FACT SHEET

AUDIT2MEASURE

European auditing system

Comparing energy audit requirements from 6 EU countries

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Introduction

Energy Saving Measure (ESM) play a central role in reaching the European Green Deal targets of 45% emissions reduced by 2030 and net zero emissions in 2050. The Article 8 of the Energy Efficiency Directive (EED) introduced in 2012 an energy audit obligation for all large companies in EU Member States. Yet, although energy audits according to international standards result in explicit ESM recommendations, often only very few ESM are implemented. AUDIT-TO-MEASURE aims to accelerate the uptake of ESM in manufacturing industries across six European countries: Czech Republic, Germany, Greece, Italy, Netherlands and Spain. This factsheet summarises a comparative overview of national energy audit and ESM implementation policies which constitutes the groundwork for the following project activities.

Key findings

1. All six countries have implemented the energy audit obligation for large companies set in Article 8 of the EED. Though target groups differ as most countries have introduced energy intensity thresholdsa. In all countries, companies with ISO 50001 certified energy management systems are exempt.

2. Germany, Italy and the Netherlands have set ESM implementation obligations for very energy-intensive companies with differing selection criteria. Monitoring and enforcement is currently limited and the obligation is only temporary in Germany.

3. Audit process and reporting methodologies draw on EN 16247 in all six countries. Greece, Germany, Italy and the Netherlands have provisions allowing clustering and sampling approaches to audit large groups or multi-site companies, but methodologies differ.

4. National audit requirements for the assessment of ESM mostly rely on standard financial metrics, though some countries also expect carbon accounting. Greece expects a life-cycle cost analysis, in Czech Republic recommended ESM must achieve 10% energy or CO2 savings, and in the Netherlands return on investment must factor in the national carbon tax.

5. The EU requires Member States to report on the implementation of the audit obligation. To date however, only Germany and Italy have carried out comprehensive national evaluations. Spain is currently carrying it out its first evaluation.

Key parameters of surveyed auditing systems

	CZ	DE	GR	IT	ES	NL
Energy audit obligation since	2000	2015	2015	2015	2016	2008
Criteria for audit obligation for non-SMEs (MWh/a)*	>200	>500	All	>523,5	All	>50
Criteria for audit obligation for SMEs (MWh/a)*	>5,000	-	-	>1,000	-	-
Frequency of mandatory audits (years)	4 (10)	4	4	4	4	4
Mandatory Financial metrics for ESM recommendation**	IRR, NPV	IRR, NPV	LCC	IRR, NPV	SPP	ROI
Exemption through certified Energy Management Systems	ISO	ISO, EMAS	ISO	ISO	ISO	ISO
ESM implementation obligation since	-	2022 to 2024	-	2020	-	2019
Obligation criteria for ESM implementation (MWh/a)*	-	>10,000	-	>1,000	-	>10,000
Selection criteria for mandatory ESM implementation	-	NPV > 0 in 3 years	-	1 ESM	-	ROI > 0 in 5 years
Period for mandatory ESM implementation (years)	-	1.5	-	4	-	4

**Final energy consumption thresholds below which enterprises are exempt.*

***Metrics required for the assessment of ESM in mandatory audits: Internal Rate of Return (IRR), Net Present Value (NPV), Simple Payback Period (SPP), Return on Investment (ROI), Life-Cycle Cost (LCC).*

Manufacturing industries in Europe

In 2022, the manufacturing sector was responsible for the larger share of the EU's greenhouse gas emissions at about 23%. The sector is therefore a crucial lever to achieve the EU's climate and energy targets. In Germany and the Netherlands, the chemical industry is the largest energy consuming industry. In Czech Republic, Greece, Italy and Spain the non-metallic mineral industry sector is responsible for the highest energy consumption. Other high energy consuming industries in the examined countries are the metal production industry, the food sector, the pulp and paper industry and the coking plant and mineral oil processing industry.

European policy context

Article 8 of the EED requires all large companies (i.e. non-SMEs) to carry out at least one energy audit every 4 years and defines compliance criteria for energy audits and auditors drawing on EN 16247. All surveyed countries have implemented the audit obligation in their policy frameworks but most of them have progressively introduced energy intensity thresholds for the application of the audit obligation. These criteria vary significantly among countries, sometimes including SMEs with high energy consumptions as well.

In 2021 the European Commission released a proposal for a recast of the EED as a part of the European Green deal, currently under negotiation it is expected to come into force in 2024. The proposal suggests changing the definition of the target group for mandatory energy audits from size-based criteria to energy intensity criteria with an obligation to implement an energy management system for highly energy-intensive companies.

Companies targeted by the audit obligation vary considerably as most surveyed countries have introduced energy intensity criteria.

National audit obligation requirements

Although EED currently targets large companies, most countries have progressively introduced energy intensity thresholds for the application of the audit obligation. These criteria vary significantly among countries, sometimes including SMEs with high energy consumptions as well. In all countries, ISO 50001 certified energy management systems exempt from the audit obligation. EMAS certified companies in Germany and ISO 14001 certified companies in the Netherlands are also exempt.

In all surveyed countries, companies with ISO 50001 certified energy management systems are exempt from the audit obligation.

In all six countries, only energy directly consumed by the enterprise within national borders is considered in mandatory energy audits. Except in Spain, energy consumption that occurs on temporary and leased sites is not accounted. Transportation is generally included, though with varying exceptions.

Obligated companies must report energy audit results to the national or regional institutions in charge of monitoring, control and enforcement. In some cases, the task of transmitting audit results is delegated to the energy auditor.

Fines for non-compliance exist in all surveyed countries, but, except in the Netherlands, compliance control relies on sample checks.

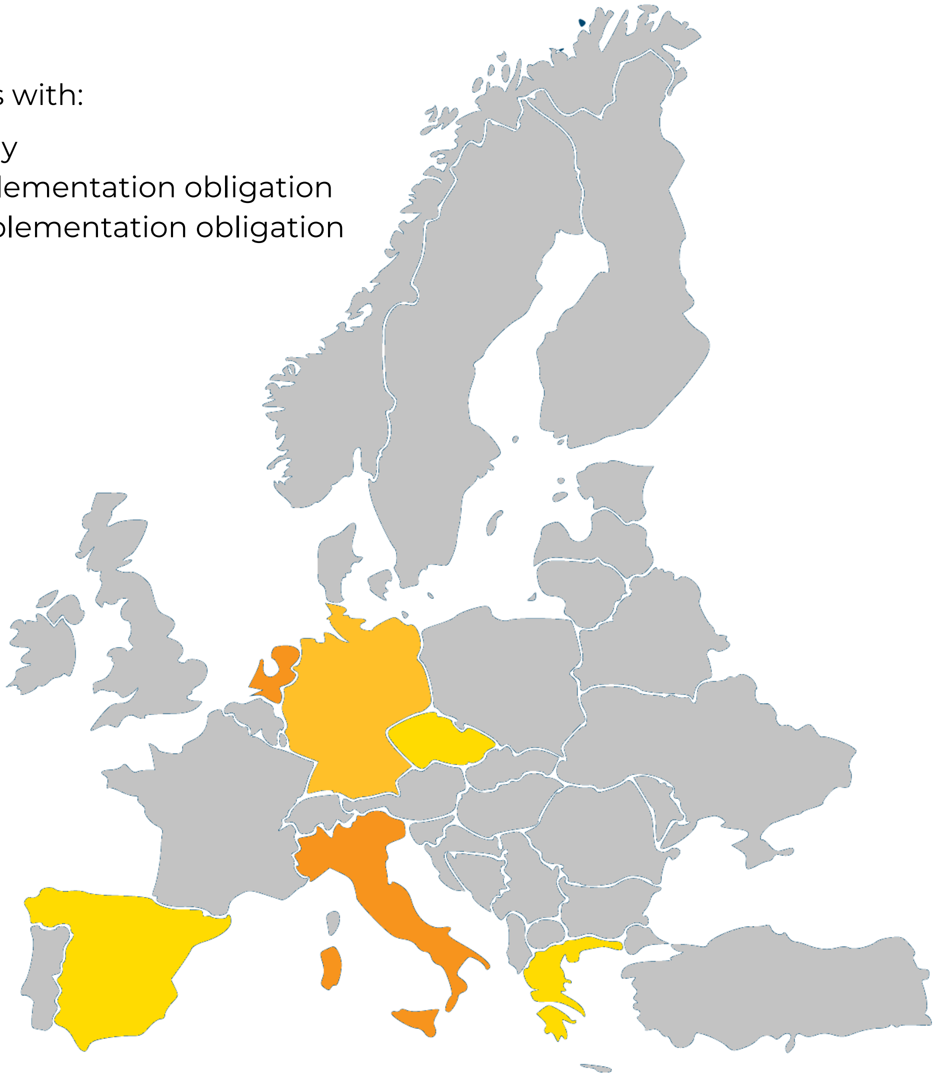
Except in the Netherlands, the institutions in charge rely on sample checks to control the adequate execution of mandatory energy audits. Financial penalties apply to obligated companies which do not execute an energy audit, though enforcement is weak in most surveyed countries. Only the Netherlands currently have the capacity to control all audits carried out annually.

National ESM obligation

Germany, Italy and the Netherlands have set ESM implementation obligations in addition to audit obligations for very energy-intensive companies. Though in Germany, this obligation is a temporary measure due to expire in September 2024. Germany and the Netherlands have set economic viability criteria for the selection of the mandatory measures, while Italy only requires the implementation of any one measure. In Germany, ESM must be implemented within 18 months, while Italy and the Netherlands except implementation until the next mandatory audit. Monitoring and enforcement of this obligation is very limited as, apart from self-regulation, national institutions lack the capacity to verify implementation and apply adequate sanctions.

Audit2Measure countries with:

- audit obligations only
- temporary ESM implementation obligation
- permanent ESM implementation obligation



Audit process and reporting

All six countries have developed national guidance and templates for the implementation and reporting of energy audits based on the European standard EN 16247. Process methodologies and reporting structures therefore do not vary significantly among countries.

The energy consumption of a group or multi-site enterprise is assessed by summing up the energy consumptions of all subsidiary sites. Except in Czech Republic, this sum must also include the energy consumptions covered by certified energy management systems. Greece, Germany, Italy and the Netherlands allow for so called clustering and sampling procedures to simplify the auditing of companies or group with a very large number of similar sites.

Requirements for the economic assessment and recommendation of ESM differ however. Most commonly requested metrics include simple payback period (SPP), net present value (NPV) and internal rate of return (IRR), though Greek legislation strongly recommends to use a Life-Cycle Cost (LCC) approach where possible. Czech Republic, Germany, the Netherlands and Spain also expect greenhouse gas emissions accounting as part of ESM assessments. In Czech Republic, notably, recommended ESM must minimally achieve 10% of savings either in terms of energy consumption or CO2 emissions. In the Netherlands, return on investment calculations must factor in the national carbon tax rates.

Metrics for ESM recommendations in energy audits differ widely among surveyed countries and do not always include climate impact.

Energy auditors

All considered countries except the Netherlands have set national requirements or accreditations for energy specialists to be authorised to execute standard energy audits. These countries maintain official registries of accredited auditing entities (both for auditors and energy service companies).

Except the Netherlands, all surveyed countries set competence requirements for auditing entities and maintain national regisitries.

The Netherlands do not set requirements for auditors and do not maintain an official and comprehensive registry, although authorities provide a contact list of competent energy experts. As opposed to other surveyed countries, all submitted audit reports are controlled by the relevant agency, who can notify the energy expert in case of incompetence.

National evaluations

As part of their reporting to the European Union, Member States are expected to carry out evaluations of the impact of their mandatory audit policies. However, to date, of the six considered countries, only Germany and Italy have published national evaluations of their audit systems, while Spain is currently carrying out its first evaluation.

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AUDIT-TO-MEASURE partners

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