

---

# EED Article 7 - Main Measures in Industry in the EU

Christos Tourkolias, CRES

*27<sup>th</sup> EECG meeting 17 November 2021, virtual meeting*

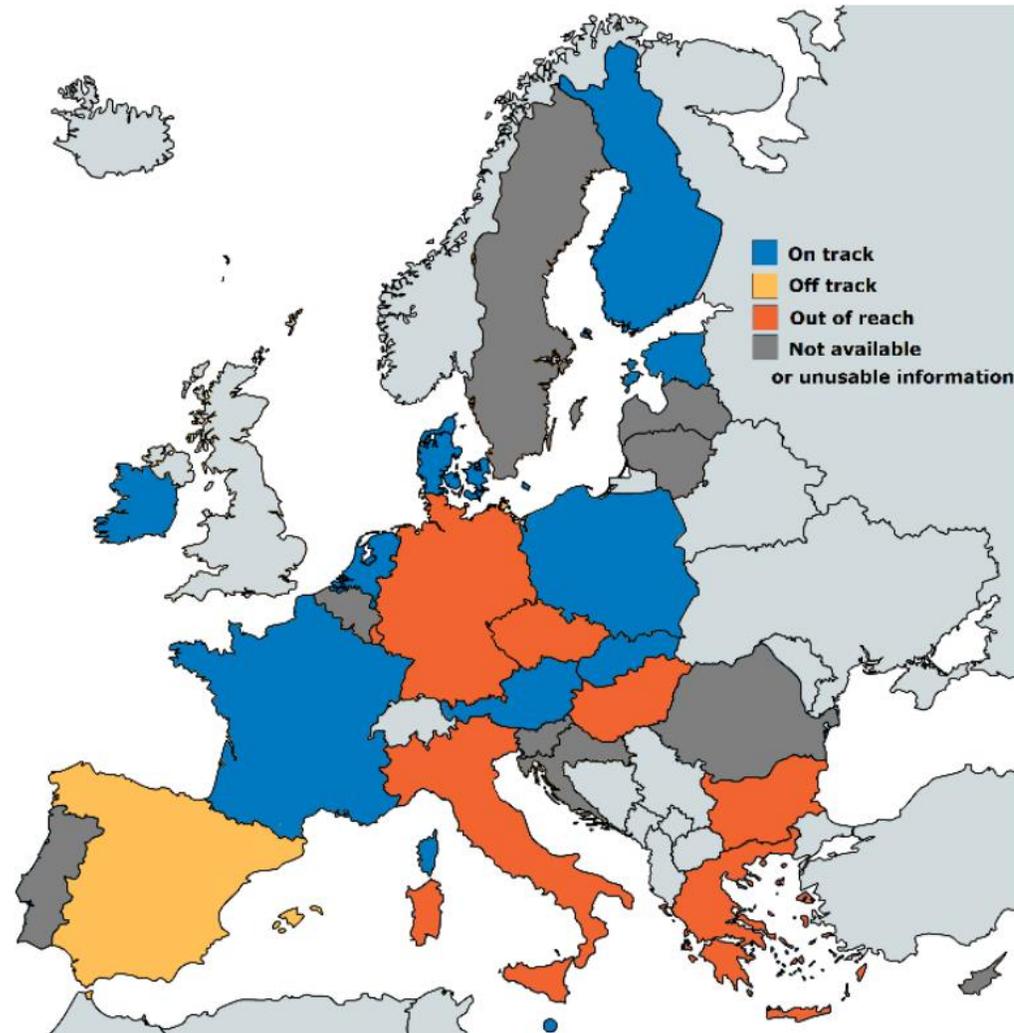


# Article 7 of the EED

Imposition of a mandatory energy efficiency target

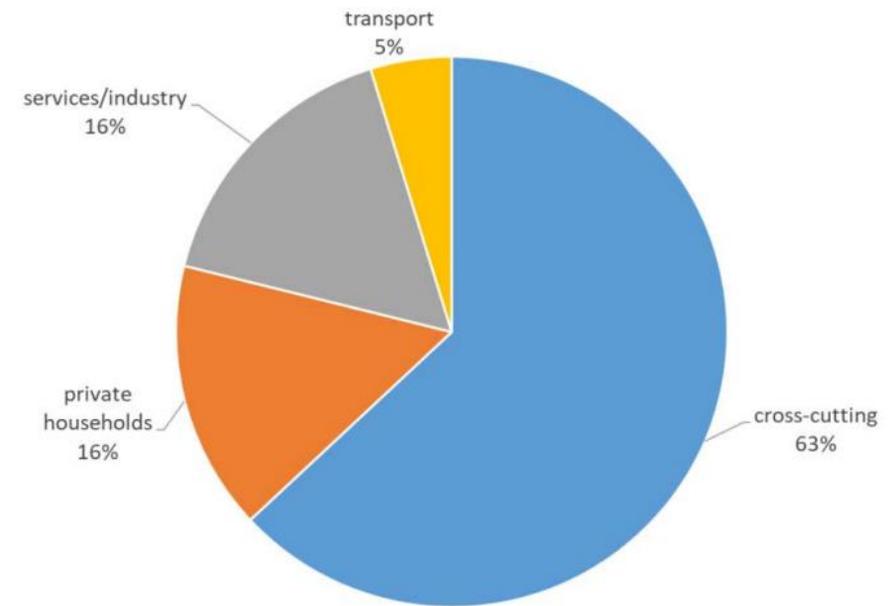
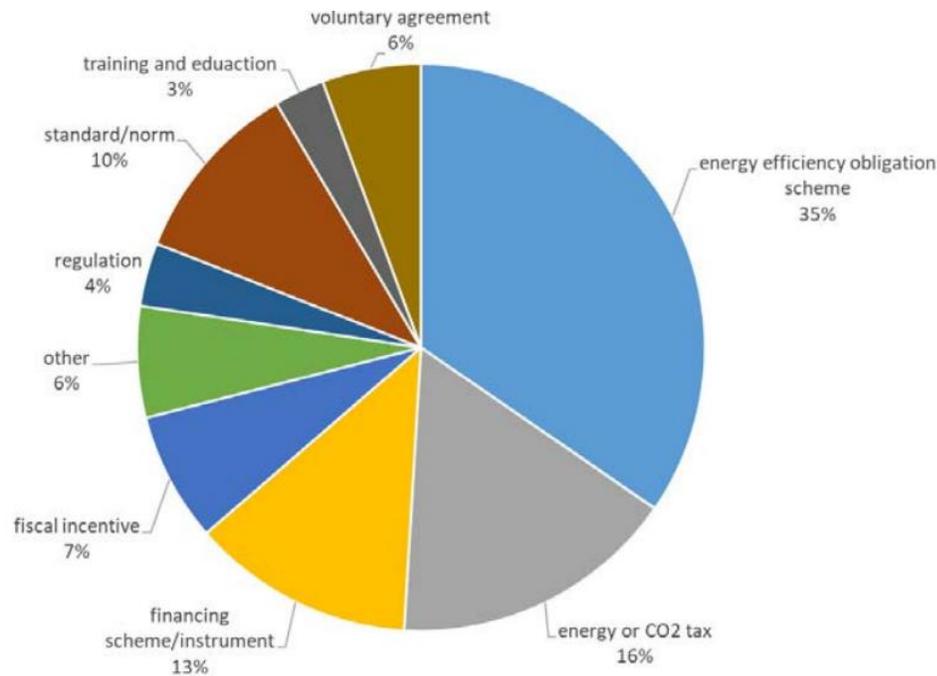


Difficulties in achieving the specified target for the majority of the MS!!!



*Source: The Coalition for Energy Savings, 2020. EED Article 7 National progress and outlook on the energy savings obligation.*

# Current implementation of policies and measures within Article 7



**Source:** EU, 2020. 2020 assessment of the progress made by Member States towards the implementation of the Energy Efficiency Directive 2012/27/EU and towards the deployment of nearly zero-energy buildings and cost-optimal minimum energy performance requirements in the EU in accordance with the Energy Performance of Buildings Directive 2010/31/EU.

# Overview of the sectors and policy types covered by the energy efficiency measures presented in all 27 NECPs

	Economic	Education	Fiscal	Information	Planning	Regulatory	Research	Voluntary	Other	Not specified	TOTAL
<b>Cross-sectoral</b>											238
<b>Residential</b>											197
<b>Services</b>											161
<b>Buildings</b>											304
<b>Industry</b>											181
<b>Transport</b>											363
<b>Public</b>											148
<b>Agriculture</b>											78
<b>Energy supply</b>											180
<b>Other</b>											12
<b>Not specified</b>											5
<b>TOTAL</b>	<b>495</b>	<b>36</b>	<b>144</b>	<b>197</b>	<b>191</b>	<b>332</b>	<b>56</b>	<b>28</b>	<b>99</b>	<b>12</b>	<b>1394</b>

## LEGEND



Source: JRC, 2020

Source: JRC, 2020. National Energy and Climate Plans for 2021-2030 under the EU Energy Union - Assessment of the Energy Efficiency Dimension.

# Overview of industry measures reported in the NECPs

The provision of economic incentives and the adoption of regulatory measures constitute the most common measures in industrial sector.

	Total reported measures	Economic	Education	Fiscal	Information	Planning	Regulatory	Research	Voluntary	Other
BE	5	✓							✓	
BG	8	✓					✓			
CZ	4	✓				✓				
DK	3	✓			✓		✓			
DE	10	✓	✓	✓	✓		✓		✓	
EE	6	✓					✓			
IE	4	✓		✓						
EL	8	✓					✓			
ES	2	✓								
FR	13	✓		✓	✓		✓	✓		
HR	2			✓			✓			
IT	4	✓		✓			✓			
CY	14	✓	✓	✓		✓	✓		✓	
LV	1						✓			
LT	2	✓								
LU	4				✓				✓	✓
HU	5	✓					✓			
MT	6	✓	✓		✓				✓	
NL	29	✓		✓		✓	✓	✓	✓	✓
AT	-									
PL	-									
PT	30	✓	✓	✓		✓	✓	✓		✓
RO	8	✓			✓	✓	✓			✓
SI	4	✓								
SK	5	✓			✓				✓	
FI	2	✓		✓	✓					✓
SE	2	✓					✓			

Source: JRC, 2020. National Energy and Climate Plans for 2021-2030 under the EU Energy Union - Assessment of the Energy Efficiency Dimension.

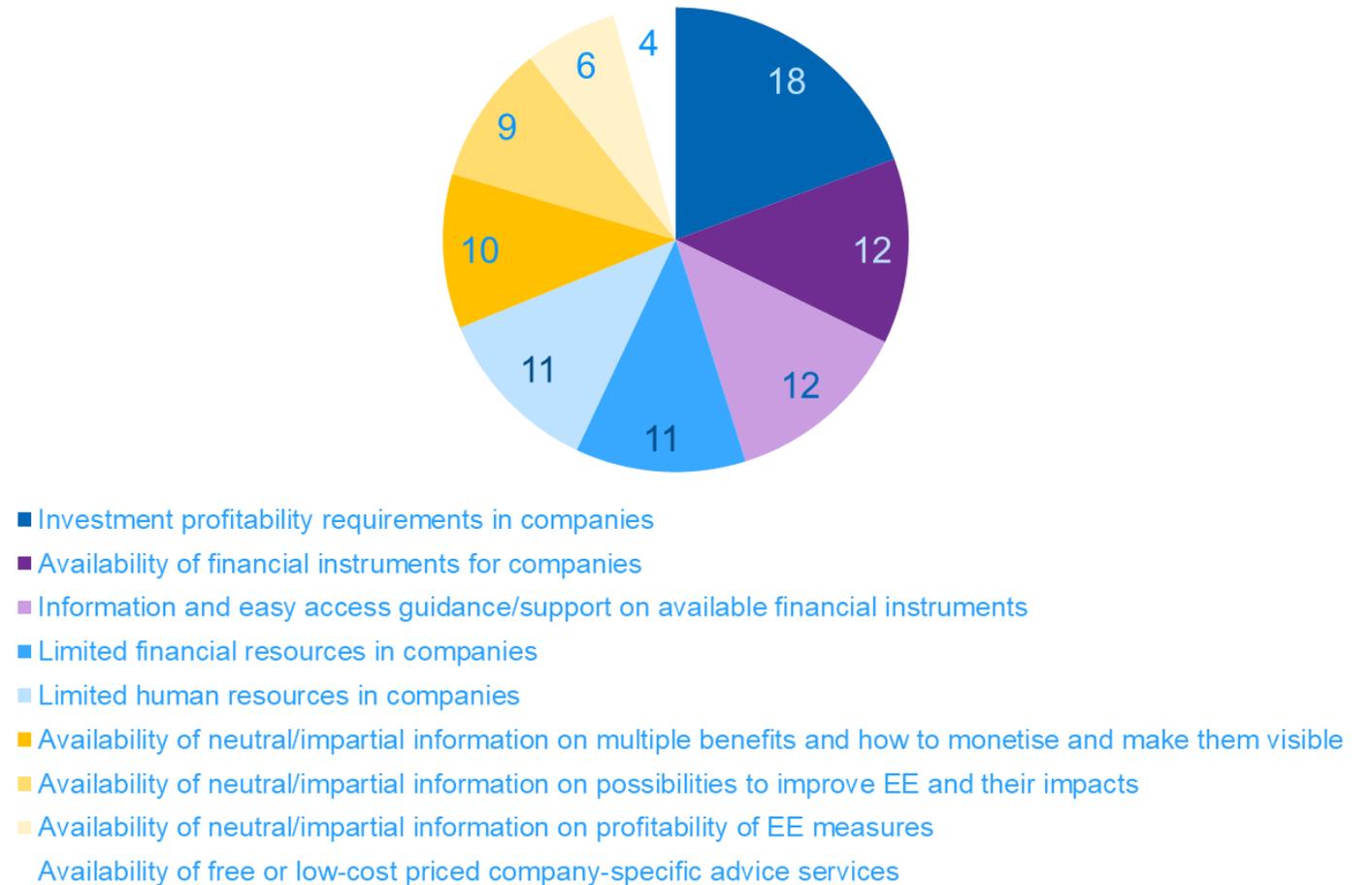
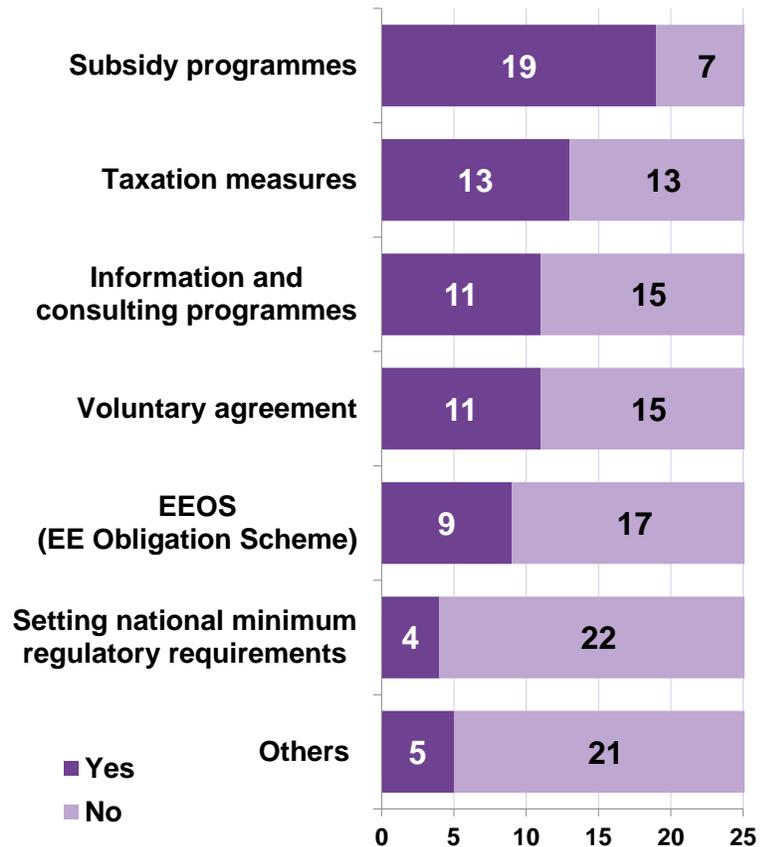
# Overview of policies and measures reported by Member States under EED Article 7 in the period 2021-2030

The combination of EEOs with the alternative measures is preferred by half of the obliged MS.

	Total NUMBER OF MEASURES, of which:	EEOs	Alternative measures, OF WHICH:	Regulatory	Economic	Fiscal	Information	Voluntary	Other	Energy savings?	Sufficient to meet Art.7 requirement?
BE	14		✓	✓	✓	✓	✓		✓	Yes <sup>9</sup>	Unclear
BG	3	✓	✓		✓					Yes	Yes
CZ	25		✓	✓	✓	✓	✓	✓	✓	Yes	Yes
DK	4		✓	✓	✓					Yes	No
DE	27		✓	✓	✓	✓	✓	✓		Yes	Unclear
EE	13		✓	✓	✓		✓		✓	No	Unclear
IE	2	✓	✓		✓					No	Unclear
EL	10	✓	✓	✓	✓	✓			✓	Yes	Yes
ES	17	✓	✓	✓	✓	✓	✓		✓	Yes	Yes
FR	1	✓								Yes	Yes
HR	10	✓	✓	✓	✓				✓	Yes	Yes
IT	10	✓	✓		✓	✓	✓			Yes	Yes
CY	18	✓	✓	✓	✓	✓	✓	✓	✓	Yes	Yes
LV	8	✓	✓	✓	✓	✓	✓			Yes	Yes
LT	11		✓		✓	✓		✓		Yes	Yes
LU	6	✓	✓			✓	✓	✓	✓	No	Unclear
HU	47	✓	✓	✓	✓	✓	✓		✓	No	Unclear
MT	10		✓	✓	✓				✓	Yes	Yes
NL	50		✓	✓	✓	✓	✓	✓	✓	No <sup>10</sup>	No
AT	11	✓	✓	✓	✓	✓	✓		✓	No	Unclear
PL	5	✓	✓		✓					Yes	Unclear
PT	9		✓	✓	✓		✓			No	Unclear
RO	1		✓						✓	Yes	No
SI	31	✓	✓	✓	✓	✓	✓		✓	No	Unclear
SK	21		✓	✓	✓		✓	✓	✓	Yes	No
FI	3		✓		✓					Yes	Yes
SE	3		✓		✓					Yes	Yes

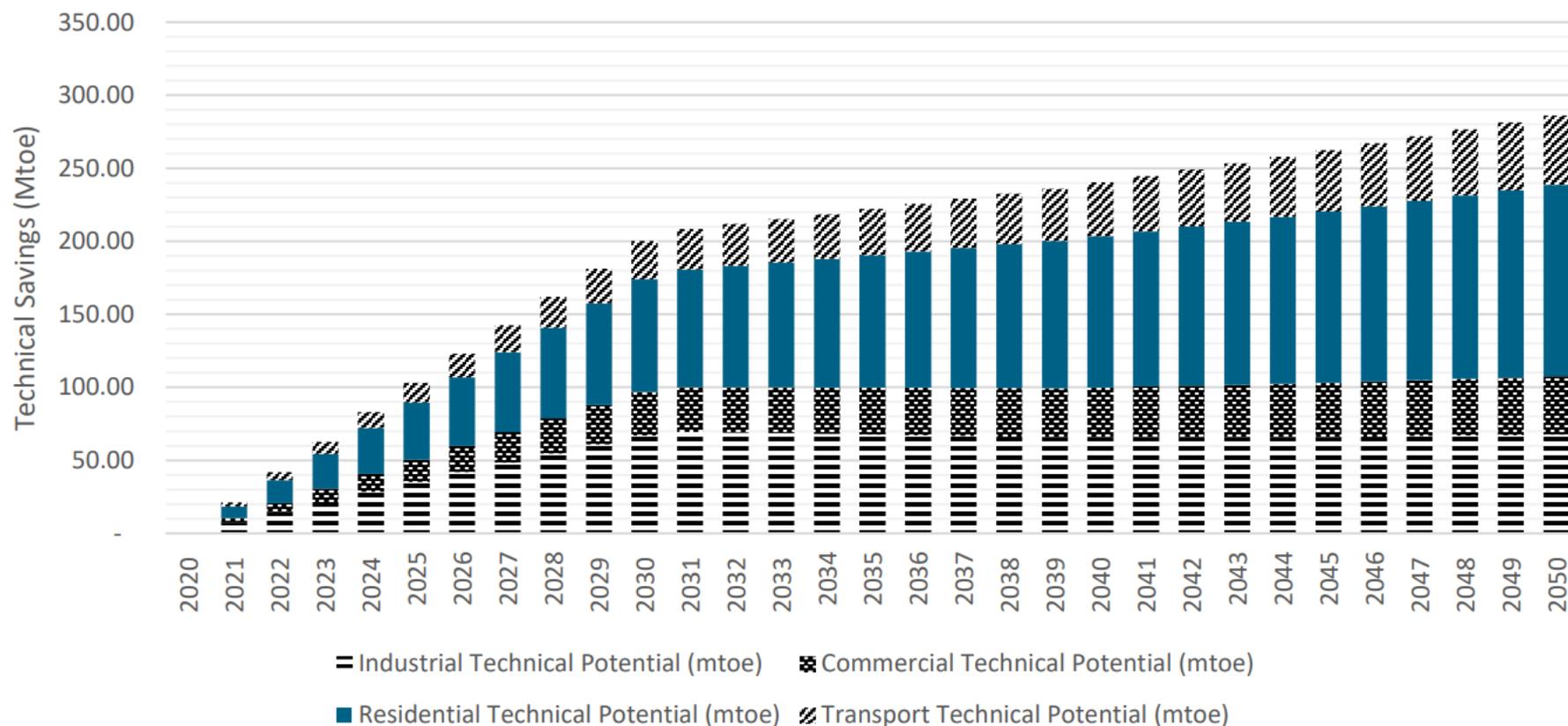
Source: JRC, 2020. National Energy and Climate Plans for 2021-2030 under the EU Energy Union - Assessment of the Energy Efficiency Dimension.

# CAEED - Findings of the WG for Article 7's implementation in the industrial sector



Source: CAEED, 2021. WG 9.1 Article 7 in industry – Main Findings (Questionnaire answers by 26 MS in June 2021).

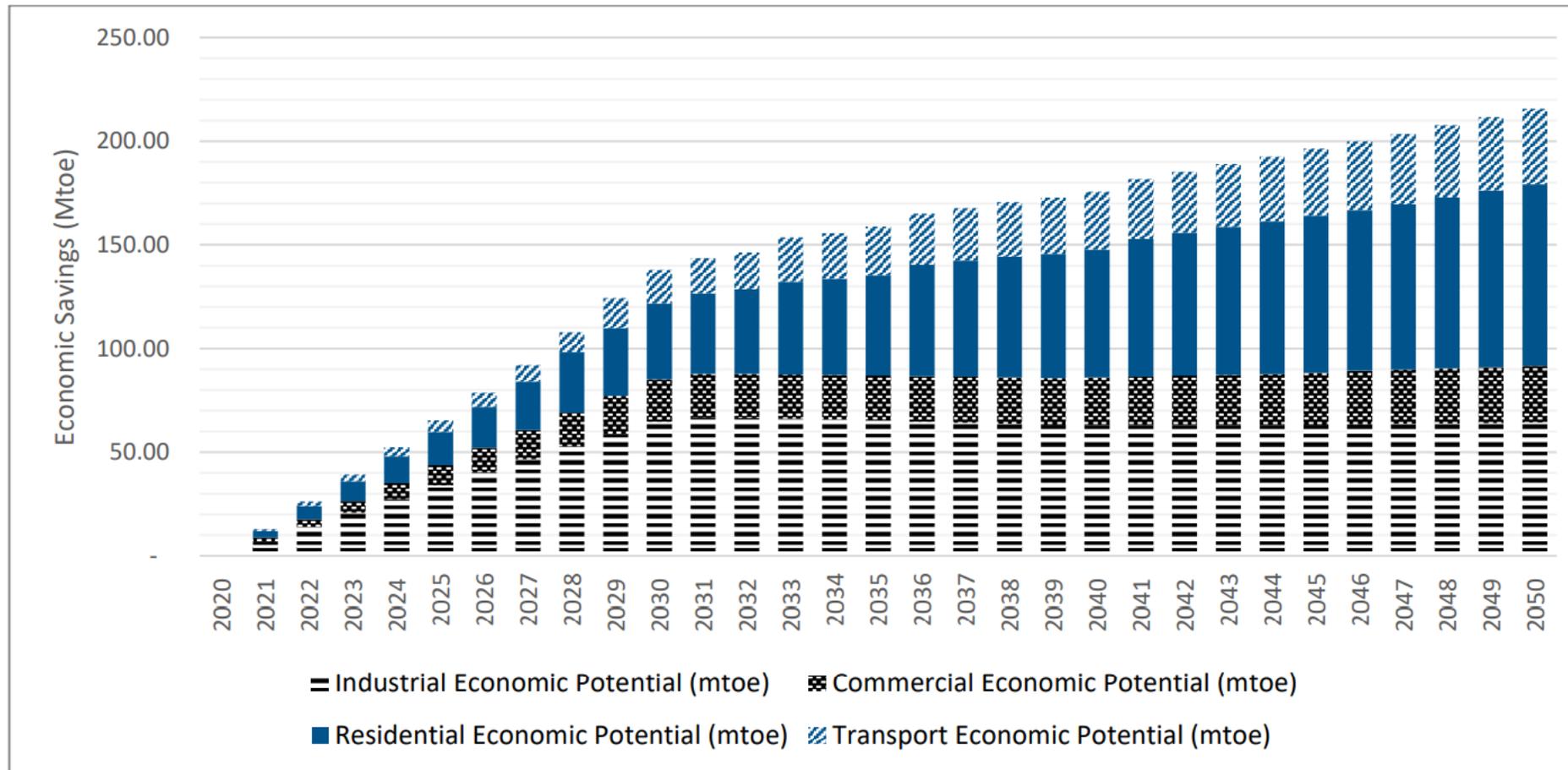
# EU level technical final energy saving potential across end-use sectors



The **technical energy saving potential** is the level of energy savings that could be achieved if the baseline technology of energy using equipment, products or processes within the respective sector were replaced with additional energy saving measures or higher technical efficiency measures.

Source: EU, 2021. Technical assistance services to assess the energy savings potentials at national and European level Summary of EU results. Study conducted by ICF, CE Delft and eclareon.

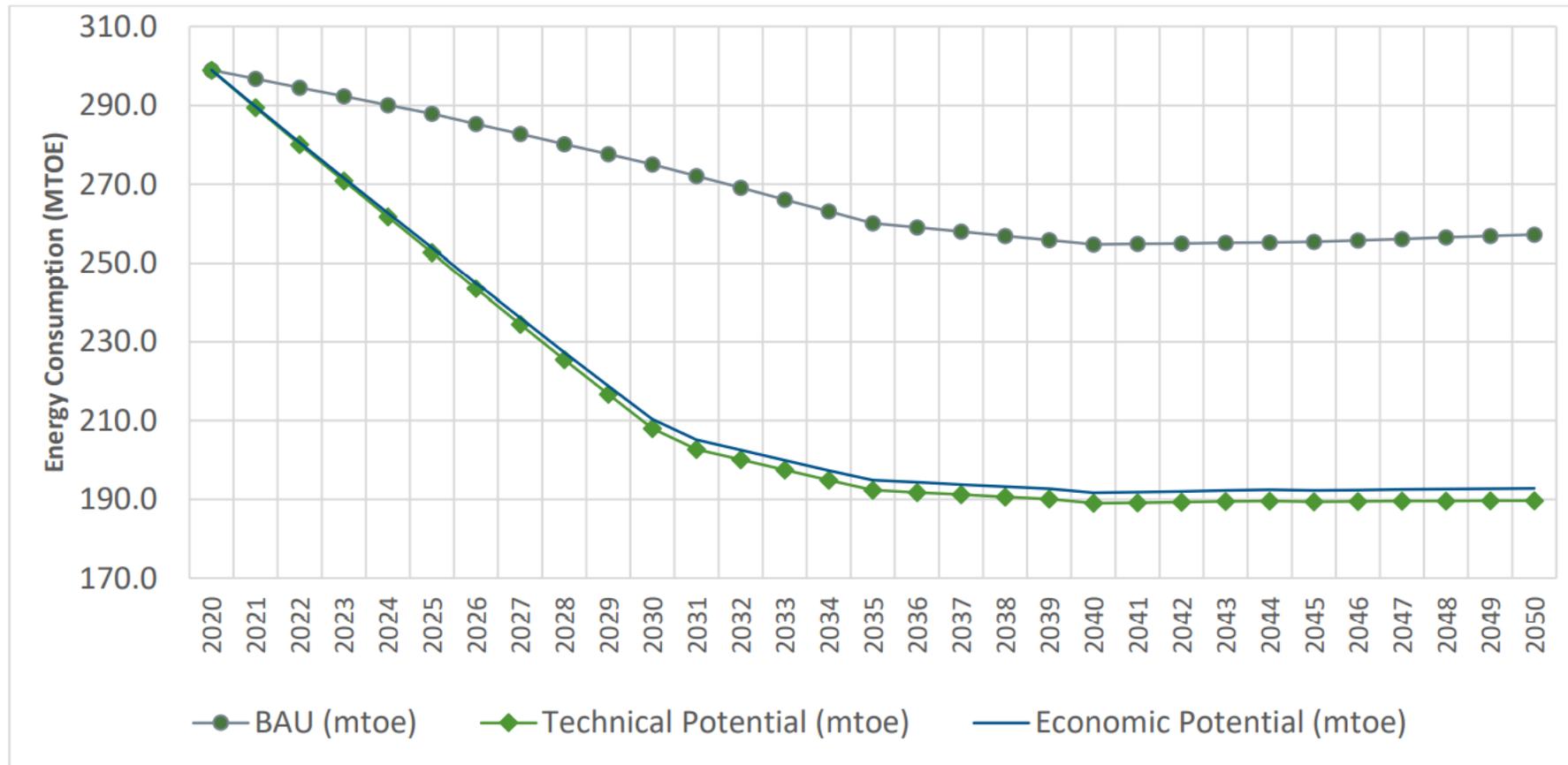
# EU level economic final energy saving potential across end-use sectors



The **economic energy saving potential** is calculated by the conduction of an economic test for cost-effectiveness (e.g. Programmes are deemed to be cost-effective if their respective CCE is lower than the applicable fuel (e.g., electricity, gas, coal, etc) tariff for the applicable sector of the given Programme).

Source: EU, 2021. Technical assistance services to assess the energy savings potentials at national and European level Summary of EU results. Study conducted by ICF, CE Delft and eclareon.

# EU27 industrial sector final energy consumption technical and economic savings projection



**Source:** EU, 2021. Technical assistance services to assess the energy savings potentials at national and European level Summary of EU results. Study conducted by ICF, CE Delft and eclareon.

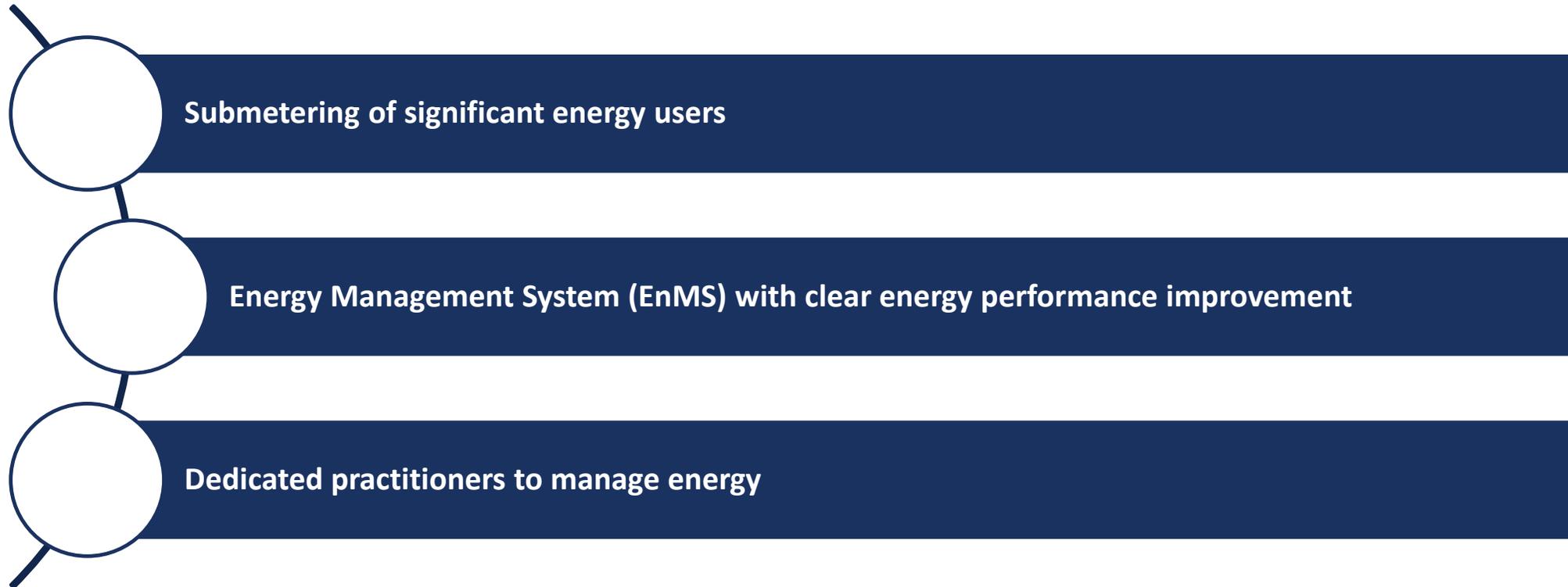
# EU27 industrial sector 2030 final energy saving potential

Industrial subsector	Technical saving potential [KTOE]	Economic saving potential [KTOE]
Chemicals and Petrochemicals	10,599	4,114
Iron and Steel	9,802	6,477
Petroleum refineries	8,859	8,783
Paper, Pulp and Print	7,025	2,439
Food and Tobacco	6,522	9,210
Non-Metallic Minerals	5,886	5,439
Machinery	4,175	9,851
Non-ferrous Metals	2,512	6,878
Other industries	11,615	11,508

Industrial end-use category	Technical saving potential [KTOE]	Economic saving potential [KTOE]
Process Heating	45,719	45,719
Machine drives	12,717	12,717
HVAC	3,963	3,963
Process Specific	1,874	110
Compressed System	1,131	1,131
Other	531	-
Lighting	462	462
Gas Compressors	303	303
Process Cooling	294	294

*Source: EU, 2021. Technical assistance services to assess the energy savings potentials at national and European level Summary of EU results. Study conducted by ICF, CE Delft and eclareon.*

# Technical recommendations



# Policy recommendations

Article 8 of EED could incentivise industry to set its own energy performance

Supporting EnMS with high impact schemes

Sector specific transition roadmap and managing carbon lock in (e.g. hydrogen infrastructure, district heating, CCS)

Incentives for implementation of novel technologies driving carbon neutral economy (e.g. hydrogen electrolysis, hydrogen based steel making, electrolysis of iron ore, zero-carbon ethylene production (via low carbon Methanol-to-Olefins route), low carbon cement, electrification of process heat)

# Proposals for supporting EnMS with high impact schemes

- Financial assistance in EnMS certification

- Provision of EnMS experts / practitioners

- EnMS implementation tools

- EnMS peer-to-peer networks

- Recognition programmes on energy performance improvement

- Financial incentives for energy saving or energy performance improvement achievements

# Mapping measures within the NECPs for Article 7

1. **Industry 4.0 scheme:** Introduction of a **new tax credit for expenses** incurred in investing in new capital goods - The tax credit is granted at a differentiated rate according to the type of goods invested in (IT).
2. **Relief for services in the public interest for industrial enterprises:** A support mechanism to finance the implementation of energy efficiency improvement measures in all major industrial enterprises (LT).
3. **Provision of investment aid** in order to promote and address energy efficiency investment in industrial sector (MT).
4. Improvements in the **technology and management systems of industrial processes** (ES).
5. **Combination of measures** in ND (Energy savings and information requirements, Amendment to the Environmental Management Act stipulating that companies must take energy-saving measures that can be recouped in five years or less, National CO2 tax and Grants for CO2-reducing measures)
6. **Combination of measures** in SK (Increasing energy efficiency and reducing emissions in enterprises through competition procedure, Support for improving energy efficiency in enterprises through an operational programme or implementation mechanism, Support for energy audits for SMEs and Voluntary energy saving agreements)

# Mapping measures within the NECPs - I

## 1. Introduction of **targeted financial instruments** for industrial sector

- Using the **tax system** to encourage systematic energy management in the business sector (HR).
- Financial incentives to improve the energy efficiency of industries and manufacturing enterprises and instruments for strengthening the implementation of energy efficiency improvement measures **through energy performance contracts**, such as **subsidizing borrowing costs** and **facilitating access of energy services companies to financing** (EL).
- Continue to increase applications for the **eco-energy loans** made available by BPI France, for SMEs and very small enterprises engaged in work that qualifies for white certificates (FR).
- **Economic support** instruments and request for the Federal Government to **increase the investment tax relief** for energy saving measures (BE).
- **Energy tax benefits** and **funding programmes** (DE).
- **Financial incentives** in the form of industry grants and non-refundable financial incentives for measures and EnMS (SI).
- **Design support or investment support** for industrial companies that have produced an energy map (SE).

2. **Voluntary agreements** under which they commit to going further than the current legislation and receiving certain compensation in return (BE) – Conduction of support activities (e.g. support to ISO 50001, training, study tours, workshops etc).

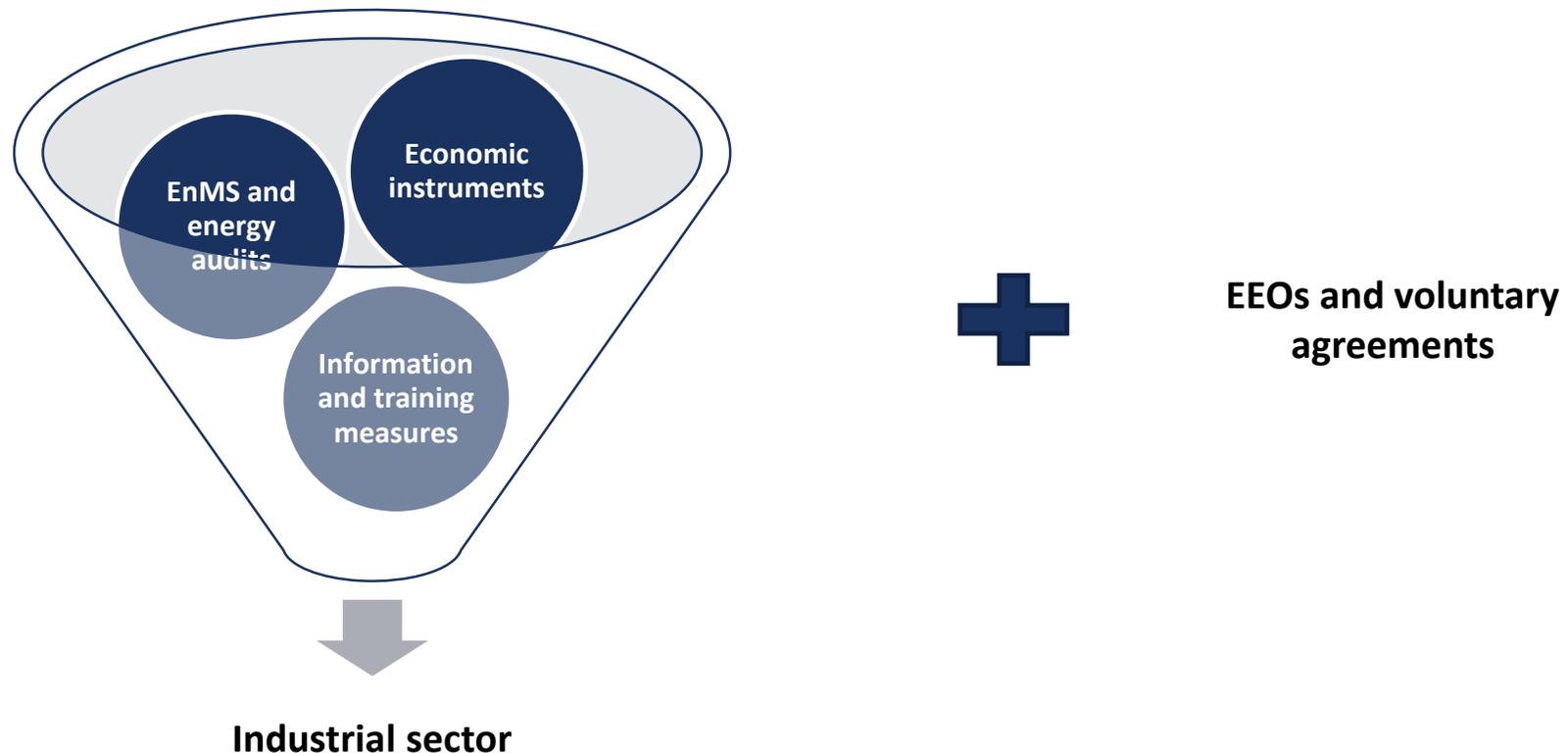
3. Policy measures will **support actions at an industrial-business zone level** for better energy management and increased savings, such as the installation of central heat production and distribution systems (EL).

## Mapping measures within the NECPs - II

4. Promotion of interventions for **exploiting the waste heat** (EL).
5. Implementation of energy efficiency measures in industrial sector according to the **recommendations by the conducted energy audits** (RO).
6. **Increase in the share of energy from renewable sources** for electricity production by industrial consumers (RO and FR).
7. **Implementing the best available technologies (BAT)** in order to reduce greenhouse gas emissions and to increase energy efficiency in the industrial sector (RO).
8. **Promotion of transition to circular economy (recycling)** in order to achieve the energy efficiency target by reducing consumption of energy used in the industry in the processing of raw materials (RO).
9. **Digitalization of industrial processes** for large energy consumers (RO)
10. Foster the deployment of **energy management systems and energy benchmarks** (FR)
11. Conducting **information, awareness-raising and dissemination activities** for fostering investments in energy efficiency (BE, DE, MT).
12. Advanced **training and vocational training** (DE).
13. Establishment of **energy networks and business clusters** on energy efficiency (IE, DE, MT).

# Main conclusion...

...well balanced implementation of policies and measures is required for exploiting the highly cost-effective energy saving potential



# Fit for 55 package - proposal for more ambitious targets

Target	Existing legislation	Proposed legislation
Reduction of greenhouse gas emissions	At least 40% reduction in 2030 compared to 1990 levels	<b>At least 55% reduction</b> in 2030 compared to 1990 levels
Reduction of greenhouse gas emissions in the Effort Sharing sectors	At least 30% reduction in 2030 compared to 2005 levels	<b>At least 40% reduction</b> in 2030 compared to 2005 levels
Renewable energy	At least 32% share in 2030	<b>At least 40%</b> share in 2030
Energy efficiency (Article 3)	At least 32.5% improvement in 2030 for both primary and final consumption compared to 2007 consumption projections for 2030	<b>Reduction of 36-39%</b> for final and primary energy consumption compared to 2007 consumption projections for 2030
Energy efficiency (Article 7)	0.8% annual final energy savings in the period 2021-2030	<b>1.5% annual final energy savings</b> in the period 2024-2030

*Need for urgent action and more targeted and cost-effective measures in the industrial sector*

## Additional priorities:

- i) Ensure **higher efficiency in heat generation** to be extended to smaller energy supply installations
- ii) Stimulate the **use of waste heat and renewable energy** in order to decarbonize heating and cooling

# Article 7's challenges according to Annex V of the EED



Priorities as resulted by CAEED (WG 9.1 Article 7 in industry, 2021)

Analysis of best practises

Guidance for calculating the delivered energy savings

Development of standardised calculation methods

Support for estimating the cost-effectiveness of the EE technologies

Guidance for data collection, control and verification procedures

***Thank you for your attention!!!***

***Christos Tourkolias***

***email: [ctourkolias@cres.gr](mailto:ctourkolias@cres.gr)***