

The European Union – Uzbekistan Sustainable Energy Days

International Conference

Energy Efficiency in Uzbekistan: prospects and challenges

Radisson Blu Hotel, Tashkent, 27 June 2023

EU approach to the promotion of energy efficiency in large enterprises - lessons learned and a way forward

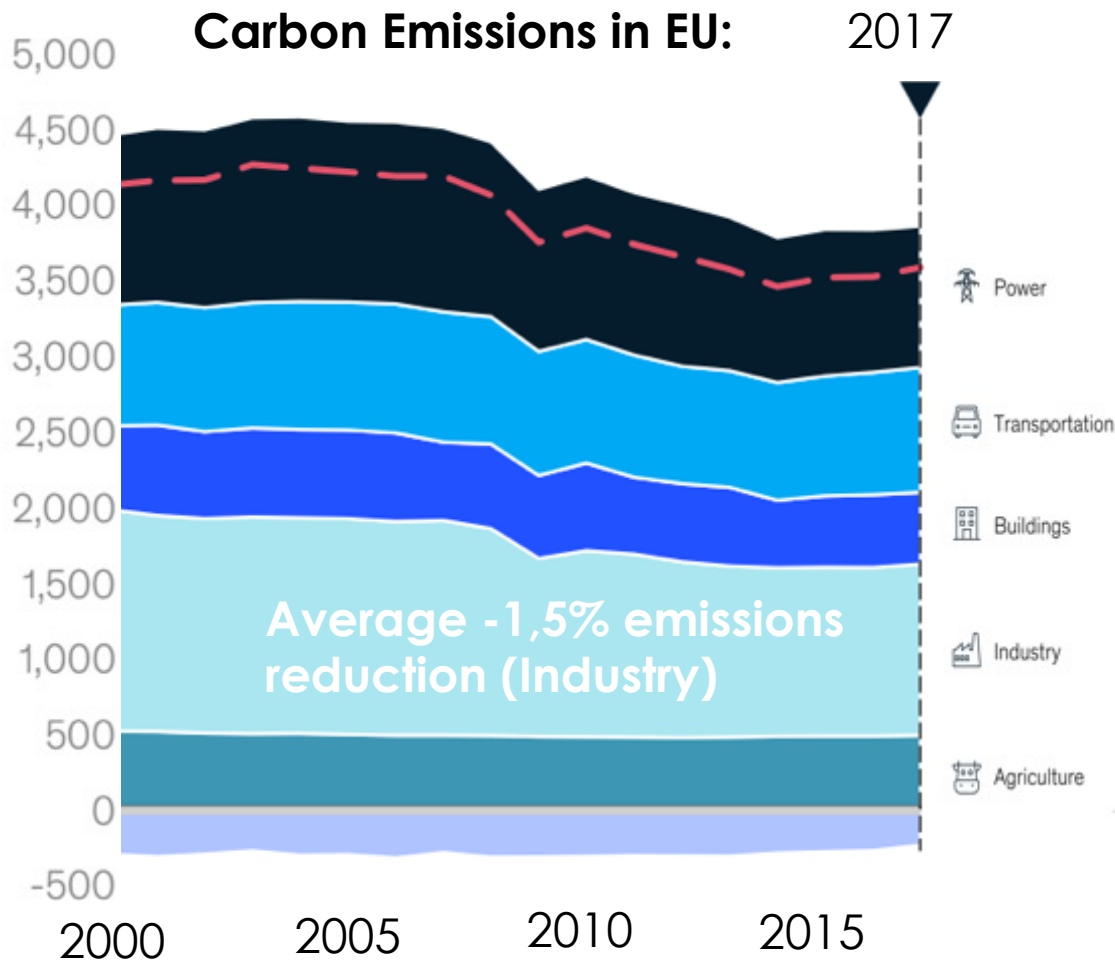
Karolis Janusevicius, Expert in energy audits, EU-funded Technical Assistance Project “Support of the Georgian Energy Sector Reform Programme” (GESRP)

PRESENTATION OUTLINE

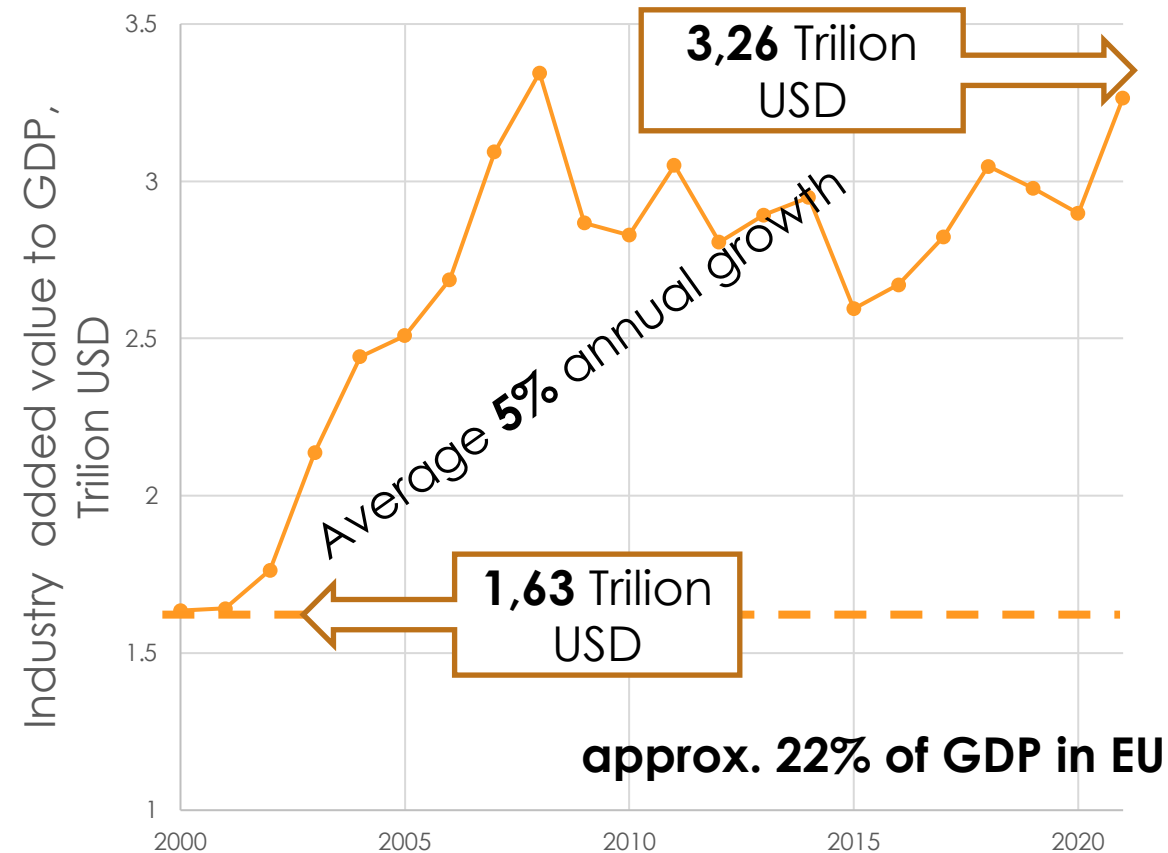


1. What is the role of Industry in European Union?
2. What was already achieved in the period of 2000-2020?
3. What are the key tools that are used to facilitate the changes?
4. Why large enterprises are addressed and how identified?
5. How was policy implemented?
6. What are the tools for energy management?
7. Mechanism encouraging to apply energy management?
8. What are implementation differences across member states?
9. Key challenges that was faced by the most of member states?
10. What are the influence of our heritage?
11. What are upcoming challenges for European Union?
12. How is Industry sector addressed in upcoming legislation?

INDUSTRY ROLE IN EUROPEAN UNION



Impact of EU Industry to GDP:

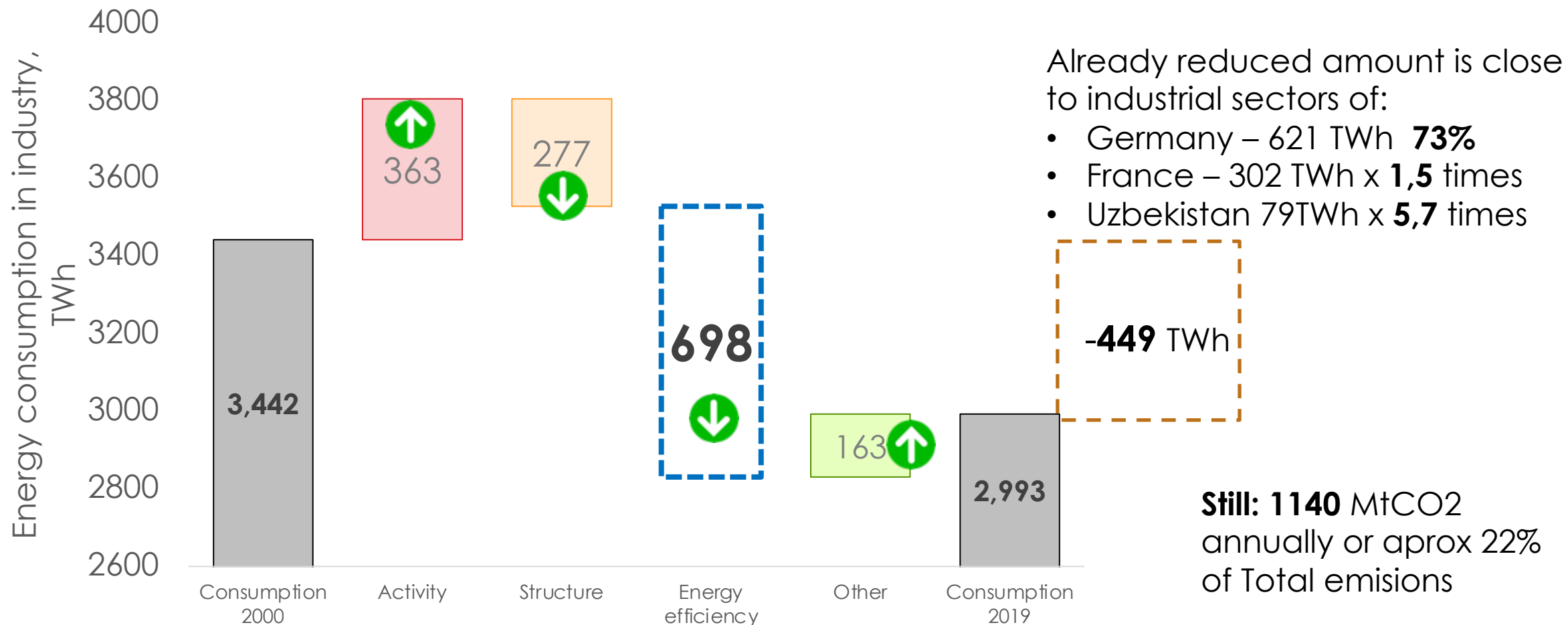


Industry is a largest polluter in the EU While emissions were reduced by 1,5% while added value grows 5% annually- it shows that it is possible to decouple pollution and economic growth.



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ACHIEVEMENTS OF ENERGY EFFICIENCY IN INDUSTRY



Source: <https://www.indicators.odyssee-mure.eu/decomposition.html>

Due to EU policy actions and aim to decouple economic growth from carbon emissions, Energy efficiency plays important role on reducing consumption and emissions



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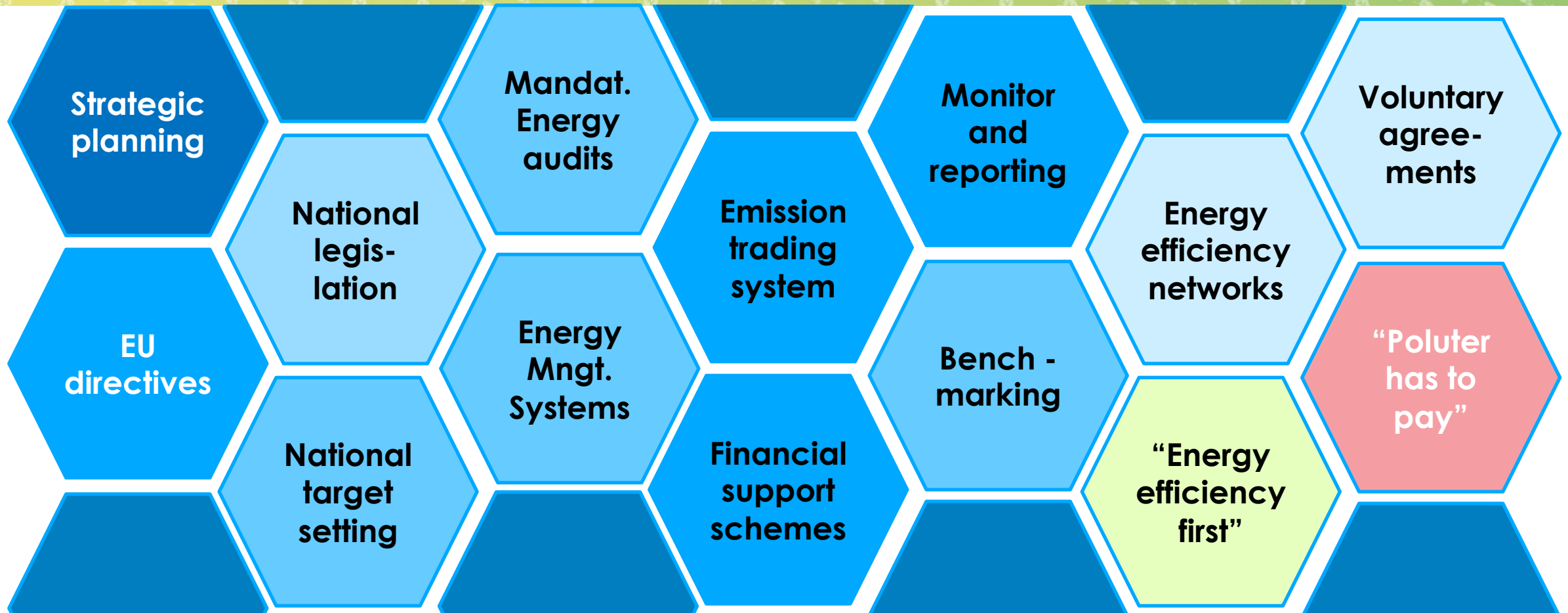


THE EUROPEAN UNION APPROACH AND LESSONS LEARNED



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SET OF ELEMENTS INFLUENCING THE CHANGE



In order to facilitate the change European commission and EU member states employs multiple tools and methods to improve energy efficiency

THE ROLE OF LARGE ENTERPRISES

≥ 250 Number of employees [n]

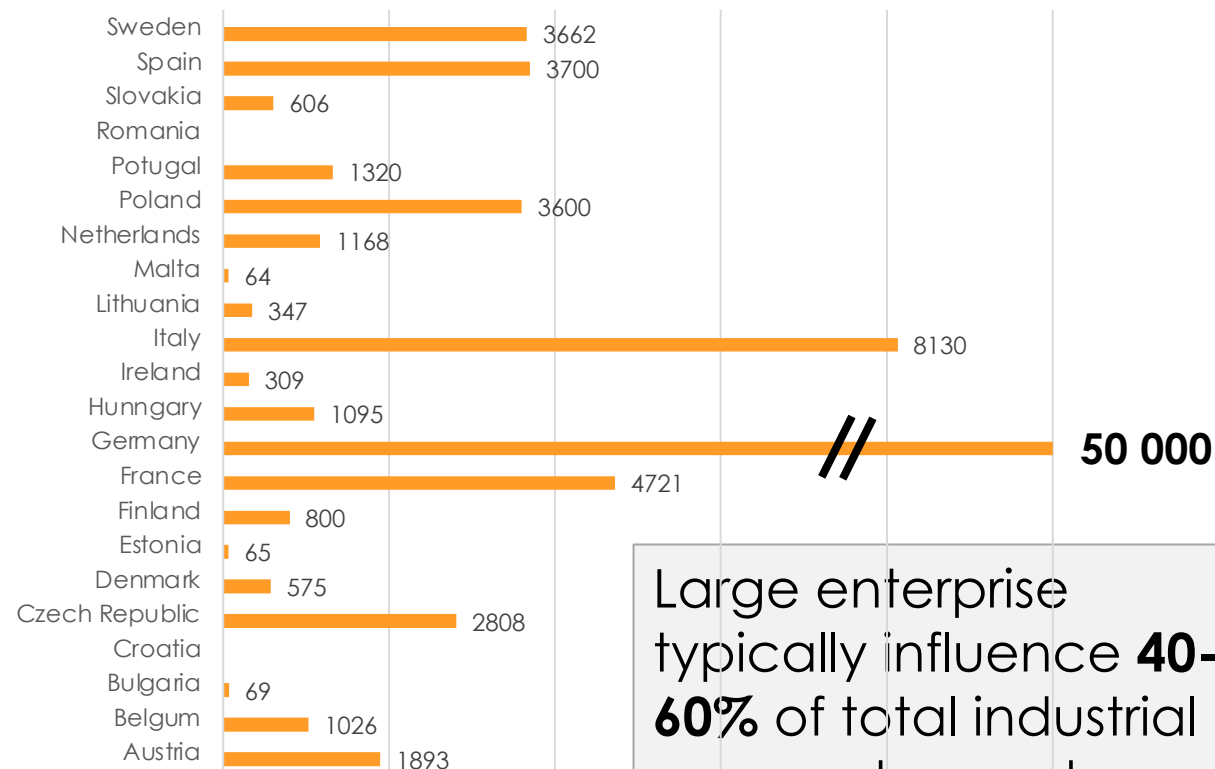
$\geq 50\text{mIn.}$ Annual turnover [Eur]

$\geq 43\text{mIn.}$ Balance sheet total [Eur]

25.10.2012

Directive 2012/27/EU on energy efficiency

Number of Large enterprises in EU MS (2018 data)



Large enterprise typically influence **40-60%** of total industrial energy demand

Over 47 thousand large enterprise were identified in EU in 2018, by using selection criteria proposed by Energy efficiency directive. They covers from 40 to 60% of industrial energy demand

WAY OF IMPLEMENTING POLICY

- **Energy efficiency directive** (EED) recommends mandatory requirement for energy audits



- **Member states** transpose EED recommendations to national legislation and foresee implementation mechanisms (responsible institutions, penalties, financial support mechanisms)



National implementation bodies (Agencies or other) implement the policy:

- Create the list of enterprises that are subject for mandatory audits
- Inform the enterprises about their duty
- Collect information about performed audits, energy management systems and foreseen and implemented policy measures
- Aggregate and analyses the collected information
- Reports the status and achieved energy savings

The key elements enabling policy actions are directives, their transposition to national legislation and national implementation bodies

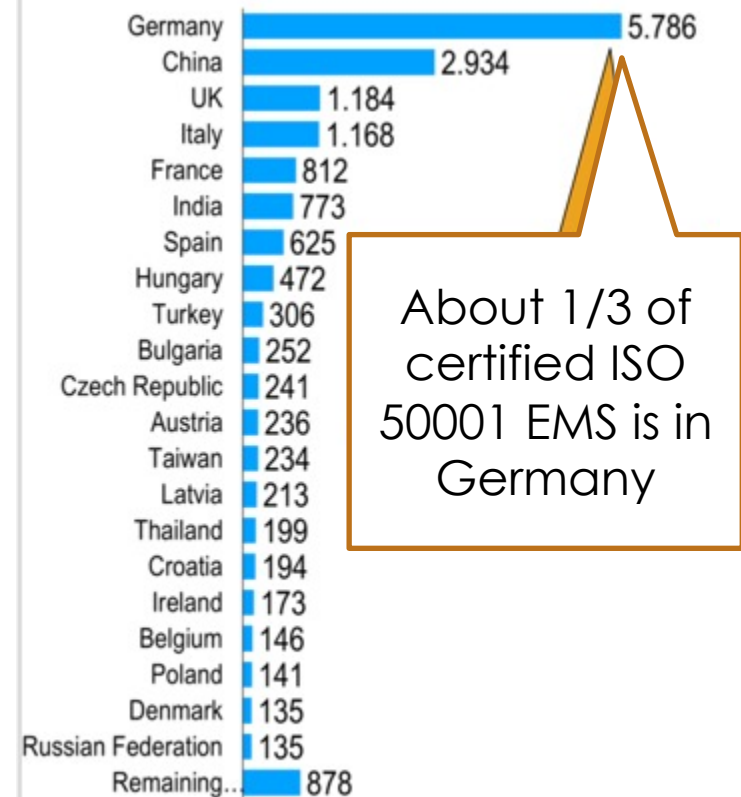


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WHAT ARE ENERGY MANAGEMENT TOOLS?

ENERGY AUDIT - systematic procedure with the purpose of obtaining adequate knowledge of the energy consumption profile of a facility, identifying and quantifying cost-effective energy saving opportunities, and reporting the findings.

ENERGY MANAGEMENT SYSTEM - is a “set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective”



Source: Certified EMS, ISO survey 2011-2019

Energy audits and energy management systems aims to improve efficiency by identifying energy waste and proposing improvement measures. Both tools are accepted recommended to use, but they have gained different popularity along member states

MECHANISMS ENCOURAGING TO MANAGE ENERGY

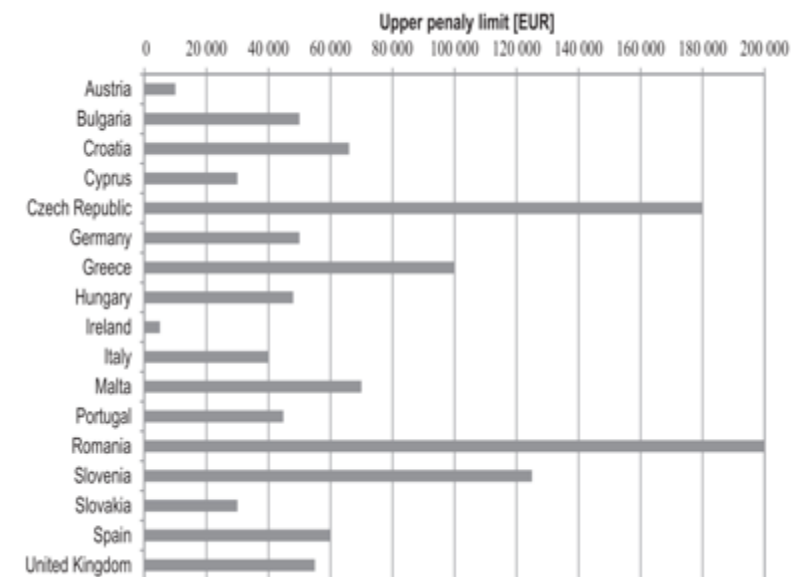
- Awareness raising

- Financial support for performing energy audits
- Financial incentives for energy efficiency measures implementation
- Tax reduction for enterprises performing audits and implementing measures







- Mandatory requirement in national legislation





- Penalties for non-complying



Enterprises are encouraged to use energy management tools by following “carrot and stick” approach including awareness rising.

DIFFERENCES ACROSS MEMBER STATES

	Energy audits		Energy management systems	
Regulatory instr.		Bulgaria Croatia Czech Republic Ireland Italy Luxembourg Portugal Romania Slovenia		none (except Romania: mandatory energy manager)
	Voluntary agr.		Bulgaria Finland Malta Netherlands	

	Energy audits		Energy management systems	
Financial instr.		Austria Bulgaria Croatia Denmark France Germany Italy Luxembourg Malta Poland Portugal Slovakia Sweden		Austria France Germany Malta Spain Sweden
	Information instr.		Flanders (BE) Germany	

Nabitz et al. (2016): How can energy audits and energy management be promoted amongst SMEs? A review of policy instruments in the EU-28 and beyond

Despite same goal member states chose different approaches by using regulatory, financial and information instruments together with voluntary approach

KEY CHALLENGES FACED IN MEMBER STATES

1. Identification of obligated companies
2. Ensuring compliance
3. Quality of audits
4. Compromise between reporting effort and monitoring
5. Measures implementation
6. Creation of support mechanisms
7. Limited available resources
8. Guiding enterprises to participation
9. Raising awareness on opportunities
10. Non-energy benefits (NEB's) are not recognized

CHALLENGES DUE TO DIFERENT HERITAGE

Western Europe countries

- Energy market was self sustaining
- Energy prices depends on actual running cost
- The activities of production and distribution were separated
- Profit driven efficiency improvement

Post-communist countries

- Low energy prices
- Energy production costs are higher than it is sold
- Government subsidize energy price
- Low energy literacy
- Cultural differences
- “Just give us money” perspective

Different challenges arise in new member state coming form post-communist block. The same measures did not work as it used to in western Europe. It took time to reform energy sectors and enable progressive tools, but “people factor” remains one of the barrier.

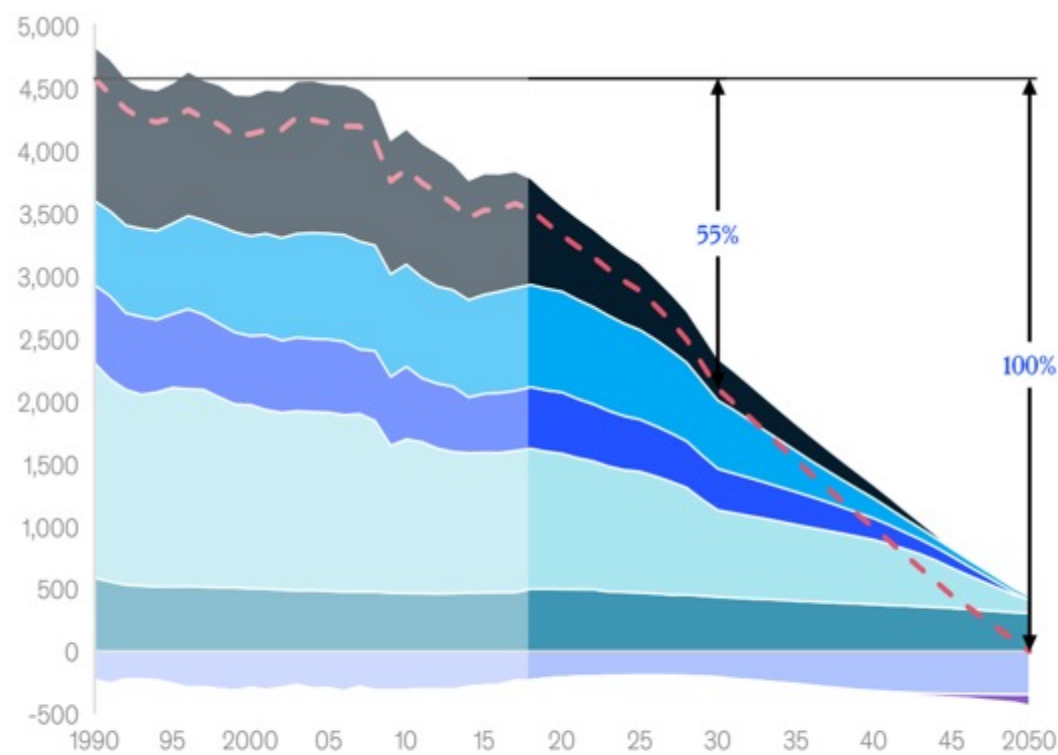


FUTURE DIRECTION AND CHALLENGES



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FUTURE DIRECTION OF EUROPEAN UNION?



■ Power ■ Transportation ■ Buildings ■ Industry ■ Agriculture ■ LULUCF
 ■ Emission absorptions techs - - - Net emissions

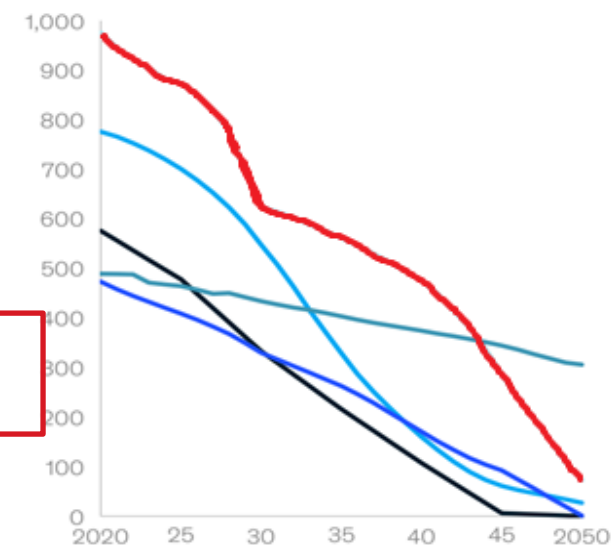
Current emissions
MtCO₂e, 2017

Decarbonization cost¹
EUR/tCO₂e
2020-30 30-40 40-2050

Power	930	-31	18	145
Transportation	820	-92	-149	-70
Buildings	490	-66	37	40
Industry	1,140	30	86	120
Agriculture	470	-27	-121	35

1. Weighted average
Source: McKinsey, UNFCCC

Emissions evolution
MtCO₂e



EU is aiming to achieve carbon neutrality by 2050. The most challenging will be to reduce emissions in industry due to size and cost of decarbonization measures.



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FIT FOR 55 PACKAGE: EED RECAST

~~Art. 8~~ Art. 11: Energy management systems and energy audits

- [...] enterprises with an average annual (energy) consumption higher than
 - **100 TJ** → implement Energy Management Systems
 - **10 TJ** → subject to energy audit
- [...] results of energy audits including the recommendations [...] **must be transmitted to the management.**
- [...] ensure that **quality checks** are carried out to ensure the validity and accuracy of energy audits.

No more SME / non-SME distinction

Company category	Staff headcount	Turnover or	Balance sheet total
SME	<250	<= € 50 m	<= € 43 m

Higher implementation rate by involving management?

Higher quality audits?

25.10.2012

Directive 2012/27/EU on energy efficiency

2013 & 2018 & 2019

Amendments but with no changes to Art. 8

14.07.2021

Proposal for a Directive on energy efficiency (recast)

Updated energy efficiency directive continues to promote energy audits and energy management systems, but subject of application is shifted from enterprise size to energy consumption threshold



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Climate stripes by Prof. Ed Hawkins.

CONCLUSIONS



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SUMMARY: KEY TAKE AWAYS (1/2)

1. Industry is a largest polluter in the EU While emissions were reduced by 1,5% while added value grows 5% annually - it shows that it is possible to decouple pollution and economic growth.
2. Due to EU policy actions and aim to decouple economic growth from carbon emissions, Energy efficiency plays important role on reducing consumption and emissions.
3. In order to facilitate the change European commission and EU member states employs multiple tools and methods to improve energy efficiency
4. Over 47 thousand large enterprise were identified in EU in 2018, by using selection criteria proposed by Energy efficiency directive. They covers from 40 to 60% of industrial energy demand
5. The key elements enabling policy actions are directives, their transposition to national legislation and national implementation bodies
6. Energy audits and energy management systems aims to improve efficiency by identifying energy waste and proposing improvement measures. Both tools are accepted recommended to use, but they have gained different popularity along member states

SUMMARY: KEY TAKE AWAYS (2/2)

7. Enterprises are encouraged to use energy management tools by following “carrot and stick” approach including awareness rising
8. Despite same goal member states chose different approaches by using regulatory, financial and information instruments together with voluntary approach
9. The member states have faced similar challenge to different degree. The local solutions were needed due to different circumstances
10. Different challenges arise in new member state coming from post-communist block. The same measures did not work as it used to in western Europe. It took time to reform energy sectors and enable progressive tools, but “people factor” remains one of the barriers.
11. EU is aiming to achieve carbon neutrality by 2050. The most challenging will be to reduce emissions in industry due to size and cost of decarbonization measures.
12. Updated energy efficiency directive continues to promote energy audits and energy management systems, but subject of application is shifted from enterprise size to energy consumption threshold.

CLOSING REMARK

“Learn from yesterday, live for today and hope for tomorrow”

- *Albert Einstein*



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EU APPROACH TO THE PROMOTION OF ENERGY EFFICIENCY IN LARGE ENTERPRISES - LESSONS LEARNED AND A WAY FORWARD

***THANK YOU FOR
YOUR ATTENTION !***



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„Helping to Unlock the Value of Energy Efficiency and Sustainability for a More Resilient Future “



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