

International Experience with Energy Efficiency Policy: Implementation of Article 8 of the EU Energy Efficiency Directive

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Abstract

According to Article 8 of the European Energy Efficiency Directive 2012/27/EU (EED), large enterprises (employing at least 250 persons, or having an annual turnover exceeding €50 million and an annual balance sheet total exceeding €43 million) are obliged to carry out four-yearly energy audits, with a first audit to be started at the latest by 5 December 2015. These audits need to take into account relevant international or European Standards (such as EN 16247), meet the minimum criteria set out in Annex VI of the EED, and be carried out by qualified or accredited experts. Companies may be exempted from this energy audit obligation when they are carrying out energy audits under a national voluntary agreement, or when they have already implemented a certified energy or environmental, including an energy audit, management system such as ISO 50001.

The energy audit obligation was, or should have been, implemented in national legislation by all Member States, but the way of implementation varies among Member States, due to a difference in interpretation of the Directive and due to the fact that some Member States are still in the process of implementation – even anno 2016 when the 5 December 2015 deadline has already passed.

DNV GL conducted a study to develop an EED Article 8 database to support multinational companies in their compliance strategy. This study aimed, and aims, as it is continuously ongoing to keep the database up to date and to keep track of new or changing Member States' legislations, to evaluate the different implementation aspects in all EU-28 Member States. The database was built by a structured review of published legislation and practical guidelines, complemented by interviews with experts on a per Member State basis.

Results shown in this paper provide some insights in the DNV GL database: transposition status into national legislation, Member States' approaches in the definition of a large enterprise, and some Article 8 requirements such as deadlines, penalties for non-compliance, audit scope and auditor requirements. Based on these results, some recommendations are made towards improving the European Commission's approach on increasing energy efficiency in Europe by implementing an energy audit obligation for large enterprises.

Introduction

Background to Article 8 of the EED

Achieving an energy efficient Europe has been a goal for the EU for some time. In 2007, the European Council adopted ambitious energy and climate change objectives for 2020: to reduce greenhouse gas emissions by 20%, to increase the share of renewable energy by 20% and to reach 20% more energy efficiency. Forecasts in 2010 showed that the EU energy efficiency target would not be met by 2020, and therefore new measures were needed. To tackle this situation, the European Commission put forward a proposal for an Energy Efficiency Directive in 2011. This Directive would help make a significant contribution to meeting the EU 2020 energy efficiency target as well as to set a common framework to promote energy efficiency in the EU beyond 2020. The proposal was adopted on 25 October 2012 as the EU Energy Efficiency Directive 2012/27/EU (EED). This

Directive lays down rules designed to remove barriers in the energy market and to overcome market failures that impede efficiency in the supply and use of energy, and provides for the establishment of indicative national energy efficiency targets for 2020. It establishes a common framework to promote energy efficiency within the Union and includes specific actions to achieve the significant unrealised energy saving potential that was identified by the EU Energy Efficiency Plan 2011 (European Commission, 2012).

The EED gives energy audits and energy management schemes a substantial role to play in improving energy efficiency in the end-use sectors, as can be read in Article 8 of the EED. Energy audits are defined as '*systematic procedures used to identify, quantify and report existing energy consumption profiles and energy saving opportunities*'. Energy management systems are defined as '*sets of elements of plans establishing energy efficiency objectives and strategies to achieve these objectives*'. Energy audits are an integral part of energy management systems.

EU EED for large enterprises: mandatory four-yearly energy audits for non-SMEs

According to Article 8 of the EED, all large enterprises are obliged to undergo energy audits. These mandatory energy audits have to be carried out every four years, and the first energy audit needed to be carried out at the latest by 5 December 2015. There can be a maximum four-year interval between two audits: e.g. if the first energy audit took place on 24 May 2015, the next one must happen before 24 May 2019 (European Commission, 2013).

Energy audits need to take into account relevant International or European Standards such as EN 16247-1. The energy audit obligation for large enterprises does not exclude any sector - such as EU ETS (Emissions Trading System) companies or IPPC (Integrated Pollution Prevention and Control) licence holders - and does not refer to 'final customers': therefore all large enterprises must fulfil this obligation (European Commission, 2013).

Large enterprises may be exempted from or be considered as already fulfilling the requirement to undergo regular audits (i) when they have and will continue to be subjected to equivalent and equally regular energy audits that are implemented under a voluntary agreement (between an appointed body and an obliged stakeholder organisation and supervised by the concerned Member State, a delegated body or the European Commission), or (ii) when they already have an energy or environmental management system¹ that is certified by an independent body according to relevant European or International Standards and provided that the management system includes an energy audit that meets the minimum criteria set out in Annex VI of the EED (Official Journal of the European Union, 2012). Energy performance certification in accordance with Article 11 of the EPBD (Energy Performance of Buildings Directive) cannot automatically be regarded as equivalent to energy audits under Article 8 of the EED. It is, however, possible that in specific cases, e.g. when auditing office buildings of a large enterprise, certification and/or inspections under the EPBD in a given member State may fulfil the requirements of Article 8 and Annex VI of the EED (European Commission, 2013).

¹ The EED mentions the implementation of a certified energy or environmental management system as exemption to the mandatory energy audits. Such a system needs to follow relevant European or International Standards. International Standards include ISO 50001 which was developed in 2011, and ISO 14001 which was developed in 2004. In 2009, the European Committee for Standardization (CEN) developed a European Standard EN 16001:2009 on energy management systems including requirements with guidance for use as a first international energy management standard. This standard was published in July 2009 and withdrawn in April 2012 as it had been superseded by ISO 50001. Other relevant European Standards include EMAS.

Aim of this study

DNV GL conducted a study to develop an EED Article 8 database to support multinational companies in their compliance strategy. This study aimed, and aims, as it is continuously ongoing to keep the database up to date and to keep track of new or changing Member States' legislations, to evaluate the different implementation aspects in all EU-28 Member States. It assessed Member States' progress in implementing the provisions within Article 8 of the EED, and provided a comprehensive review of implementation practices, tools and instruments across different Member States, together with best practice examples across EU-28. The database was synthesised from a range of sources, including:

- Literature review of primary legislation and secondary documents (practical implementation guidelines or FAQs) related to the transposition of Article 8 into national legislation
- Qualitative interviews with national authorities and energy agencies responsible for the implementation of Article 8 into national legislation or the practical support and evaluation of the national requirements
- Engagement with other relevant stakeholders such as other governmental organisations, sector associations, accreditation bodies and multinational (large) enterprises

Results shown in this paper provide some insights in the DNV GL database. Based on these results, some recommendations are made towards improving the European Commission's approach on increasing energy efficiency in Europe by implementing an energy audit obligation for large enterprises.

Methodology

The analysis of the research questions was based on two main sources of information. The first element was a structured review of published legislation and practical guidelines regarding the energy audit obligation for large enterprises in all 28 EU Member States. Within this step, an identification and review of relevant literature, databases and other material (e.g. NEEAPs, EED implementation reports) was carried out. This served as a means to provide a preliminary description of the current implementation status in different Member States.

This information was then complemented by interviews with experts on a per Member State basis. These interviews aimed to fill information gaps that could not be closed by the literature review either due to a lack of relevant literature or because it was simply outdated. Furthermore, the interviews served to verify preliminary findings. To date, more than 40 interviews were carried out with people from national energy agencies, local authorities and ministries, national monitoring bodies for energy audits and voluntary agreements, national helpdesks. Engagement with other stakeholders has provided additional information, and was obtained through further interviews and contacts (up to 50) with multinational companies and sector organisations.

It should be noted that throughout the duration of this study (and while writing this paper), some Member States are still in the process of transposing the requirements of Article 8 into their national primary and/or secondary legislation. This implies that, while trying to keep the information up to date, interpretations and guidelines may have been modified after concluding the analysis for a specific country in this study. It may be the case that some information is already outdated.

Implementation of Article 8 across the EU-28

Status of Article 8 transposition into national legislation

As pointed out earlier, the EED entered into force in December 2012. The Member States were expected to fully transpose the Directive into national legislation within a period of roughly 18 months, by June 2014. Only a minority of Member States met this deadline, but in the second part of 2014 more national legislations got updated. To date, as shown in Figure 3, a majority share of Member States has completed the transposition: some of these Member States have only published primary legislation, but the majority has also published secondary documents detailing practical implementation guidelines or FAQs regarding the energy audit requirements for large enterprises. However, some Member States such as Luxembourg, Lithuania and Poland are still in the process of anchoring the requirements of Article 8 in their primary legislation at the time of writing of this study.

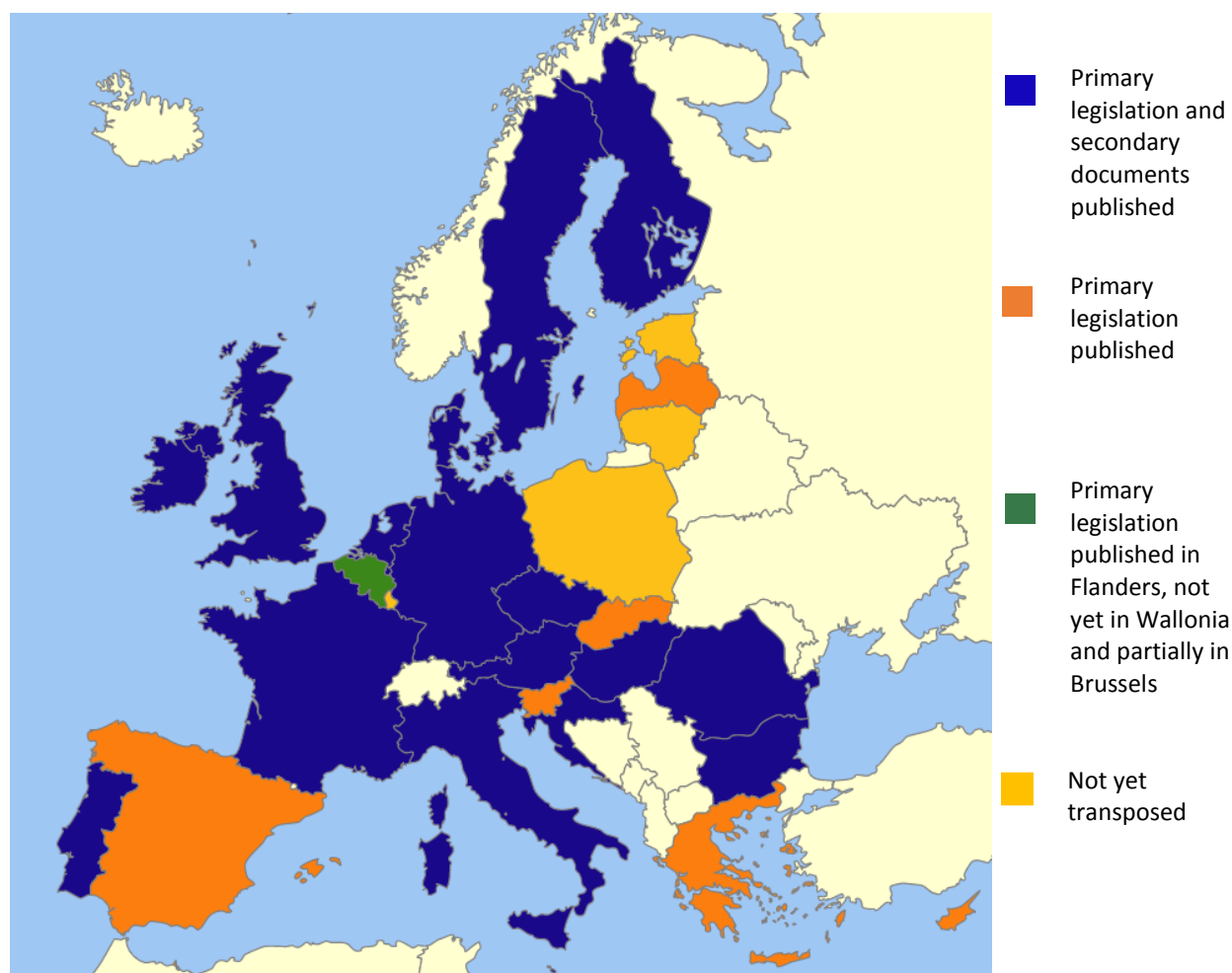


Figure 1. State of transposition of national implementation documents related to Article 8 of the EED in the EU-28 (updated in April 2016)

EU definition of a large enterprise

The mandatory energy audits only apply to large enterprises according to the EED Article 8. It is hence essential to distinguish between large enterprises and small and medium-sized

enterprises (SMEs) to understand this article's requirements. A European definition of a large enterprise does not exist, but can be deduced from the definition of an SME.

In order to be an SME, an undertaking must first fall within the definition of 'enterprise', which is *"any entity engaged in an economic activity, irrespective of its legal form, including, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity"*. Any activity whereby goods or services are offered on a given market is an economic activity (European Commission, 2013).

The EU definition of an SME adopted by the European Commission - as it was published in the Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (2003/361/EC), Annex, Title 1, Article 2 - states that: *"The category of micro, small and medium enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons AND which have an annual turnover not exceeding 50 million Euros AND/OR an annual balance sheet total not exceeding 43 million Euros"*.

The same Recommendation (European Commission, 2003) also states that: *"The criterion of staff numbers (the 'staff headcount criterion') remains undoubtedly one of the most important, and must be observed as the main criterion; introducing a financial criterion is nonetheless a necessary adjunct in order to grasp the real scale and performance of an enterprise and its position compared to its competitors. However, it would not be desirable to use turnover as the sole financial criterion, in particular because enterprises in the trade and distribution sector have by their nature higher turnover figures than those in the manufacturing sector. Thus the turnover criterion should be combined with that of the balance sheet total, a criterion which reflects the overall wealth of a business, with the possibility of either of these two criteria being exceeded."* The number of employees is hence the main criterion to determine whether an enterprise is an SME. This headcount is accompanied by a financial criterion, either turnover or balance sheet total. An SME does not need to satisfy both financial criteria (whereas a large enterprise does) (European Commission, 2013).

A company can only be an SME when it meets both the staff headcount criterion and one of the financial criteria. When one of these requirements is not met, the company automatically becomes a large enterprise. Therefore a large enterprise is defined as one which has at least 250 employees, OR² a turnover in excess of 50 million Euros AND a balance sheet that is greater than or equal to 43 million Euros.

Enterprises have to either use the data contained in their last or two previous approved annual accounts to make the staff and financial calculations. To calculate their data, enterprises registered in a given country have to establish whether they are autonomous, partner or linked enterprises. In general, most SMEs are autonomous since they are either completely independent or have one or more minority partnerships (each less than 25%) with other enterprises. If that holding rises to no more than 50%, enterprises become partners, and above that ceiling, enterprises are linked.

Depending on the category to which an SME belongs, it has to include the data of other linked enterprises in other countries (anywhere in the world) to assess whether they can be considered to be an SME or not (European Commission, 2013). The result of this calculation allows checking the total staff headcount and financial criteria: enterprises exceeding the SME thresholds lose their SME status and become a large enterprise.

Additionally, an enterprise is not an SME if 25% or more of its capital or voting rights are directly or indirectly controlled, jointly or individually, by one or more public bodies, with the exception of universities, small autonomous local authorities, institutional investors and venture capital companies (European Commission, 2005).

2 The "OR" in the EU definition is considered as a non-exclusive OR, i.e. it may also be read as AND/OR.

While some Member States directly rely on the EU definition of SMEs and adopt the deduced non-SME definition, others have developed their own explicit definition of large enterprises. Countries such as Malta and Germany use the exact EU definition on number of employees and financial criteria, including the consolidated data within and outside national borders. Other countries such as Austria and the Netherlands also follow the employee and financial thresholds, but only require to consolidate within national borders. But then there are also Member States (Slovenia e.g.) having defined their own definition for large enterprises. And some Member States have opted to rely on additional criteria to broaden the mandatory energy audit target group, by including energy-intensive companies (regardless their size), such as Czech Republic and Italy.

The lack of a European definition of a large enterprise has clearly complicated the interpretation of the EED Article 8 by different Member States. And these different interpretations create much confusion, especially for multinational companies who are trying to figure out how to become compliant in different Member States: which employee and financial thresholds to follow, and to consolidate data within or outside national borders?

National EED Article 8 requirements

In addition to the differences in the definition of a large enterprise, other national interpretations of the EED Article 8 requirements further complicate the compliance situation.

5 December 2015 deadline

The deadline for the first energy audit was set by the EU on 5 December 2015 (European Commission, 2012). As certain Member States had not even transposed the requirements into national legislation by that date, it can already be expected that there will be some national deviations from this deadline. And indeed, ten Member States (such as Germany and Malta) have applied the 5 December 2015 deadline, whereas others have applied a 2015 deadline but on another date (such as Austria and Flanders). But many Member States have stretched the deadline (such as Denmark and France), either to give large enterprises more time to become compliant or to acknowledge the fact that they were too late with transposing the energy audit obligation into national legislation.

The implementation of alternative systems such as certified energy management systems takes a considerable amount of time due to the required organisational changes. Some Member States acknowledge the fact that the implementation of an energy or environmental management system, as an exemption from the energy audit obligation, requires more time than carrying out an energy audit, and therefore allow an extended deadline. A good example is shown in Germany. To account for the fact that the implementation and certification of ISO 50001 or EMAS takes more time than performing an energy audit, companies choosing to go beyond the energy audit obligation get an extra year (until 31 December 2016) to fully implement a certified management system (BAFA, 2015).

Penalties for non-compliance

According to the EU EED, Member States need to lay down rules on penalties applicable in case of non-compliance, and need to take the necessary measures to ensure that they are implemented. These penalties have to be effective, proportionate and dissuasive (European Commission, 2012).

When defining the amount of penalties, Member States should ensure that these are well above the actual costs of an energy audit (including a mark-up for the internal staff costs). If penalties are set too low, companies may rather tend to pay a fine instead of conducting an energy audit. It should also be made sure that penalties do not serve as substitute for an audit, i.e. lead to an omission of an audit. However, penalties should also be adjusted to the capacity of a company; a fixed penalty may thus not be appropriate.

Member States have taken different approaches in identifying “effective, proportionate and dissuasive penalties”. In Flanders, enterprises risk losing their environmental permit when not carrying out the mandatory energy audits. Penalties are defined by court on a case-by-case basis in Denmark. Romania calculates the penalties as a function of the annual energy consumption of the enterprise, and France includes the companies’ annual turnover in the penalty calculation. Several Member States mention penalties up to €50,000 (such as Germany and Greece), or even higher (up to €100,000 in Malta and €185,000 in Czech Republic).

Member States are often tackling the short deadline by taking a flexible enforcement approach. For example in the UK, the Environment Agency is aware that meeting the 5 December deadline was not always possible, for example because there were not enough lead assessors available to carry out the assessments in time. According to them, the deadline itself cannot be amended (as it is set by the EU), but the regulators are able to waive or modify the enforcement actions and penalties for non-compliance. The UK Environment Agency therefore decided that enforcement actions would not be taken before 29 January 2016, and that civil penalties would only be served in the most serious cases (Environment Agency, 2015). Other Member States following a more flexible enforcement approach include Finland, Hungary, Ireland and the Netherlands.

Energy audit scope

According to Annex VI of the EU EED, on the minimum criteria for energy audits including those carried out as part of energy management systems, energy audits need to be proportionate and sufficiently representative to permit the drawing of a reliable picture of overall energy performance and the reliable identification of the most significant opportunities for improvement (European Commission, 2012).

To clearly define when an energy audit is considered to be “proportionate and sufficiently representative”, some Member States have added practical guidelines to their national legislation regarding a sampling approach or the minimum amount of energy consumption (“de minimis”) that needs to be covered by the audit.

Some Member States, such as Denmark and Germany, apply a 90% de minimis requirement, stating that it is sufficient for the energy audit to cover 90% of the total energy consumption. Other Member States allow an even higher percentage of the consumption to be excluded from the audit scope, such as Ireland or Italy. But there are also Member States being more strict, such as Czech Republic, specifically stating that 100% of the energy consumption needs to be covered by the audit.

A sampling approach is often allowed, but Member States generally state that the approach has to be defined by the auditor as considered appropriate, e.g. in Austria and Denmark. Countries such as Germany and Italy, however, provide a detailed sampling approach. The German so-called multi-site approach states that for enterprises that have several similar sites, the energy audit can be limited to a proportionate and representative number of sites, using clusters of sites. Proportionate and representative is defined as “the square root of the total number of sites, rounded to the higher integer”. This approach can be taken for buildings, fleet and industrial processes. The selected sites must also represent the potential differences between sites. When after four years a new audit needs to be carried out, different sites need to be selected. The criteria for clustering and selecting sites need to be clearly documented in the audit report (BAFA, 2015).

The responsibility of energy audits for buildings is dealt with in different ways by different Member States. As energy consumption in large buildings is often split across several parties and as there is a considerable amount of split incentives, some Member States like Slovakia stress the role of the landlord as being responsible for the audit. Most Member States, however, state that large enterprises renting buildings are responsible for the audit, but only for those parts of the energy consumption that can be directly influenced (hence not the building envelope).

Energy auditor requirements

According to Article 8 of the EED, energy audits need to be carried out in an independent and cost effective manner by qualified and/or accredited experts (European Commission, 2012). Qualification and accreditation requirements differ between Member States, making it difficult for auditors qualified in a certain Member State to be automatically qualified to carry out energy audits in other Member States too.

In Flanders, auditors only need to be registered, but they do not need to meet specific requirements, making it easy for auditors qualified in other Member States to carry out audits in Flanders. Most Member States are, however, much more strict regarding the auditor requirements, including education, experience and training needs. And Member States such as Ireland and the UK even require auditors to be nationally registered to guarantee the quality of the audits: SEAI (Sustainable Energy Authority of Ireland) registered auditors in Ireland, and ESOS (Energy Savings Opportunity Scheme Regulations) lead assessors in the UK.

Conclusions

In conclusion, it can be agreed that the EU EED Article 8 has good intentions towards increasing energy efficiency in Europe. But its vagueness, lack of clear fundamental definitions and scope could be improved. While conducting our study to develop a compliance database, several EU shortcomings have been identified. These shortcomings make it very difficult for multinationals to assess compliance EU-wide. At the same time, our study has highlighted some good practice examples in different Member States, which could be taken into account to improve the EU Directive, and thereby even increase energy efficiency and create a level playing field across the European Union.

First of all, a EU definition of a large enterprise - with some practical user guidelines and model declarations (as was published by the European Commission on the definition of an SME) - would increase Member States' understanding of which companies are affected by the energy audit obligation, and clear the way for multinationals towards compliance. Broadening the energy audit obligation towards to also include energy-intensive companies EU-wide would, moreover, result in a level playing field, and in more (relevant) energy audits.

The first deadline for the four-yearly energy audits was set by the EU on 5 December 2015. The actual deadlines to be found in Member States differ considerably, because national legislation was published with a delay or just because national authorities allow large enterprises more time to become compliant. These differences are already being addressed by the European Commission, who is continuously monitoring the transposition of all EU Directives into national legislation. Member States that are not complying could be sent to the EU Court of Justice and risk financial penalties. The EU could, however, improve its approach on the deadline for implementing alternative systems (such as certified energy management systems), acknowledging the fact that this implementation

takes more time than carrying out an energy audit, and hence allowing companies more time to reach compliance.

Deciding on the amount of non-compliance penalties is and should stay a Member State responsibility. There are significant differences in amounts between different Member States, but it is not up to the EU to change these amounts. Taking a flexible approach in the first compliance period is a good practice example and can be found in many Member States, and this example could be further promoted in other countries to acknowledge the short deadlines.

The energy audit scope is defined rather vaguely in the EU EED, with no clear guidelines on things like sampling or de minimis. This has resulted in Member States taking very different approaches, again creating a difference for both large enterprises and for energy auditors. To level the playing field in Europe, the European Commission could consider specifying the audit requirements regarding proportionality and representativity.

Finally, more specific EU guidelines on energy auditor requirements could also improve the practical implementation of energy audits. By providing clear European requirements, auditors could receive European accreditation or qualification, making the process more transparent and increasing the amount of energy auditors available on the EU market. It would also result in more comparable and harmonised audit qualities throughout EU Member States. Currently, several Member States allow energy auditors qualified in other European Member States to carry out audits in their country, without additional national accreditation. However, in most cases, they require from the auditors to meet the same criteria on education and experience, and to be registered with the national scheme administrator, leading to a rather cumbersome approval procedure. Moving to a mutual recognition of schemes would open the European market for energy auditors. During our interviews, public authorities in different Member States raised their concern as to whether they would have enough suitably skilled auditors to meet the demand from the enterprises. The Directive 2005/36/EC on the recognition of professional qualifications could be applied to allow energy auditors from abroad to carry out energy audits (European Commission, 2005).

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