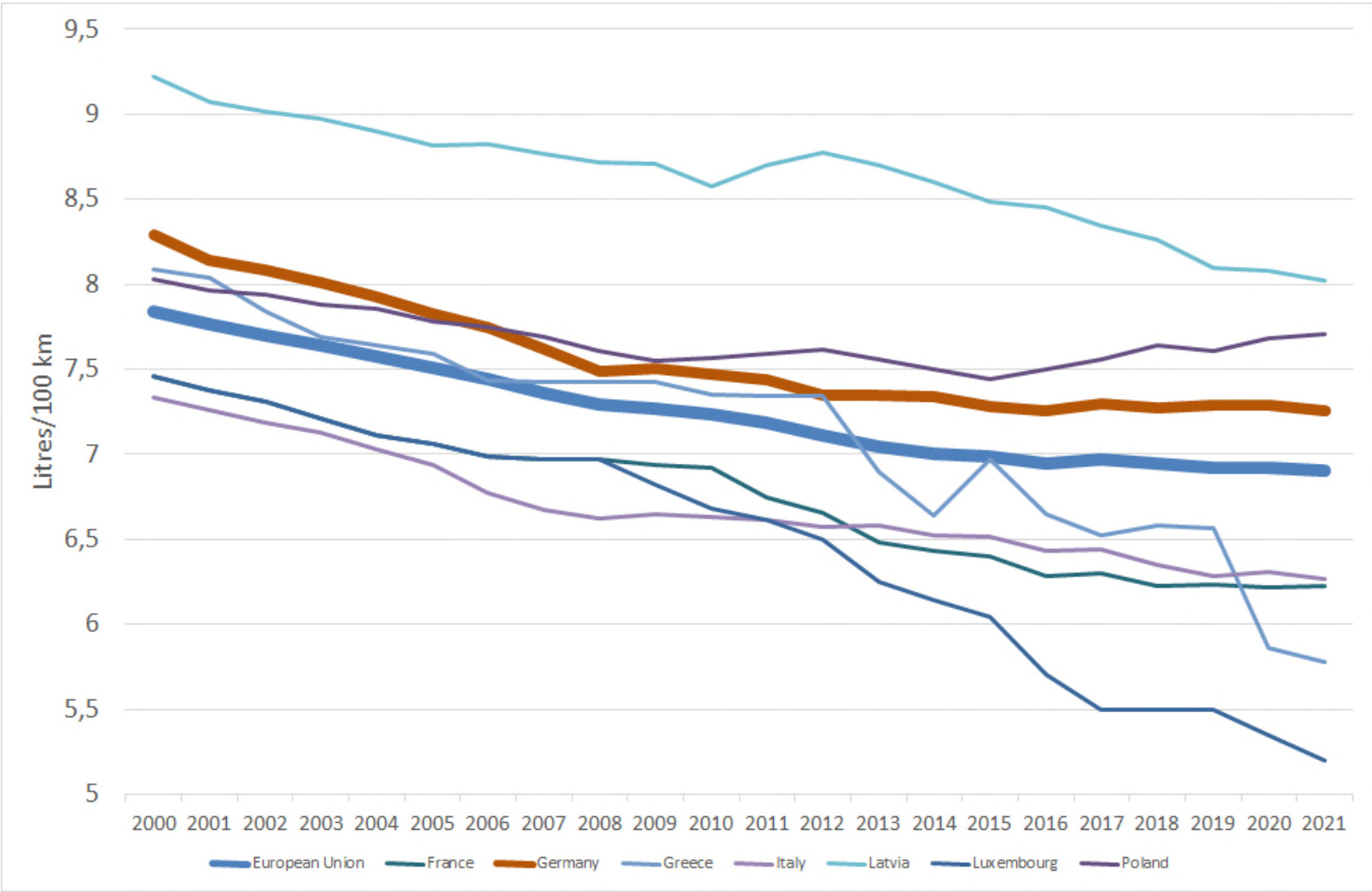
Transport - where many/all countries are weak: cars



EU27
Italy
France
Greece
Luxembourg

The ecee & ODYSSEE-MURE energy efficiency scoreboard for 2023

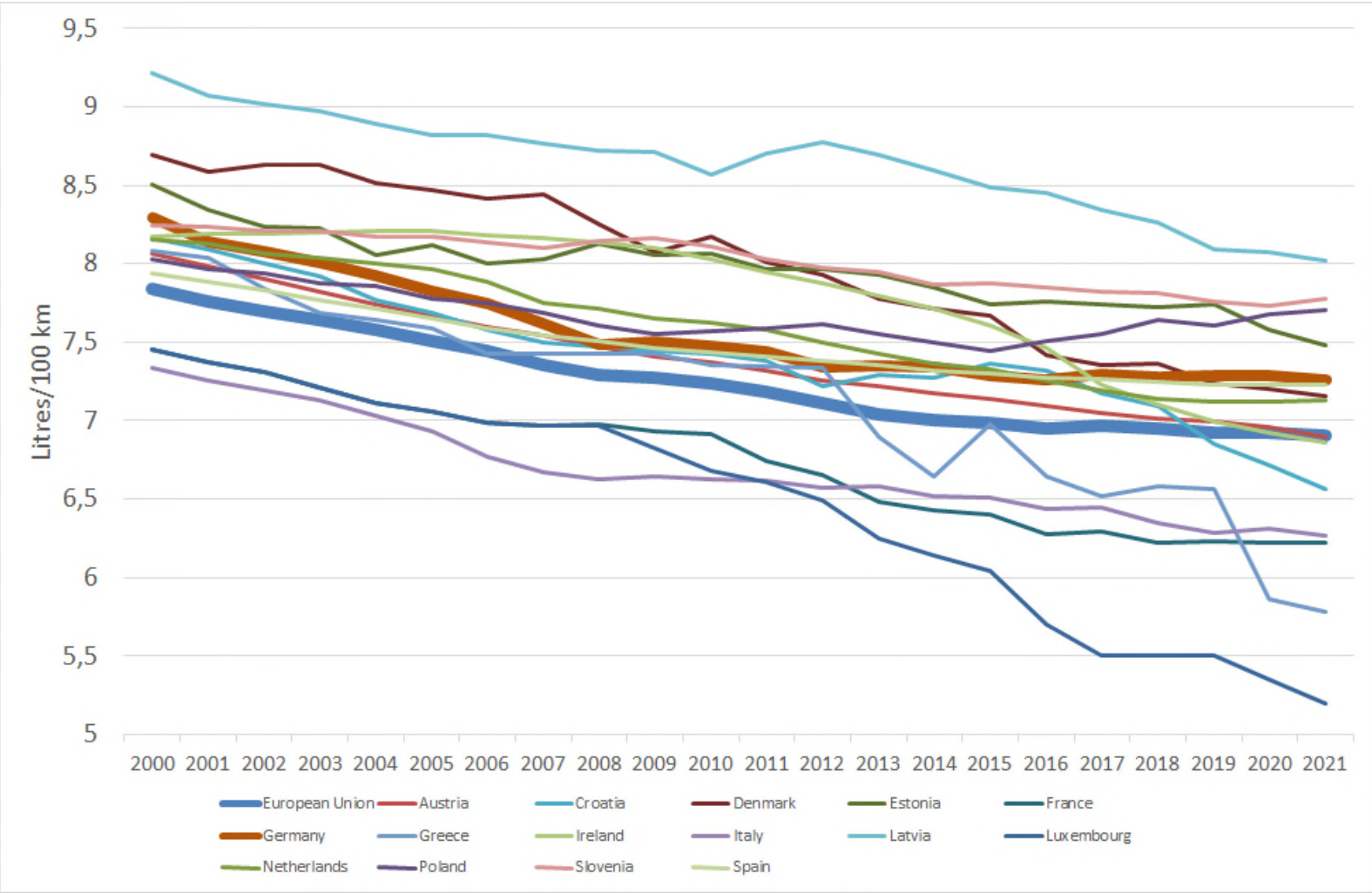
Transport - where many/all countries are weak: cars



- Latvia
- Poland
- Germany
- EU27
- Italy
- France
- Greece
- Luxembourg

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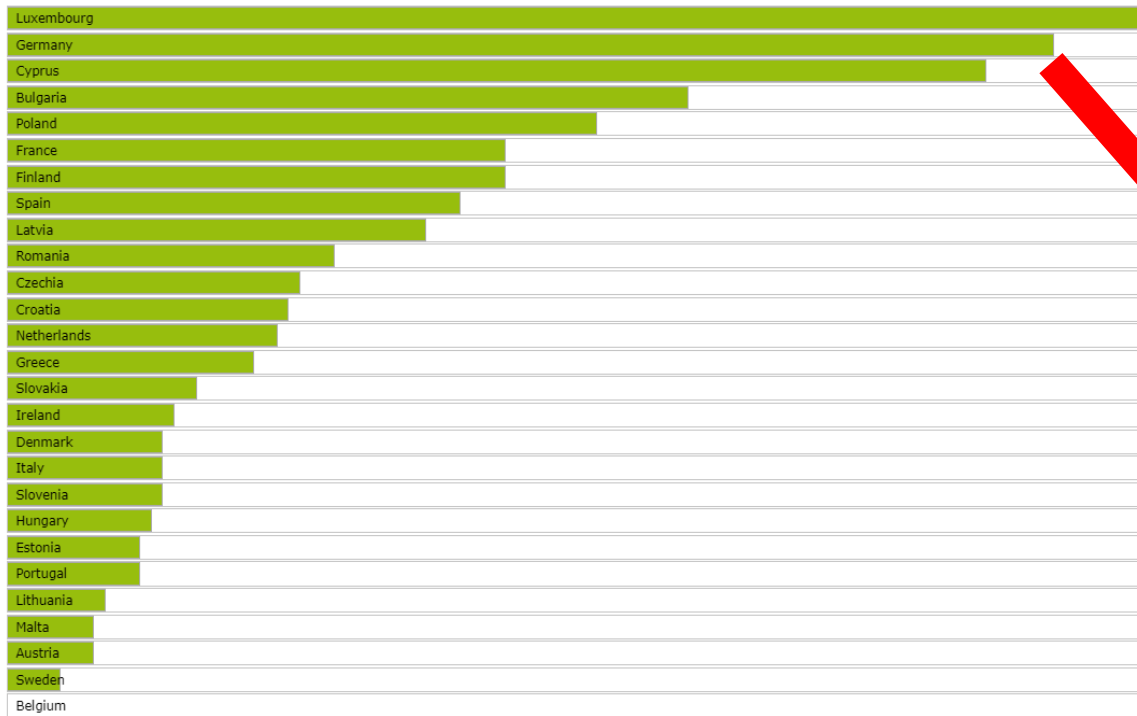
Transport - where many/all countries are weak: cars



Latvia
 Poland
 Germany
 EU27
 Italy
 France
 Greece
 Luxembourg

The ecee & ODYSSEE-MURE energy efficiency scoreboard for 2023

The “Policy” score – examples of high impact policies



e.g.

Energy Efficiency Obligation Scheme (revision) : 7.8 PJ

CO2 tax : 15.8 PJ



e.g.

Fuel Emissions Trading Act - BEHG (Brennstoffemissionshandelsgesetz): 145 PJ

Federal Funding for Energy and Resource Efficiency" (EEW) : 105 PJ



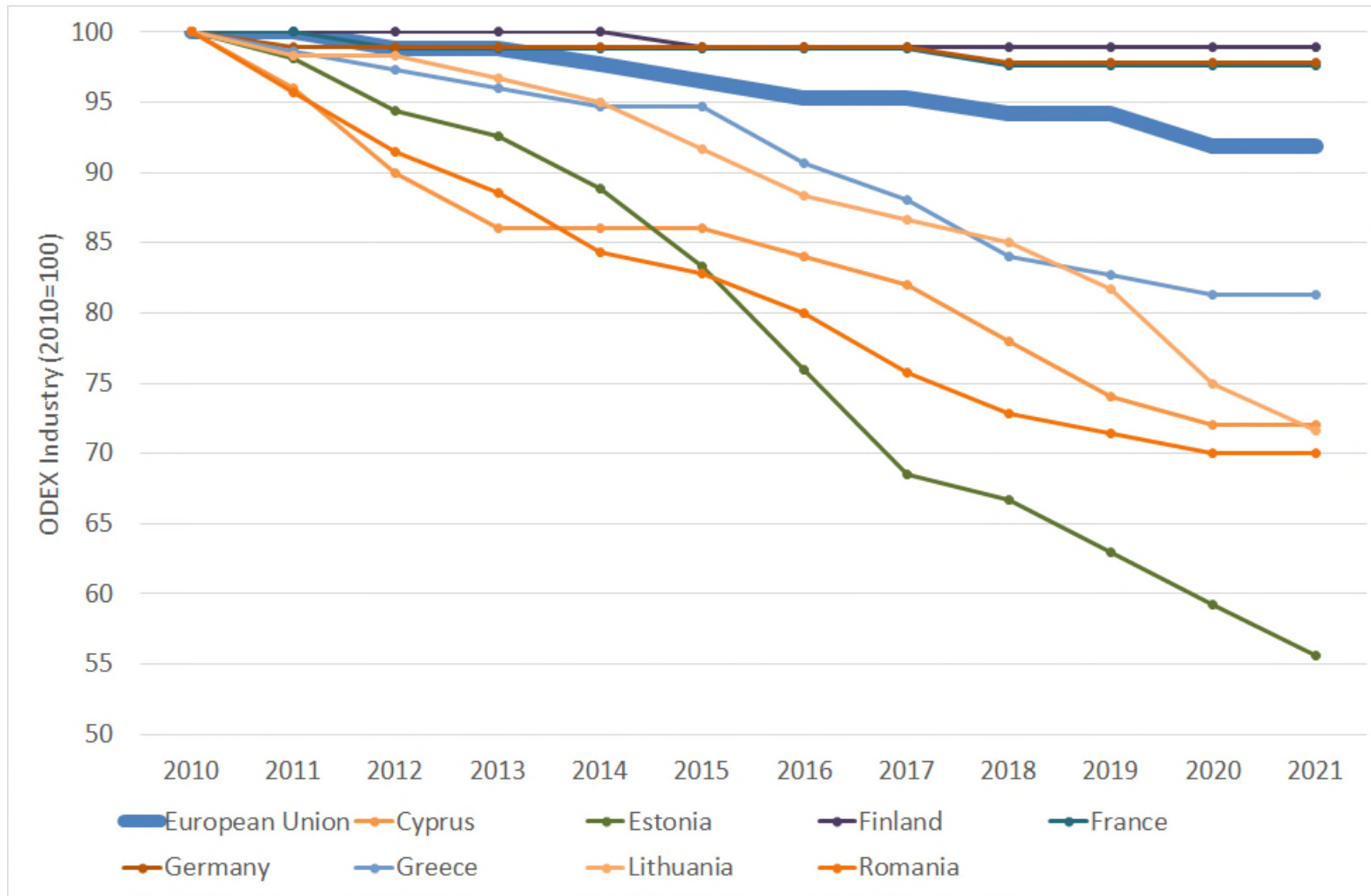
A glimpse to industry

Industry: Estonia is Europe's 2023 energy efficiency champion

Overall Score – Industry Sector ranking top 5

Rank	Country	Score
1	Estonia	0.63
2	Cyprus	0.58
	Germany	0.58
4	Ireland	0.49
5	Romania	0.47

Trends: ODEX Industry (since 2010)

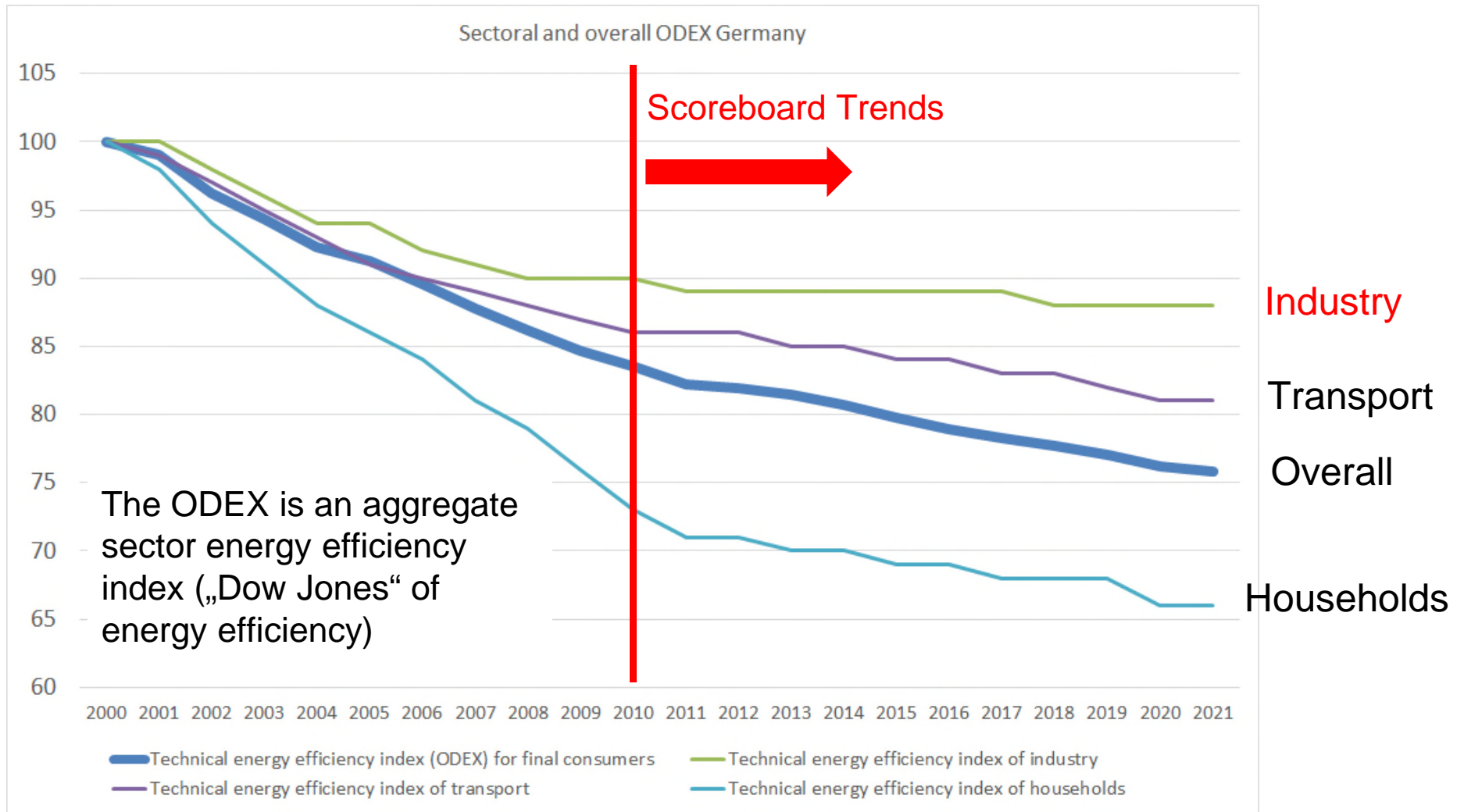


Slowest progress

EU27

Top 5

Where Germany is weak...ODEX Industry Germany





Overall Champion Energy Efficiency Scoreboard 2023

Luxembourg is Europe's 2023 energy efficiency champion

Best top Overall Score – ranking top 5

Rank	Country	Score
1	Luxembourg	0.86
2	Germany	0.68
3	France	0.63
4	Latvia	0.61
5	Denmark	0.60

Luxembourg – detailed scoring – 2023 UPDATE

Aggregate score of many sectors and three scoring categories

	Level	Trend	Policy	Combined
Overall	0.57	1	1	0.86
Industry	0.39	0.20	0.40	0.33
Transport	0.76	1	0.79	0.85
Households	0.80	1	0.69	0.83
Services	0.00	0.42	1	0.47

Overall Champion Energy Efficiency Scoreboard 2023 (Summary on Levels/Trends/Policies)

OVERVIEW - SUMMARY

Overall

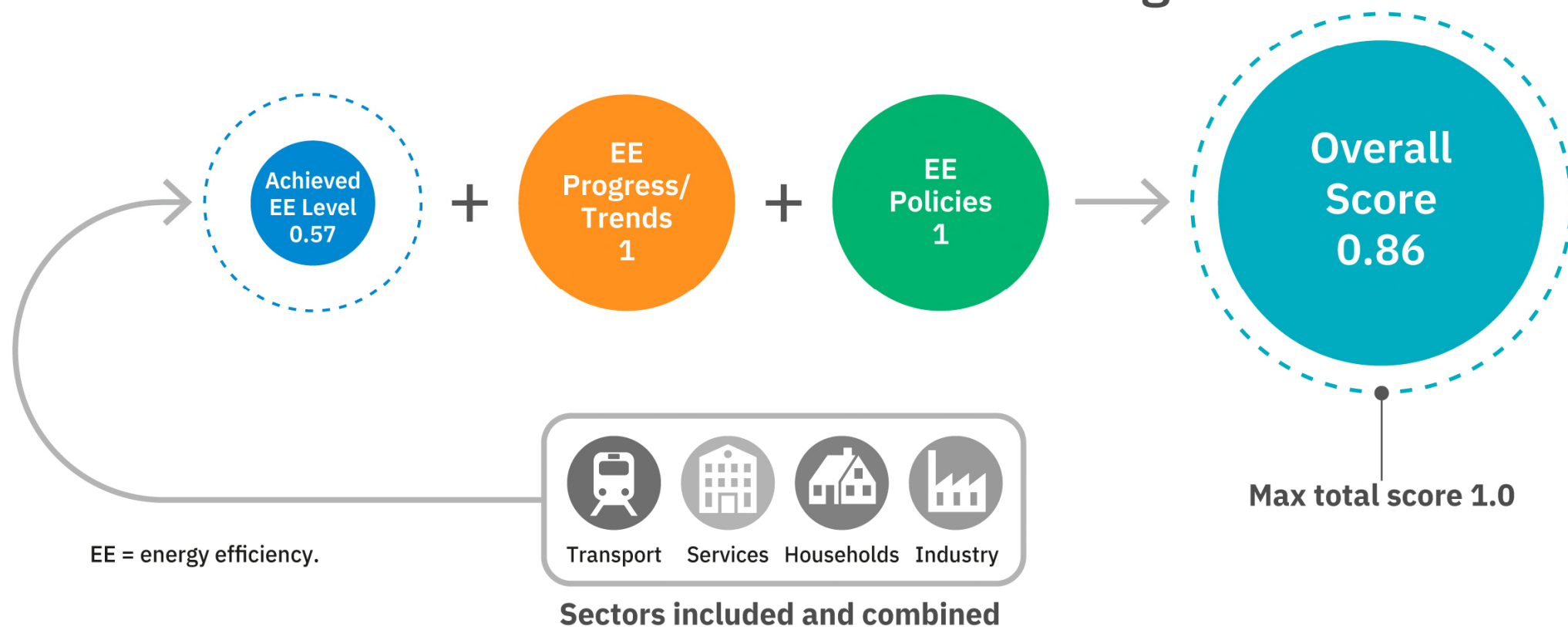
Level
1: Denmark
2: Lithuania
3: Slovenia

Trend
1: Luxembourg
2: Estonia
3: Ireland

Policies
1: Luxembourg
2: Germany
3: Cyprus

Combined
1: Luxembourg
2: Germany
3: France

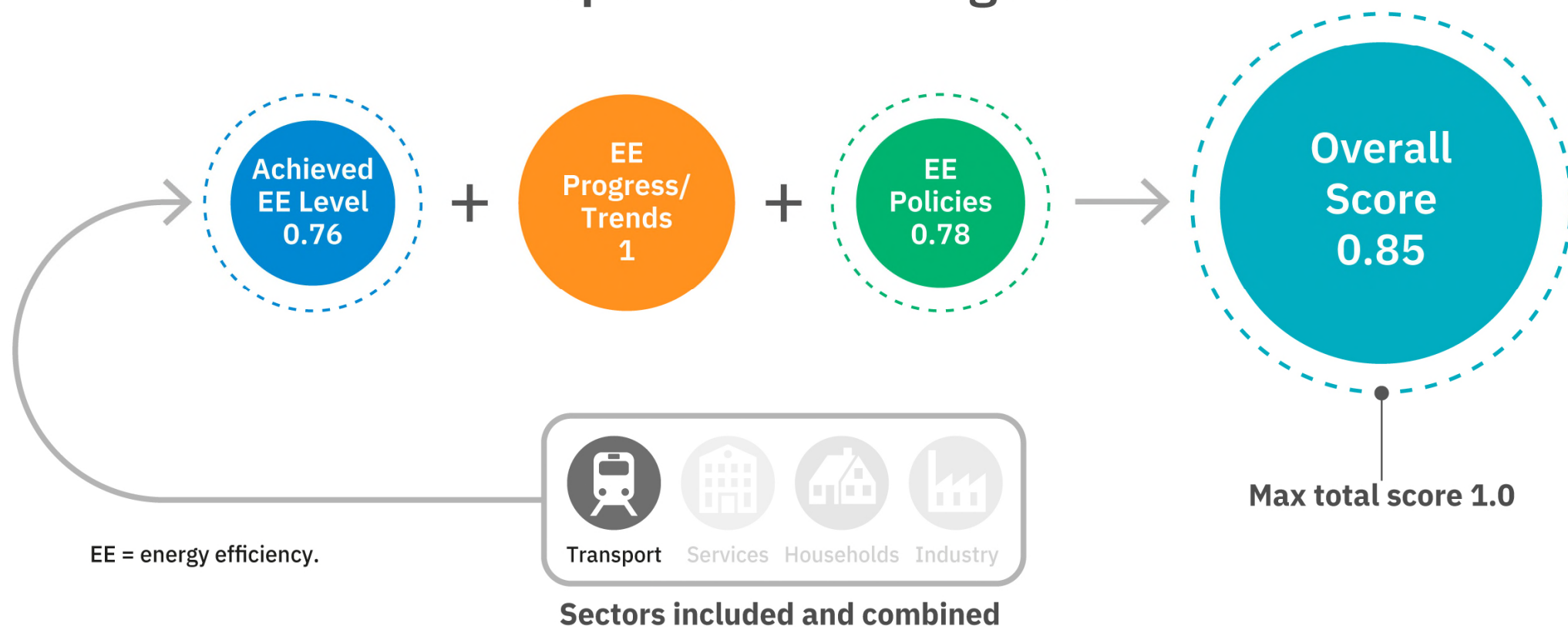
Combined Score All Sectors – Luxembourg 2023



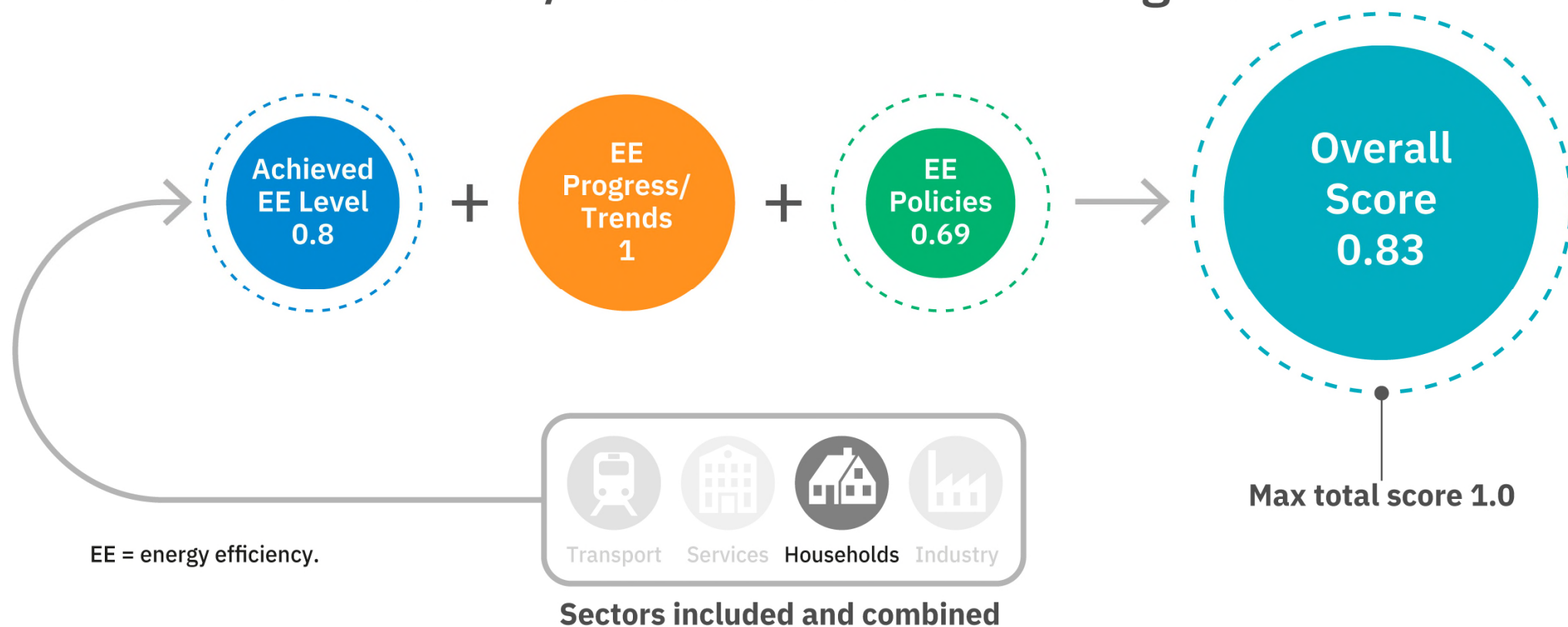
Industry – Luxembourg 2023



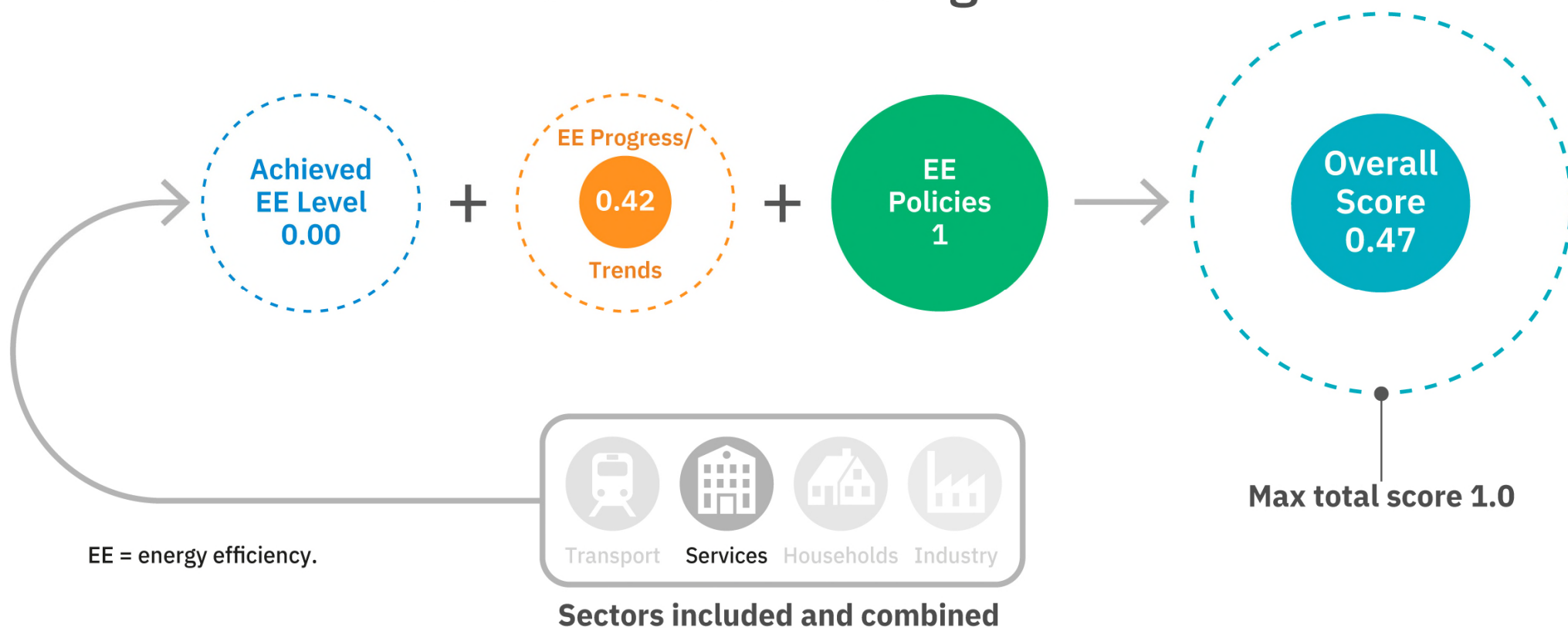
Transport Luxembourg 2023



Residential/Households Luxembourg 2023



Services – Luxembourg 2023



Discussion of results



- **Policies scores are a promises to the future: they represent expected savings by 2030 (including nevertheless policies since 2010)**
- **Achieved policy impacts are included in the present levels (2021) and the trends (from 2010 to 2021)**
- **Trends (since 2010) are more advantageous for „Eastern and Southern“ Member States, given less good starting positions (levels) but ambitious energy efficiency policies over the past**
- **Scores in the middle of the scoreboard are sometimes close together, making it more difficult to clearly distinguish ranks. However, the scoreboard clearly shows where a country is weaker in efforts.**
- **No country, even the best, is excellent in all sectors and all 3 components. There is still a lot of scope to improve Energy Efficiency**

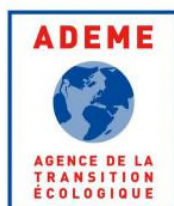


This presentation and infographic on the energy efficiency scoreboard was developed by Borg & Co and ecee as part of the ODYSSEE-MURE project.

Graphic design: Björkman & Mitche!!

More information

<https://www.odyssee-mure.eu/data-tools/scoring-efficiency-countries.html>



european
council for an
energy efficient
economy



Co-funded by the CET LIFE programme of the European Union

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Back-up slides

Q/A on some methodological questions

Why is the European Energy Efficiency Scoreboard unique?

- **Raise the profile** of energy efficiency
- **Increase transparency** about progress and impacts of energy efficiency policy
- **Facilitate learning** – highlight successes and areas for improvement.

The unique aspects of this scoreboard are:

- It uses **indicators** that are adjusted for structural and climatic factors
- It accounts for **quantitative effects** of policies
- It considers impacts from the **past**, the **present**, and even **future** implications
- It weighs **various evidence-based parameters** into **one single score**

By weighing various parameters, and by looking back and to the future, the score gives a more fair and realistic description of development than simple comparisons of energy intensity.

Do we account for comfort and standard of living?

Do we fail to catch comfort level, such as differences in indoor temperature? Do we give poor countries too high rating?

- The scoreboard does not take the level of energy services into account.
- However, the “Trend” score for each a country relies on 10 years of comparable data for the country.
- We can assume that the level of services has not changed drastically.

What about weather fluctuation and differences in industry structure?

- The “Level” score uses average data for the last three years to account for changes in specific years.
- Differences among countries concerning climate and annual temperature variations are corrected for.
- Different industry structures are accounted for.

What about sufficiency?

- A country with more sqm floor space per person is compared with countries with fewer square meters per person.
- The share of public transport is compared to the total passenger transportation in a given country.
- Additional indicators in future could be added, reflecting the impact of sufficiency policies on energy efficiency on the scoreboard.

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Back-up slides

Overall Champion Energy Efficiency Scoreboard 2023

(by component: level, trend, policy, overall)

Which country scores best on “Level”?

Lithuania

Slovenia

France

Greece

Denmark

Denmark has the highest score 2023 on “Level”

Level – overall (all sectors) ranking top 5

Rank	Country	Score
1	Denmark	1.0
2	Lithuania	0.96
3	Slovenia	0.87
4	Greece	0.86
5	France	0.86

Which country scores best on “Trend”?

Ireland

Estonia

Greece

Denmark

Luxembourg

Luxembourg has the highest score 2023 on “Trend”

Trend – overall (all sectors) ranking top 5

Rank	Country	Score
1	Luxembourg	1.0
2	Estonia	0.81
3	Ireland	0.74
4	Greece	0.72
5	Denmark	0.69

Which country scores best on “Policy”?

Germany

Poland

Bulgaria

Cyprus

Luxembourg

Luxembourg get the best score 2023 on “Policy”

Policy – overall (all sectors) ranking top 5

Rank	Country	Score
1	Luxembourg	1.0
2	Germany	0.89
3	Cyprus	0.83
4	Bulgaria	0.57
5	Poland	0.49



Europe's top country 2023?

France

Luxembourg

Germany

Denmark

Latvia

Luxembourg is Europe's 2023 energy efficiency champion

Best top Overall Score – ranking top 5

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Aggregate score of many sectors and three scoring categories

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Households	0.80	1	0.69	0.83
Services	0.00	0.42	1	0.47

Back-up slides

A deeper look to industry

(by component: level, trend, policy, overall)

Industry

Which country scores best on EE "Trend"?

Lithuania

Greece

Estonia

Romania

Cyprus

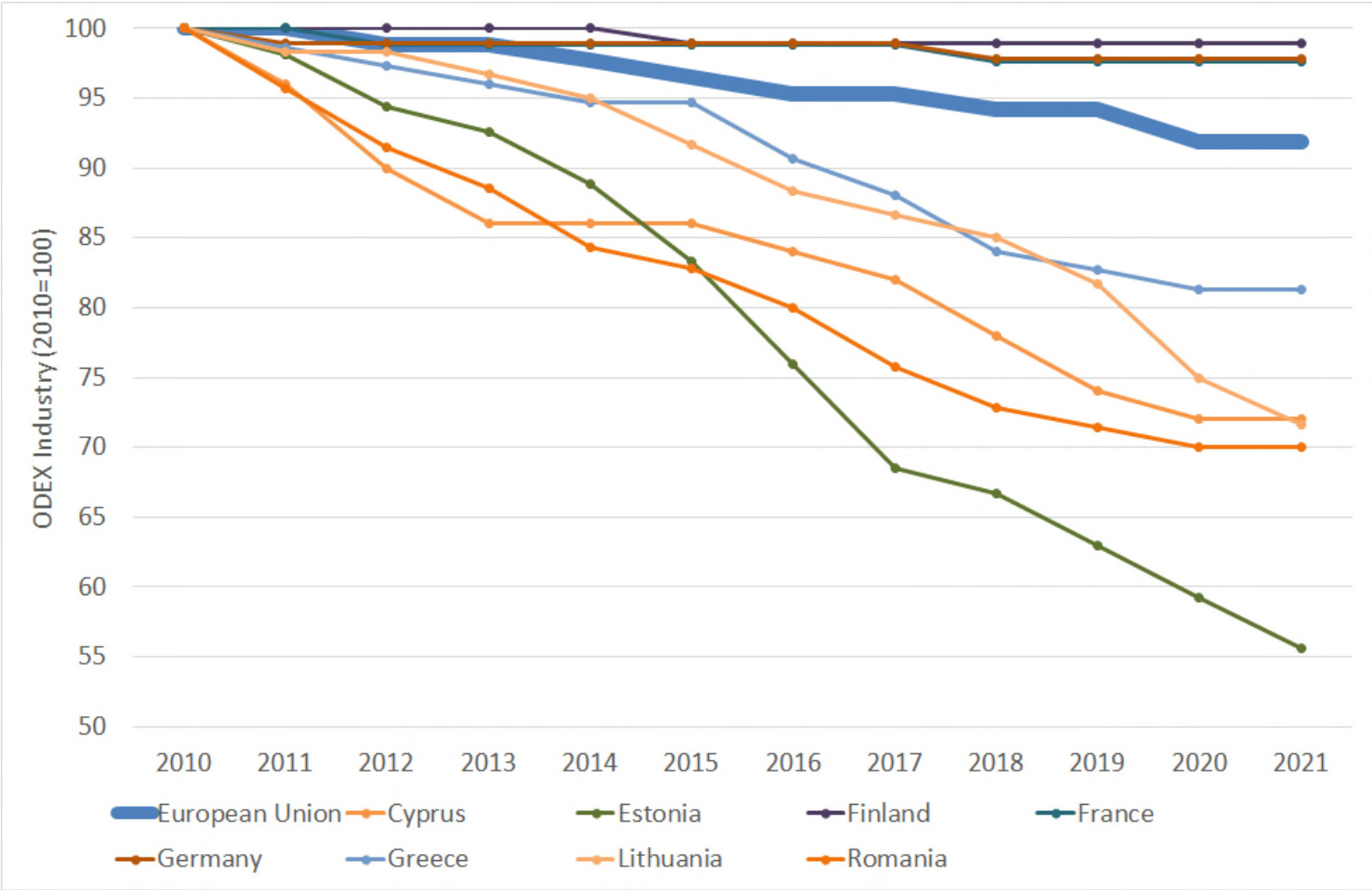
Estonia has the highest score 2023 on “Trend”

Trend – Industry Sectors ranking top 5

Rank	Country	Score
1	Estonia	1.0
2	Romania	0.66
3	Cyprus	0.65
4	Lithuania	0.60
5	Greece	0.41

***Note: baseline year changed from 2000 to 2010 in 2023 UPDATE**

Trends: ODEX Industry (since 2010)

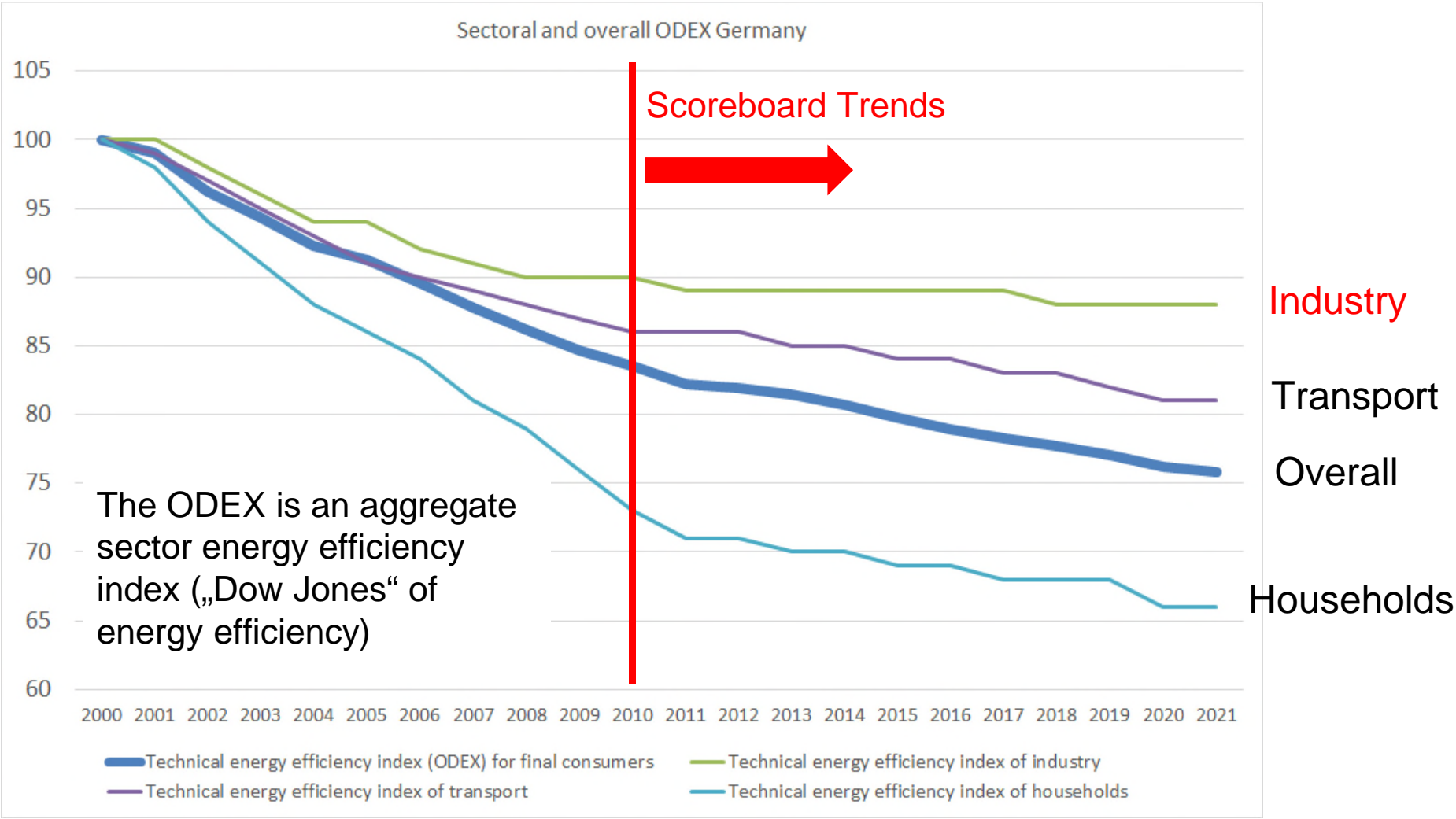


Slowest progress

EU27

Top 5

Where Germany is weak...ODEX Industry Germany



The eccc & ODYSSEE-MURE energy efficiency scoreboard for 2023

Industry: The score “Level” – assessing today’s performance level

The Level Score answers the question “How is my country currently performing with respect to energy efficiency?”

Quantitative measure of a country’s performance at the present time, influenced by autonomous developments, energy prices and policies in place. Accounts for all major sectors of the economy (Industry, Transport, Households, and Services).

The scoring is based on **adjusted** and mainly **physical indicators** for energy efficiency (and not on simple energy intensities):

- specific energy consumption for industrial branches normalised to the average structure of European industry



Note: The “Level” parameter is based on the top-down statistical energy efficiency indicators in the ODYSSEE database



Industry: Which country scores best on “Level”?

Denmark

Estonia

Cyprus

Slovenia

Latvia

Industry: Cyprus gets the best score 2023 on “Level”

Level – Industrial Sector ranking top 5

Rank	Country	Score
1	Cyprus	1.0
2	Latvia	0.94
3	Estonia	0.86
4	Denmark	0.85
5	Slovenia	0.79

Industry:
Which country scores best on "Policy"?

Bulgaria

Germany

Luxembourg

Finland

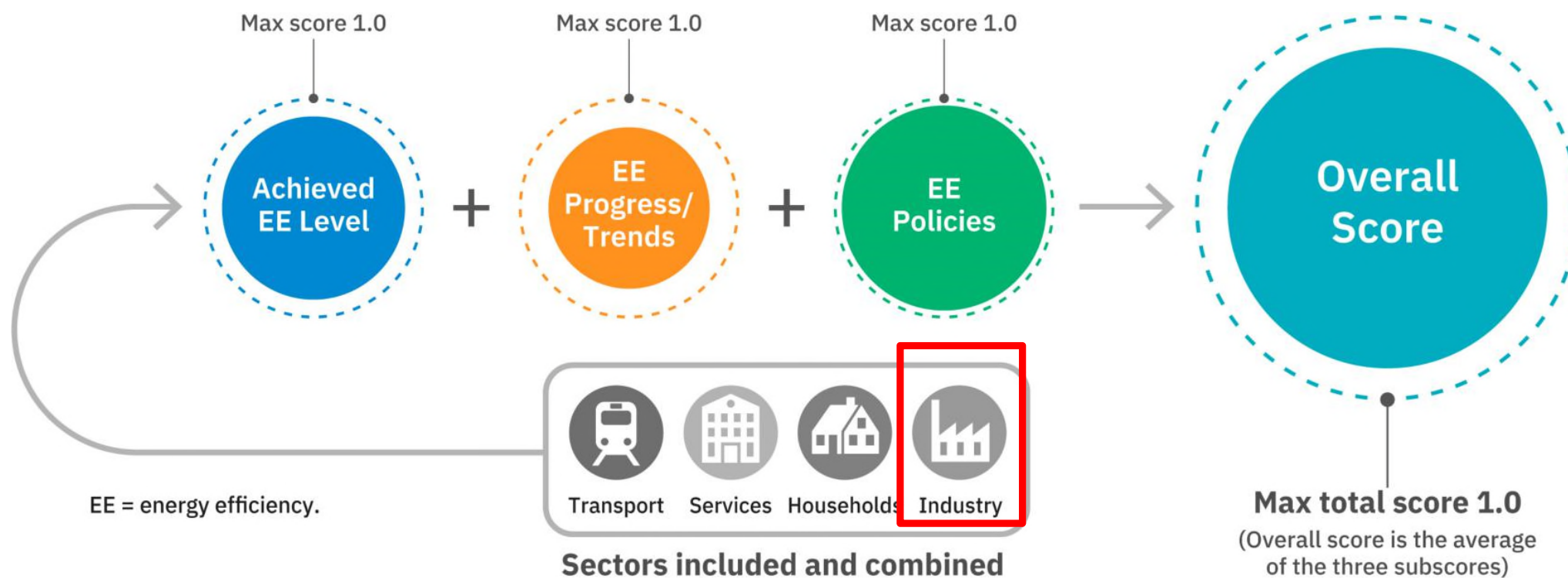
Poland

Industry: Germany gets the best score 2023 bn „Policy“

Policy – Industrial Sector ranking top 5

Rank	Country	Score
1	Germany	1.0
2	Finland	0.87
3	Bulgaria	0.47
4	Luxembourg	0.40
5	Poland	0.28

Industry Sector: Combined Score





Industry Sector: European Energy Efficiency Scoreboard 2023

Who is doing best in 2023?

Romania

Germany

Cyprus

Ireland

Estonia

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Overall Score – Industry Sector ranking top 5

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