EED Article 7 - Main Measures in Industry in the EU

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Article 7 of the EED

Imposition of a mandatory energy efficiency target

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

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

<table>
<thead>
<tr>
<th>Sector</th>
<th>Economic</th>
<th>Education</th>
<th>Fiscal</th>
<th>Information</th>
<th>Planning</th>
<th>Regulatory</th>
<th>Research</th>
<th>Voluntary</th>
<th>Other</th>
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<th>TOTAL</th>
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</table>

**TOTAL**  495  36  144  197  191  332  56  28  99  12  1394

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

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

- Subsidy programmes: 19 Yes, 7 No
- Taxation measures: 13 Yes, 13 No
- Information and consulting programmes: 11 Yes, 15 No
- Voluntary agreement: 11 Yes, 15 No
- EEOS (EE Obligation Scheme): 9 Yes, 17 No
- Setting national minimum regulatory requirements: 4 Yes, 22 No
- Others: 5 Yes, 21 No

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

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

<table>
<thead>
<tr>
<th>Industrial end-use category</th>
<th>Technical saving potential [KTOE]</th>
<th>Economic saving potential [KTOE]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process Heating</td>
<td>45,719</td>
<td>45,719</td>
</tr>
<tr>
<td>Machine drives</td>
<td>12,717</td>
<td>12,717</td>
</tr>
<tr>
<td>HVAC</td>
<td>3,963</td>
<td>3,963</td>
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<tr>
<td>Process Specific</td>
<td>1,874</td>
<td>110</td>
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<tr>
<td>Compressed System</td>
<td>1,131</td>
<td>1,131</td>
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<tr>
<td>Other</td>
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<tr>
<td>Lighting</td>
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<tr>
<td>Gas Compressors</td>
<td>303</td>
<td>303</td>
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<tr>
<td>Process Cooling</td>
<td>294</td>
<td>294</td>
</tr>
</tbody>
</table>

**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

- Submetering of significant energy users
- Energy Management System (EnMS) with clear energy performance improvement
- Dedicated practitioners to manage energy

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.
Policy recommendations

1. Article 8 of EED could incentivise industry to set its own energy performance
2. Supporting EnMS with high impact schemes
3. Sector specific transition roadmap and managing carbon lock in (e.g. hydrogen infrastructure, district heating, CCS)
4. 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)

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.
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

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.
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

- EnMS and energy audits
- Economic instruments
- Information and training measures

+ EEOs and voluntary agreements

Industrial sector
## Fit for 55 package - proposal for more ambitious targets

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

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

Challenges:
- Measurement protocol
- Additionality criterion
- Quality assurance
- Materiality criterion
- Control and verification

Priorities as resulted by CAEED (WG 9.1 Article 7 in industry, 2021):
- Analysis of best practises
- Development of standardised calculation methods
- Guidance for calculating the delivered energy savings
- Support for estimating the cost-effectiveness of the EE technologies
- Guidance for data collection, control and verification procedures
Thank you for your attention!!!

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