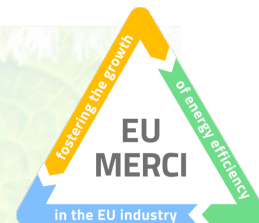


EU-MERCI

EU coordinated **M**ethods and procedures based on **R**eal **C**ases for the effective implementation of policies and measures supporting energy efficiency in the Industry

Fostering the growth of energy efficiency in the EU industry



EU policies for energy efficiency in industry

Dario Di Santo, FIRE

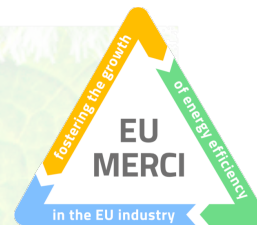
17 February 2017

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Paris climate agreement 2015



The Paris climate agreement: key points

The historic pact, approved by 195 countries, will take effect from 2020



<p>Temperatures 2100</p> <ul style="list-style-type: none"> • Keep warming "well below 2 degrees Celsius". Continue all efforts to limit the rise in temperatures to 1.5 degrees Celsius" 	<p>Finance 2020-2025</p> <ul style="list-style-type: none"> • Rich countries must provide 100 billion dollars from 2020, as a "floor" • Amount to be updated by 2025 	<p>Differentiation</p> <ul style="list-style-type: none"> • Developed countries must continue to "take the lead" in the reduction of greenhouse gases • Developing nations are encouraged to "enhance their efforts" and move over time to cuts 	<p>Emissions objectives 2050</p> <ul style="list-style-type: none"> • Aim for greenhouse gases emissions to peak "as soon as possible" • From 2050: rapid reductions to achieve a balance between emissions from human activity and the amount that can be captured by "sinks"
<p>Burden-sharing</p> <ul style="list-style-type: none"> • Developed countries must provide financial resources to help developing countries • Other countries are invited to provide support on a voluntary basis 	<p>Review mechanism 2023</p> <ul style="list-style-type: none"> • A review every five years First world review: 2023 • Each review will inform countries in "updating and enhancing" their pledges 	<p>Climate damage</p> <ul style="list-style-type: none"> • Vulnerable countries have won recognition of the need for "averting, minimising and addressing" losses suffered due to climate change 	

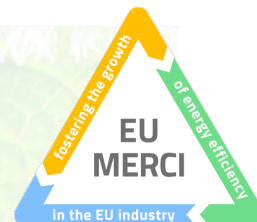
Energy efficiency is the main pillar of the action required to save us and our planet. It is not just an issue of policies, but also the need of a different approach towards the use of energy.



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EU energy consumption in industry

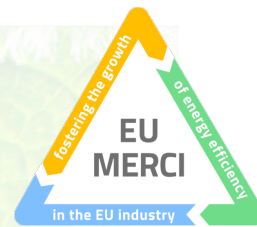


Source: Study on energy efficiency and energy saving potential in industry and on possible policy mechanisms, ICF, 2015.

Sector group	Final energy consumption in 2013 [kTOE]	% energy for process heating [%]	% energy for process cooling [%]	% energy for electrical [%]
Pulp, paper and print	34,265	59%	0.3%	31%
Iron and steel	50,815	75%	0.4%	19%
Non-metallic mineral	34,249	74%	0.2%	17%
Chemical and pharmaceutical	51,485	58%	0.6%	30%
Non-ferrous metal	9,381	32%	-	57%
Petroleum refineries	44,657	84%	0.6%	7%
Food and beverage	28,353	62%	10.0%	34%
Machinery	19,282	40%	1.0%	53%
Total	272,487	66%	1%	26%

These 8 sectors represent 98% of the industrial energy consumption and 25% of the total energy consumption in EU. Industrial GHG emissions accounts for 19%, excluding the energy sector (26%).

EU main climate policies for industry



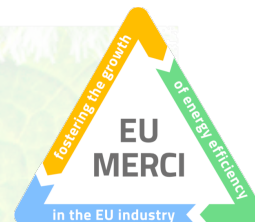
There are three main pillars in the EU policy that directly involve the industrial sector:

- ▶ the **energy efficiency directive (EED)** 2012/27/EU that introduces mandatory energy audits for industries and promotes energy management systems, smart metering and billing, cogeneration and heat recovery, energy efficiency obligation and support policies;
- ▶ the **industrial emission directive (IED)** 2010/75/EU that limits the pollution emissions of many industrial activities and requests an integrated permit and the adoption of the best available techniques to operate.
- ▶ the **emission trading directive (ETS)** 2003/87/EC that establishes GHG emissions limits for industries in selected sectors and allow for the trading of emissions quota among EU MS.

Besides, many other directives and regulations impact the industrial sector either directly - e.g. by setting minimum energy efficiency requirements for specific technologies - or indirectly - e.g. by stimulating changes in product and services to fulfil the regulations set for other sectors, such as buildings.

To facilitate the transitions support programmes are implemented (e.g. Horizon 2020, funds for innovation and development, initiatives like EEFIG, etc.)

Policy tools: IED BAT



Under the IED industries are requested to adopt solutions with performance equivalent to the best available techniques (BAT).

Over the years reports have been developed by the JRC IPPC group to characterise each sector covered by the directive and illustrate the available BAT.

These reports are known as BREF. Currently 31 BREF are listed in the JRC website*.

The EC adopt BATC (BAT conclusions) through decisions as references for national authorities involved in issuing the IED permits.

Currently 10 BATC are available.

Best available techniques Reference document (BREFs) developed under the IPPC Directive and the IED	Code	Adopted / Published Document
Ceramic Manufacturing Industry	CER	BREF (08.2007)
Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector	CWW	BATC (06.2016) BREF
Emissions from Storage	EFS	BREF (07.2006)
Energy Efficiency	ENE	BREF (02.2009)
Ferrous Metals Processing Industry	FMP	BREF (12.2001)
Food, Drink and Milk Industries	FDM	BREF (08.2006)
Industrial Cooling Systems	ICS	BREF (12.2001)
Intensive Rearing of Poultry and Pigs	IRPP	BREF (07.2003)
Iron and Steel Production	IS	BATC (03.2012) BREF
Large Combustion Plants	LCP	BREF (07.2006)
Large Volume Inorganic Chemicals – Ammonia, Acids and	LVIC- AAF	BREF (08.2007)

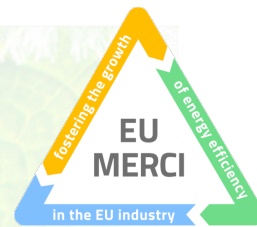
* <http://eippcb.jrc.ec.europa.eu/reference>.



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Policy tools: IED BAT



One of the BREF is dedicated to energy efficiency and is referenced by BATC to provide guidelines on energy efficiency BAT.

Cross media effects should be considered within the IED, in order to ensure the best mix of emission reduction and energy savings.

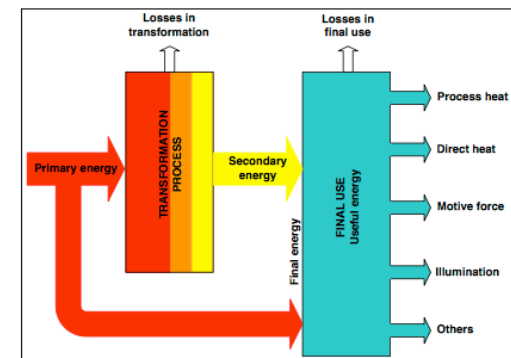
BAT can be used as reference to identify the consumption baselines or to decide which solutions are admissible to incentive schemes, but it should be taken into account that their primary concern is an environmental one.



Reference Document on Best Available Techniques for

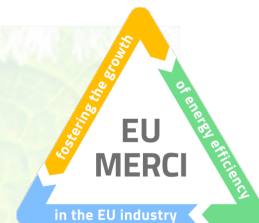
Energy Efficiency

February 2009



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Policy tools: EED mandatory targets



EED art. 7 set a 1.5% mandatory annual target for every Member States (MS), to be achieved by means of energy efficiency obligations and/or alternative measures (e.g. grants, tax benefits, etc.).

Only additional savings can be counted to this respect and it is up to the MS to decide if the industrial sector is to be included in the policy measures.

EU-MERCI comparative report on industry relevant energy efficiency policies offers an overview on the implemented policies across the EU.

Denmark, France, and Italy are examples of MS that have developed policies aimed also at the industrial sector, demonstrating that it is possible to effectively support and accelerate the implementation of energy efficiency projects.

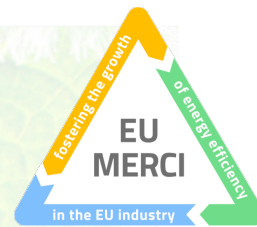
These policies can create synergies with the IED (BAT implementation) and the ETS (GHG reduction).



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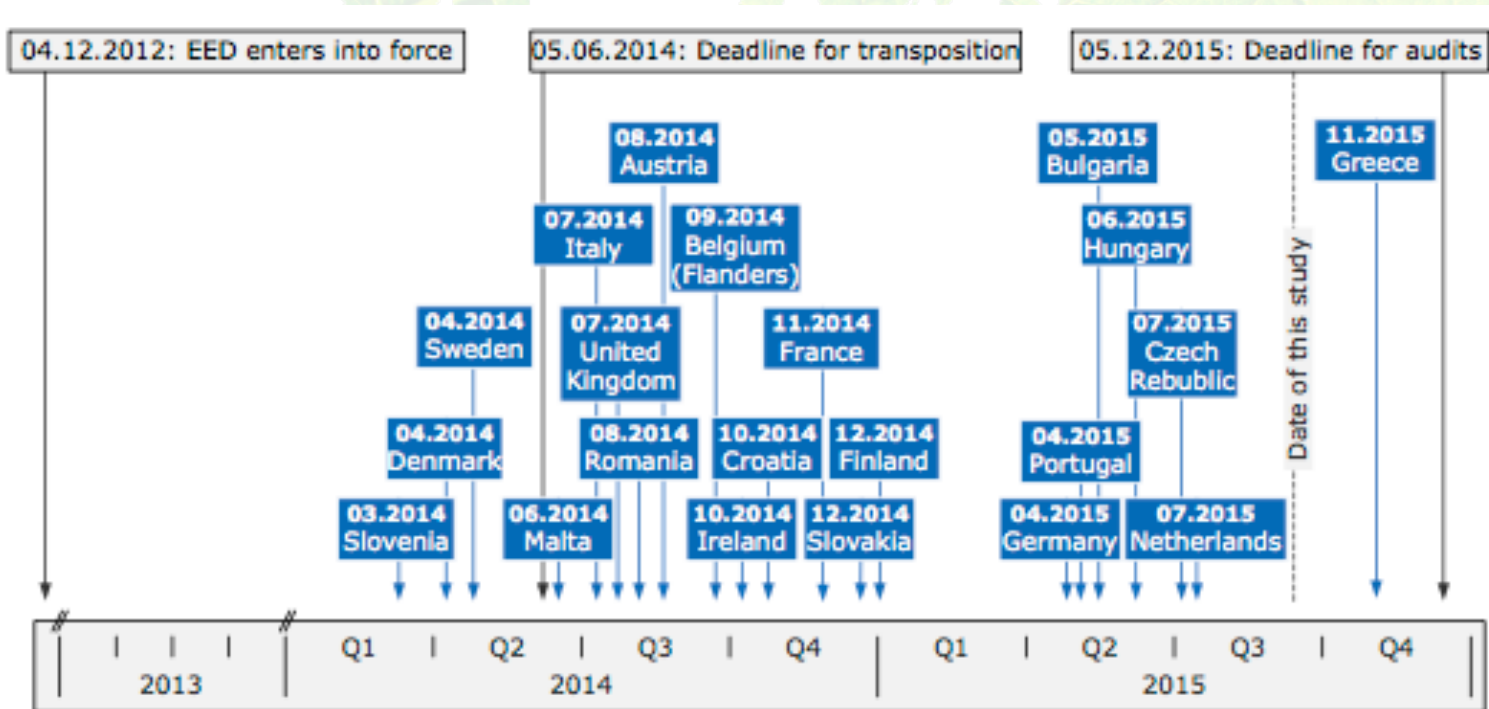


Policy tools: EED energy audits and EMS



EED art. 8 requires non SME to implement mandatory energy audits every four years, starting from December 2015.

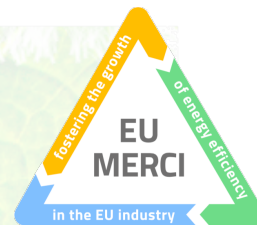
The obligation has been interpreted in many ways by the MS. The report “A study on energy efficiency in enterprises: energy audits and energy management systems” offers detailed information on art. 8 application across the EU.



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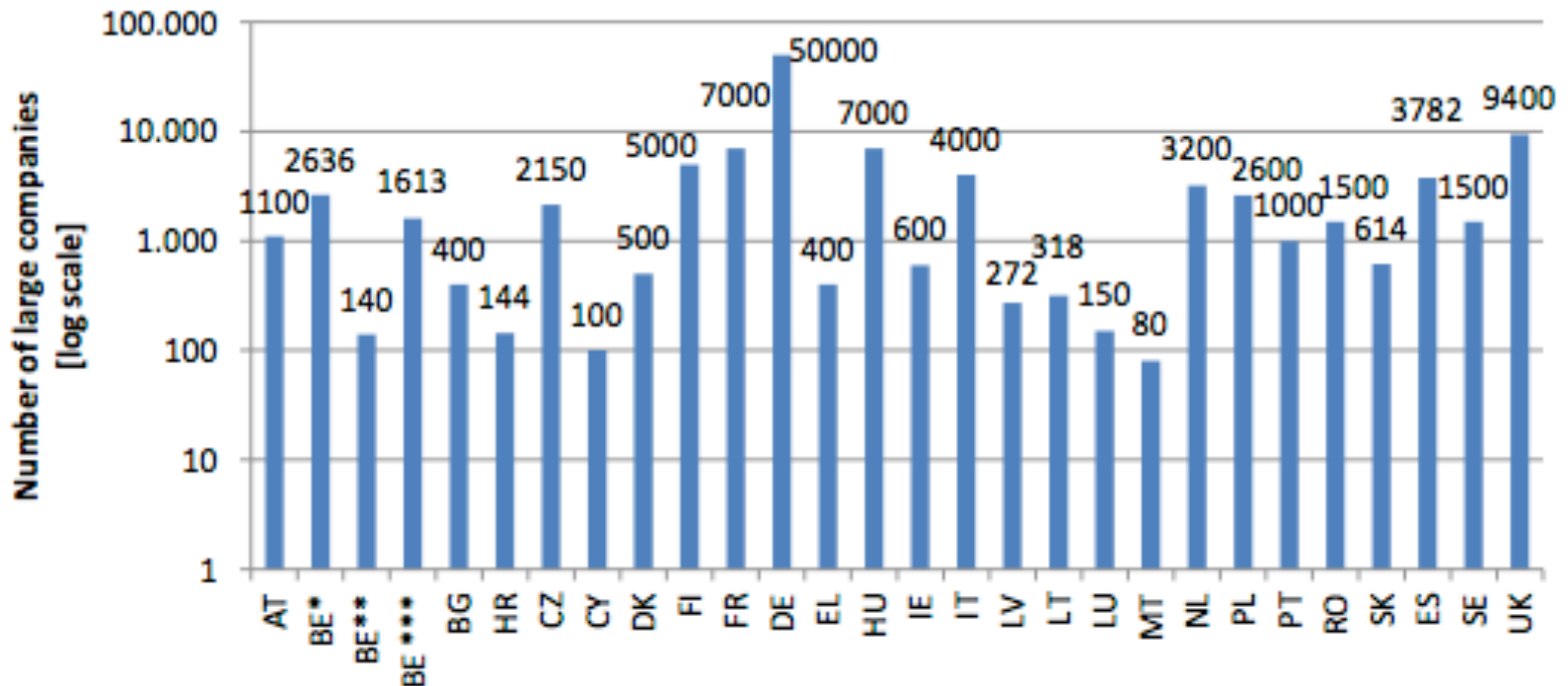


Policy tools: EED energy audits and EMS



Source: A study on energy efficiency in enterprises: energy audits and energy management systems, Fraunhofer ISI and Ricardo.

Figure 6: Estimated number of companies covered by Article 8 in the EU-28.



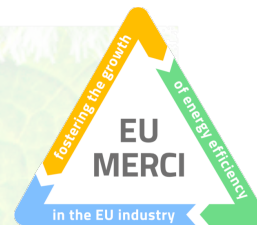
Note: Numbers are estimations based on National Energy Efficiency Action Plans and result from the stakeholder engagement process. Where ranges were provided, the upper ceilings are illustrated. Figure for BE* refers to Belgium: Flanders, for BE** refers to Belgium: Wallonia and for BE*** refers to Belgium: Brussels Region. For Estonia and Slovenia no exact number could be identified within this study.



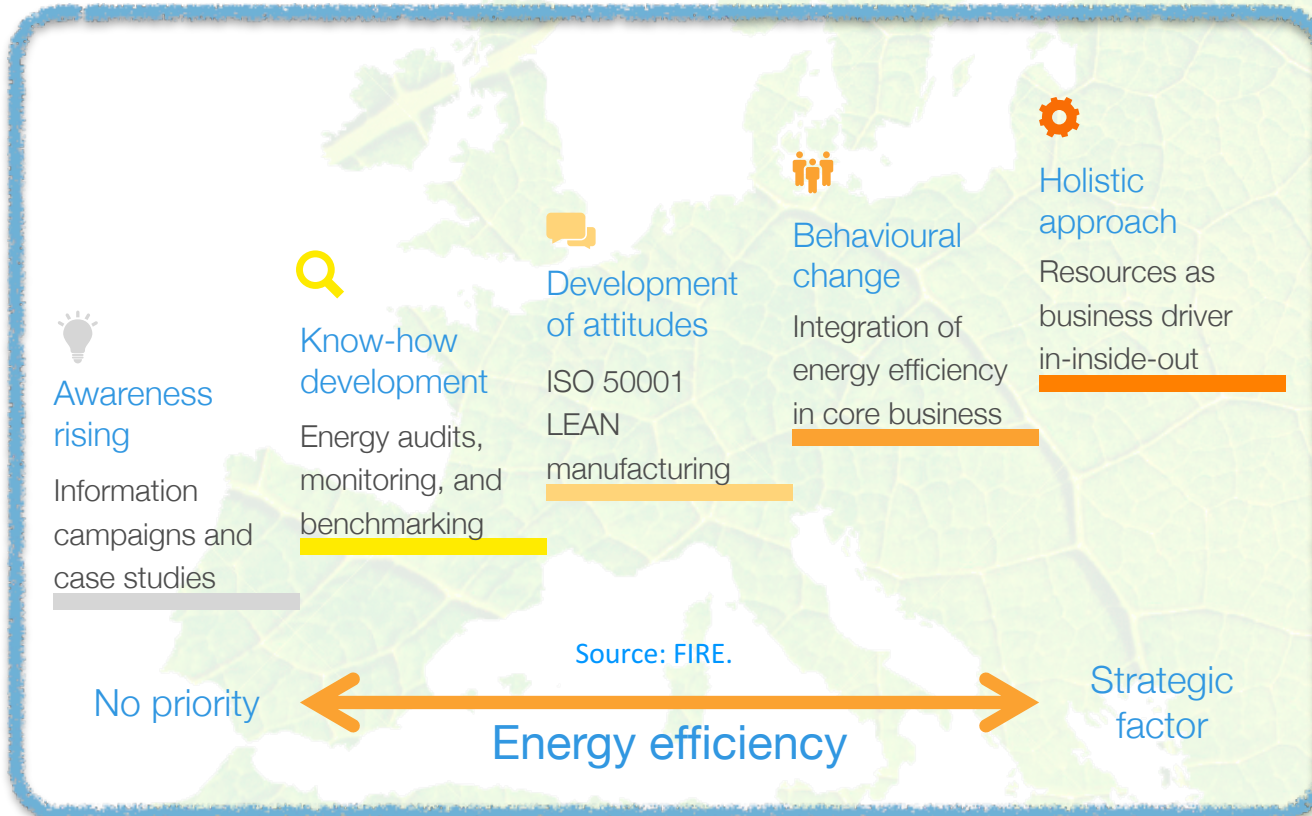
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Policy tools: EED energy audits and EMS



Energy management systems (EnMS) are a great tool for boosting energy efficiency in the industrial sector. A well implemented EnMS changes the approach of the organisation toward energy efficiency and helps building a link between the use of energy and the core business.



Implementing an ISO 50001 EnMS exempts from art. 8 obligation, provided an energy audit compliant with EED Annex VI is done.

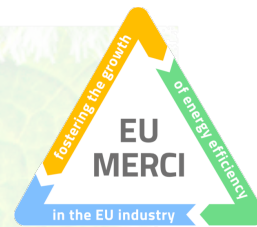
The EED also requests policy makers to promote EnMS through appropriate actions.

EnMS, together with the enhanced metering and billing promoted by the EED, contribute to improve EE in industry.



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The EU path towards 2030



Clean energy for all Europeans



Targets proposed by the EC in 2016

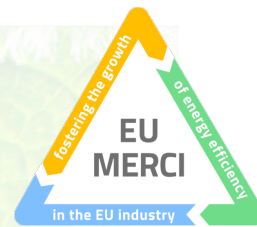
Energy efficiency
+30%

Renewables
+27%

GHG emissions
-40%

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The roadmap towards 2030



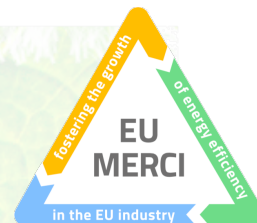
The package **Clean energy for all Europeans** presented by the EC at the end of November 2016 provides a set of proposals aimed at supporting the energy transition towards 2030, while ensuring the EU to remain competitive.

The main proposals are about:

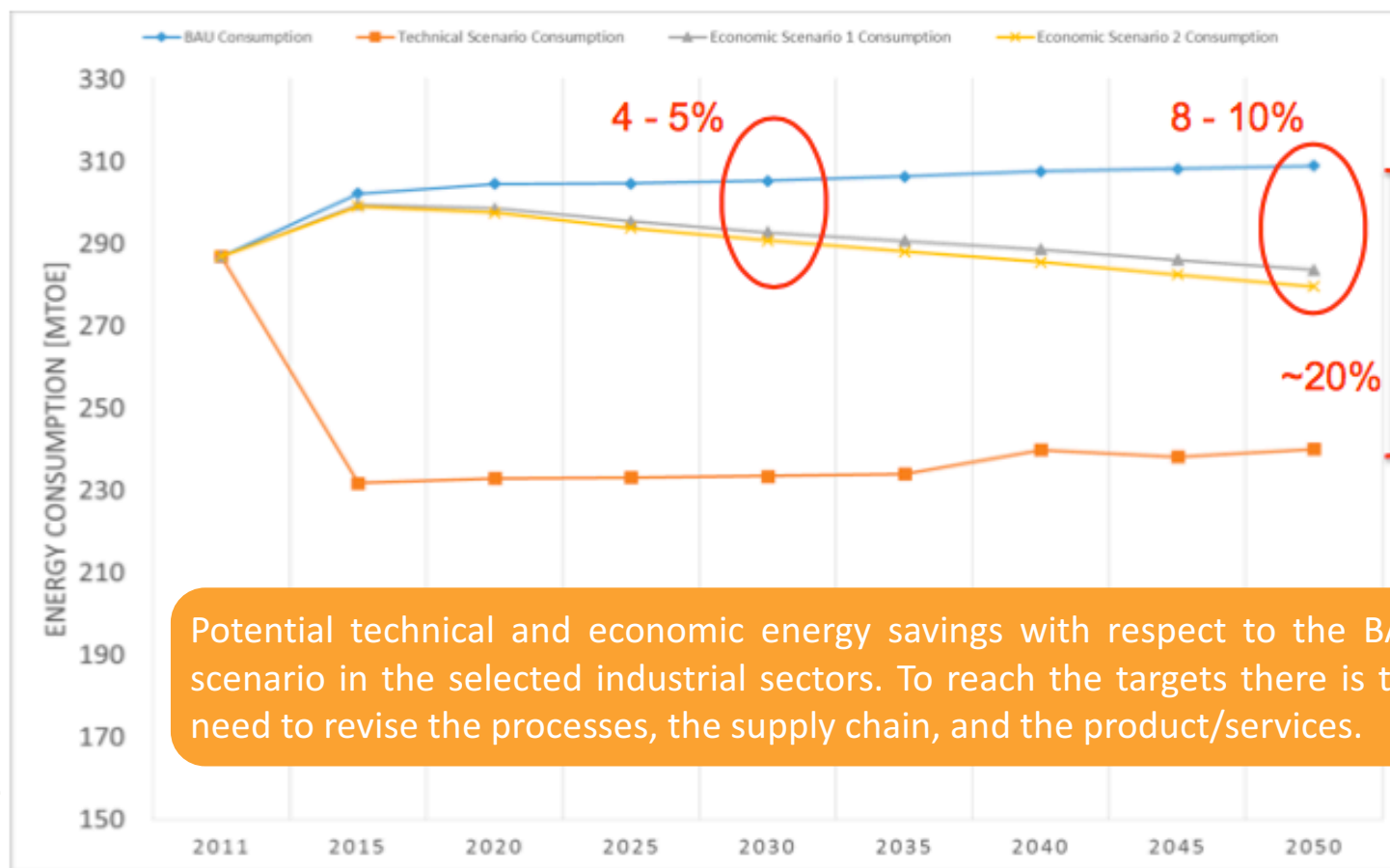
- ▶ **the revision of the electricity market;**
- ▶ a revised energy efficiency directive;
- ▶ a revised energy performance of buildings directive;
- ▶ a revised renewable energy directive;
- ▶ the definition of the working plan for the eco-design measures.

A revised emission trading scheme will also be proposed.

EU energy consumption in industry



Source: Study on energy efficiency and energy saving potential in industry and on possible policy mechanisms, ICF, 2015.



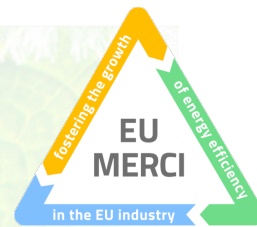
Potential technical and economic energy savings with respect to the BAU scenario in the selected industrial sectors. To reach the targets there is the need to revise the processes, the supply chain, and the product/services.



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Suggested policies for industry

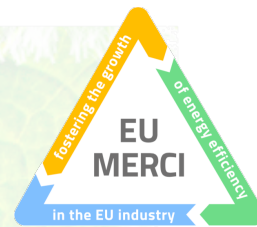


The ICF study suggests the following policy measures for energy efficiency in industry:

- ▶ mandatory implementation of EnMS for large energy intensive enterprises;
- ▶ mandatory sub-metering requirement for significant energy consuming equipment;
- ▶ Mandatory energy managers for large energy intensive companies;
- ▶ Development of insurance products for guaranteeing energy savings;
- ▶ Promotion of resource sharing among industrial clusters.

They recognise for enterprises the need to know their energy consumption, to have a qualified energy manager, to develop a holistic approach to energy efficiency by re-thinking the supply chain, to link energy efficiency with the core business through an EnMS, and to promote dedicated financial tools.

Beyond policies



A coordinated policy is needed to answer the challenge of drastically reducing emissions, while at the same time ensuring competitiveness at EU level.

The EU have been designing policies aimed at reducing GHG emissions, improving energy efficiency and increasing renewable energy sources for two decades.

Nevertheless, obligations are not enough to reach the targets, especially after the economic crisis has depleted the capability of the MSs to sweeten the sticks with carrots.

The EED directive started actively promoting good energy management practices and tools, and to reach the future targets it is important to have good practices to rely upon and to imitate.

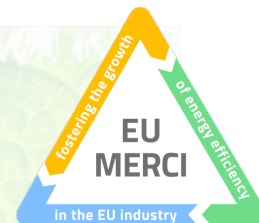
Industrial consumers shall understand the possible contribution of energy efficiency not only as an opportunity to cut energy costs, but as a mean to gain competitive advantages by exploiting energy efficiency multiple benefits.

EU-MERCI will contribute to this by offering a repository of good practices divided by industrial sector and providing information on effective policies.

EU-MERCI

EU coordinated **ME**thods and procedures based on **Rea**l **Ca**ses for the effective implementation of policies and measures supporting energy efficiency in the Industry

Fostering the growth of energy efficiency in the EU industry



Contacts



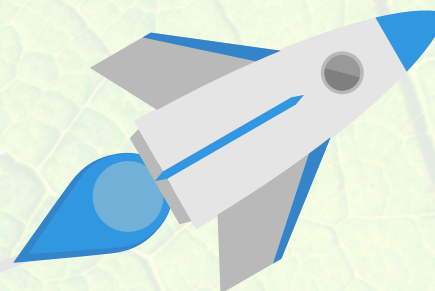
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(just need the right fuel)

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