The Master Class CEE 2023/2024

Competence Center for Emerging Markets & CEE at WU

Environmental Sustainability in Central and Eastern Europe:

Balancing affordability and necessity

Research Report

July 2024

Authors of this report

This research project was conducted by students with diverse academic backgrounds from 8 WU Master's programs under the guidance of the Program Director Prof. Dr. Arnold Schuh

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Executive Summary 1/2

Many CEE countries lag behind in the green transformation due to historical industrial legacies and economic constraints. The European Green Deal is seen as the major driver of change despite low public support and high investment needs.

The **environmental sustainability performance** of societies and businesses in Central and Eastern Europe (CEE) was the focus of the project seminar for the Master Class 2023-24 at the Competence Center for Emerging Markets & CEE at WU. Twenty-six students from eight WU master's programs, under the guidance of Program Director Arnold Schuh, worked on this project from November 2023 to June 2024.

The study aimed to analyze the **attitudes of people** in the EU-CEE11 and Western Balkan countries towards environmental sustainability, the progress made towards a greener economy, and the **role of businesses** in this process. Data collection was based on desk research (academic literature reviews, reports, statistics, etc.) and "firsthand insights," including field trips to Prague and Belgrade, company visits, and guest lectures.

From an overall country perspective, **CEE countries are lagging in environmental sustainability performance** compared to the older EU members. According to the Environmental Performance Index (EPI), Slovenia, the Czech Republic, and Slovakia are the strongest performers. In contrast, Bosnia & Herzegovina (poor air quality) and Serbia (waste management, renewable energy adoption) need to improve their efforts. The CEE region still suffers from the legacies of communist planning and heavily industrialized economies, resulting in outdated infrastructure and high pollution levels.

CEE citizens believe that the **responsibility for tackling climate change** lies primarily with **businesses and industry** (48%) and the **European Union** (44%). Only 22% see themselves as individually responsible for taking action. Slovenians (75%) and Slovaks (72%) are the most active in engaging against climate change, while Romanians (29%), Bulgarians (35%), and Poles (39%) fall below the EU average of 63%.

Regarding the drivers and barriers to a green transformation, the **European Green Deal** is seen as an essential driver with its goals, regulations, and incentives. Financial incentives and technological innovations are aiding the adoption of a green stance. However, **EU regulations** are perceived as too demanding, lacking wide acceptance among citizens, national governments, and businesses. There is the impression that environmental issues have a **low political priority** in the countries. **Low incomes** prevent sustainability from becoming a top priority for households. While consumers tend to prefer sustainable options, they are unwilling to pay a premium for them.

Executive Summary 2/2

Businesses are viewed as key actors to change path. Executives of CEE firms focus on improving energy efficiency. Balancing economic growth and the manufacturing-based economic model with sustainability are major dilemmas of this transition process in CEE.

The attitude towards environmental sustainability among CEE businesses is mainly driven by **cost-saving arguments**. CFOs are primarily concerned with the shortage of skilled labor, geopolitical risks, and increasing regulations, with climate change ranking last on their list of risk factors.

From an economic sector perspective, the distribution of emissions per sector in CEE countries aligns with broader EU trends, with **energy-driven processes** being the primary source of CO_2 emissions. These emissions have shown a stagnating trend in recent years and vary by country due to population size. However, **dependence on fossil fuels** persists, as coal-fired power plants, the main CO_2 emitters, show a slow decline in emissions, while the expansion of renewables faces geographical and political challenges.

Businesses and industries are viewed by citizens as key players in addressing climate issues. In CEE businesses, CEOs focus on energy efficiency, followed by launching new climate-friendly products. However, a significant share of businesses **lack specific climate adaptation plans.** The top concerns for CFOs include shortage of skilled professionals, geopolitical risks, and increasing regulations, while fighting climate change ranks low on their agenda.

Despite the hesitant attitude among CEE businesses, some firms serve as **role models for good green practices**. These firms have pledged to improve their sustainable performance and go beyond mere regulatory compliance. Polenergia, In-Post, Steklarna, and Pet Food Hungaria are examples of businesses integrating environmental sustainability into their strategic vision, innovation and investment plans, and business processes. They report company-wide emissions and track target progress annually through the Science-Based Targets Initiative.

However, the **dilemmas** that CEE economies and businesses face are manifold. Balancing economic and business **growth with sustainability** is a key challenge, especially in emerging European markets. To afford the massive investments required for the green transformation, businesses must drive profitable growth. As a manufacturing hub, CEE is dependent on **cheap energy sources**, today mostly from fossil fuels. **Financial constraints** make rapid change nearly impossible. To lower emissions and comply with EU reporting rules, **cooperation** between partners in the value chain is necessary. High levels of mistrust and a low quality of institutions in the region will likely lead to variances in the content and quality of reported data.

Agenda

This report is split into 6 chapters

- Introduction & Methodology
- Drivers & Barriers
- Country View
- Industry View
- Business View
- Conclusion

Relevance of this research report

Central and Eastern Europe plays a key role in the region in sustaining development within the planetary boundaries

Why is this topic relevant today? Why the urgency?

300

forests (each size of a football field) are cut down every hour. By 2030, the planet might have only 10% of its forests

1/3

of all human-caused greenhouse gas emissions come from global food system

1/3

of the food intended for human consumption – around 1.3 billion tons – is wasted or lost

53%

of global GHG emissions come from the energy sector (electricity, heat, transport and buildings)

+2° C

is a critical threshold for global warming (measured against pre-industrial levels) that the world has already reached in 2023

Why is the CEE region crucial in this?

CEE region is home to **20% of the world's forests**, and around 230 million hectares of both peatlands and croplands

120 million tonnes of wheat are produces in CEE, nearly 20% of current global outputs

The region includes nearly **230 million hectares of croplands**, vital for regional food security that are at risk of higher crop-yield variability

74% of the region's **energy** in 2021 was obtained **from fossil fuels**

The **impacts in CEE** above this threshold are severe: reduced summer precipitation, more droughts, increased energy demand in summer

The urgency of this topic stems from the CEE region's crucial role in mitigating global warming, with its reliance on fossil fuels necessitating immediate sustainable transitions to prevent severe climate impacts.

Sources: European Comission (2024), Ritchie et al. (2024), ORLEN (2024), Robinson (2024), Karapinar (2021)

Defining environmental sustainability

What does the EU mean by it and what are the plans to tackle it

"**Sustainability** is about meeting the world's needs of today and tomorrow by creating **systems** that allow us to live well and **within the limits of our planet**."

European Environment Agency

Europe needs to find ways to **change the key systems** of food, energy, mobility and buildings that drive environmental and climate pressures.

Ambitious Plans Ahead

The severity of the environmental crisis prompts a fundamental rethinking of technologies, production processes, consumption patterns and our way of life.

The EU has committed to ambitious, long-term environmental and climate goals through the **European Green Deal** – the new growth strategy for an EU economy that is sustainable, cleaner, safer and healthier

The Green Deal covers the following sectors:

- **Clean energy**
- **Sustainable industry**
- **Building and renovating**
- **Sustainable mobility**
- **Biodiversity**
- **From farm to fork**
- **Eliminating pollution**
- **Climate action**

Key policies of the European Green Deal

The common agenda for environment policy until 2030 includes 6 objectives:

1. Reduce GHG emissions by 55% by 2030 (compared to 1990 levels) and achieve **climate neutrality by 2050**
2. Enhancing **adaptive** capacity, strengthening resilience and reducing vulnerability to **climate change**
3. Advancing towards a regenerative growth model, **decoupling economic growth from resource use** and environmental degradation
4. Pursuing a **zero-pollution ambition**, including for air, water and soil and protecting the health and well-being of Europeans
5. Protecting, preserving and restoring **biodiversity**, and enhancing natural capital
6. **Reducing environmental and climate** pressures related to production and consumption (tourism, international trade, the food system etc.)

Sources: EEA (2024), The European Green Deal (2021), Environment Action Programme to 2030 (2021)

Aim of this report

We looked at six specific questions to explore the question of sustainability in CEE

Our research questions:

1. How do the EU-CEE11 and Western Balkans countries **perform** regarding environmental sustainability?
2. How developed are **attitudes and awareness** towards sustainability in the societies?
3. In **which areas** can we find the best progress, where are **countries** lagging?
4. What are **drivers** and **barriers** to become more sustainable?
5. What is the **industry and business view** on environmental sustainability in CEE?
6. Which companies in CEE are **role models** for environmental sustainability in their industries? What are best-practice cases?

Methodology 1/2

Based on our primary and secondary data we built up a comprehensive approach to assess sustainability in the CEE region

Starting in 2023 November **we gathered insights from various sources** until June 2024 for our analysis:

Literature review

We analyzed several articles and reports to gain insights and to understand the big picture.

Insight / Panel talks

The talks with business representatives helped us better understand the barriers, good green practices and their dilemmas

Field trips

We gathered practical insights from partners in Prague* and Belgrade**, which helped us in digging deeper into the topic.

Company visits

We visited our supporting corporate partners in Vienna to understand how they manage operations in the CEE region.

Drivers & Barriers

Based on our learnings we looked at what are the biggest drivers and barriers of sustainable development in the CEE region

+

Country view

We looked at the country level differences to be able to gather good case practices and see where there is still possibility to improve

+

Industry view

To understand where action must be made most urgently, we took a closer look at the most emitting industries

+

Business view

Based on our chosen stage model we analyzed good case practices of how companies can act sustainably

Dilemmas

Finally, we derived key dilemmas in the field of sustainability in the CEE region

*VSE, WKO, Mondi, ERSTE and Economic Daily in Prague
** NALED, WKO, VIG, Coming Computer Engineering and Nordeus in Belgrade.

Methodology 2/2

Our field trips, company visits, and panel/insight talks supported our research throughout the year

Drivers & Barriers

Chapter 1

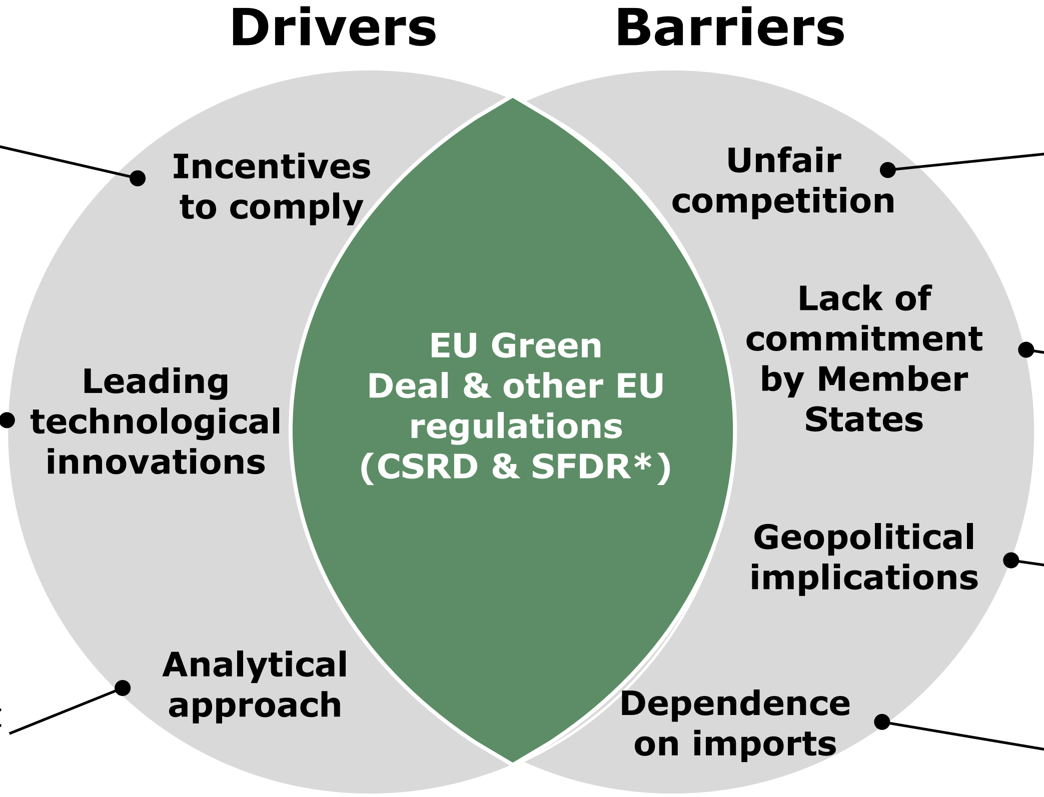
EU regulations dilemma

The Green Deal boosts sustainable change but also causes discontent and resistance

Monetary incentives given to enable the necessary investments

Sustainable operations are a must to stay in the market - More funds will be invested to find innovative solutions

The collection of cross-sectoral data across different regions is implemented to track the progress



Non-EU countries benefit from lower costs due to the lack of strict regulations, thus being able to offer better prices

The European Green Deal Barometer shows that this is the biggest barrier to its implementation

The transition to a greener economy will likely alter European trade and investment patterns

Products and raw materials needed for clean energy and technology have to a large degree to be imported to the EU.

EU Regulations are essential to enforce sustainable changes but they are too demanding to gain wide acceptance by countries and businesses in CEE

Sources: Corporate Sustainability Reporting Directive (CSRD) & Sustainable Finance Disclosure Regulation (SFDR)

Technology & legacy of industrialization

Technology drives sustainability, but Western funds are needed to overcome the outdated industrial heritage and the lack of (quality) data on environmental risks

Technology acts as a driver...

Embracing technology optionality
Region-wide initiatives on Small and Modular Reactors (SMR), Carbon Capture and Storage (CCS) and low-carbon hydrogen deployment to combat energy crises

Technological innovation in sustainable mobility
GLOBSEC Initiative for Sustainable Mobility (GISM) addresses the deepening West-East clean air and innovation gap to support funding for technological innovation and drive sustainability

Smart City Innovations
Advancements in smart mobility, digital citizen services, public safety, waste management, smart energy, e-governance, and green urban planning

...in the face of systemic industrial barriers.

High reliance on Russian oil
In 2021, Russian gas accounted for almost 50% the gas consumed in CEE countries

Many coal-fired power plants
48% of the electricity generation in CEE was from coal, which is considerably high compared to the 21% EU average (2018)

Solution?

International funding and Western MNCs in CEE act as catalysis for the energy transition

- The **European Investment Bank** (EIB) is closely involved with the green transition development in CEE
- In a report on the financial sector it assess the **lack of data and knowledge of MSMEs* on climate risks** as one of the biggest challenges to accessing green funding in CEE
- A key priority for **investments targets greening the energy sector** and preparing infrastructure for the increase in electricity demand
- **International funds** like the **EFSE** offer financing solutions to MSMEs, especially targeting sustainable industrialization in agriculture and food production
- **Just Transition Fund** (JTF) – a key pillar of the just transition mechanism - are in CEE (Poland, Romania, Czechia). As JTF priorities are expected to contribute to the realization of the Green Deal Industrial Plan

*MSME = Micro, small and medium-size enterprise

Sources: CATF (2023), Erste Group (2021), EIB (2024), EFSE (2022), GLOBSEC (2019) IEA (2022), Linhares (2023)

Socio-economic constraints & changing behavior

Consumers move towards sustainability, but challenges remain: environmental sustainability requires prioritizing quality of life

GfK (2023)

Socio-Economic Constraints

Dependence on fossil fuels

- Many CEE economies rely on coal and fossil fuels, challenging green energy transition

Low political priority of environmental issues

- Environmental issues have low priority in the region. Prolonged conflicts create policy instability

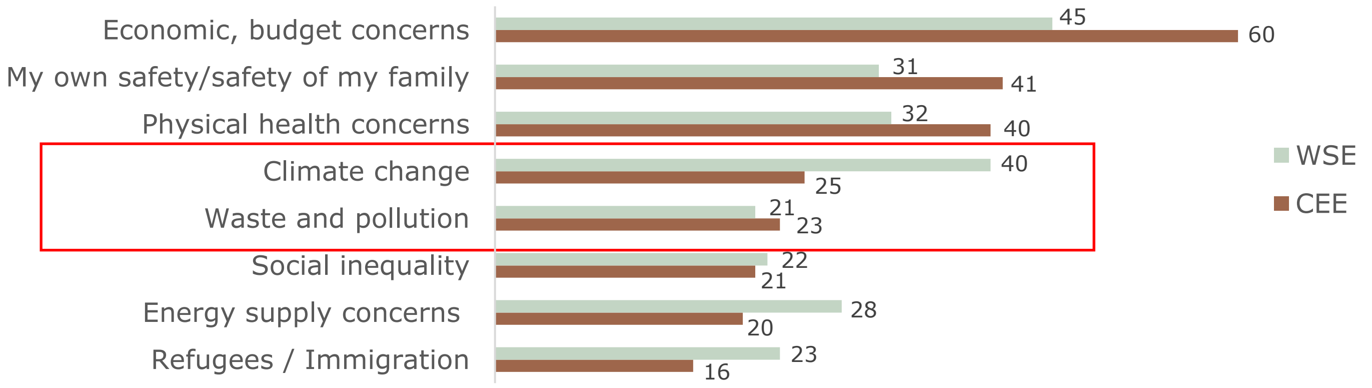
Insufficient legislative frameworks

- There is a lack of comprehensive environmental legislation in the region, especially in non-EU countries, including insufficient policies on climate change and emissions reductions

Economic constraints

- Short-term economic gains are prioritized over long-term environmental investments to catch up with the West

Please indicate up to **3 societal issues** that are today of greatest concern to your personality?



Consumer behavior as a response to these economic constraints

- Despite the constraints there is an **increasing demand and awareness** for sustainable products among consumers in the CEE region
- **Education** plays a significant role in promoting sustainable behaviors with notable impact on younger generations, particularly on Gen Z
- **Inclusive growth** is linked to better quality of life and reduced inequalities, which are crucial for achieving sustainability
- Practical steps are being taken by many consumers in the CEE to reduce their environmental impact, such as using reusable shopping bags, recycling regularly and avoiding single-use plastics

Sources: Cichowicz & Ewa Rollnik-Sadowska (2018), HHS (2021), EEA (2022), MDPI (2019), UNECE (2022)

Key Takeaways | Drivers and Barriers

EU regulations are drivers for change, affordability is the main barrier

EU Regulations

- Crucial for the start of the change start
- Example of influence of outside EU even: Serbia as export partner
- Lack of commitment from EU members hinders Green Deal implementation

Technology & Funding

- Geopolitical circumstances impact allocation of funds and also technological advancements
- Infrastructural legacy makes it hard for CEE countries to move towards more sustainable options

Socio-Economic Background

- Without higher economic welfare in the region, sustainability will not become a top priority
- People prefer sustainable options, but they are unwilling to pay a premium for them

Country view

Chapter 2

Country overview

CEE is confronting significant challenges in sustainability, particularly in raising public awareness, reducing CO2 emissions, and minimizing food waste

Awareness:
Public understanding & engagement in sustainable practices **vary across the CEE region**. Increasing public awareness and engagement is essential for fostering a culture of sustainability.

C02 Emission
Many countries in Central and Eastern Europe are **heavily dependent on fossil fuels**, which contributes significantly to CO2 emissions

Food Waste:
Food waste is a major issue that not only affects the economy but also has significant **environmental** consequences. Reducing food waste not only helps in conserving resources but also in reducing greenhouse gas emissions from decomposing waste

Economic: Financial

Policy: Regulation

Social: Awareness

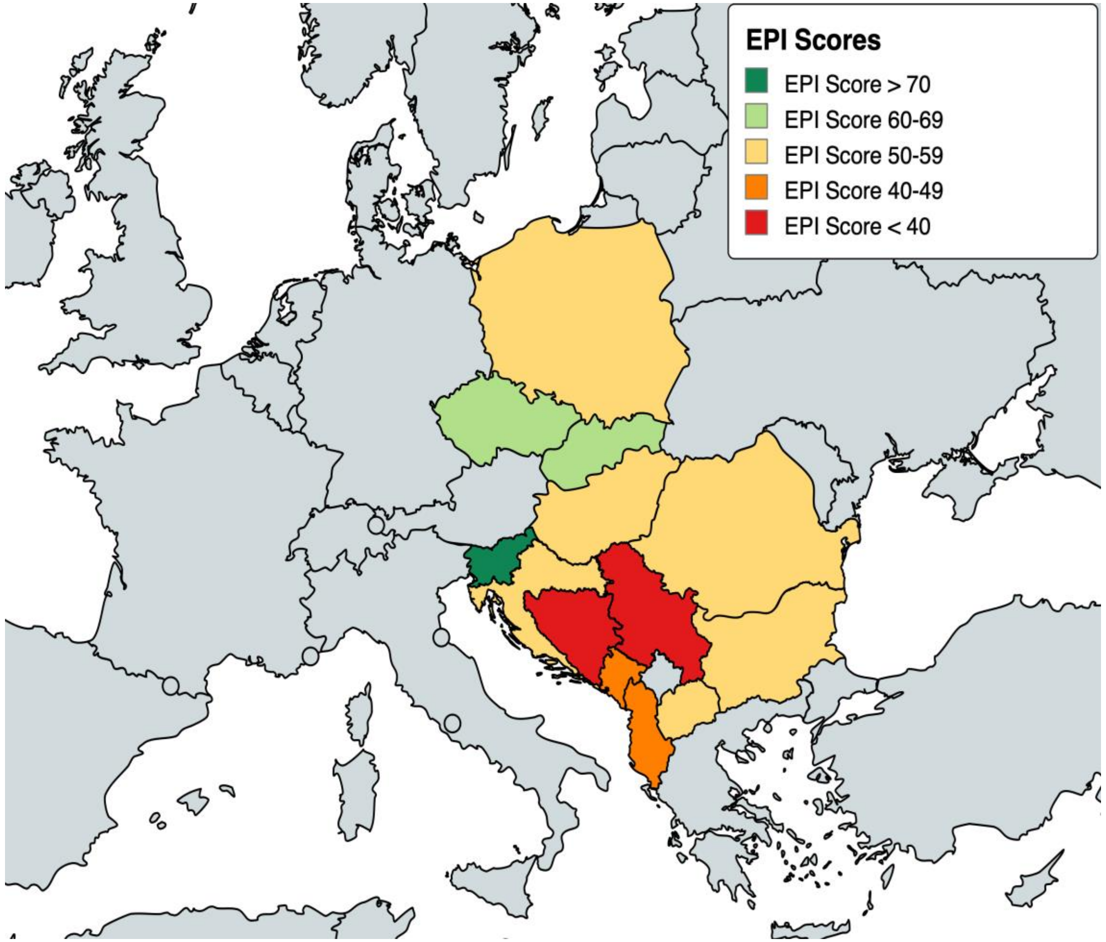
Technology: Innovation

In CEE, addressing sustainability issues requires a multifaceted approach, considering various perspectives such as financial, regulatory, awareness and innovation

Sources: PwC (n.d.), OECD (2022)

Country overview

There are substantial disparities in environmental sustainability performance across CEE



The Environmental Performance Index (EPI) ranks 180 countries based on 40 indicators to assess climate change performance, environmental health, and ecosystem vitality.

Strong Performance

Slovenia: Strong across most indicators, particularly in air quality and climate policies

Czech Republic: High scores in climate policy and ecosystem vitality

Slovakia: Performs well in water resources and biodiversity protection, strong environmental consciousness

Need for Improvement

Romania: Struggles with water resource management & pollution control

Bosnia & Herzegovina: Low overall score due to poor air quality & insufficient climate action

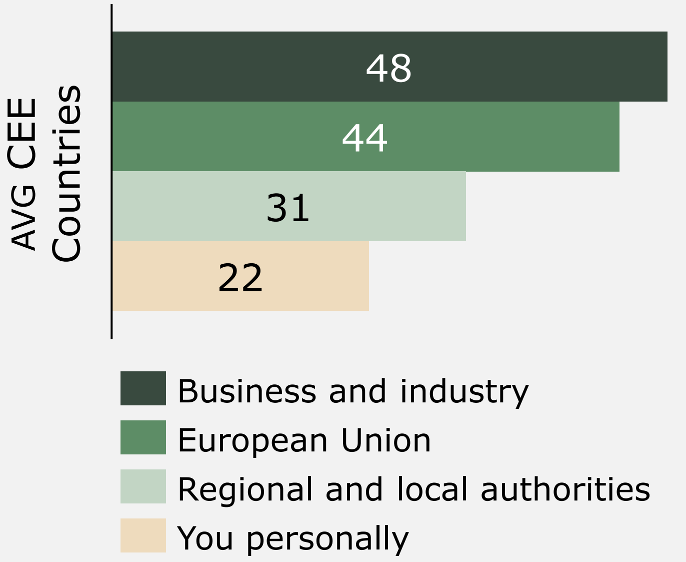
Serbia: Needs improvement in waste management & renewable energy adoption

Source: Wolf et al. (2022)

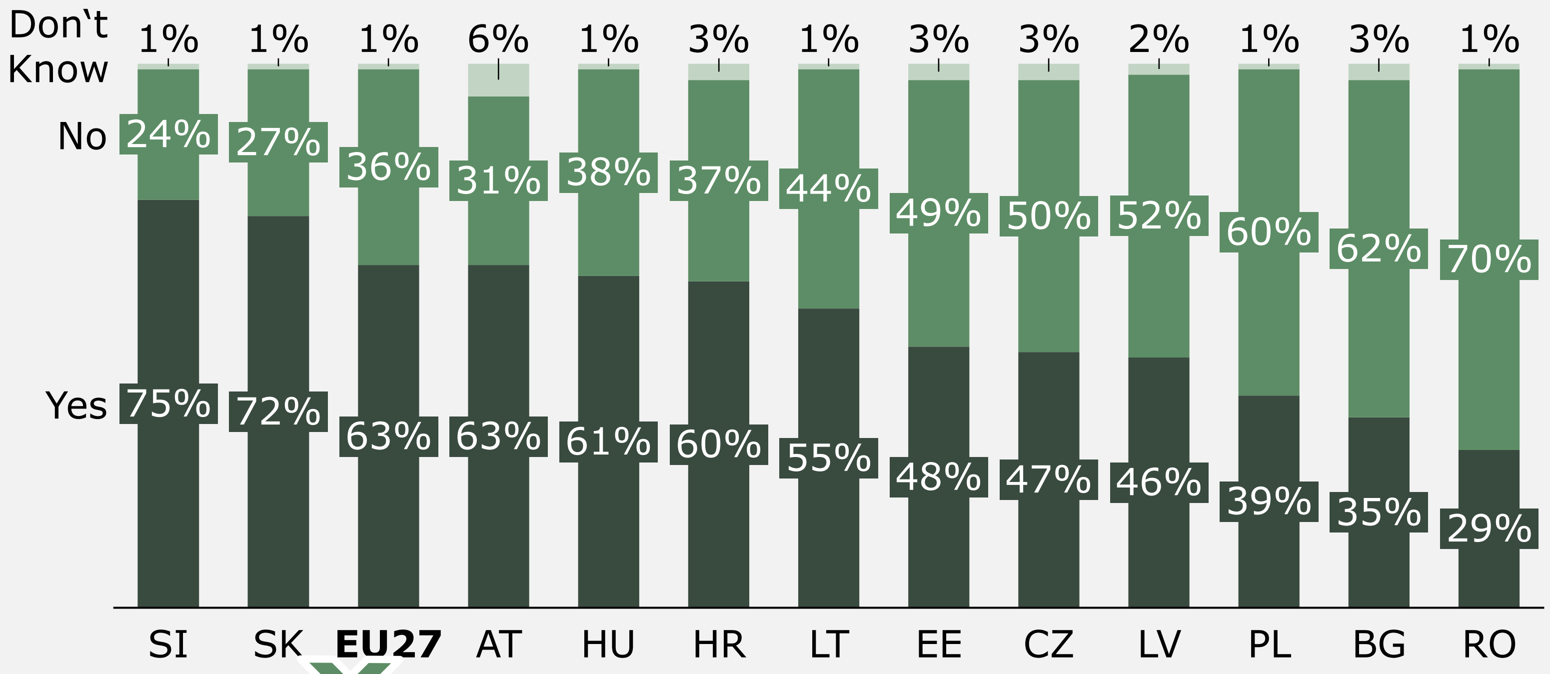
Attitude and behavior towards climate change

Overall awareness towards climate change is rather low among CEE citizens

CEE citizen`s opinion towards the responsibility to tackle climate change



Action taken against climate change over a period of 6 months by CEE citizens

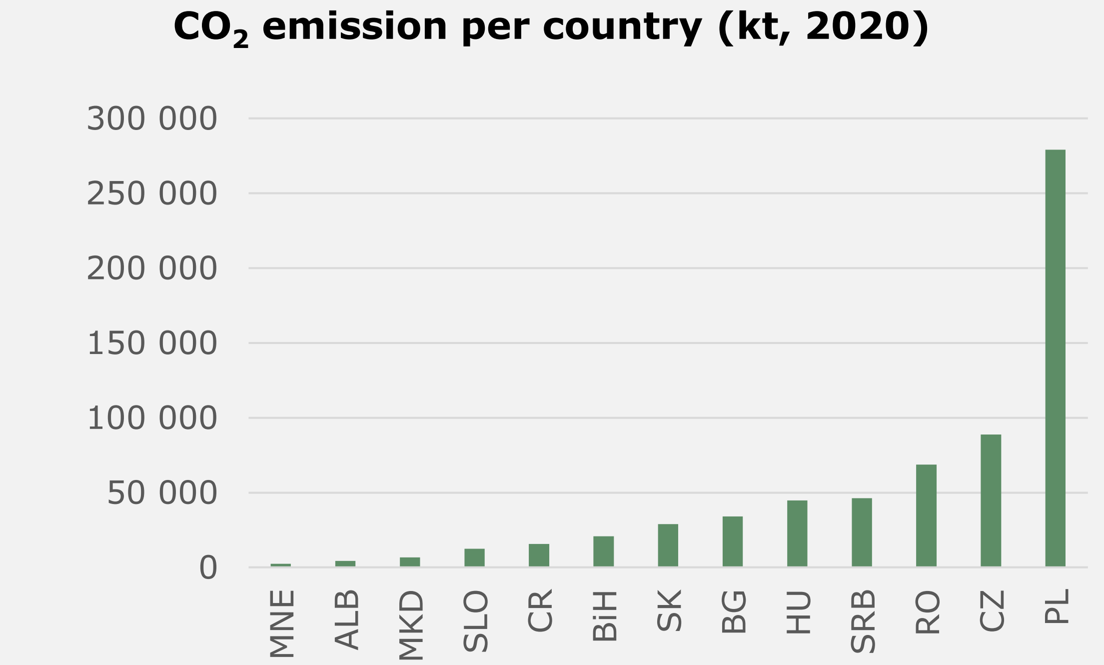


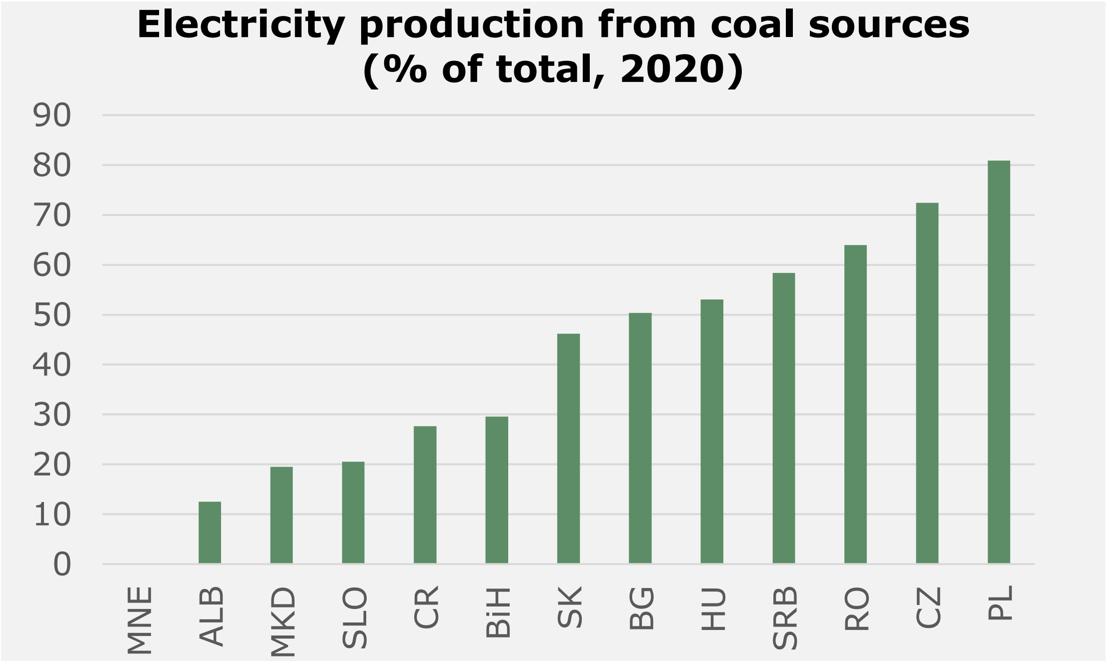
- CEE Citizens mainly consider it the responsibility of business & industry and the EU to take action against climate change
- Slovenian and Slovakian consumers are top performers regarding climate change action
- Only few people in Poland, Bulgaria and Romania take actions against climate change

Source: European Union (2023)

CO_2 emissions and coal production

High dependence on coal production mainly explains high CO_2 emissions



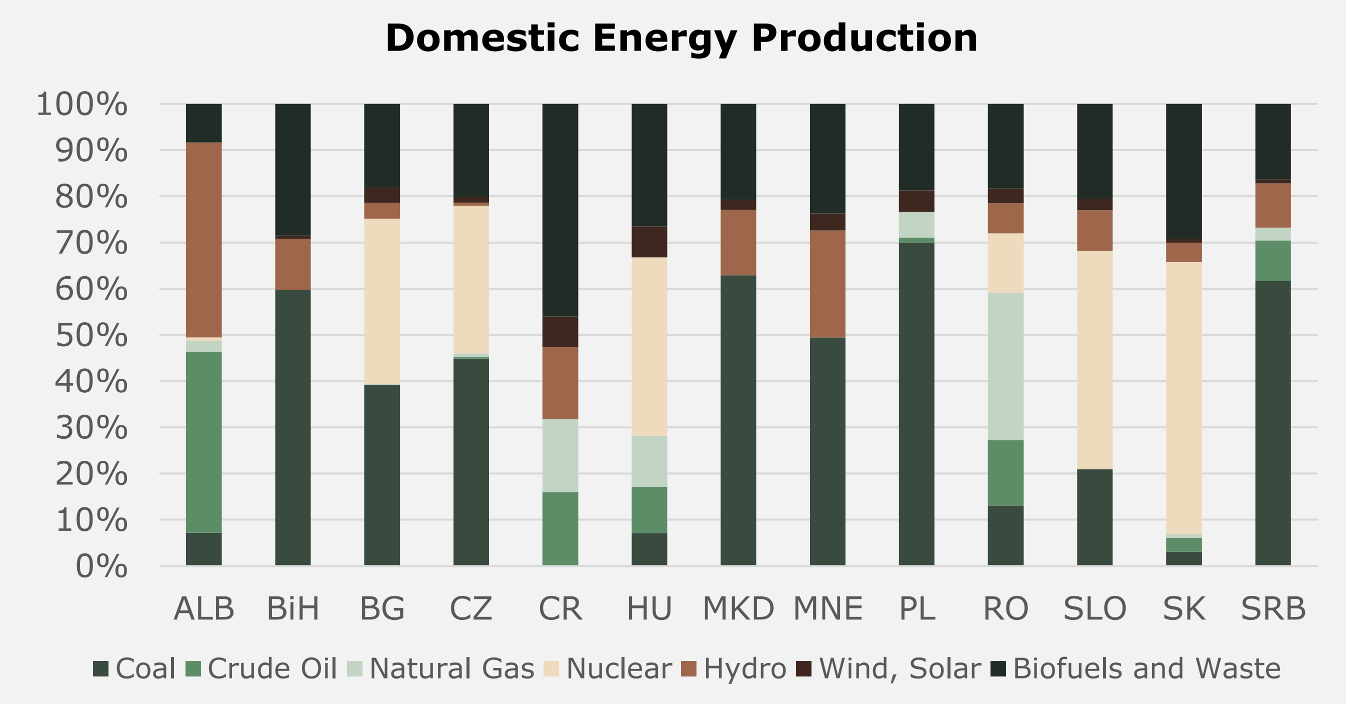


- **Main contributor to the high CO_2 emissions is the high dependency on coal production**
- **Major CO_2 emitters in the CEE region:**
  - Poland, Czech Republic and Romania: Highest dependence on coal for electricity generation and lowest share of renewable energies
  - Poland with 80 % of electricity production from coal due to substantial coal reserves and established infrastructure
- **Lowest CO_2 emitters in the CEE region:**
  - Montenegro, Albania, North Macedonia and Croatia: highest share of renewable energy consumption
- **CO_2 emissions in the CEE region are generally declining, but on a very slow pace**

Source: Worldbank (2020)

Energy mix

Diverse reliance on nuclear power plants and renewable energies across the CEE region



Country	Number of nuclear power reactors	Location
Czech Republic	6	Dukovany, Temelín
Slovakia	4	Bohunice, Mochovce
Hungary	4	Paks
Romania	2	Cernavodă
Bulgaria	2	Kozloduy
Slovenia	1	Krško

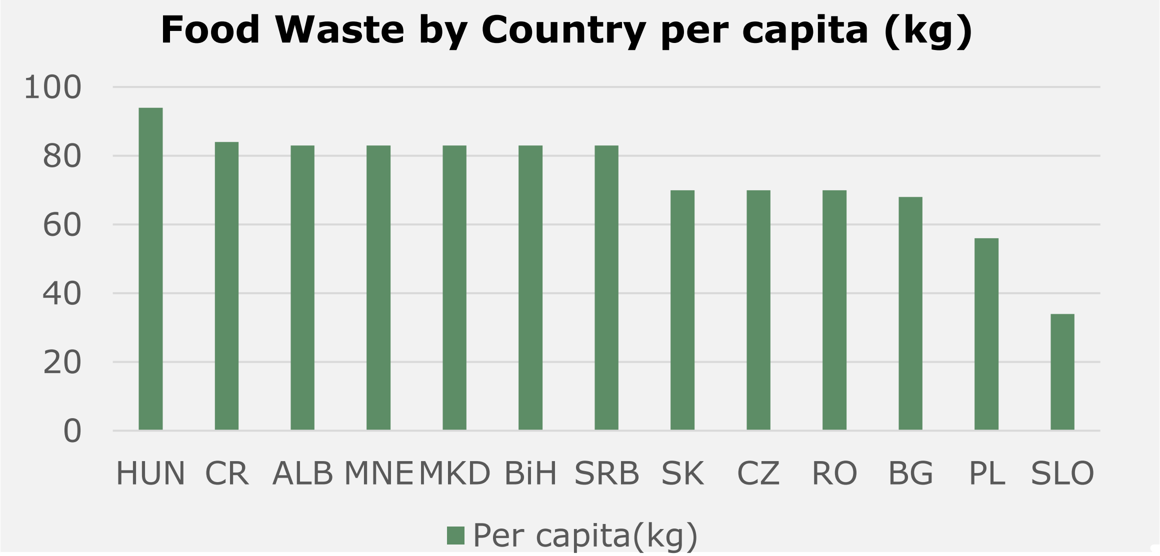
- **Renewable energy sources:**
  - Share of renewable energy production in the CEE region in general very low
  - Hydropower as the most important source across the CEE region, solar & wind power only in certain countries (RO, BG, HU, PL) relevant
  - In some countries (MNE, ALB, MKD) no relevance of renewable energy sources at all
- **Nuclear power plants**
  - Diverse reliance of nuclear power plants in the CEE region
  - Czech Republic, Slovakia and Hungary with the highest dependence
  - Poland has so far no nuclear power reactors → future plans for investment in nuclear energy

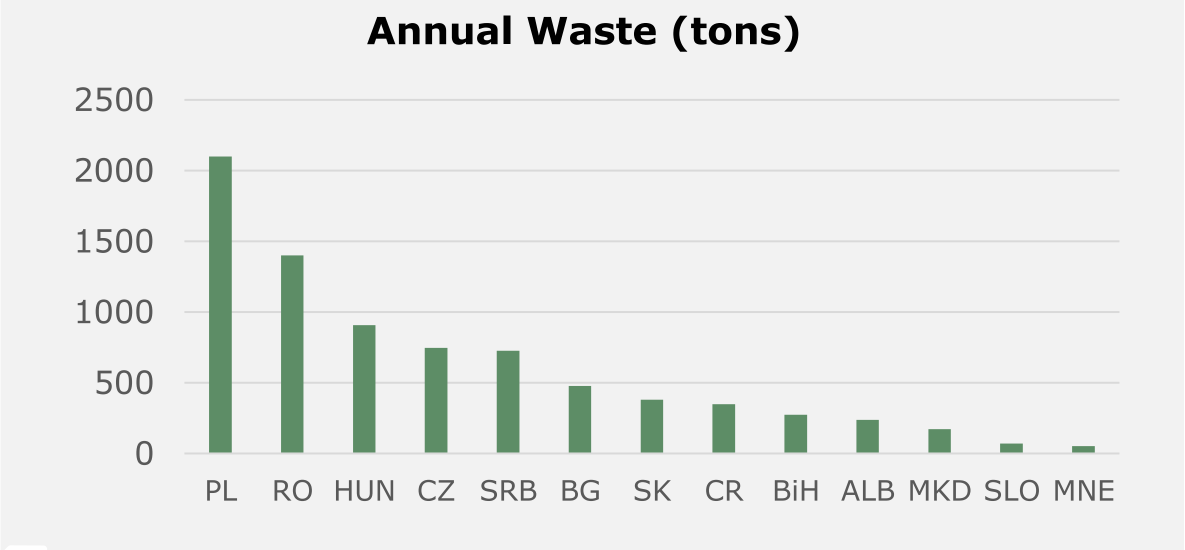
Source: International Energy Agency (2024), Worldbank (2020)

Food waste

Hungary leads in per capita food waste while Poland records the highest annual waste

Food loss refers to any food that is discarded, incinerated or otherwise disposed of along the food supply chain from harvest/slaughter/catch up to, but excluding, the retail level, and is not used for any other productive use, such as animal feed or seed.
Food waste refers to food that is discarded at the level of retailers, food service providers and consumers.





Key findings:
- Estimated household food waste per capita is highest in Hungary, lowest in Slovenia
- Estimated annual food waste is lowest in Slovenia, highest in Poland

General issues:
- **Scarcity of Data**: There's a notable scarcity of data on food waste. The literature mainly focuses on food waste at the consumer level, while food loss at other stages of the food chain is generally overlooked
- **Inaccurate Quantification of FLW**: The quantification of FLW is generally based on estimates and self-reported data, making it inaccurate

Source: Bilali et al (2022), World Population Review(2024), Eufic (2021)

Key Takeaways | Country view

Increasing awareness, reducing fossil fuel dependency, and addressing food waste are crucial actions for enhancing environmental sustainability

Awareness and opinion of population

- The population of CEE countries perceives the responsibility of business & industry as the most important factor to tackle the climate crisis
- Except Slovenia and Slovakia are all CEE countries below the average EU awareness level
- The awareness of one's own impact is not very high

Dependence on fossil energy sources

- Biggest emitter of CO2 emission are coal power plants
- CO2 emissions are declining, but very slow
- Unfavorable circumstances for renewable sources of energy, both from a geographical and a political perspective

Food waste is an issue

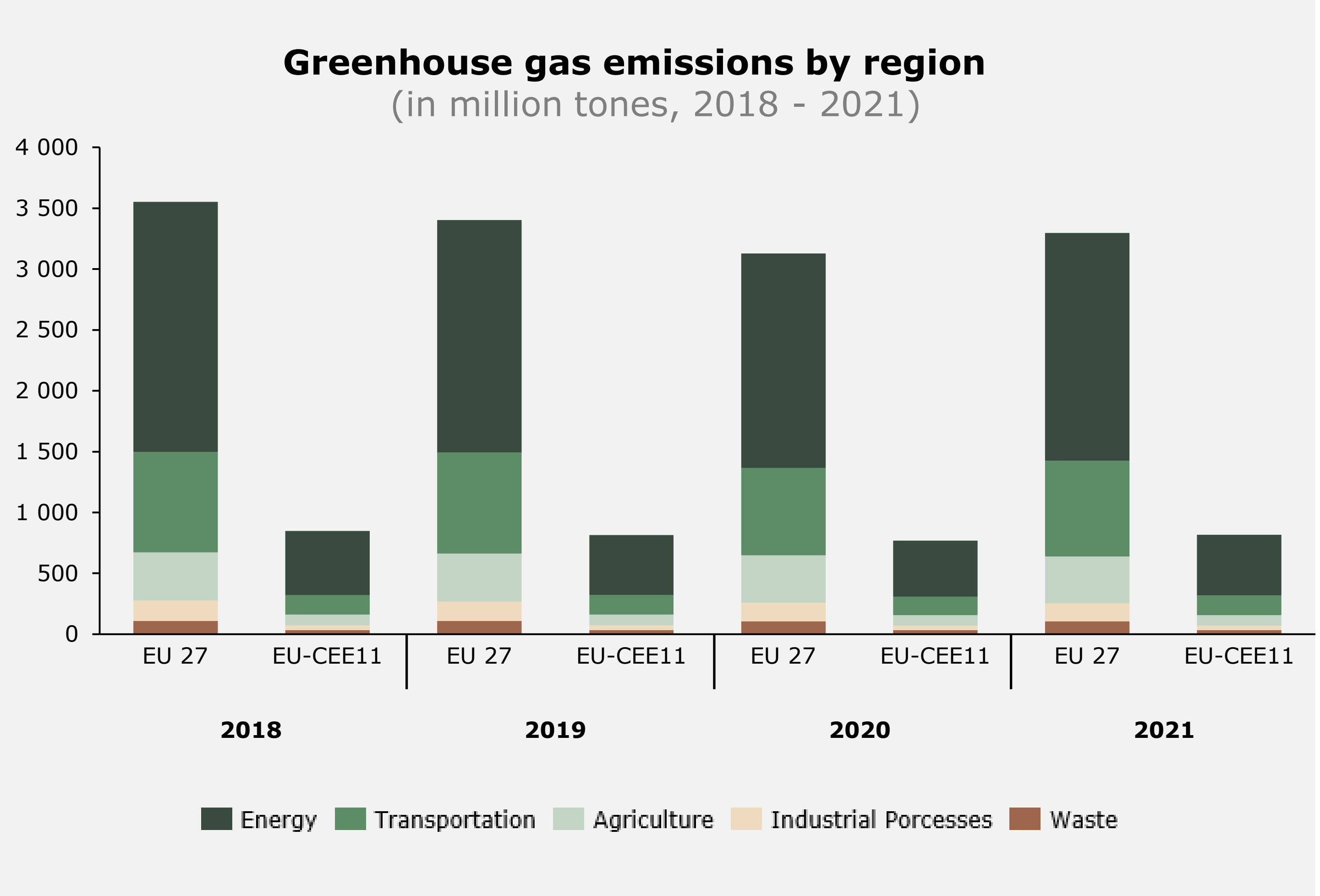
- Average ratio of food waste is lower than in many EU countries, but still comparably high
- Highest level of food waste can be found in Hungary among CEE countries
- Data according to food waste is a scarcity and not available on a regular basis

Industry view

Chapter 3

Industry overview

The share of energy-based GHG remained rather constant between 2018 and 2021, among all EU member states as well as within the EU-CEE11 zone



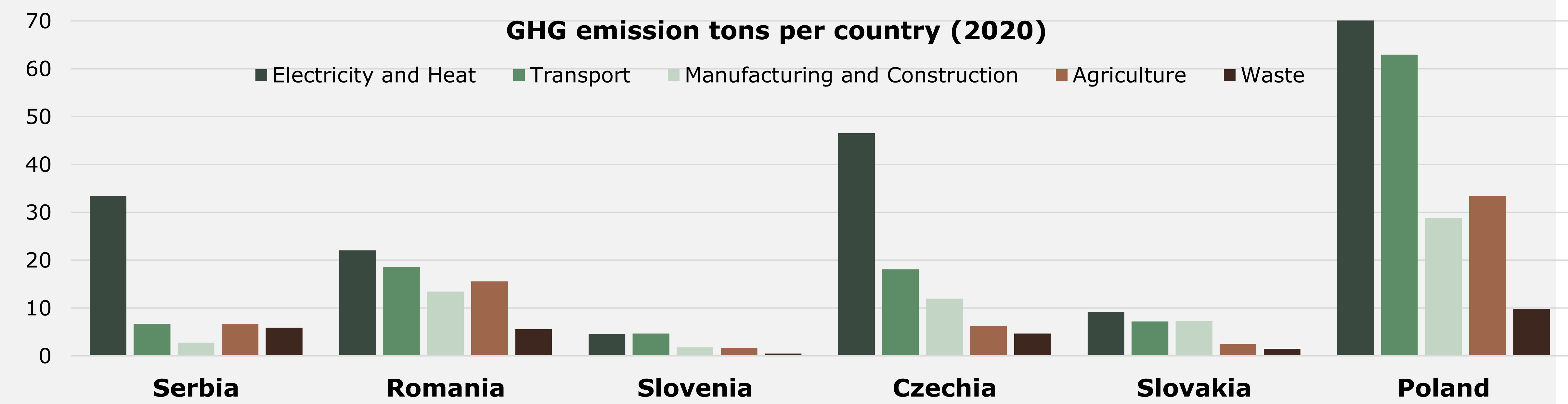
Takeaways

- **Energy-driven processes** account for the **biggest share of CO2 emissions** within EU and EU-CEE11 member states
- EU emissions mix and CEE emissions mix are very similar
- On EU-level as well as on EU-CEE11-level, the distribution of **emissions among sectors** remains **rather constant**

Sources: Climate Watch (n.d.)

Industry overview

Poland is by far the heaviest emitter of energy-driven GHG out of the EU-CEE11



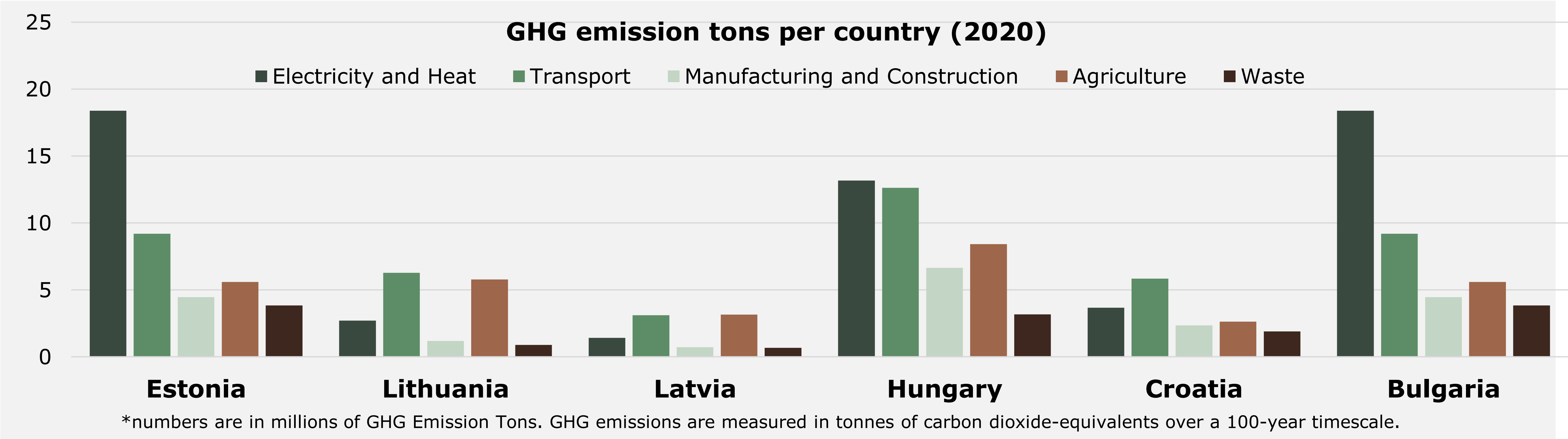
*numbers are in millions of GHG Emission Tons. GHG emissions are measured in tonnes of carbon dioxide-equivalents over a 100-year timescale.

- In the Czechia and Serbia, the GHG Emissions stemming from the energy production are considerably larger. On the other side, in Romania, Slovenia and Slovakia, which utilize more renewable resources (hydro mostly), the differences are smaller
- The highly industrialized economy inherited from communist times leaves marks on the GHG Emissions of CEE countries
- Agriculture plays a more significant role in the emissions of Poland and Romania, while waste in Serbia seems to be a problem

Sources: climatewatchdata.org 2023 Report

Industry overview

Lithuania, Croatia and Latvia are the only countries where GHG from transportation exceed emissions stemming from electricity and heat



- Lithuania, Croatia and Latvia are the only countries which do not have electricity and heat as the primary polluters
- Agriculture keeps a high importance in these countries
- Manufacturing kept surprisingly low in the Baltic countries

Sources: Climatewatchdata.org, 2023

Key Takeaways | Industry view

Energy-driven processes are the main contributors to CO2 emissions within EU-CEE11 states

Total EU-CEE 11

- **Energy-driven processes** are the **main source of CO2** emissions in the CEE region
- In recent years, a **stagnating trend** of CO2 emissions stemming from energy-related activities was registered

EU-CEE11 country-level

- For each country, **energy-driven processes** are among the **largest CO2** emitting sources
- However, the absolute number of emissions resulting from electricity and heat varies greatly between nations due to different population sizes

EU-CEE11 & total EU

- Compared to all EU member states, EU-CEE11 nations show **no significant difference** concerning the distribution of emissions per sector
- What is more, energy-driven processes stagnate as the **most emitting source** in both regards

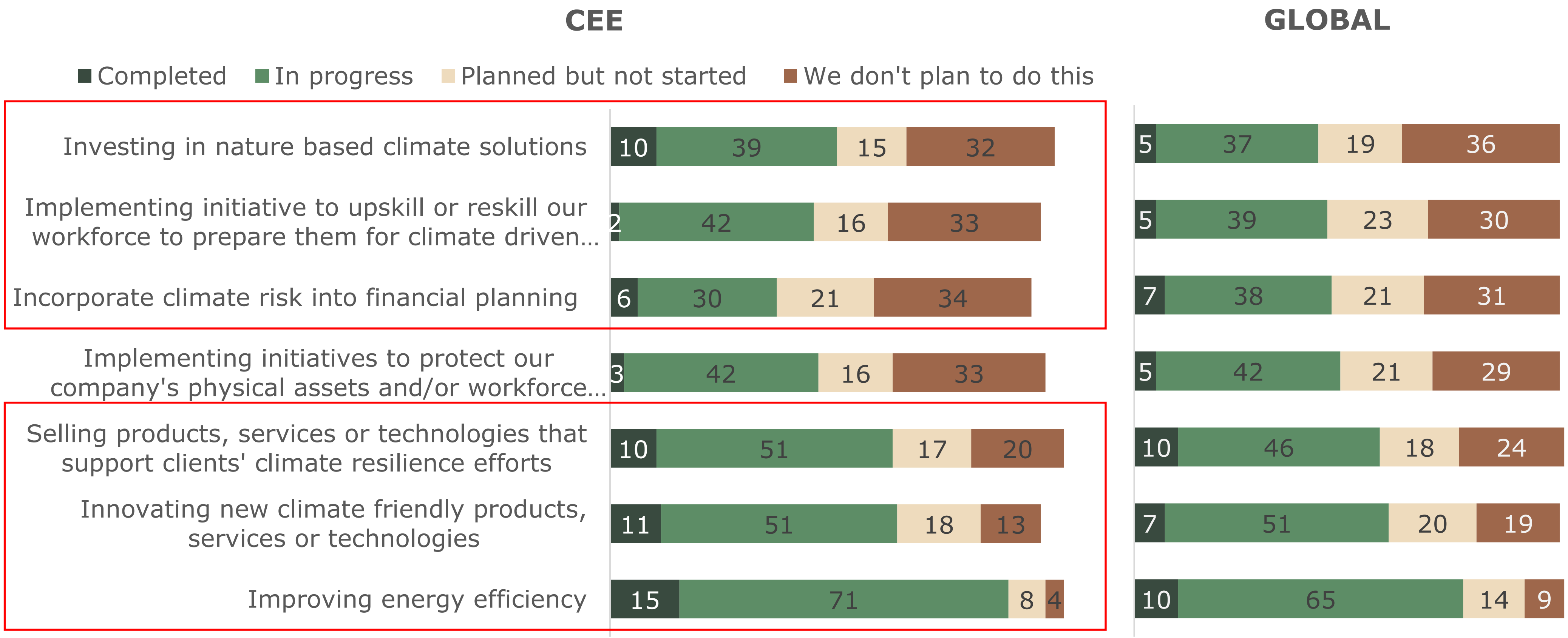
Business view

Chapter 4

How active are CEE companies in fighting climate change?

While having a focus on improving energy efficiency, a third of CEE CEOs lack concrete action plans on climate adaptation (PwC's 27th Annual Global CEO Survey February 2024)

CEOs in CEE focus on improving energy efficiency and innovating new climate friendly products and technologies. However, one third of them does not regard fighting climate change as an urgent and important issue.



Source: PwC (2024)

Attitudes of companies

Business leaders in CEE put a lot of efforts in energy efficiency actions driven by immediate business benefits, compliance and energy independence

01 Climate change not perceived as a threat

CEOs in the CEE region don't see climate change as one of the principal threats to their business this year. They see it less than half as important as geopolitical conflict or macroeconomic volatility

02 Focus on energy efficiency actions

Business leaders in CEE put a lot of focus on energy efficiency actions, which they might perceive not only through the lens of responding to climate change. They can associate these actions with immediate business benefits — such as cost savings

03 Other factors of change impacting energy efficiency

- Technological change
- Government regulations
- Energy security objectives, including independence from Russia,

are driving the energy efficiency agenda

04 Other issues are of higher priority

Company CEOs named
- supply chain instability,
- limited financial resources,
- lack of skills in workforce,
- infrastructure challenges

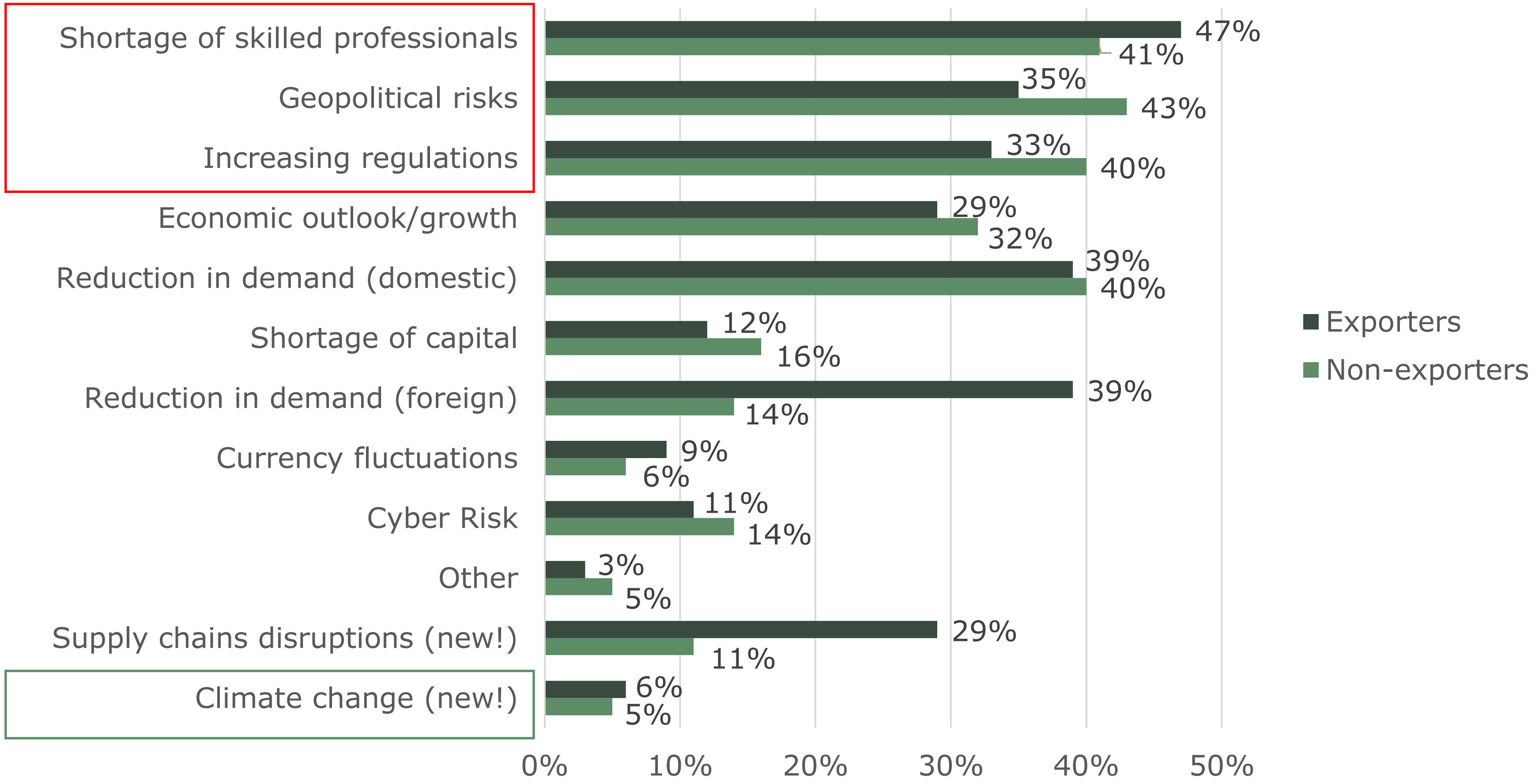
as issues with more notable impact on company operations

Source: PwC (2024)

Insights from the CFO Survey in CEE (Deloitte, Oct-Dec 2023)

Climate change perception: when it comes to climate change, senior managers responsible for finance do not believe this issue significantly impacts their company operations

Which of the following factors are likely to pose a significant risk to your business over the next 12 months?



Source: Deloitte (2024)

Environmental sustainability at company level

Building the foundation: using GHG emission categories to drive carbon reduction

Greenhouse gas emissions are divided into different categories for businesses and organizations

Scope 1	Scope 2	Scope 3
Direct CO_2 emissions	**Indirect CO_2 emissions**	**Upstream/Downstream Emissions**
Operations of the reporting company	**Energy used by the reporting company**	**Customers and Suppliers**
GHG emissions generated directly by company facilities & vehicles	GHG emissions produced indirectly, for example energy or electricity bought for heating and cooling buildings	All GHG emissions within and at the end of the value chain, including emissions caused by suppliers making the product, distributors delivering the goods, and customers using them

For many businesses, Scope 3 accounts for more than 70% of the carbon footprint

- An increasing number of organizations are committing to net-zero carbon emissions, but still, not enough attention is being devoted to scope 3
- Mapping the emissions footprint & identifying the source control potential, is a good way to start addressing GHG emissions and the net-zero ambitions

Source: Science Based Targets Initiative (2024), World Economic Forum (2022), Deloitte (2021)

Science Based Target Initiative

SBTi as a strategic first step for sustainable business in CEE

SCIENCE BASED TARGETS

A **corporate climate action organization** enabling companies and financial institutions worldwide to combat the climate crisis

Provides companies with:

- science-based criteria
- sector-specific guidance and methods

To set greenhouse gas emission reductions targets and reach net-zero by 2050

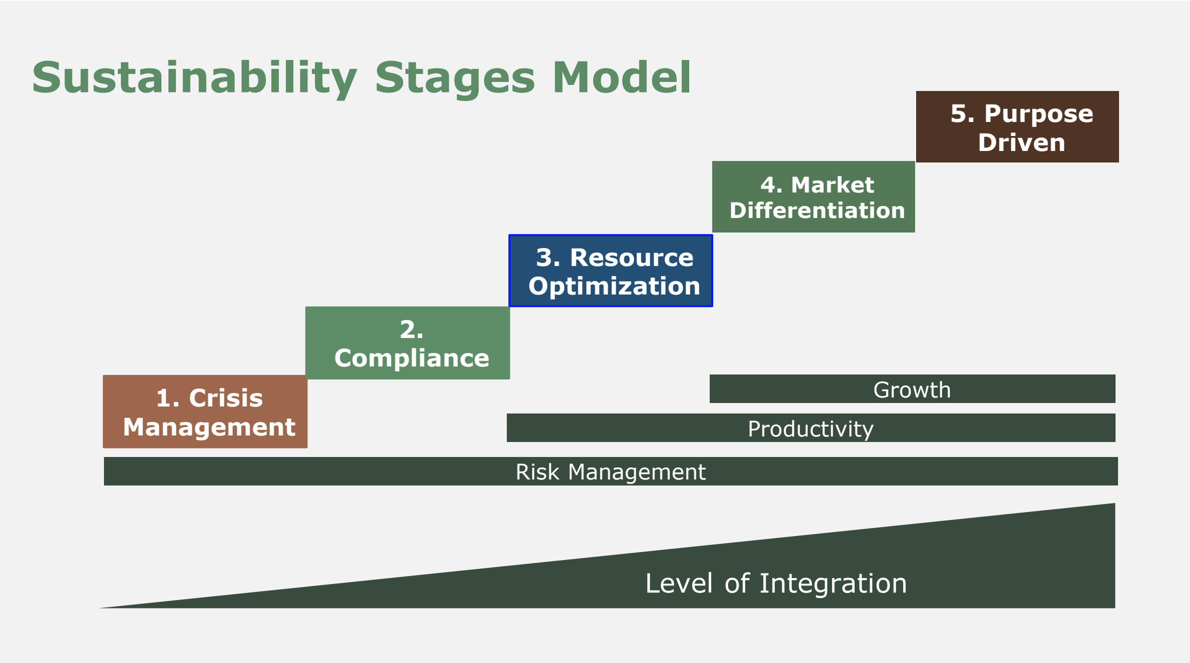
Steps		Description
1	**Commit**	Submit a letter disclosing intent to set a science-based target
2	**Develop**	Work on an emissions reduction target in line with the SBTi
3	**Submit**	Present target for validation within 2 years
4	**Communicate**	Announce target and inform stakeholders
5	**Disclose**	Report company-wide emissions & track target progress annually

The Science Based Target Dashboard is a comprehensive compilation of companies that have set science-based targets or have pledged to developing them. This served as the **initial step in identifying CEE companies** committed to the framework and facilitated the analysis of identifying best practices

Source: Science Based Targets Initiative (2024)

Further selection process of companies

Sustainability stages model as the second step to identify sustainable companies in the CEE region



Authorship & Sources:

- Model is part of the **Roadmap for Integrated Sustainability** project and the Roadmap Self-Assessment tool
- Adapted from the work of **Bob Willard** („The New Sustainability Advantage“)
- Integration of the **three financial value drives** (growth, productivity, and risk management) is **based on the UN Global Compact´s Value Driver Model**

Purpose:

- Model helps companies analyze their **current level of sustainability integration** and identify desired future stages
- Assists in identifying the **most important corporate functions** to engage within sustainability journey
- Outlines the **contributions** each function must make to advance through the stages of sustainability integration

1. Crisis Management: Companies reactively address sustainability issues to minimize legal violations and public outcry

2. Compliance: Companies comply with legal and regulatory requirements and begin managing long-term risks in areas such as labour, environment, and safety

3. Resource Optimization: Companies recognize the benefits of sustainability measures beyond compliance, they focus on cost reduction and productivity improvement. Improvement of social and ecological performance is included.

4. Market Differentiation: Sustainability is seen as an investment and opportunity. Companies aim to differentiate themselves from competitors through sustainable innovations and business models

5. Purpose Driven: Sustainability is deeply integrated into the company's vision, mission, and brand. Companies are value-driven and see sustainability as an independent goal, achieving business success through the creation of social value

Source: United Nations Global Compact (2015)

Process of research to establish Good-Green-Practice

3-step process to identify and analyze leading enterprises in the CEE region

First Step
Science Based Target Dashboard

Second Step
Sustainability Stages Model

Third Step
Good Green Practice

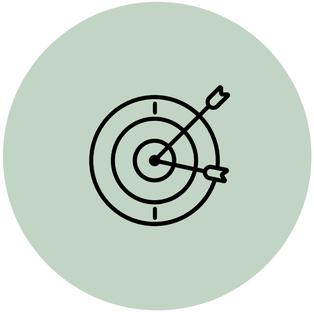
Choosing 21 CEE enterprises from the **Science Based Target Dashboard**, that have set science-based targets or have pledged to developing them.

Elimination Process: Based on data available in the SBTi Dashboard & the Sustainability Reports

1. **Removed** one company, who failed to submit targets within 24 months of their commitment and have been identified as 'Commitment removed'
2. **Excluded** an energy producer, who is a pioneer in transforming their business model, but whose core business still has a huge ecological footprint
3. **Focused** only on companies, who are innovative, focus on circular economy and have the potential to be on Stage 4 or 5
4. **Selected** 5 companies that were suitable for analysis

- Carrying out an in-depth analysis
- Evaluating the 5 CEE companies with a 5-point system of different categories based on **Sustainability Stages Model**

- Defining Good Green Practice for companies in the CEE region



Polenergia

Leading zero-carbon economy with hydrogen innovation and decarbonization

	Polenergia
Country	Polenergia Fotowoltaika — Poland
Industry	Vertically integrated companies operating in the areas of energy generation from renewable and low-carbon sources
Targets	**Committed:** Specific targets have yet to be submitted Goal of emission intensity reduction: 150 g CO_2e/kWh (2020-2022) to 50 g by 2025 and 10 g by 2030
Going Beyond	- Leader in hydrogen innovation - By 2030, recycling and repowering of dismantled plants and regular biodiversity monitoring - Enforcing green transformation of customers - Decarbonization at a high pace
Stage	Purpose driven

Rationale for Stage Mapping within the "Sustainability Stages Model"

1. Self-proclaimed first Polish company prioritizing zero-carbon economy over growth
2. Certifications: Forbes' Low Carbon Leader award; low ESG risk(Sustainalytics)
3. Partnerships: University of Zielona Góra and UNEP/GRID-Warsaw, the Polish branch of the United Nations Environment Programme
4. Investment in co-generation plants for industrial steam users, with future hydrogen fuel potential
5. On top of selling green eco-system, Polenergia offers clients guidance on pursuing decarbonization and reporting on sustainable metrics
6. Guarantee of climate-neutral products meeting clients' demand with continuous energy from Polish renewable sources

Source: Polenergia (2023)

InPost

Pioneering sustainable last-mile solutions with AI and solar-powered lockers

	InPost
Country	InPost — Poland
Industry	Market leader operating in the courier, express and parcel service industry with innovative & sustainable last-mile solutions
Targets	**Near-Term (2023** *2021 base year**) Scope 1 & 2: -42% GHG emissions **Long-Term (2040** *2021 base year**) Scope 1 & 2: -95% GHG emissions Scope 3: -90% GHG emissions
Going Beyond	- **Solar-powered parcel machines:** 180,000t of CO_2 reduction (67 % cities, 90 % rural) - **Green City Initiative:** sustainable urban development - **Community:** cooperation with educational institutions
Stage	Market differentiation

Rationale for Stage Mapping within the "Sustainability Stages Model"

1. Clear vision of becoming Europe's leading environmentally friendly e-commerce solution; climate neutrality by 2040
2. Heavy investment in AI, EVs, solar-powered lockers and robotised machines
3. 75,000 tonnes of CO_2 saved annually, 25% reduction in emissions (2020-2023) & 75% via 500+ solar-powered parcel lockers
4. Significant investments in sustainable technologies and infrastructure & Green City Programme
5. Sustainable Supply Chains: 69% suppliers with SBTi targets by 2027
6. Projects: Refrigerated lockers to reduce food waste & AI-driven dynamic routing to optimize fuel use

Source: InPost (2024), InPost (2023a), InPost (2023b), InPost (2023c), InPost (2023d)

Steklarna

Leading sustainable glass packaging with innovative technology and renewable energy

	Steklarna
Country	STEKLARNA HRASTNIK — Slovenia
Industry	Containers and Packaging, by producing luxurious glass packaging "from one of the purest glasses in the world", which does not contain heavy metals
Targets	**Committed:** Specific targets have yet to be submitted Goal of emission intensity reduction: more than 25 percent by 2025; more than 40 percent by 2030 and reaching carbon neutrality by 2050 (*2022 base year**)
Going Beyond	- Investing in the latest innovative glass melting technology "Hybrid regenerative glass furnace" - Construction of a third solar power plant "SE Steklarna Hrastnik 3" with approximately 780 kWp - Ecological product design (reducing the weight of glass, biomaterials)
Stage	Market differentiation

Rationale for Stage Mapping within the "Sustainability Stages Model"

1. Vision: Incorporating sustainable development as a strategic guidance
2. Energy supply: 52% of the energy consumed comes from green sources
3. Recycling: Using glass out of 100% recyclable material
4. Commitment:1.0% of the annual turnover invested in the R&D activity oriented toward circular economy
5. Innovation: First commercial use of hydrogen in the glass packaging industry, resulting in a carbon footprint decrease of over 30% of
6. Sustainable investments: In 2021, 15.3% of the total revenue was committed to green investments

Source: H2Glass (2023), Steklarna(2022)

Partner in Pet Food Hungária

Advancing sustainable pet food with circular economy and renewable energy

	Partner in Pet Food Hungária
Country	PPF Partner in Pet Food — Hungary
Industry	Innovative, leading European pet food company, active in the Food and Beverage Processing industry and producing branded pet food & own-label products
Targets	**Target 2030:** - reduce Scope 1, 2, and 3 GHG emissions by 42% by the end of 2030 on a 2021 baseline
Going Beyond	- **Performance**: ensuring ethical & credible business and responsible sourcing - **Circular Economy**: reducing operational food waste, optimizing packaging solutions - **People:** Wellbeing Programme, community support
Stage	Market differentiation

Source: PPF (2023)

Rationale for Stage Mapping within the "Sustainability Stages Model"

1. Mission: Sustainability as a means of continuous growth and profitability
2. Circular Economy: Reduce operational food waste & use recyclable packaging materials
3. Energy consumption: Successful pilot initiative of installing solar panels in warehouses and factories in the Netherlands
4. Zero Waste Initiative: Reduced operational food waste by 138 tons
5. Sustainable Logistics: Complete transition to electric forklifts; use of pallet sharing network
6. Research Avenues: Looking for approaches to reduce emissions caused by the purchase of raw materials

CCC Group

Advancing sustainable footwear with circular economy and renewable energy

	CCC Group
Country	CCC GROUP — Poland
Industry	One of the largest European companies in the footwear industry, including shoes for men, women, and children, along with accessories
Targets	**Target 2021: 55%, Progress: 65%** - Increase of suppliers audited for compliance with the Supplier Code of Conduct **Target 2021: -5%, Progress: -16%** - Achieve a 5% reduction of Scope 1 and 2 emissions
Going Beyond	- **Circular economy principles**: raw material flows within the CCC Group's value chain - **Phase out plastic bags** in 100% of CCC Group stores - Principles and criteria compatible with eco-design
Stage	Market differentiation

Rationale for Stage Mapping within the "Sustainability Stages Model"

1. Emission reductions: 16,056 tonnes of CO_2 saved annually due to PV installation, producing 450 MWh yearly
2. Certification: 'A' grade on MSCI ESG scale, a grade assigned to global sustainable leaders
3. Formal Commitment: Part of the top 100 global fashion brands committing to sustainability practices through UN Climate Action
4. Energy generation: 100% of self-generated energy comes from renewable sources
5. Recycling: More than 90% of generated waste is recyclable
6. Supplier Conduct Guidelines: Obligation to match CCC's conditions + audit of high-risk suppliers

Source: CCC (2024)

“Good-Green-Practice”

Requirements to be considered as a “Level 5” company within the "Sustainability Stages Model"

1	**Deep Integration**	Sustainability is central to the business model
2	**Value-Driven Approach**	Values that prioritize sustainability & ethics
3	**Leadership & Culture**	Leadership promotes sustainability within the company culture
4	**Innovation & Differentiation**	Using sustainability to differentiate in the market
5	**Stakeholder Engagement**	Active engagement with employees, customers & suppliers
6	**Reporting & Transparency**	High standards of transparency in sustainability reporting
7	**Impact Measurement**	Effective systems to measure sustainability impact

Evaluation matrix

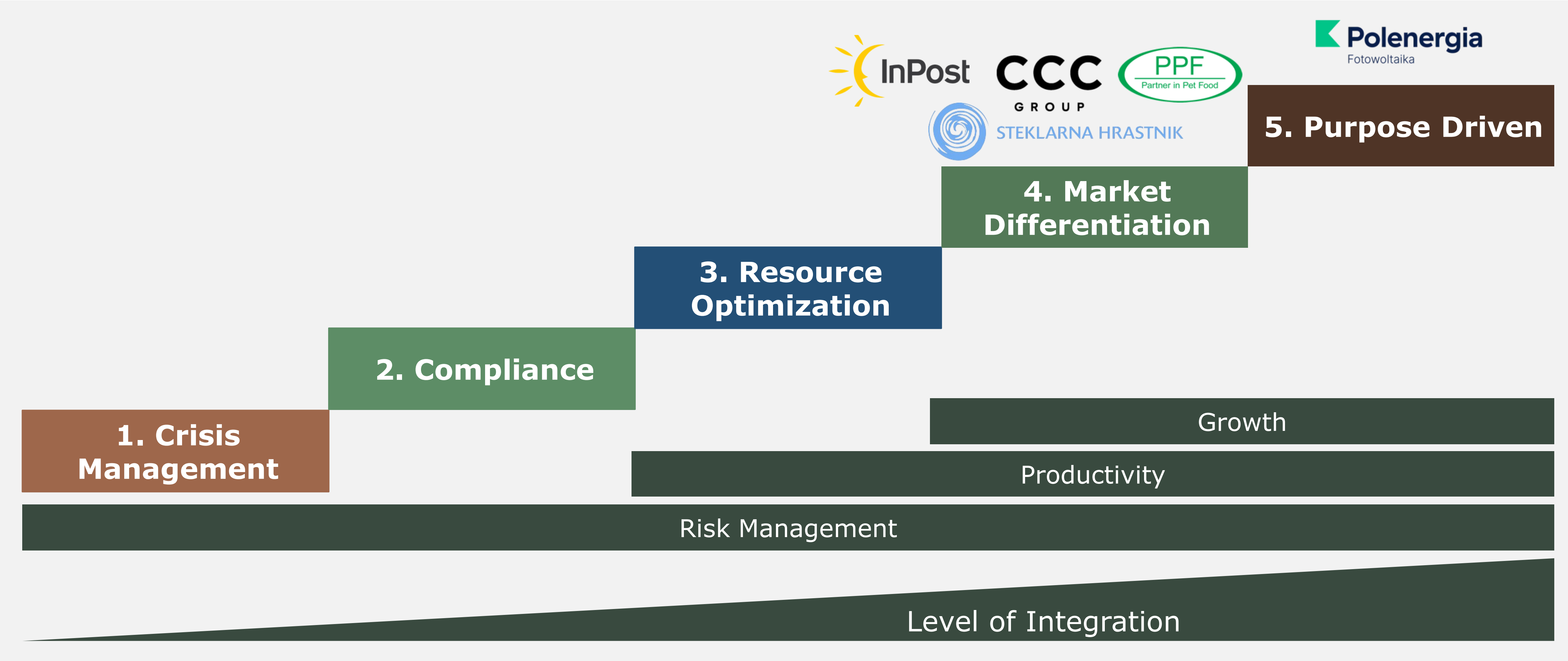
Evaluation of individual best practice companies based on the stage model

Criteria / Company	PPF Partner in Pet Food	CCC GROUP	InPost	STEKLARNA HRASTNIK	Polenergia Fotowoltaika
Vision/ Mission (Dedication to sustainability as central mission)	A	M	H	A	H
Innovation/ Efforts (Own R&D department addressing sustainability)	M	A	A	H	H
Achievements in Sustainability (Reduction of emissions until 2023)	A	A	A	M	H
Investments (Share of investments into sustainable practices)	M	M	A	H	H

H → high level
A → above average
M → moderate

Sustainability Stages Model

Ranking of the analyzed companies



Source: United Nations Global Compact (2015)

Key Takeaways | Business view

Effective sustainability practices stem from strategic vision, attitudes and innovation

Attitudes of CEE actors towards climate change

- While many CEOs are acting on energy efficiency, around 1/3 of them don't have specific plans for actions on climate adaptation, transition or nature
- Skilled professionals' availability, geopolitical tensions and increasing regulation are expected to be the most significant sources of risk to business development

Process of Research to establish Good-Green-Practice

- First Step: Science Based Target Dashboard, initial step in identifying CEE companies committed to the SBTi framework
- Second Step: Sustainability Stages Model, evaluating the 5 CEE companies by using a 5-point system
- Third Step: Highlighting Good Green Practice

Good-Green-Practice

- 7 requirements identified for companies to be placed at "Level 5" within the Sustainability Stages Model include:
- Deep Integration, Value-Driven Approach, Leadership & Culture, Innovation & Differentiation, Stakeholder Engagement, Reporting & Transparency, Impact Measurement

Dilemmas

Chapter 5

General dilemmas

Daunting issues in the world of environmental sustainability

- Without **sufficient growth** well-being and a more sustainable future are unlikely
- Net zero emissions would require massive investments
- Prevalent **profit-oriented and revenue-driven** business models

- CEE countries face **unique issues** leading to a lower level of environmental practices
- **Financial constraints** within CEE play a significant role, making it challenging to prioritise environmental concerns
- Prioritisation of **immediate needs over long-term sustainability**

Economic Development VS Sustainability

- **Reluctance** of data disclosure
- **Need for cooperation** for lower SCOPE 3 emissions
- There are **no detailed rules for disclosing non-financial data**
- Companies are free to disclose information they see relevant in the way they consider the most useful
- Notable and **substantial variances in the form, content and quality** of data reported.

- Rather weak national data protection regulations in CEE
- Big **differences in greenwashing prosecution and litigation processes** across the region
- **Different definitions for the same KPIs** make it hard in terms of benchmarking and comparison

Data Reliability and Transparency VS Proper Measurement

Sources , Eurostat (n.d.), Kesselring (2023), Sternfeld et al. (2021)

CEE-related dilemmas

A tale of opportunistic ways and challenges?

- Reliance on Nuclear energy instead of renewable energy sources in order to **secure stable supplies**
- **The changing energy landscape** in the region due to factors like the war in Ukraine
- **Energy-intensive-industrie**s within CEE

Nuclear energy in CEE

- Eastern Europe is still **strongly affected by corruptio**n with most of the countries ranked very low in the **corruption perceptions index**
- Missing anti-corruption actions, significant private influence, lack of reinforcement of checks and balances etc.

Influence of corruption

- Co2 caused by manufacturing in CEE (within the EU) **has been reduced** in recent years
- Still **3rd biggest contributor**
- Certain CEE countries **rely heavily on manufacturing**
- Approx. 30% employment in Slovakia and Slovenia

Manufacturing in CEE

Sources: CCS4CEE (2021), Central European Times (2023), McKinsey (2023), McKinsey (2024), Transparency International (2023)

Conclusion

Conclusion 1/2

CEE countries lag behind in sustainability due to historical industrial legacies and economic constraints, with EU regulations driving change despite low public enthusiasm and high investment needs

- CEE countries are **lagging** in environmental sustainability performance when compared to old EU countries
- The CEE region suffers from the **historical disadvantage** of the communist planning legacies and heavily industrialized economies, which left today's societies with outdated infrastructure and high pollution levels
- EU regulations, for example the Green Deal, are crucial for **initiating sustainability efforts** and leading change. They even extend to exporting companies in non-EU countries like Serbia that want to stay in business with EU customers
- However, the people in CEE are **less eager to become green** as low incomes make them other primary needs rank higher. While there is a preference for sustainable options, cost remains a barrier for widespread adoption. People prefer sustainable options but are unwilling to pay higher prices
- Businesses' environmental sustainability is driven by **cost-efficiencies** not conviction, but there are role models in the region spearheading the transition

Conclusion 2/2

While CEE countries' CO_2 emissions align with EU trends, challenges like fossil fuel dependence, low public awareness, and lack of robust climate plans hinder progress, highlighting need for strong role models

- The distribution of emissions per sector in CEE countries aligns with broader EU trends, with **energy-driven processes being the primary source of CO_2 emissions**, which have shown a stagnating trend in recent years and vary by country due to population size
- **Dependence on fossil fuels** persists as coal-fired power plants, the main CO_2 emitters, show a slow decline in emissions, while renewables face geographical and political challenges
- **Businesses and industries** are viewed as key to addressing climate issues. However, overall public awareness of environmental impact is low, with Slovenia and Slovakia being exceptions
- Many CEOs focus on **energy efficiency**, but a significant number lack specific **climate adaptation plans**. On top of the management agenda are risks such as skilled labor shortages, geopolitical tensions, and regulatory changes – fighting climate change ranks low
- Balancing sustainability with economic development is difficult due to low household incomes, data limitations, low institutional quality stemming from weak law enforcement and corruption, and low trust levels
- To **identify Good Green Practices**: Effective sustainability practices stem from strategic vision, attitudes and innovation, companies should integrate sustainability deeply and prioritize. CEE needs more role models for good green practice

Contact

In case of any questions feel free to reach out to us!

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Master Class CEE 2023/2024
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