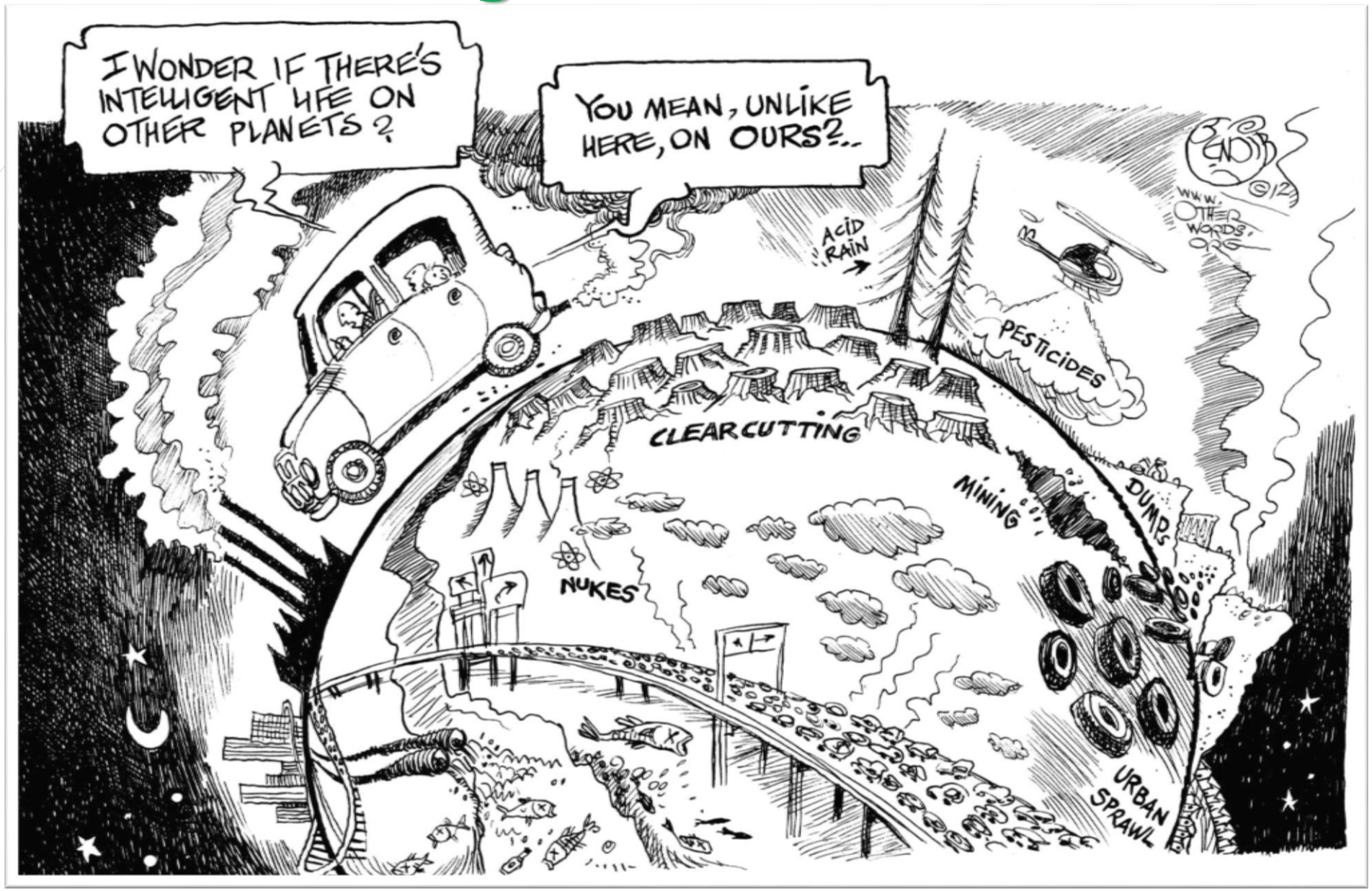
Green Economy

Overview

- Definition
- Policy challenges
- Policy levers to address the policy challenges
- Global scenario
- German green economy
- Italian green economy
- Conclusions

Green Economy



Intention of the cartoon:

1. 

Tropical deforestation

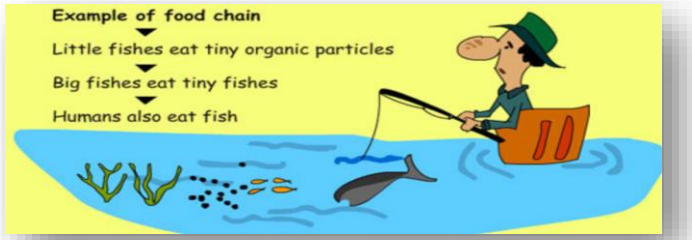

2. 

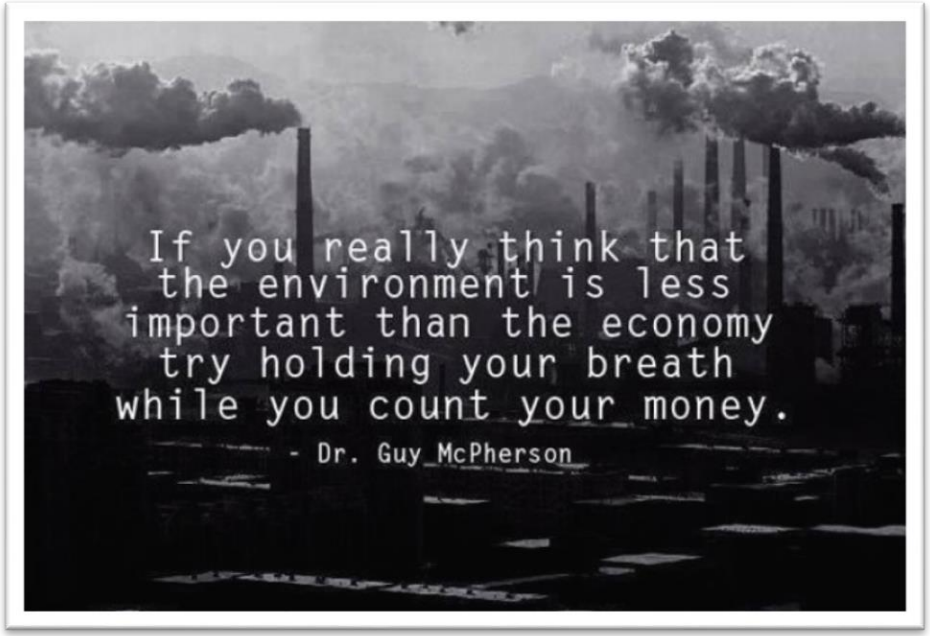

Global warming, air pollution

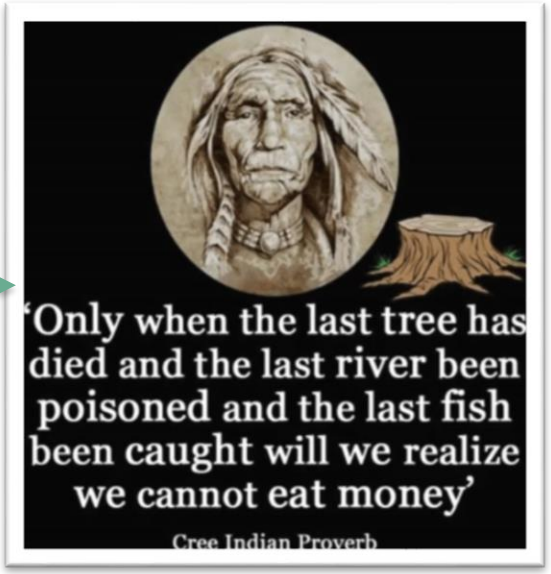



3. 

Death of innocents, disruption of food chain





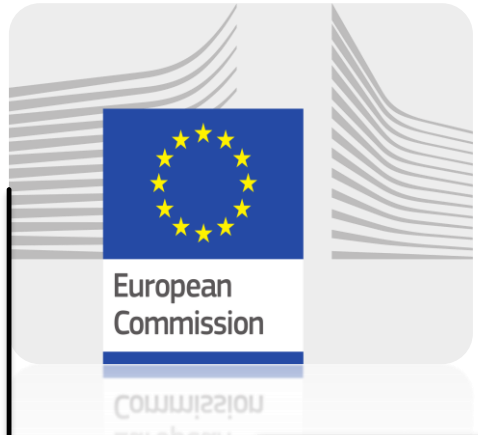
We act like natural resources are infinite and economic growth is everything that counts

„Green economy“

Definition:

“A resilient economy that provides a better quality of life for all within the ecological limits of the planet.”

How to decouple economic growth from resource use and its environmental impact



Resource efficiency scoreboard:

1. Lead indicator → „resource efficiency indicator“

- captures material use with respect to economic growth
- expressed in purchasing power standards per kilogram

2. Dashboard of indicators covering water pollution, material consumption and carbon emissions

3. Thematic indicators assessing priority policy areas

- For example, eco innovation

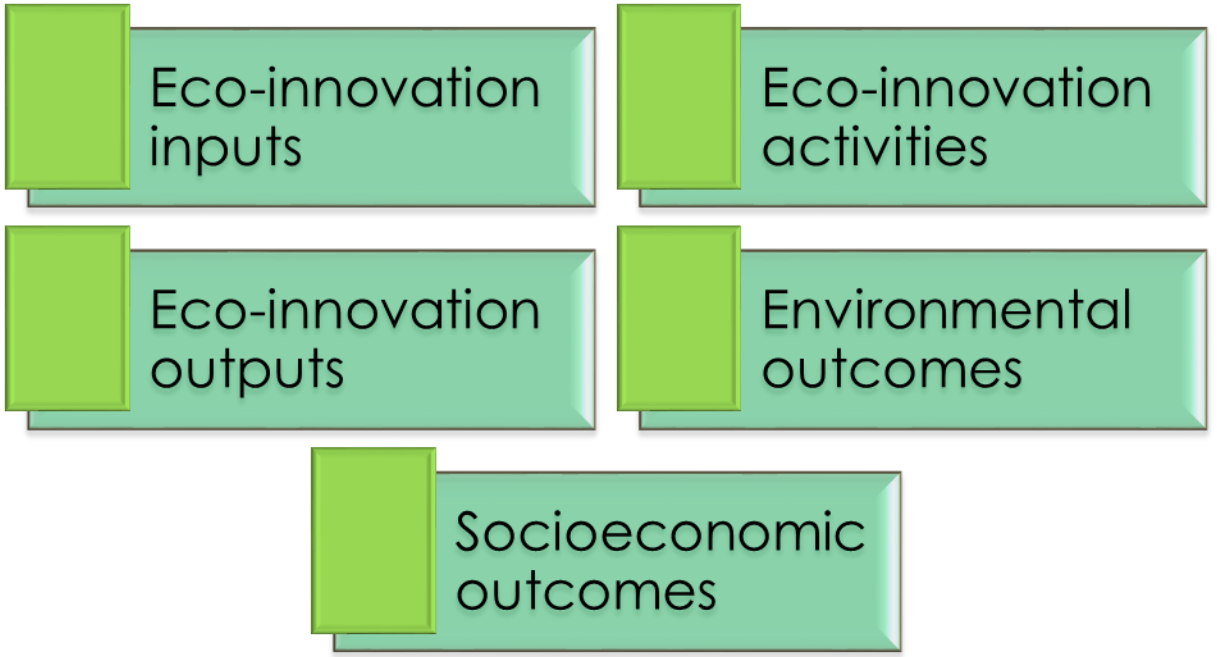
Policy challenges

- Fostering eco-innovation
- Increasing energy efficiency
- Increasing the proportion of municipal waste recycled

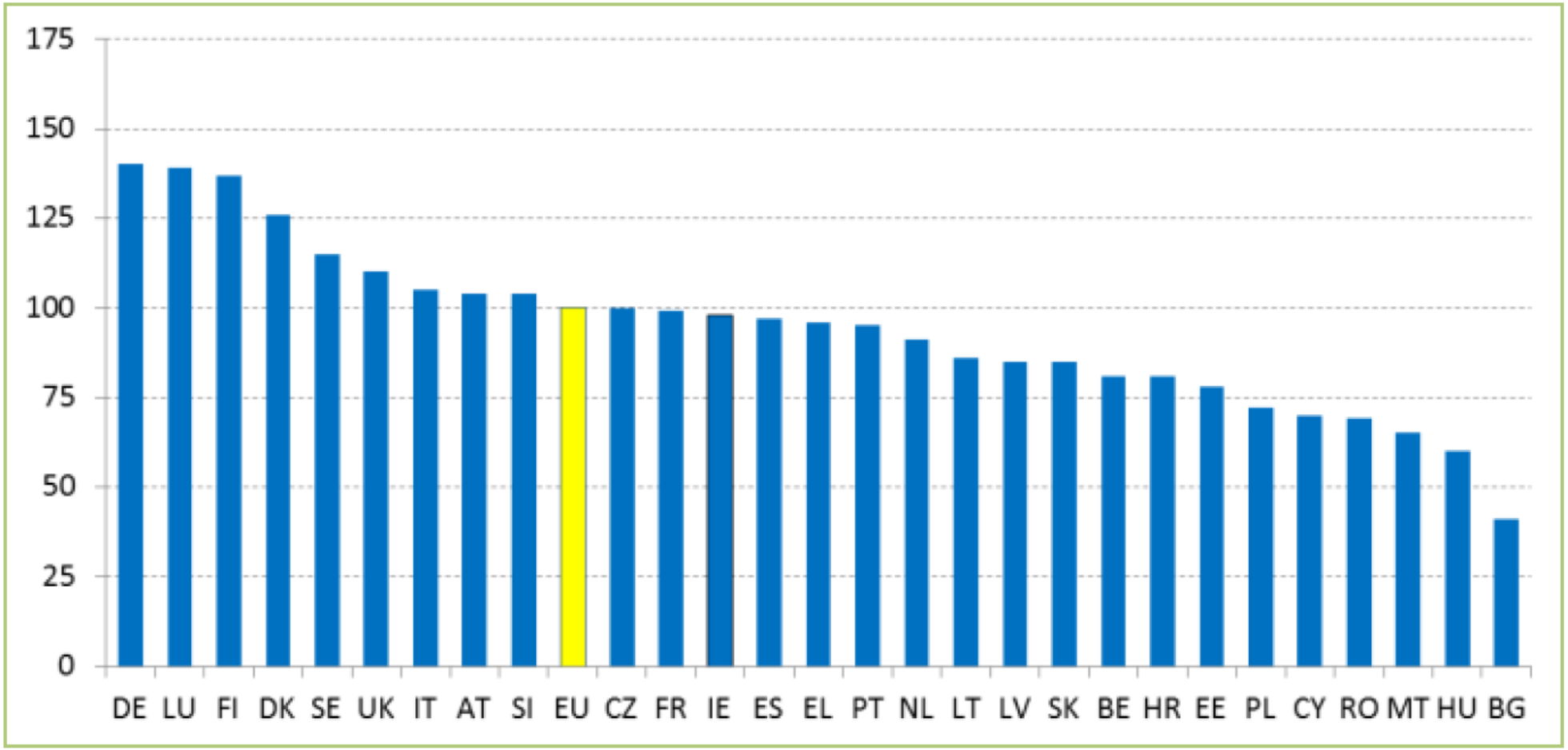
Eco-innovation

Eco-Innovation Index in the EU Resource Efficiency Scoreboard

16 indicators covering 5 innovation areas:

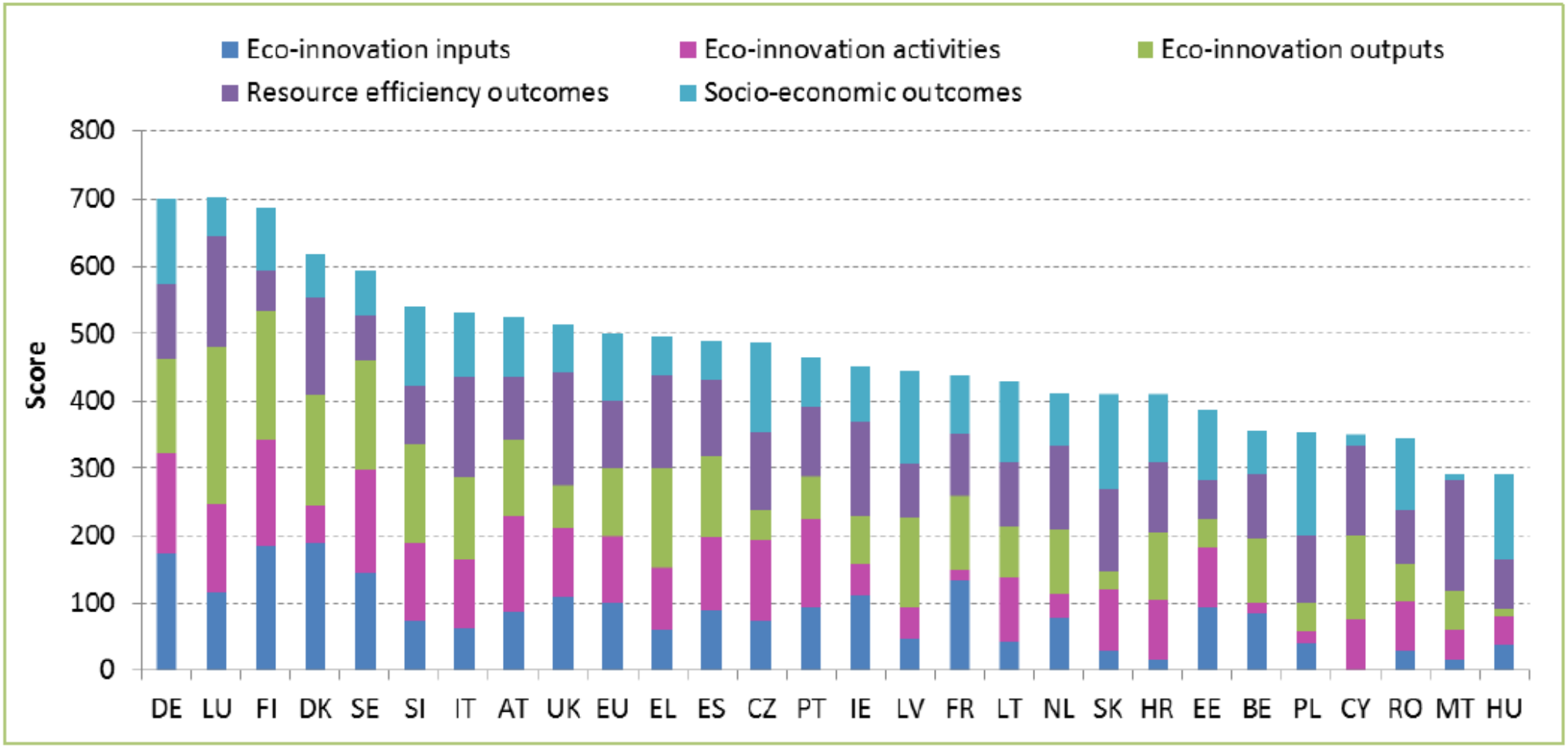


Eco-innovation index, 2016



Source: Eco-innovation Observatory, 2017.

Eco-innovation index, individual categories score, 2016



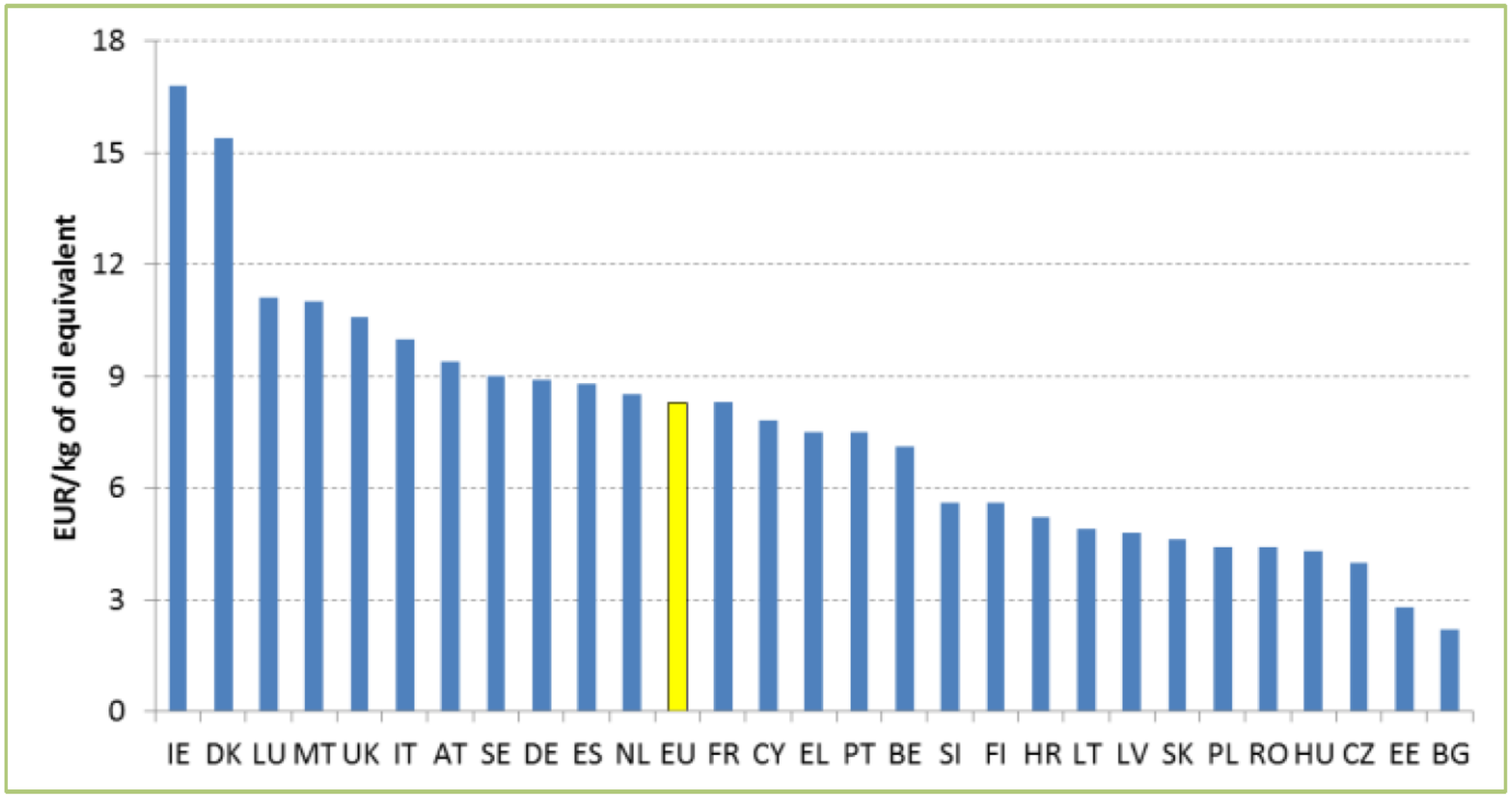
Source: Eurostat, 2017.

Energy efficiency

Key objective of the **Sustainable Development Goals:** doubling global rate of improvement in energy efficiency by 2030.

Energy productivity index in the EU Resource Efficiency Scoreboard**:** ratio of GDP to gross inland consumption of energy for a given calendar year (EUR/ kg of oil equivalent).

Energy productivity, 2015



Source: Eurostat, 2017 .
Notes: data for Spain, France, Greece and Romania are provisional.

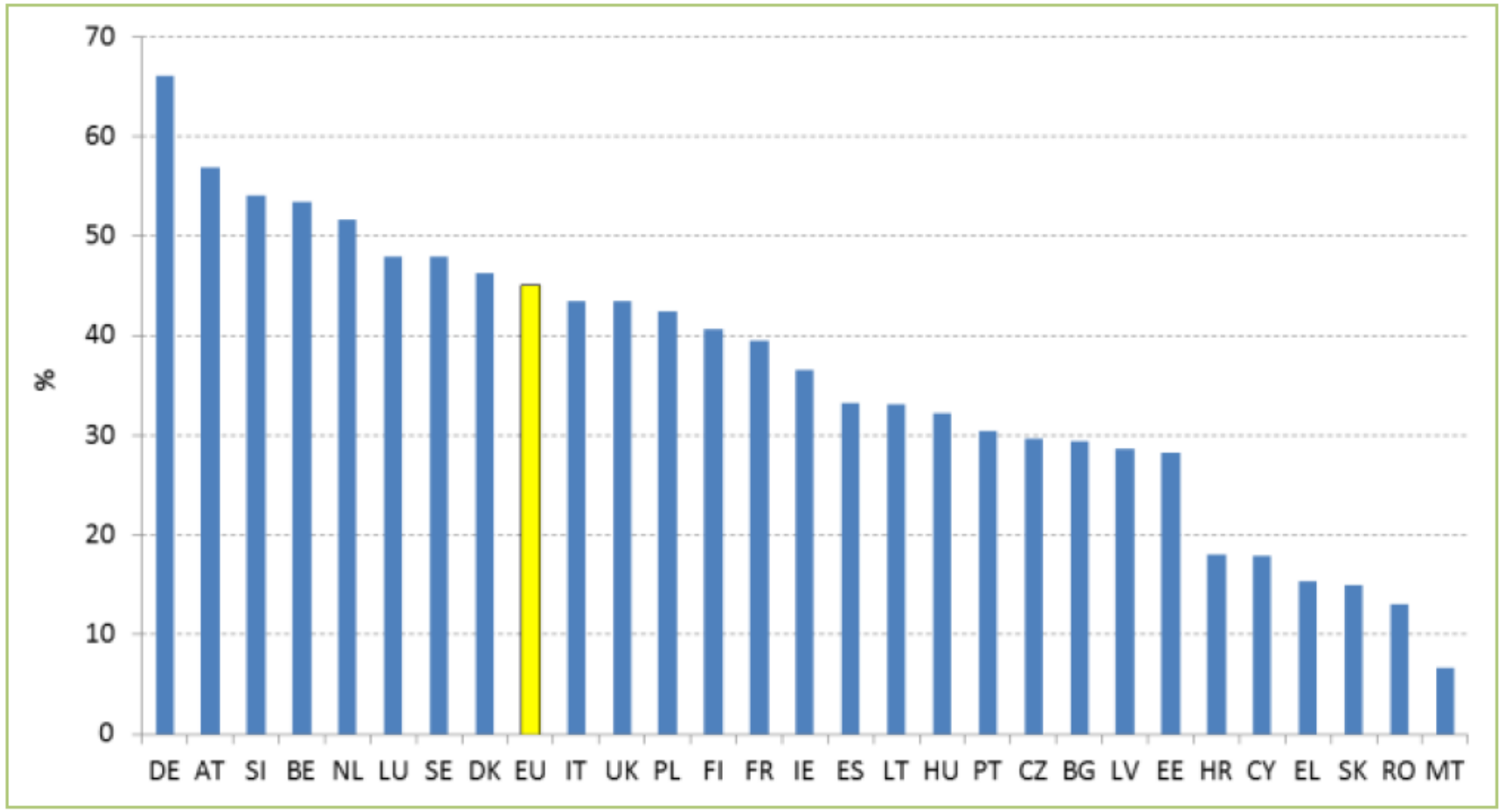
Recycling of municipal waste

EU Resource Efficiency Scoreboard's indicator: recycling rate of municipal waste:

- it measures the proportion of recycled municipal waste in total municipal waste;
- It includes waste generated by:
    1. Households
    2. Small businesses
    3. Public institutions

  Collected by municipalities
- It excludes industrial and agricultural waste.

Recycling rate of municipal waste, 2015



Source: Eurostat, 2017.
Notes: EU data are Eurostat estimates. Data for Ireland refer to 2012 and for Greece refer to 2014.

Environmental taxes

Using traditional command-and-control environmental regulation to accomplish policy goals can be costly.

Environmental taxes can be an effective market-based alternative.

Environmental taxes are those where the tax base is a physical unit of something that has a proven, specific, negative impact on the environment.

Environmental taxes

- by influencing consumer choices, environmental taxation can correct **negative externalities** (i.e. additional costs imposed on society by environmental pollution and resource use).

- Whenever market prices do not reflect the full costs of producing goods and services (**'market failure'**), environmental taxes make it possible to internalize such costs.

Environmental taxes

- That's the so-called **'double-dividend hypothesis**' and led to increased interest in environmental taxation in the 1990s.
- First dividend: improving the environment
- Second dividend: using the revenues from environmental taxes to reduce other, more distorting, taxes (e.g. on labour) or re-invest in 'greener' infrastructure and initiatives.

Environmental taxes

- Evasion of environmental taxes is much lower than for other taxes, while administrative costs are below those for income and value-added taxes.

- Environmental taxation is supported by reputable international organisations such as the World Bank, International Monetary Fund (IMF) and Organisation for Economic Cooperation and Development (OECD).

Phase-out of environmentally harmful subsidies

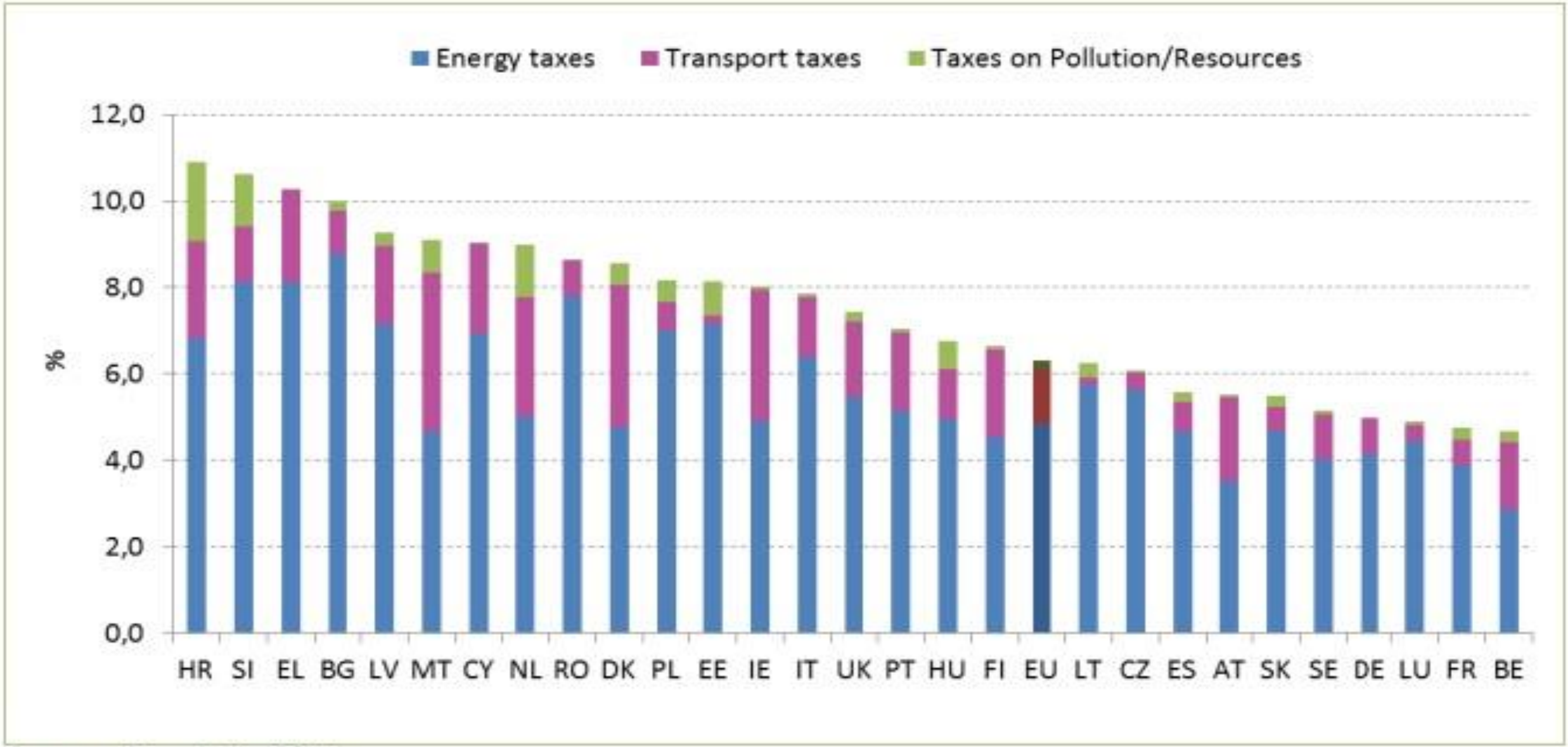
- 'EU Roadmap for a resource efficient Europe' calls for the phasing-out of environmentally harmful subsidies, particularly for fossil fuels, by 2020

Implemtentation of environmental taxes in EU countries

- In EU countries role of environmental taxes is still quite limited.
- **Energy, carbon and transport taxes** are by far the most commonly used
- However, taxes addressing **air and water pollution and resource use** are rather less widespread.

	million EUR	% of total environmental taxes	% of GDP	% of total revenues from taxes and social contributions
Total environmental taxes	359 294	100,0	2,4	6,3
Energy taxes	275 392	76,6	1,9	4,8
Transport taxes	71 269	19,8	0,5	1,3
Taxes on pollution and resources	12 633	3,5	0,1	0,2

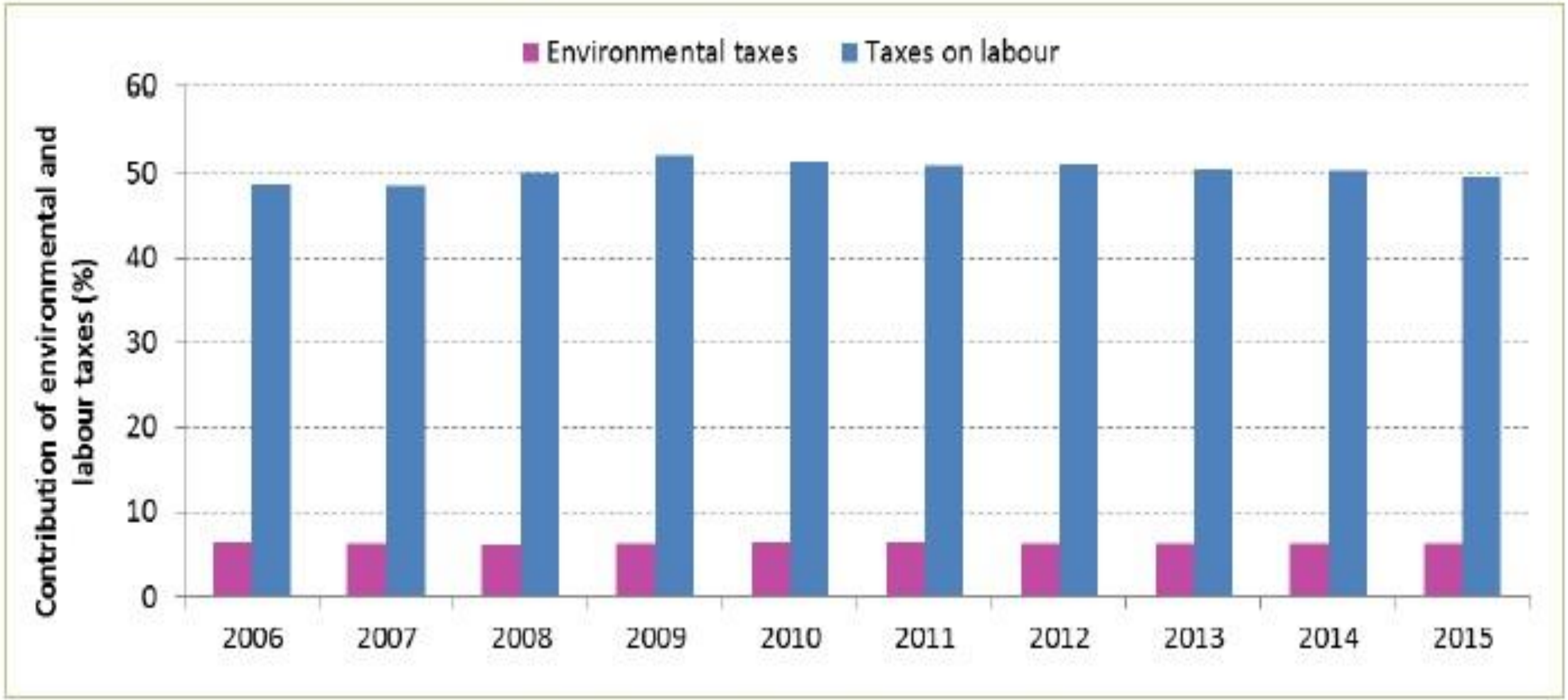
Figure 5 — Total revenues from environmental taxes and social contributions (excluding imputed social contributions) as a share of total tax revenue, 2015



Source: Eurostat, 2017.

Note: Taxes and social contributions do not include imputed social contributions.

Figure A.4 — EU labour and environmental taxes as a share of total revenues from taxes and social contributions, 2006-2015



Source: Eurostat, European Commission DG Taxation and customs union 2017.

The Netherlands' case study

- Taxes on motor vehicles (e.g. registration and annual circulation taxes) were raised and two energy taxation initiatives were introduced — the Energy Tax Regime and the Energy Premium Scheme.
- The Energy Premium Scheme used funds collected through the energy tax to subsidise households and social housing organizations that invested in renewable energy and energy efficiency measures. Following its introduction in 2000, the scheme boosted sales of energy-efficient appliances by 70%, reducing carbon dioxide (CO2) emissions by 210 000 tonnes in its first 2 years.

The Netherlands' case study

- In 2015, the contribution of environmental taxes Netherlands was the **8th** highest in the EU:
- Over 50% of its environmental tax revenues are from **energy**
- Taxes on **transport** also make a significant contribution (30%). Transport tax revenues as a share of GDP in the Netherlands (1%) are among the highest in Europe, ranking third in 2015 (after Denmark and Malta). Until 2009, the registration tax rate was 45.2% of the net list vehicle price. Changes introduced in 2009 based the tax partly on vehicles' carbon emissions. Petrol vehicles emitting less than 110 grams of CO2 per kilometer and diesel vehicles emitting less than 95 grams were exempt from the tax. After some further adjustments to the cut-off limits, since 2013 the registration tax is based entirely on carbon emissions.

The Netherlands' case study

- These changes at least partly explain why the Netherlands' average CO2 emissions from vehicles improved from the 12th-lowest in the EU in 2007 to the lowest in 2014.

- This policy change had a clear budgetary impact, however: revenue from the vehicle registration tax dropped by about 65% from EUR 3.6 billion in 2007 to EUR 1.1 billion in 2014 (in nominal prices).

World economy transition towards a smart, sustainable and inclusive economy

What is the likelihood of achieving the goals in the Paris Agreement in this new global equilibrium?

In 2016, according to the green economy progress - a UNEP indicator that assesses the progress of countries in the green economy area:

- 79% of the countries are moving forward
- 21% have reached deadlock, including China

Europe

Europe has achieved in advance the goals of the climate package for 2020, but in the new 2030 package it has identified targets (27% of renewables on gross final consumption and 30% reduction in energy consumption) which make the achievement of the 40% reduction target for greenhouse gases unlikely.

The implementation of the Paris Agreement will require an improvement of the European targets by 2030.

China

The main responsible actor for greenhouse gas emissions in the world (with 29% of global CO2 emissions), with total emissions higher than those of the United States and per capita emissions higher than European ones.

The measures presented by China for the Paris Agreement are insufficient and China plans to continue to increase emissions until 2030.

USA

President Trump's decision to withdraw from the Paris Climate Agreement.

About 40% of US greenhouse gas emissions come from States that have officially declared that they will fulfil their commitment to reduce greenhouse gas emissions in compliance with the Paris Agreement.

Key indicators:

- investments in renewables continue to grow: in March and April 2017, solar energy and wind power, for the first time, exceeded the 10% of electricity demand.
- The United States continue to be world leader in the production of biofuels and energy efficiency technologies.
- Green bond issues in 2016 were 80 times higher than those in 2012, reaching a figure of 38.4 billion dollars.

Germany – „Green growth“

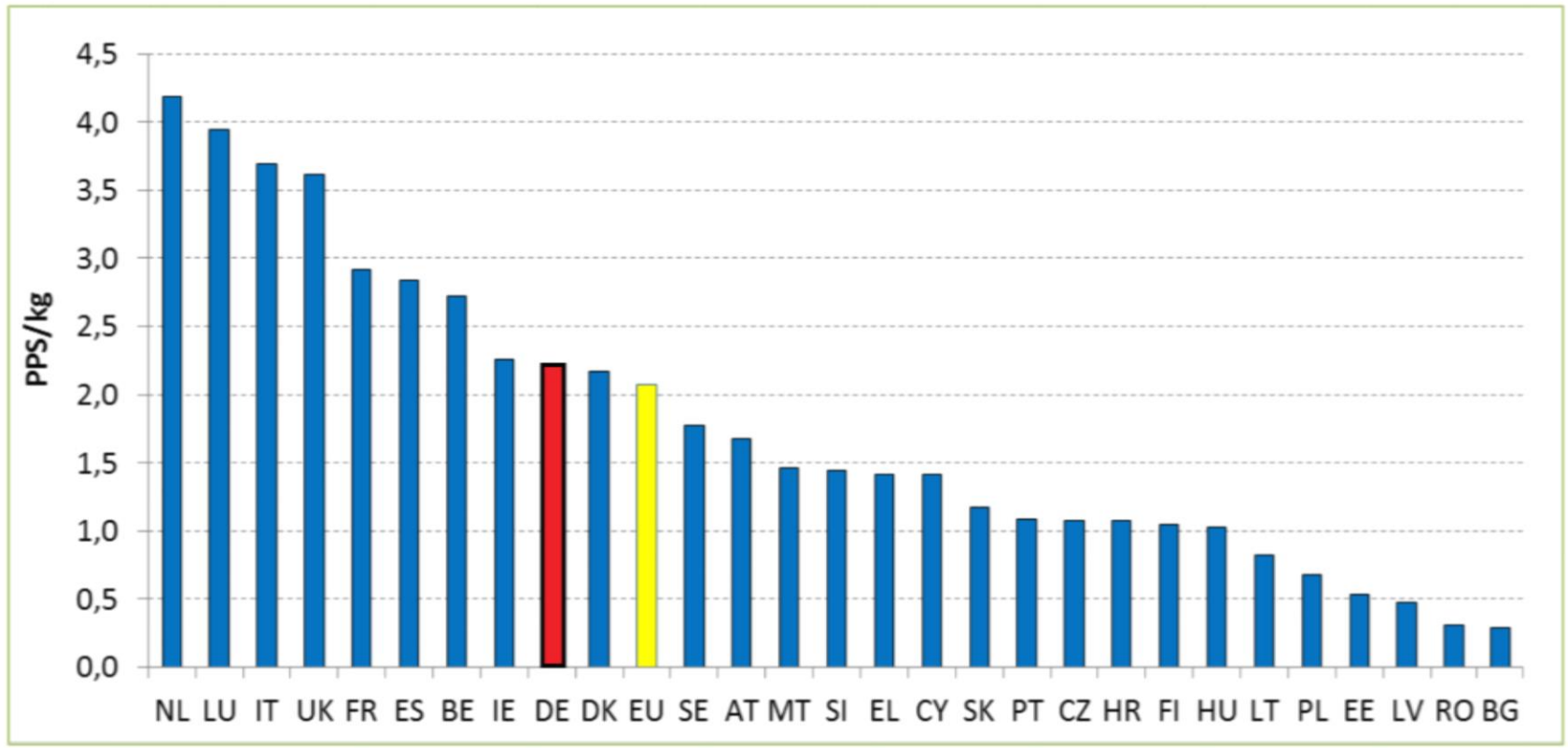
- 2002: Sustainability = guiding principle for national policies
- Increase the share of renewables from 17% today to more than 80% in 2050
- 2022: last nuclear power plant should be closed
- Greenhouse gas emissions should be decreased by 40% by 2020 and 80% by 2050

Per the World Bank (2016)

Rank	Country	GDP (US$MM)
	World	75,543,543
1	United States	18,569,100
—	European Union[n 1][23]	16,397,980
2	China[n 5]	11,199,145
3	Japan	4,939,384
4	Germany	3,466,757
5	United Kingdom	2,618,886
6	France	2,465,454

Germany – resource productivity

Figure 1 — Resource productivity, 2016

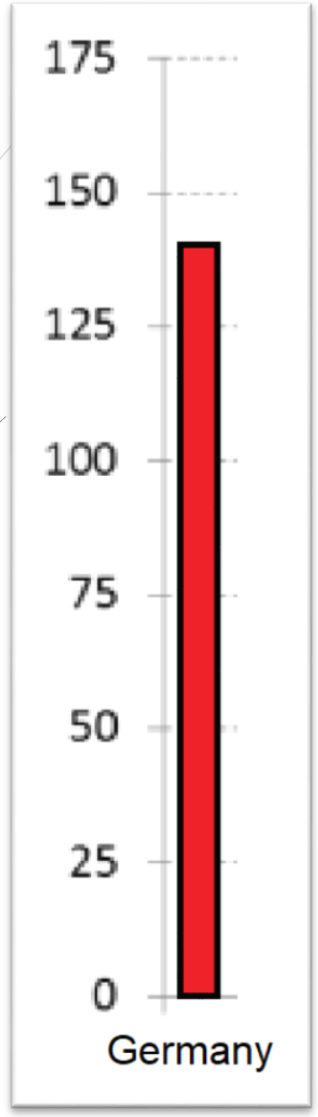


Source: Eurostat, 2017.

- PPS = artificial currency unit that considers exchange rates
- Germany's economic structure is balanced between the industrial and the service sector

Germany: 2,25 PPS per domestic material consumption

Germany – eco - innovation



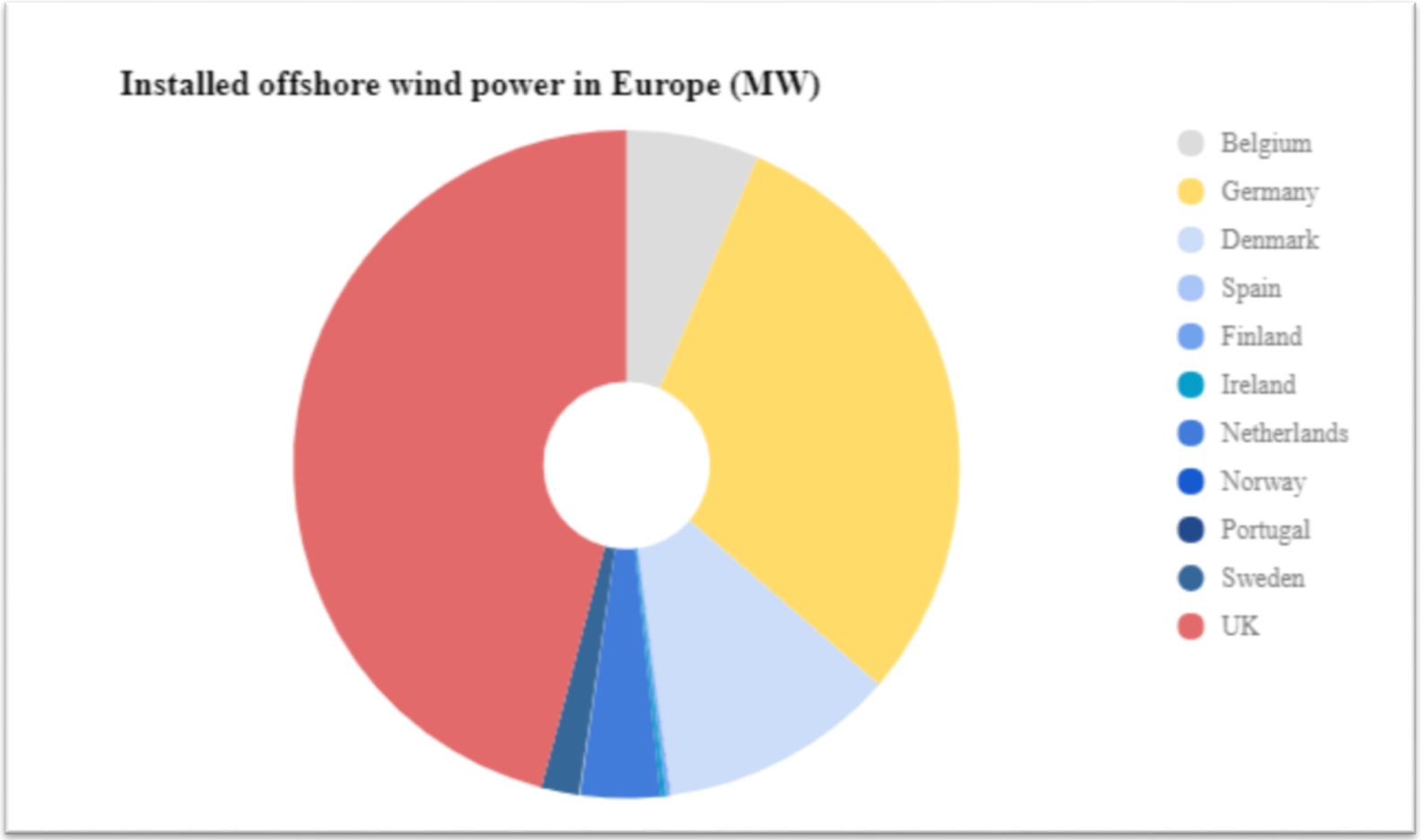
- Germany = global leader in renewable energy

Germany – leader in installing offshore wind farms

- Total numbers: UK most installed offshore wind power in Europe (5,061MW) followed by Germany (3,295MW)

- 2015: Installed megawatt hours of offshore wind energy

1. Germany = 2.282 MW
2. Great Britain = 556 MW
3. Netherlands 180 MW

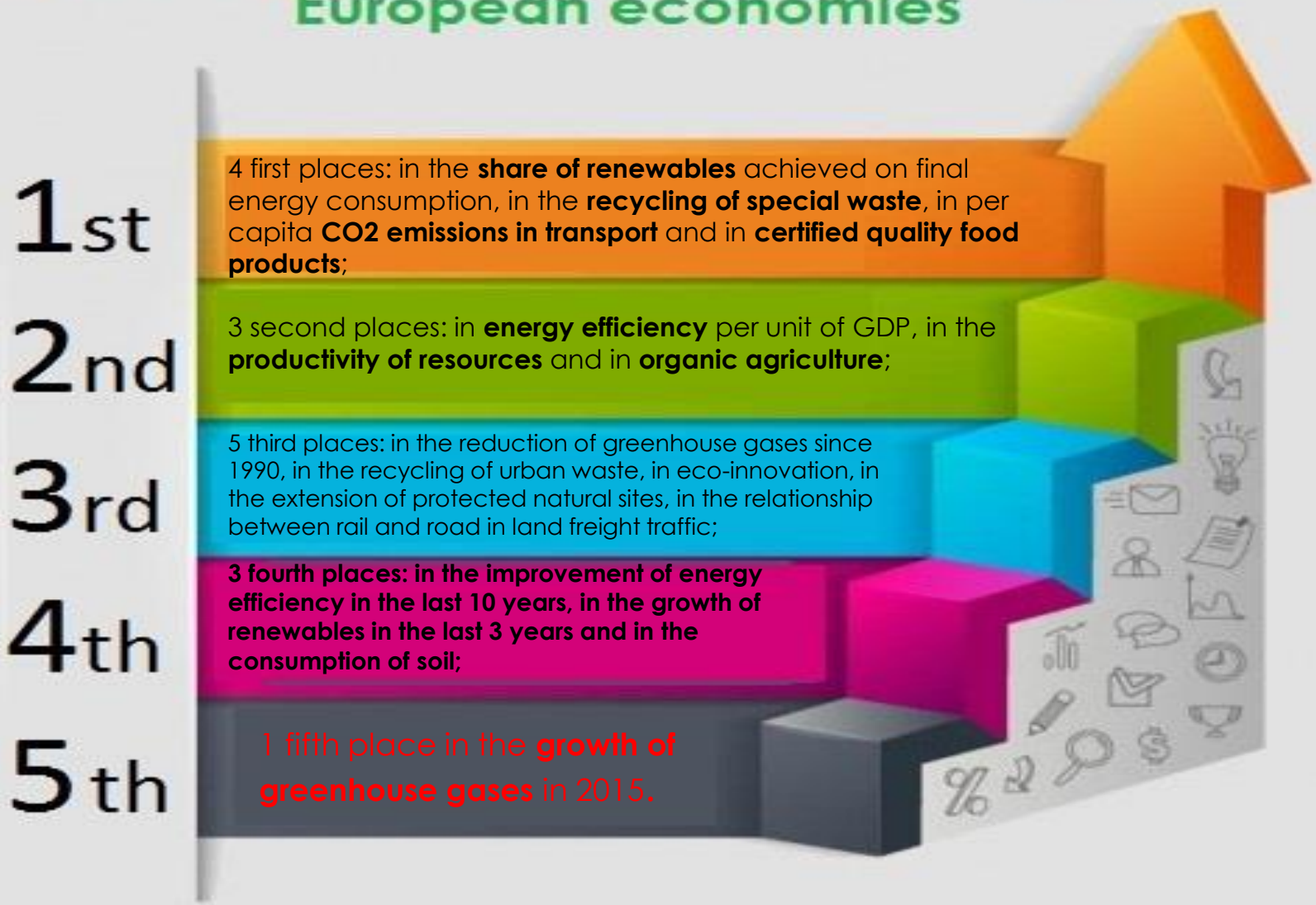


Green economy Italy and EU in comparison

The **Report on the State of the Green Economy** presented to the General States 2017 analyzes the position of the Italian green economy compared to that of the other large European countries (Germany, United Kingdom, France and Spain) in addition to the European average, **through 16 key indicators for 8 strategic themes** :

- greenhouse gas emissions;
- energy efficiency ;
- renewable energy sources;
- waste recycling and resource productivity;
- eco-innovation;
- organic farming and certified quality of agri-food products;
- consumption of soil and protected natural sites in Europe;
- greenhouse gas emissions in transport and weight of road transport.

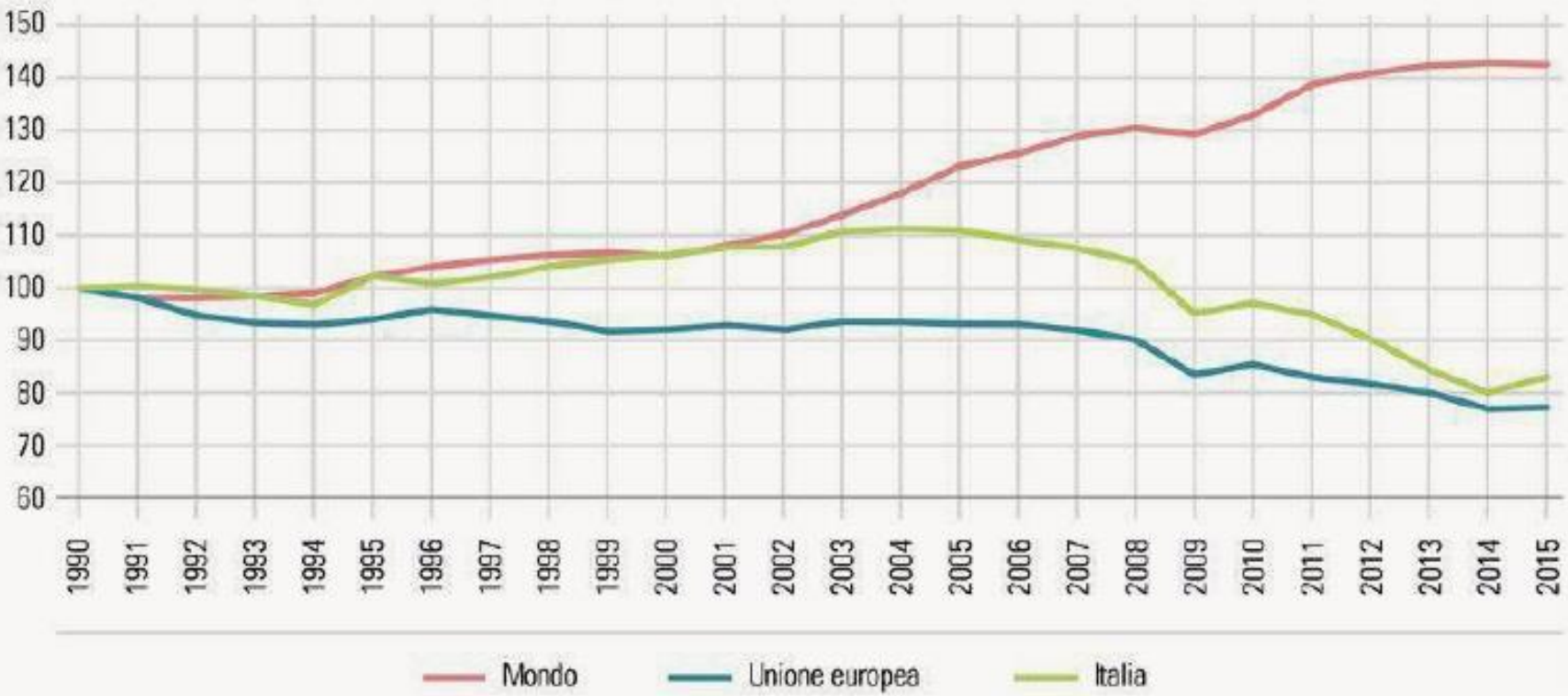
Italian green economy compared to the other 4 major European economies



Greenhouse gas emissions

- **Between 1990 and 2014** Italy reduced its greenhouse gas emissions by about 20%, slightly below the average European reduction of -24%
- In **2015**, Italy's position significantly worsened with an increase of 3.5% in emissions

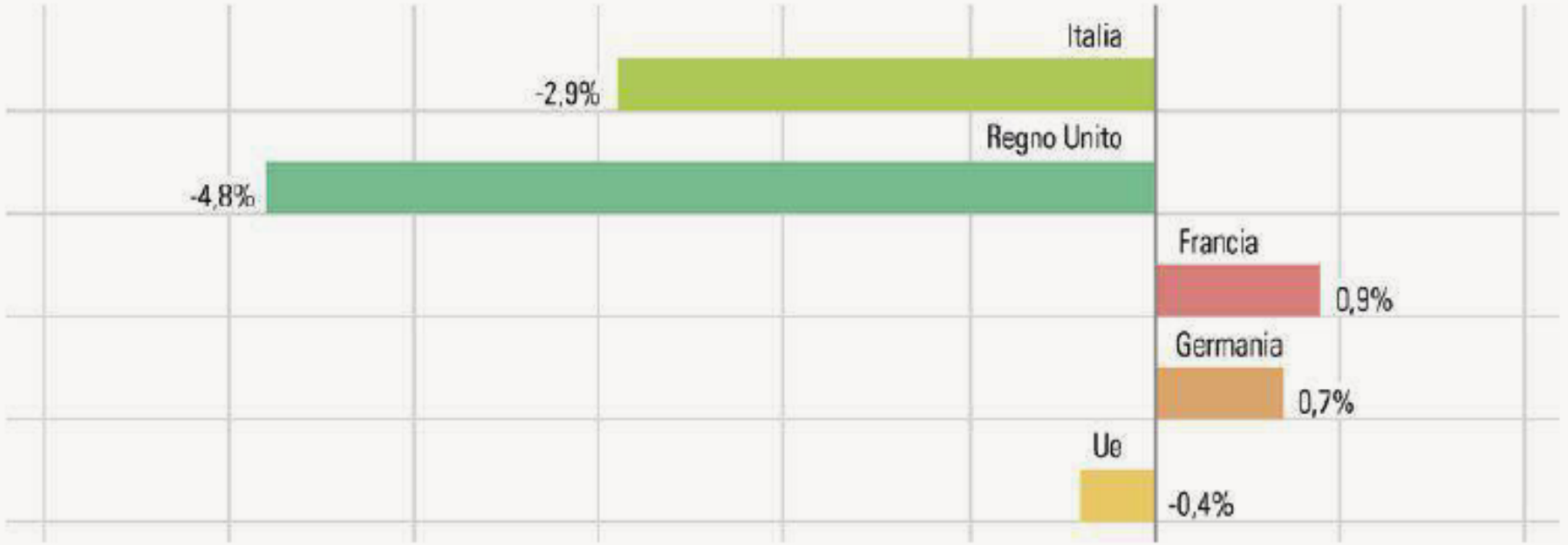
Figura 35 Andamento delle emissioni di gas serra nel mondo, nella Ue28 e in Italia, 1990-2015 (valori indice 1990=100)



Fonte: elaborazione su dati Ispra, Eurostat, International Energy Agency, Unep

In 2016 Italy reduced its greenhouse gas emissions more significantly than most of the main european country, except for the UK

Figura 36 Stima della variazione delle emissioni nazionali di CO_2 nel 2016 nelle principali economie europee



Fonte: Eurostat

Energy efficiency

- For energy efficiency, Italy has a better performance than the European average and in 2nd place in the ranking of the five big countries, behind only the United Kingdom.
- Analyzing instead the trend over time, from 2005 to 2014, we see that the energy intensity of Italy's GDP has improved by 16%: less than the European average (18%) and only in 4th place.

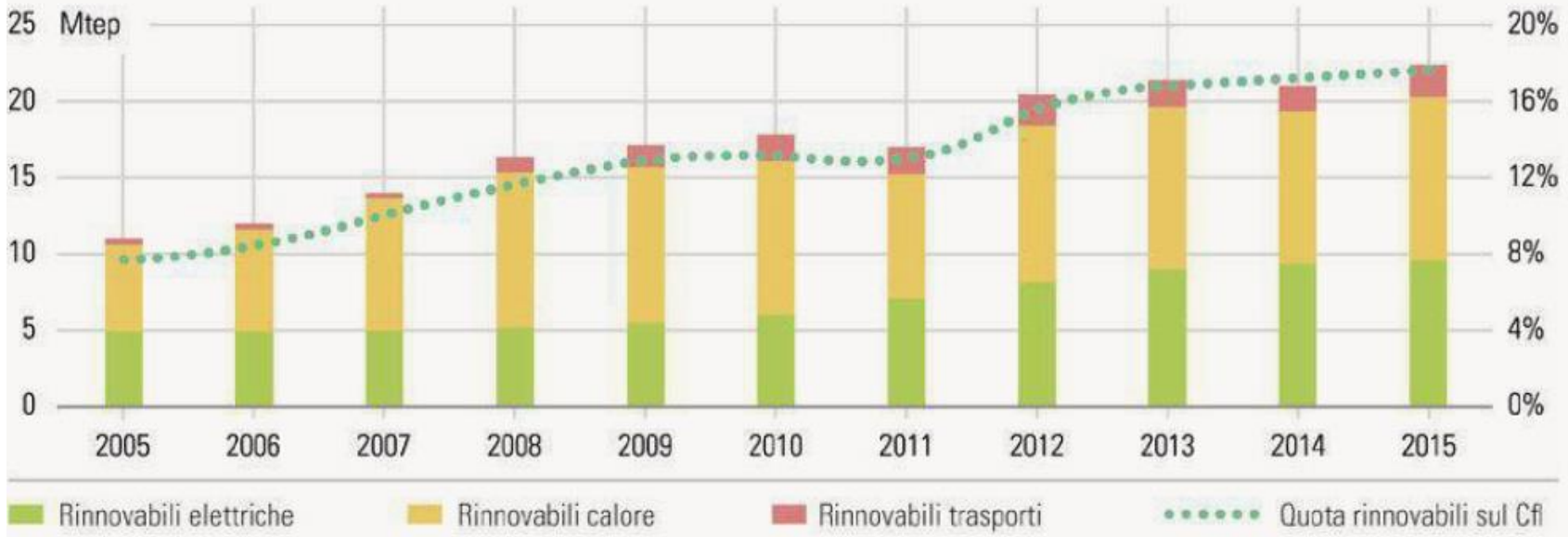
Renewable energy sources

- Share of gross final consumption satisfied with renewable energy sources: in 2014 Italy reached 17.1%, above the European average of 16% and in **1st place** among the five large European countries.

However, Italy must pay attention because this primacy among the big European countries risks to last very little: in the last three years Italy has, in fact, stopped the growth of new investments in renewable sources and in 2014 for new investments in renewable sources is dropped to 4th place.

Share of gross final consumption satisfied with renewable energy sources

Figura 39 Consumo finale lordo di energia (Cfl) da fonti rinnovabili in Italia tra il 2005 e il 2015 per tipo di utilizzo (Mtep, asse sx) e in rapporto al Cfl totale (%, asse dx)



Fonte: elaborazione dati Eurostat e Gse

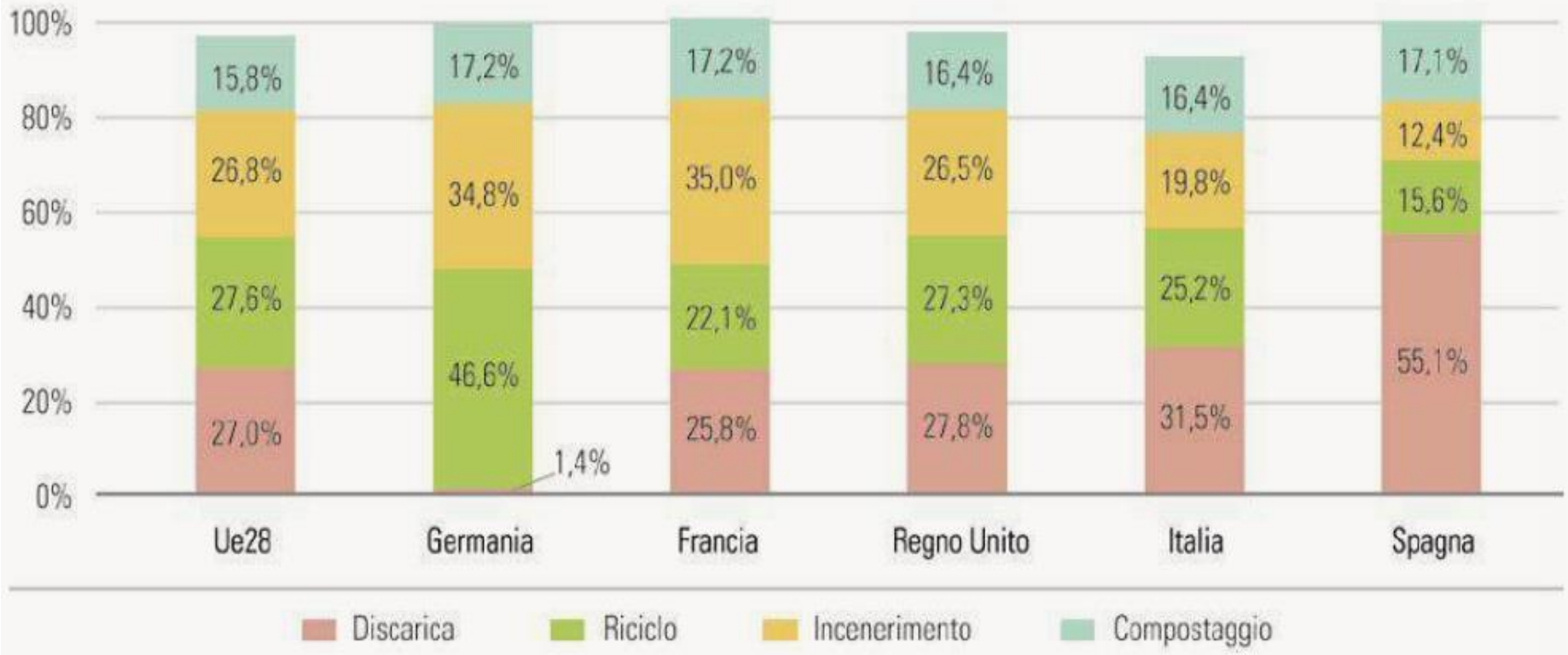
- MTEP - Million-Ton Equivalent of Petroleum

Recycling of urban and special waste

- In the recycling of **urban waste** Italy (25,2%) is two percentage points below the EU28 average and in 3rd place among the five major European countries.
- In the recycling of **special waste**, with about 99 million tons equal to 76%, Italy is in 1st place.

Recycling of urban waste

Figura 40 Gestione dei rifiuti urbani nella media Ue28 e nelle principali economie, 2014



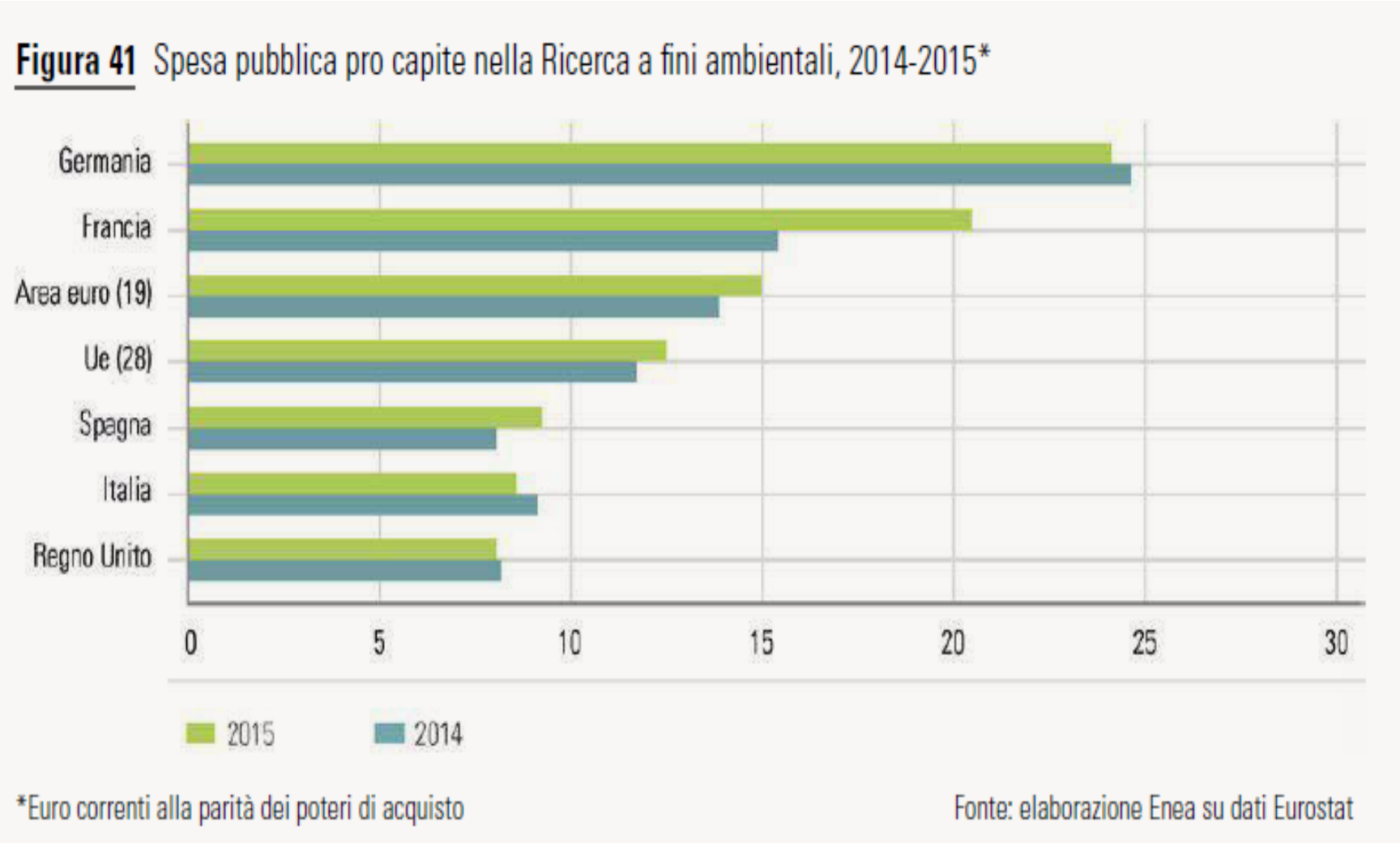
Fonte: elaborazione Fondazione su dati Ispra (dati sull'effettiva quantità trattata)

Resource productivity

- For resource productivity, measured as internal consumption of materials per unit of GDP, Italy, with 3 euros per kg, ranks 2nd among the five major European countries.

Eco- innovation

- Public spending on environmental R&D decreased by 5.8% in 2015 compared to 2014, against an increase of 8.7% i the euro area.
- In R&D spending per capita environment, we dropped to 10th place in Europe, with 8.7 euros, compared with an average of 15.6 in the Eurozone.



organic farming and certified quality of agri-food products

- With 1.4 million **hectares cultivated with biological criteria**, Italy ranks 2nd in Europe, after Spain (1.7 million hectares).
- Italy ranks, well above average, at the 1st place in Europe for **food products certified for quality and traceability.**

Consumption of soil and protected natural sites in Europe

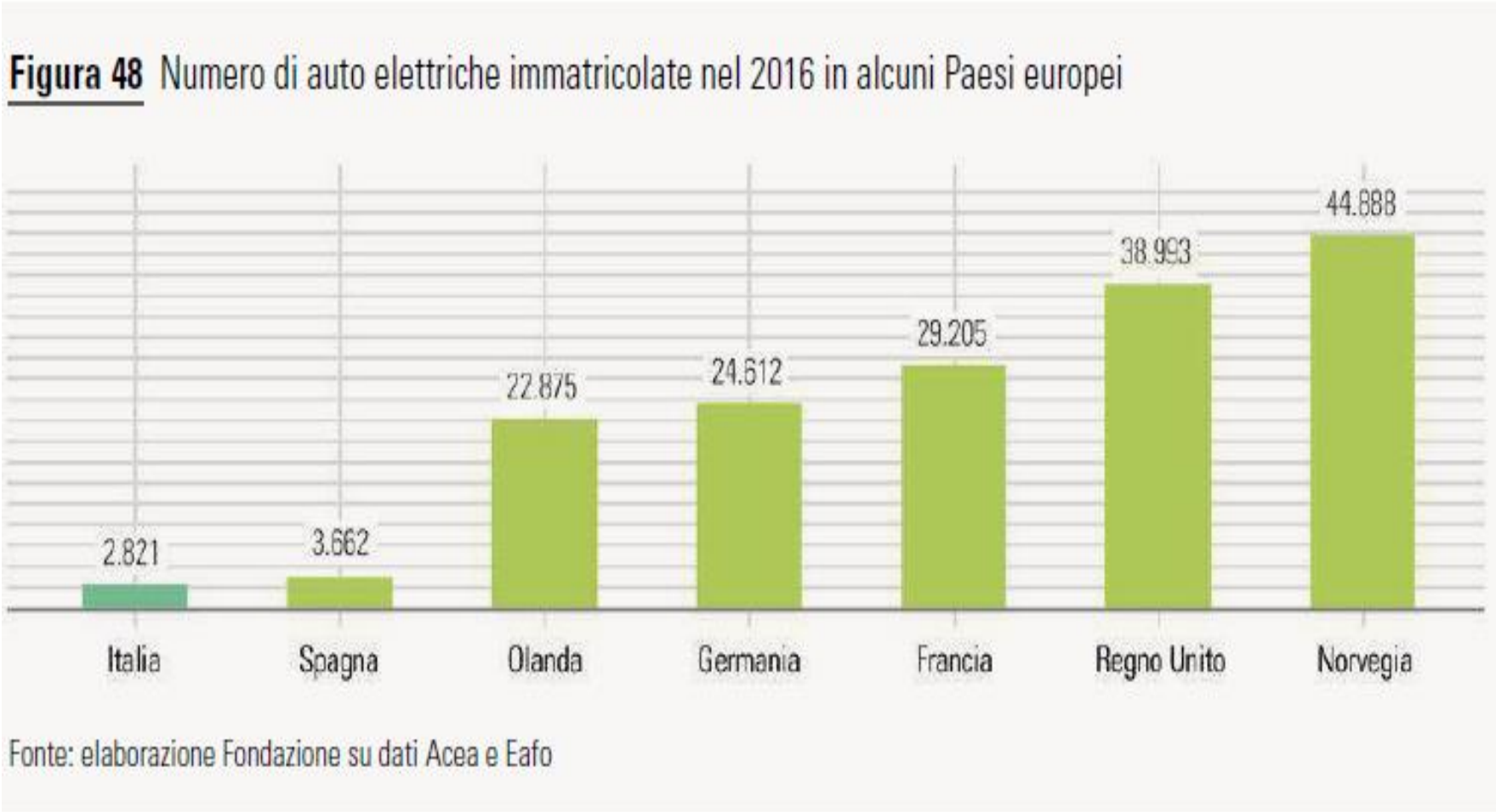
- As for **land consumption**, with 7% Italy is in a worse condition than the European average (4.3%),
- As for the **extension of the terrestrial sites** of Community importance of the Natura 2000 network, Italy protects about 57 000 Km squared, and is in 3rd place.

Per capita CO2 emissions in the transport sector

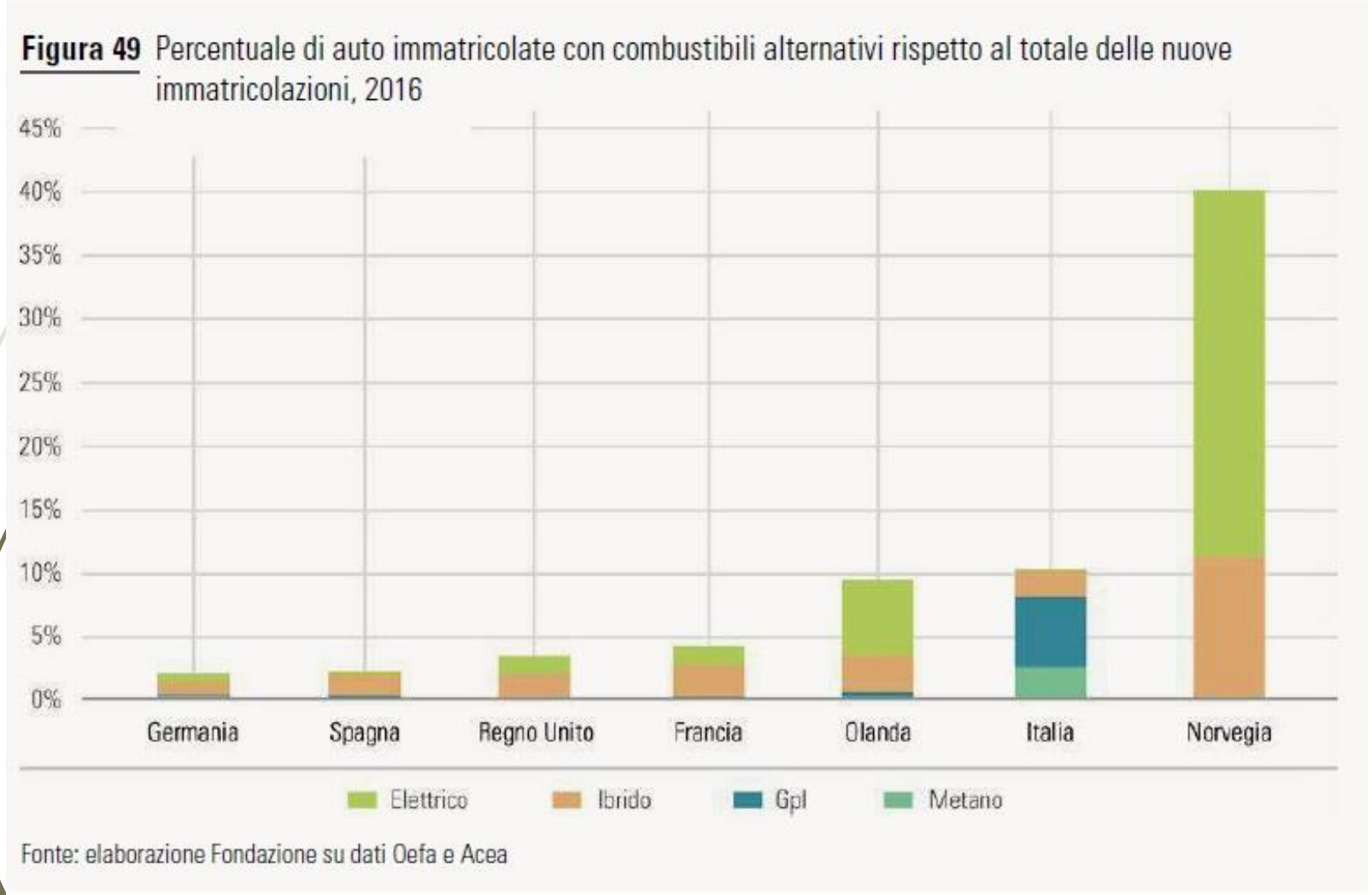
- Per capita CO2 emissions in the transport sector in Italy are lower than the European average (1.76) and the 1st place among the large European countries
- Italy is the European country with the highest private motorization rate: 600 cars with petrol and diesel per 1,000 inhabitants.

E-cars

- While Norway reaches 29% of electric cars compared to the total number of cars registered in a year, Italy is still at 0.2% with an irrelevant 0.05% of the total number of vehicles in circulation.



Percentage of cars with alternative fuels



- For hybrid cars, constant growth since 2010: in 2016 they represent 2.1% of the total registered with a + 0.4% compared to 2015 (Italy is second only to Norway).
- Italy continues to be the leading country in Europe with regard to the share of cars powered by gas

Performance Index

- Sector performance index: it derives from the sum of the positions of a country registered with the 16 key indicators and the subsequent normalization on a scale of 0 (worst possible performance with 16 fifth places) to 100 (best possible performance with 16 first places). Italy scores 59/100, ahead of Germany with 53/100, the United Kingdom with 50/100, France and Spain with 48/100.

Global Green Economy Index

COUNTRIES AND CITIES COVERED

The 5th edition of the GGEI covers 80 countries, including the entire European Union. The new GGEI also collected perception scores for 50 cities, taken roughly from the original list of C40 cities. We hope future editions of the GGEI will cover more countries and cities. This expansion is dependent upon funding support from our partners and data availability.

AFRICA

- Burkina Faso
- Ethiopia • Addis Ababa
- Ghana
- Kenya
- Mauritius
- Morocco • Casablanca
- Mozambique
- Nigeria • Lagos
- Rwanda
- Senegal
- South Africa • Johannesburg
- Tanzania
- Zambia

ASIA

- Azerbaijan
- Bangladesh • Dhaka
- Cambodia
- China • Beijing • Hong Kong • Shanghai
- India • Mumbai • New Delhi
- Indonesia • Jakarta
- Israel
- Japan • Tokyo
- Jordan
- Kuwait
- Malaysia
- Mongolia
- Oman
- Philippines
- Qatar
- Republic of Korea • Seoul
- Saudi Arabia
- Singapore
- Taiwan
- Thailand • Bangkok
- Turkey • Istanbul
- UAE • Abu Dhabi
- Vietnam • Hanoi

EUROPE

- Austria
- Belgium
- Bulgaria
- Croatia
- Czech Republic
- Cyprus
- Denmark • Copenhagen
- Estonia
- Finland • Helsinki
- France • Paris
- Germany • Berlin
- Greece • Athens
- Hungary
- Iceland • Reykjavík
- Ireland • Dublin
- Italy • Rome
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Norway • Oslo
- Poland • Warsaw
- Portugal
- Romania
- Russian Federation • Moscow
- Slovakia
- Slovenia
- Spain • Madrid
- Sweden • Stockholm
- Switzerland
- United Kingdom • London

LATIN AMERICA & THE CARIBBEAN

- Argentina • Buenos Aires
- Brazil • Rio de Janeiro • São Paulo
- Chile
- Colombia • Bogotá
- Costa Rica
- Mexico • Mexico City
- Panama
- Peru • Lima
- Uruguay

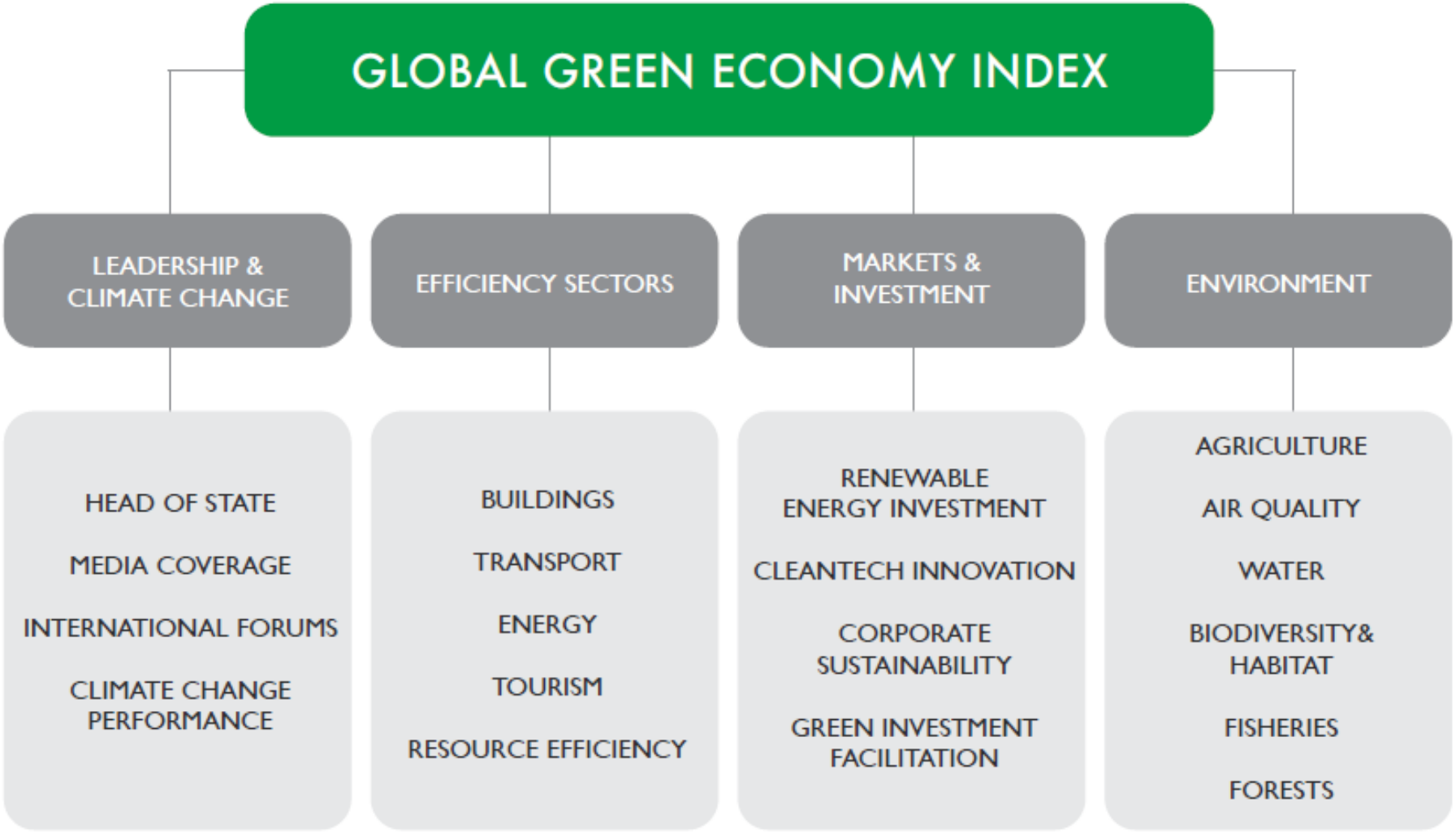
NORTH AMERICA

- Canada • Toronto • Vancouver
- United States of America • Chicago • Houston • Los Angeles • New York • Philadelphia • Portland • San Francisco • Washington DC

OCEANIA

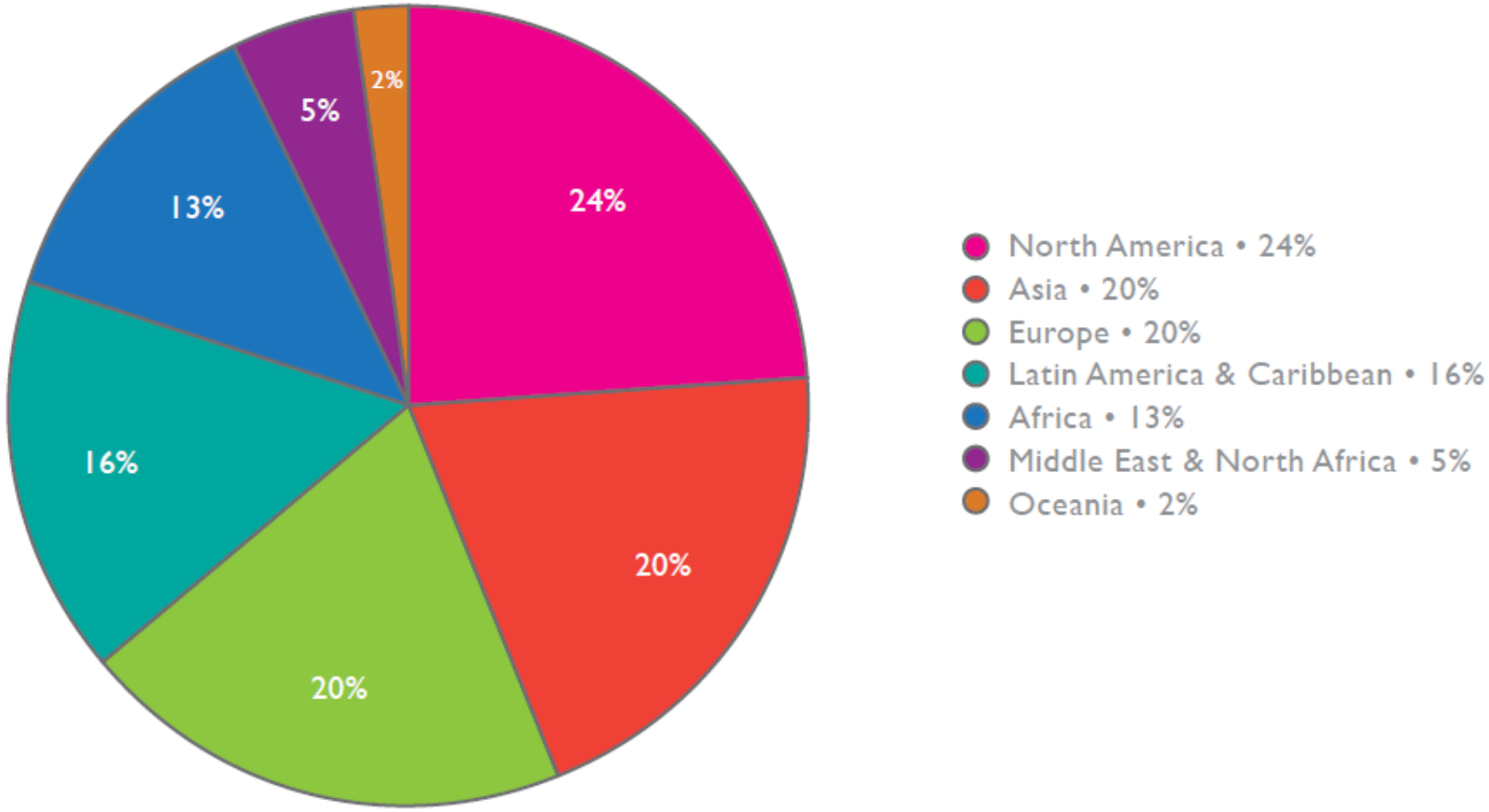
- Australia • Melbourne • Sydney
- New Zealand

PERFORMANCE INDEX



PERCEPTION SURVEY

2016 GGEI PERCEPTION SURVEY RESPONDENTS

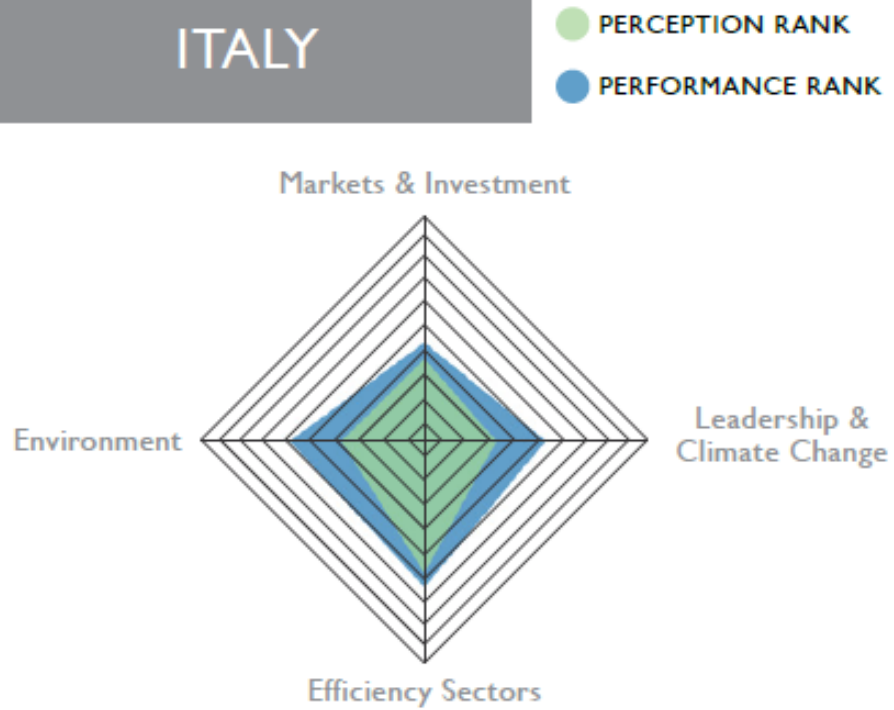


The Global Green Economy Index 2016

Perception Rank	Country	Score	Performance Rank	Country	Score
1	Germany	97.74	1	Sweden	77.61
2	United States	94.70	2	Norway	69.11
3	Denmark	93.84	3	Finland	67.83
4	Sweden	93.65	4	Switzerland	67.63
5	Norway	88.95	5	Germany	66.01
6	Canada	85.59	6	Austria	65.23
7	United Kingdom	82.73	7	Iceland	63.68
8	Netherlands	77.58	8	Zambia	62.00
9	Japan	75.94	9	Denmark	61.84
10	Finland	74.47	10	Brazil	60.29
11	France	72.66	11	Costa Rica	58.69
12	China	72.10	12	Canada	58.00
13	Costa Rica	69.79	13	France	56.76
14	Switzerland	69.55	14	Ethiopia	56.46
15	New Zealand	69.24	15	Italy	56.21
16	Australia	62.82	16	Portugal	55.86
17	Iceland	61.76	17	Netherlands	55.61
18	Brazil	59.66	18	Colombia	55.00
19	India	58.03	19	Uruguay	54.70
20	South Africa	53.18	20	Cambodia	54.10
21	Austria	51.80	21	Spain	53.88
22	Spain	51.36	22	Slovenia	53.76
23	South Korea	49.62	23	Rwanda	53.18
24	Israel	47.55	24	New Zealand	53.03
25	Kenya	45.88	25	United Kingdom	52.96
26	Ireland	41.81	26	Hungary	52.75
27	Colombia	41.65	27	Philippines	52.60
28	UAE	41.57	28	Luxembourg	52.18
29	Italy	41.33	29	Peru	51.60
30	Chile	41.31	30	United States	51.53
31	Mexico	38.82	31	Kenya	51.25
32	Belgium	38.20	32	Chile	51.11
33	Peru	37.01	33	Ireland	50.93
34	Indonesia	36.97	34	Japan	50.60
35	Morocco	36.77	35	Morocco	50.35
36	Mauritius	36.42	36	Croatia	50.32
37	Portugal	36.22	37	Belgium	50.23
38	Thailand	36.14	38	Thailand	49.89
39	Ghana	35.71	39	Panama	49.65
40	Philippines	35.13	40	Turkey	49.63

COUNTRY PROFILES: ITALY

ITALY



Italy's overall GGEI performance results are improving, now falling near the top ten. This progress is due mostly to the improving carbon efficiency of Italy's economy, something that is revealed in Italy's results on the Leadership & Climate Change and Efficiency Sectors dimensions. But the core challenge for Italy remains unchanged from 2014: Italy has not yet developed a "green brand" the way many of its EU peers have and performs poorly on both the perception and performance side of the Markets & Investment dimension. These two areas are linked and if Italian leadership – particularly in the business community – can better promote Italian green products and services, market interest is likely to follow.

Sustainability: a survival imperative

- *Our Common Future* aimed to discuss the ***environment & development*** *as one single issue*

- The Brundtland report (Our Common Future) defined sustainable development as **"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."**

Green economy jobs of the future

400 thousand Italian companies working in the green economy field, with a turnover of around 200 billion euros and an increasingly high ability to create new job opportunities.

Only in 2017, 320 thousand hires for 'green jobs': the green sector as the most expanding sector in our country.

The green economy sector employs 13.1% of Italians.

Sources

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