



CONCERTED ACTION
ENERGY EFFICIENCY
DIRECTIVE

Core Theme Series Report:
Concerted Action Energy
Efficiency Directive

1

NEEAPs and annual reports and measuring progress in energy efficiency

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1 Introduction and context

The Concerted Action for the Energy Efficiency Directive (CA EED) supports implementation of the Directive 2012/27/EU (EED) by fostering the exchange of information and experiences among Member States (MS) with regards to the implementation of the Directive.

This report summarises work carried out between January 2013 and March 2015 by the CA EED on the topic 'NEEAPs and annual reports and measuring progress in Energy Efficiency'.

In 2013–2014 this work sought to provide a comprehensive overview and timeline for all reporting requirements, as well as notifications, assessments, publishing etc. mentioned in the Energy Efficiency Directive (EED). The aim was also to provide an overview of the target setting required by the EED in the first annual report, and the methodologies planned for reporting achievements in the 1st EED National Energy Efficiency Action Plans (NEEAPs). Behavioural measures employed to achieve energy efficiency across the Member States, and methods for measuring energy savings achieved via soft measures were also covered.

In 2015 MS were asked to report on new or updated energy efficiency measures that fulfil EED requirements. The aim was also to investigate how MS understand and respond to the EED requirement to include analysis of the energy trends in sectors where energy consumption remains stable or is growing, in annual reports. A further aim of the work was to gain understanding of the requirements necessitated by the terminology 'monitoring and verification' and 'measurement, control and verification systems'.

The EED has a very broad scope and includes several reporting, notification and other reporting-related requirements. In addition to annual reports, and National Energy Efficiency Action Plans every three years, there are many other reporting and/or notification requirements in different Articles and Annexes.

The EED required MS to set their indicative national energy efficiency targets by 30th April 2013 and to include the indicative national target, according to Article 3(1), in their 1st annual reports.¹ In addition,

the 1st EED National Energy Efficiency Action Plan of 2014 required the reporting of energy savings, to show progress towards the 2016 national target for final energy savings set by the Energy Services Directive (ESD).

In EED Articles 12 and 17, behavioural measures are highlighted as a way of promoting efficient use of energy through instruments and policies. Behavioural measures are also eligible Article 7 measures and, in Annex V, one of the methods for calculating energy savings is dedicated to so-called 'soft measures': behavioural measures related, for example, to consumers' responses to advice, training, information campaigns, labelling or certification schemes, or smart metering. This cross-cutting topic was processed in a joint working group with two other CA EED Core Themes: 'Consumer information programmes, training and certification of professionals' and 'Energy efficiency obligation schemes, monitoring impacts of eligible measures'.

This report gives an overview of all reporting/notification/publishing/assessment requirements and their timelines in the EED; this information was provided to CA EED participants in spring 2013. The information was based on the EED or draft versions of the Commission Implementing Decision, which established a template for NEEAPs under EED², and on discussions in the plenary meeting in spring 2013. The report also provides an overview of the ways MS set targets in their 1st annual reports, and gives an insight into how MS planned to utilise the energy savings calculations and reporting within the 2nd ESD NEEAP in 2011, when preparing their 1st EED NEEAP for 2014. A summary of the results of the joint working

2 Overview of EED reporting-related requirements

group in spring 2014, covering the topic 'Measuring energy savings from soft measures', can be read in the corresponding Core Theme Series Report for 'Energy efficiency obligation schemes, monitoring impacts of eligible measures' (www.ca-eed.eu/reports/core-theme-series-reports).

In summer 2013, representatives from 27 of 28 MS (including Croatia) provided input relating to national target setting in their 1st annual report and their plans for producing their 1st EED NEEAP. Data gathered in January 2014 for the joint working group covered all 29 CA EED participant countries.

MS were obliged to deliver their 2nd annual reports and 1st EED NEEAPs (NEEAP-3) by April 30th 2014. With new NEEAPs in place and EED implementation underway, it was an appropriate time to ask MS to report on new or updated measures that fulfilled EED requirements and were introduced after the NEEAP-2, and in June 2014 a survey was distributed to MS. The survey also allowed new, updated and existing measures, targeting areas that were previously not part of ESD NEEAPs (energy production, transmission and distribution), to be mapped. Representatives from 27 of 28 MS provided input to the survey.

According to EED (Article 24(1)) and Annex XIV Part 1, MS need to provide an annual report including analyses of the energy trends in sectors where energy consumption remains stable or is growing. This report gives an overview of the results of a survey aimed at investigating MS' understanding and implementation of this EED requirement. The familiarity with, and ability

to use, decomposition methodology across the MS was also investigated. Representatives from 28 of 29 MS (including Norway) provided input to the survey in January 2015.

Monitoring and calculating the impacts of energy efficiency (EE) measures and their energy savings, is an obligation stipulated in Article 7(6) and 7(10), and applies to both obligation schemes and alternative measures. Article 7 uses different terminology when it comes to obligation schemes and alternative measures. This report gives an overview of survey results regarding CA EED participants' understanding of the terminology for actions requiring 'monitoring and verification' and 'measurement', control and verification systems' (Article 7(6) and 7 (10)).

This cross-cutting topic was processed in a joint working group with the CA EED Core Theme 'Energy efficiency obligation schemes, monitoring impacts of eligible measures'. Representatives from 28 of 29 MS (including Norway) provided input to the survey in January 2015.

Active and broad participation in discussions and plenary meetings, combined with high response rates to questionnaires, means that the results give a good overview of the topics and the views of CA EED participants from all MS.

General information on the Concerted Action for the Energy Efficiency Directive and on the other topics included in CA EED can be found at www.ca-eed.eu.

Due to its broad scope, the Energy Efficiency Directive includes multiple reporting, notification, publishing and other assessment obligations for MS in different Articles and Annexes. The reporting timelines for all of these obligations and some other specific implementation provisions are not the same. The work described below focused only on the obligations that require developing, publishing and/or delivering documents with defined special contents and purposes to the Commission. Separation of reporting-related obligations for the Energy Efficiency Directive makes it easier for CA EED participants to keep track of them and their due dates.

The aim of the work undertaken during spring 2013 was to help the national implementing bodies get a concise overall picture of reporting requirements and a timeline for reporting in the EED. In addition to annual reports and the National Energy Efficiency Action Plan every three years, there are several specific notifications and/or assessment or publishing requirements related to specific issues in Articles and Annexes. Some of these are optional depending on whether MS choose to implement certain provisions.

A comprehensive overview was produced, covering all reporting/notification/publishing/assessment requirements and their timelines in the EED. An overview of all reporting-related requirements in the Articles or Annexes was also provided (Table 1). To provide a straightforward, quick look at all reporting and notification requirements, a graphic timeline covering the EED period was also created (Figure 7 at the end of this document). In addition, the work also looked at each Article and Annex in detail (not covered in this report).

Table 1: Overview of different reporting-related requirements in EED Articles and Annexes

Article/ Annex	Title	Reporting, notification or other reporting related provisions in EED		
		Annual report	NEEAP ³	Notification or other reporting
Article 1	Subject matter and scope	-	-	✓
Article 2	Definitions	-	-	-
Article 3	Energy efficiency targets	✓	✓	-
Article 4	Building renovation	-	✓	-
Article 5	Exemplary role of public bodies' buildings	✓	✓	✓
Article 6	Purchasing by public bodies	-	✓	-

¹ The target shall be notified to the Commission either as part of the National Reform Programme referred to in Council Recommendation 2010/410/EU of 13th July 2010 on broad guidelines for the economic policies of the Member States of the Union, or in the EED 1st annual report.

² Final version: eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:141:0048:0053:EN:PDF [published 22.5.2014]

Article/ Annex	Title	Reporting, notification or other reporting related provisions in EED		
		Annual report	NEEAP ³	Notification or other reporting
Article 7	Energy efficiency obligation schemes	✓	✓	✓
Article 8	Energy audits and energy management systems	-	✓	-
Article 9	Metering	-	✓	-
Article 10	Billing information	-	✓	-
Article 11	Cost of access to metering and billing information	-	✓	-
Article 12	Consumer information and empowering programme	-	✓	-
Article 13	Penalties	-	✓	✓
Article 14	Promotion of efficiency in heating and cooling	-	✓	✓
Article 15	Energy transformation, transmission and distribution	-	✓	✓
Article 16	Availability of qualification, accreditation and certification schemes	-	✓	-
Article 17	Information and training	-	✓	-
Article 18	Energy services	-	✓	-
Article 19	Other measures to promote energy efficiency	-	✓	✓
Article 20	Energy Efficiency National Fund, Financing and Technical Support	-	✓	-
Article 21	Conversion factors	-	✓	✓
Article 22	Delegated acts	-	✓	-
Article 23	Exercise of the delegation	-	✓	-
Article 24	Review and monitoring of implementation	✓	✓	✓
Article 25	Online platform	-	✓	-
Article 26	Committee procedure	-	✓	-
Article 27	Amendments and repeals	-	✓	-
Article 28	Transposition	-	✓	-

Article/ Annex	Title	Reporting, notification or other reporting related provisions in EED		
		Annual report	NEEAP ³	Notification or other reporting
Article 29	Entry into force	-	✓	-
Article 30	Addressees	-	✓	-
Annex I	General principles for the calculation of electricity from cogeneration	-	✓	✓
Annex II	Methodology for determining the efficiency of the cogeneration process	-	✓	-
Annex III	Energy efficiency requirements for purchasing products, services and buildings by central government	-	✓	-
Annex IV	Energy content of selected fuels for end use – conversion table	-	✓	✓
Annex V	Common methods and principles for calculating the impact of energy efficiency obligations schemes or other policy measures under Article 6(1) and (9) and Article 15a(6)	-	✓	✓
Annex VI	Minimum criteria for energy audits including those carried out as part of energy management systems	-	✓	-
Annex VII	Minimum requirements for billing and billing information based on actual consumption	-	✓	-
Annex VIII	Potential for efficiency in heating and cooling	-	✓	✓
Annex IX	Cost-benefit analysis	-	✓	-
Annex X	Guarantee of origin for electricity produced from high-efficiency cogeneration	-	✓	-
Annex XI	Energy efficiency criteria for energy network regulation and for electricity network tariffs	-	✓	-
Annex XII	Energy efficiency requirements for transmission system operators and distribution system operators	-	✓	-
Annex XIII	Minimum items to be included in energy performance contracts with the public sector or in the associated tender specifications	-	✓	-
Annex XIV	General framework for reporting	✓	✓	-
Annex XV	Correlation table	-	✓	-

³ In some articles, requirements apply only for some NEEAPs (e.g. 'first NEEAP 2014' or 'from the second NEEAP 2017 and thereafter every three years').

3 Overview of the 1st annual report and processing the 1st EED NEEAPs for 2014

The timeframe for the first EED reports and notifications was considered demanding; concern was expressed by many CA EED participants about their ability to produce the quality of information required by the EED. Reports and notifications in 2013 comprised the notification of the national indicative target and 1st Annual Report by 30th April 2013; and the notification of opting for the alternative approach to the energy efficiency obligation scheme, and the methodology for the purpose of energy efficiency obligation schemes, Article 7(9) and Article 20(6) by 5th December.

CA EED participants indicated that the EED reporting requirements would require considerably more resources than reporting under the Energy Services Directive (ESD). Resource availability within a short timeframe also caused difficulties in the comprehensive target setting process.

The majority of participants did not have any problems with the indicators required in EED annual reporting, or in the availability of statistical data for 2011, which needed to be reported in the first EED annual report. The requirement within EED Article 3 to include all measures when setting the target in spring 2013 was considered problematic in practical terms. Many MS did not yet have a clear picture of the exact measures and policies that would be adopted or needed in order to move towards the achievement of their energy

efficiency target. Another major problem seemed to be the need for expression of targets in absolute primary and final energy consumption.

At the time of the work (March 2013), the different EED targets and how these were related and connected remained a challenge for many MS. For example, the indicative target referred to in Article 3, the obligatory target set in Article 7, the Article 5 targets on central governmental buildings, and the ESD target were considered difficult to separate. Organisations responsible for implementation in MS were entrusted with the task of informing and explaining the EED to relevant stakeholders at a national level; this was seen as challenging.

In order to fulfil the reporting and notification requirements set by the EED, CA EED participants indicated that their resources would be stretched to their limits and go beyond those earmarked for ESD reporting. Furthermore, according to the experiences gained during the CA ESD, limited human and financial resources in most MS mean that there is a fear that reporting detracts resources from implementation. Thus it is desirable that MS, supported by the CA EED and the European Commission, can find practical and cost efficient ways of complying with the challenging reporting requirements.

The EED required the Member States to set their indicative national energy efficiency targets by 30th April 2013, to include the indicative national target according to Article 3(1)⁴ in their 1st annual reports, and to submit their 1st EED NEEAP by 30th April 2014. The work undertaken by the CA EED was aimed at supporting the CA participants in the fulfilment of these requirements.

More specifically, the aim of the work carried out during summer and autumn 2013 was to provide MS with an overall picture of target setting in the Member States and its relation to other EED requirements and targets, and to measures previously set under the ESD. It also gave an insight into how MS are planning to utilise the energy savings calculation methods from their 2nd ESD NEEAP in 2011 when preparing the 1st EED NEEAPs for 2014, and whether they already have methods and descriptions for the primary energy savings calculations. Measures that were introduced after the 2nd ESD NEEAP were also mapped.

In addition to the Core Theme's own work, a session was held within a CA EED plenary meeting in autumn 2013 to present the results of a Joint Working Group with CA EPBD and CA RES related to the preparation of long term building renovation strategies (EED Article 4): 'Towards MS' strategies for mobilising investment in building energy renovation'.

1st annual reports – national target setting, EED Article 3(1)

The majority of MS (25 out of 27) had set their national indicative targets to 2020 by June 2013. When expressing the national indicative targets, over half (13 MS) used some combination of the five options allowed under Article 3(1). The most utilised target setting option was absolute final energy consumption, used by a total of 15 MS; in a combination with some other target (11 MS) or as an only target (4 MS). The second most utilised target setting option was absolute primary energy consumption, used in total by 13 MS, with 2 of these MS using it as their only target setting option. Use of final and/or primary absolute energy

consumption in target setting is easily explained by the fact that MS, independent of how they choose to set the indicative national energy efficiency target, are also required to express their target in absolute levels of primary and final energy consumption in 2020.

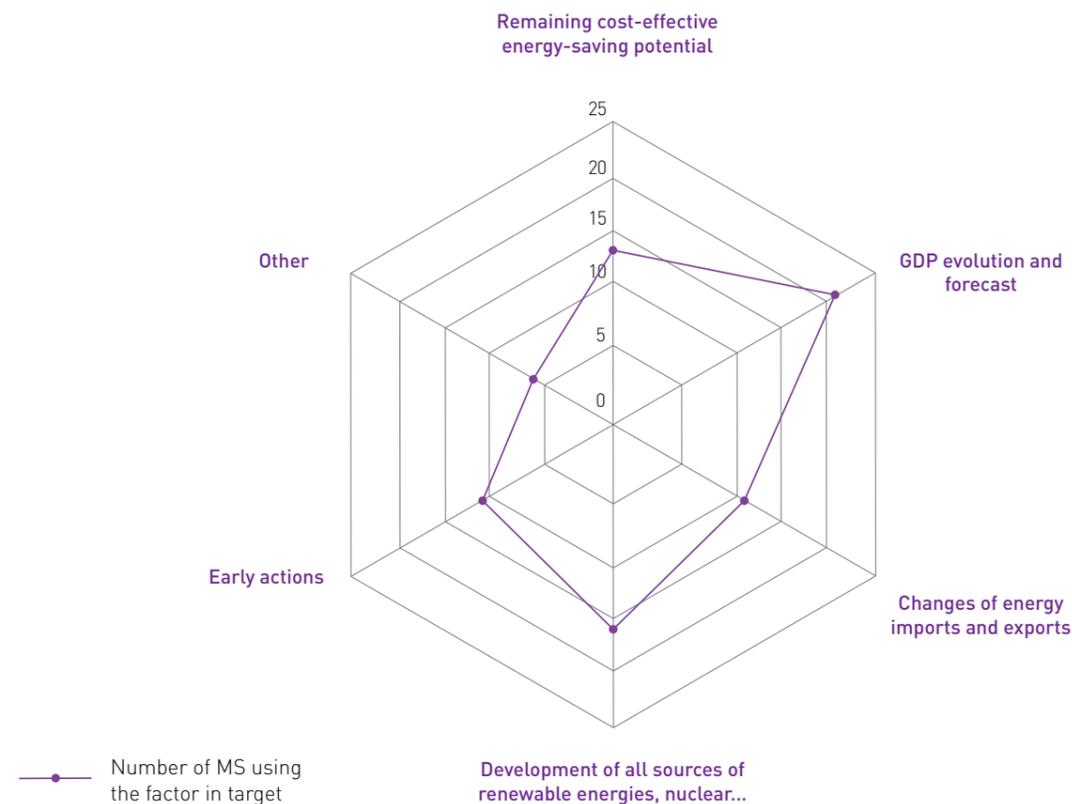
Conversion was required to fulfil the Article 3(1) obligation. Conversions were predominantly made from final to primary energy consumption, but there was little information gathered through the questionnaires on exactly how these conversions were made. However, over half (13 MS) reported that they have included explanations of conversions in their 1st annual reports.

The vast majority of MS took into account national circumstances that affect the primary energy consumption listed in Article 3(1) when setting their national targets (Figure 1). GDP evolution and forecast seems to be the most important influencing factor, used by 21 MS, followed by the development of energy production options (renewable, nuclear, carbon capture and storage), used by 16 MS.

When setting their targets, practically all MS took into account the effects of measures established under ESD. However, 44% of the respondents explicitly stated that it was too early to include effects of measures to be implemented under the EED, specifically Articles 5 and 7, as they were still under consideration at that time. Many participants also pointed out that national indicative targets for Article 3 set in the 1st annual report would go through further additional processes of verification and approval in summer 2013, probably resulting in minor or even major adjustments in the future.

⁴ The target shall be notified to the Commission either as part of the National Reform Programme referred to in Council Recommendation 2010/410/EU of 13th July 2010, on broad guidelines for the economic policies of the Member States of the Union, or in the EED 1st annual report.

Figure 1: Use of national circumstances (factors) influencing primary energy consumption in target setting



Savings to assess progress towards the ESD 2016 target – most use the same methods

According to the 2013 CA EED survey, most of the countries (60%) planned to use the work undertaken for the energy savings calculations, and their reporting for the 2nd ESD NEEAP in 2011, when preparing the 1st EED NEEAP in 2014. Mainly, the same savings calculation methods were to be used for the 1st EED NEEAP that were used for the 2nd ESD NEEAP, although in some countries there were plans for some minor changes or for introduction of new methodologies as a result of new measures. Less than 20% of the respondents indicated that they would use the option permitted by EED of showing sector level energy reduction from a combination of measures, if calculation or estimation of savings per measure was not available. In addition, almost a quarter of the 27 MS had not yet considered this issue or made any decisions.

The results of the survey (June 2013) were confirmed during the CA EED plenary meeting in October 2013, where CA EED participants declared their intention to use existing methodologies as much as possible. However, some doubts were expressed about the

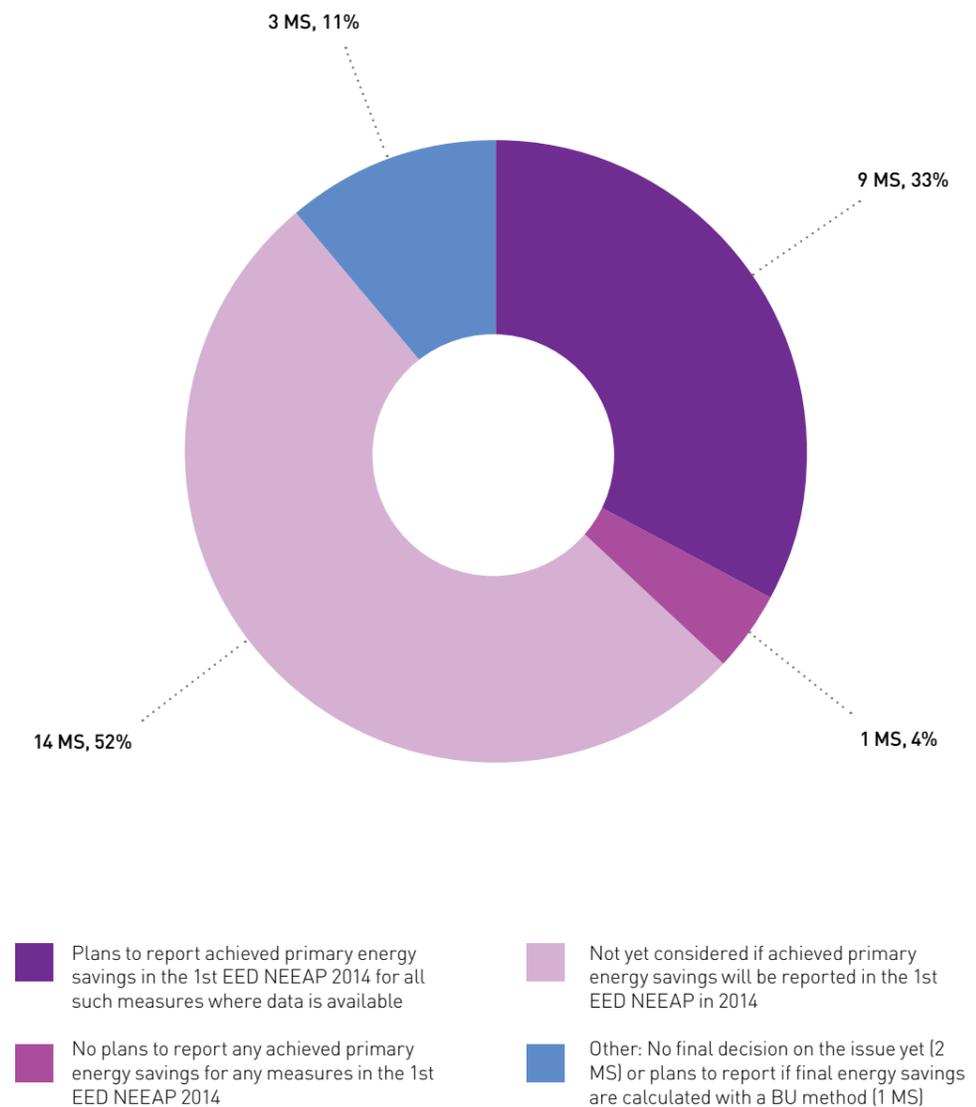
applicability of ESD methods in calculating savings for the purpose of EED Article 7, due to the specific requirements of that Article.

Quantification and reporting of primary energy savings – methodologies not widely available

There was no strict obligation to report on achieved primary energy savings arising from measures MS had introduced/would be introducing to implement EED in the 1st EED NEEAP in 2014. As a result, in summer 2013, only 33% of MS had plans to report for all measures when data became available.

9 out of 27 CA EED representatives reported that their country had been following and/or estimating energy savings for at least some national measures both in final and primary energy, and thus they would continue to use the same methodology in 2014 for the NEEAP. Another third reported that they had not made a final decision on this issue. The majority also reported that they either did not have a methodology or a description of how to calculate and/or estimate expected primary energy savings in 2020 for the NEEAP, or that they had not considered the issue or made a final decision when the questionnaire was released.

Figure 2: Plans to report achieved primary energy savings arising from measures introduced to implement EED in the 1st EED NEEAP in 2014



The discussion in the CA EED plenary meeting in October 2013 revealed that only a minority of MS usually expressed savings in primary energy terms. The dominant approach was therefore to use conversion factors. However, some CA EED participants warned that this approach might not be as simple as it seemed because of the strong dependency on energy supply mix, which is variable.

Processing the 1st EED NEEAP

Most of the participants in the CA EED Plenary Meeting in October 2013 declared that the process of writing the 1st EED NEEAP had already started, but the level

of progress differed across the MS. It was still too early to identify specific questions or problem areas, but it was expected that these would be related to the new requirements of EED that needed to be elaborated upon in new parts of the 1st EED NEEAP. MS suggested that the European Commission could provide support in writing the 1st EED NEEAP, e.g. by publishing frequently asked questions raised by MS. The final EED NEEAP template and accompanying NEEAP guidance document from the Commission are available on the Commission website ec.europa.eu/energy/efficiency/eed/neeap_en.htm

Many new or updated measures since the 2nd ESD NEEAP

Many CA EED representatives (16 out of 27) reported that their country had introduced new or updated existing measures fulfilling EED provisions since the 2nd ESD NEEAP. 7 MS reported both legislative and non-legislative measures; 5 reported legislative measures only; and 4 MS reported they have only introduced non-legislative measures. The scope of the new and updated measures varied considerably and included measures related to funds and other financial instruments; buildings and their heating systems; transport; education and training; agriculture; energy services, and solar energy in buildings. Updated measures mainly related to existing obligation schemes.

Long term building strategies

The draft report of the joint working group of CA ESD, CA EPBD and CA RES was presented at the CA EED plenary meeting in October 2013. The work tried to informally assist MS with the practicalities of processing the first version of their EED Article 4 long-term building strategies, to be reported by 30th April 2014.

The discussions suggested that progress in developing strategies varied a lot between MS. At the time of the meeting (October 2013), some MS were well under way with the work and some were only just considering how to start. For those MS that were just starting, the optional guidelines were seen as particularly useful. In general, most MS saw the Article 4 renovation strategy as a demanding task with a very short timeframe. The final report can be found on the CA EED website www.ca-eed.eu/reports/art-4-guidance-document/eed-article-4-assistance-document

4 Measuring energy savings from soft measures

Measuring the impact of soft measures in energy units proved to be a challenge for all Member States during the roll-out of the ESD. Under the EED, implementation of behavioural measures is highlighted as a way to promote an efficient use of energy through instruments and policies. Behavioural measures are also eligible Article 7 measures and, in Annex V, one of the methods for calculating energy savings is dedicated to so-called 'soft measures': meaning behavioural measures related, for example, to consumers' responses to advice, training, information campaigns, labelling or certification schemes, or smart metering.

This topic was processed in the joint working group with two other CA EED Core Themes: 'Consumer information programmes, training and certification of professionals' and 'Energy efficiency obligation schemes, monitoring impacts of eligible measures'.

The aim of the work was to provide an overall picture of the behavioural measures implemented to promote energy efficiency across the MS, as well as highlighting any existing examples of national methods used

to calculate energy savings, or otherwise evaluate different types of soft measures. A summary of the results of the joint working group in spring 2014, covering the topic 'Measuring energy savings from soft measures', can be found in the corresponding Core Theme Series Report for 'Energy efficiency obligation schemes, monitoring impacts of eligible measures' on the CA EED website: www.ca-eed.eu/reports/core-theme-series-reports

Good practice examples

✓ Writing the 2014 NEEAP (France)

France presented their approach to writing the 1st EED NEEAP, including their timeframe, organisation, use of the 2nd ESD NEEAP, and the writing of new parts and methodologies for the evaluation of savings. The NEEAP is seen as important for the Ministry of Ecology, Sustainable Development and Energy, as it gives a complete overview of energy efficiency policies and measures. It is also a reference document for every stakeholder working on energy efficiency.

More information can be found on the CA EED website: www.ca-eed.eu/good-practices/member-state-presentations/neeaps/overview-of-the-1st-annual-report-processing-the-1st-eed-neeaps-for-2014/writing-the-2014-neeap-france

✓ Describing the market for energy services in the NEEAP (Germany)

In the 2nd ESD NEEAP, Germany established a chapter on the market for energy efficiency, and in the new NEEAP 2014, Germany planned to continue the description of the market for energy services. They also planned to deepen the insights into the market and to improve the evidence base. At the Plenary meeting, the results of a German energy efficiency service market study and preliminary plans for how it would be used for the 1st EED NEEAP were presented.

More information can be found on the CA EED website: www.ca-eed.eu/good-practices/member-state-presentations/neeaps/overview-of-the-1st-annual-report-processing-the-1st-eed-neeaps-for-2014/energy-services-market-and-neeap-germany

✓ Experiences of generating Article 4 long term strategies (Ireland, UK)

Ireland and the UK have collated a lot of existing data for use in the EED Article 4 long-term building renovation strategy. Ireland has combined previous work and existing data with new data for the commercial and public sectors, to build a more detailed understanding of the existing stock. In the UK, surveys are being used to enhance non-domestic sector data.

The presentations are available on the CA EED website: www.ca-eed.eu/good-practices/member-state-presentations/neeaps/article-4-long-term-renovation-strategy/renovation-strategy-ireland and www.ca-eed.eu/good-practices/member-state-presentations/neeaps/article-4-long-term-renovation-strategy/approach-to-article-4-long-term-building-strategy-uk2

5 New or updated EE measures introduced in MS

Member States were obliged to deliver their 1st EED NEEAPs (NEEAP-3) by April 30th 2014; in addition, the due date to notify the EED implementation to the Commission was 5th June 2014. With new NEEAPs in place and the national implementation plans well underway, it was possible to ask MS to provide an update on new or updated energy efficiency measures that fulfil EED requirements and that were introduced after the 2nd ESD NEEAP (NEEAP-2) in 2011.

The information below is based on details provided by MS via a questionnaire (June 2014), and input received during the session at the CA EED Plenary Meeting in October 2014.

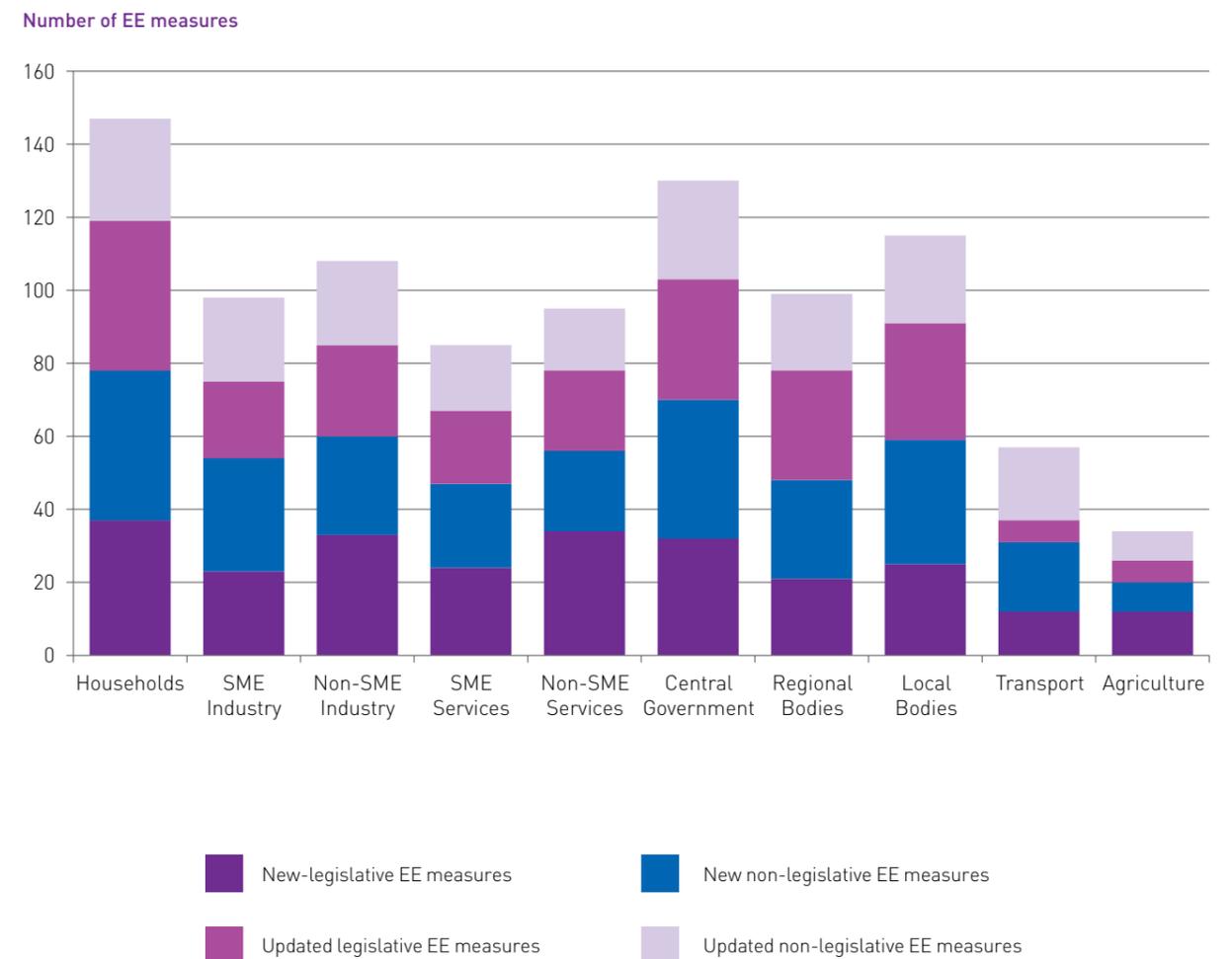
Many new or updated EE measures were introduced after the NEEAP-2 in 2011

Around 300 new or updated energy efficiency (EE) measures have been introduced in MS after the NEEAP-2 in 2011, of which 40 to 60% are new, depending on the target group or sector. According to MS' responses, many EE measures that were

introduced before 2011 to comply with ESD requirements, but were still in place following 2011 and also fulfilled many EED requirements, had been updated due to EED or for another reason.

In addition, since the 2011 NEEAP-2, many new legislative or non-legislative measures have been introduced, serving quite extensively different target groups or sectors and covering several requirements in different EED Articles. This shows MS' overall effort to apply the different kinds of measures necessary to the implementation of the EED.

Figure 3: Number of new or updated legislative and non-legislative EE measures introduced for different target groups or sectors after NEEAP-2 (2011), as reported by 26 MS

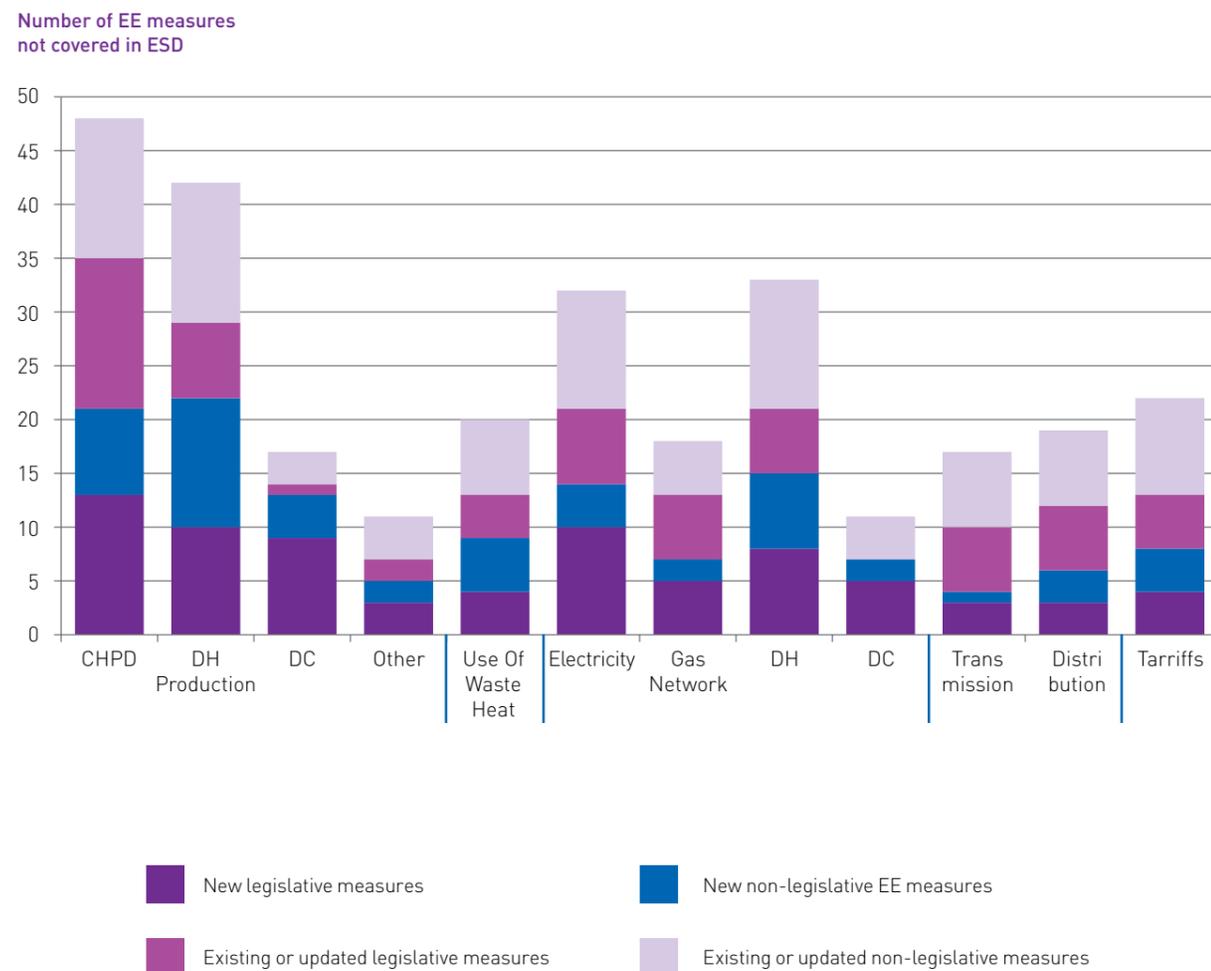


Widespread variation in MS in relation to EE measures in the areas that were not covered by the ESD

EE measures related to energy production, transmission, distribution and tariffs were not in the scope of ESD and MS did not generally report these in the NEEAP-2 in 2011. About two thirds of MS reported they have existing or new measures in this area, and in total around 100 new or existing/updated EE measures have been introduced in MS. The most common EE measures, both new and existing/

updated, are in the areas of Combined Heat and Power (CHP) and District Heating (DH) production, followed by measures related to electricity and DH networks. However the survey revealed that there are still many MS that had no legislative or non-legislative EE measures for energy production, transmission and distribution prior to NEEAP-3. This leads to the conclusion that EE policies across the MS are predominantly focused on end-use sectors, which is the heritage of the ESD implementation.

Figure 4: Number of new or existing/updated legislative and non-legislative EE measures related to areas not covered by the ESD (energy production, transmission, distribution, tariffs), introduced by 26 MS in different areas/sectors



Few measures introduced to tackle split incentives challenge

In the CA EED plenary meeting in October 2014, participants shared their experiences related to the barriers to introducing measures to tackle the split incentive obstacle. During the discussion the main barriers preventing introduction of measures addressing split incentives were mentioned: that rent contracts do not include the supply of energy; the non-existence of minimum energy efficiency standards in the rental sector; the non-existence of regulation outlining who is supposed to bear the costs of the retrofit (owner or the tenant); and the issue that if the retrofit is undertaken, the retrofit loans are usually longer than the lease contracts, and as a result the debt on a property is inherited by the new tenant. In addition, in the case of multi-apartment buildings,

there are huge variations in the percentage of approvals from apartment owners (50% to 100%) required to make energy efficiency improvements. In addition, it was also emphasised that unstable political will with changing priorities, and lack of legislative framework and financial support act as barriers.

Possible solutions for solving problems around split incentives mentioned during the discussions were: more information and more intensive dialogue between stakeholders, which needs to be supported by a stable political will to solve the problem; minimum energy requirements for buildings and dwellings that are being rented; introduction of regulations to oblige tenants (who benefit from energy savings) to implement energy efficiency retrofit; buildings used by government should be leased taking into account energy efficiency and energy costs as well (green public procurement

principles should be applied); financing of energy efficiency works should be made easier through guarantees; financial contribution (to some extent) of the tenant; green lease and utilisation of ESCO principle. Finally, it must be noted that a certain number of representatives pointed out that there are bigger problems related to energy efficiency that need to be solved in their MS, hence their focus is not on the split incentive issue.

Good practice examples

✓ National Energy Services Framework (NESF), Ireland

In late 2013 Ireland launched a new measure, comprising of a three-step approach, to deliver energy performance contracting. It consists of a policy framework, energy efficiency fund and exemplars/technical support. One of the key objectives is to ensure that energy performance criteria form part of every energy project.

More information can be found on the CA EED website: www.ca-eed.eu/good-practices/member-state-presentations/neeaps/new-or-updated-ee-measures-introduced-in-ms/national-energy-service-framework-ireland (→National Energy Services Framework – Ireland).

✓ Renewable Energy for Heating & Cooling Support Scheme 'Conto Termico', Italy

In 2012, Italy introduced a new support scheme to improve energy efficiency in existing buildings and small-scale projects consisting of systems for the production of thermal energy. The scheme is targeting both public and private sector. More information can be found on the CA EED website: www.ca-eed.eu/good-practices/member-state-presentations/neeaps/new-or-updated-ee-measures-introduced-in-ms/renewable-energy-for-heating-cooling-support-scheme-public-italy (→Renewable energy for heating & cooling support scheme – Italy).

✓ Grant schemes to improve the energy consumption of the light vehicle fleet, Malta

Malta has updated their grant scheme with the objective of speeding up the removal of old cars from circulation. An incentive is paid for cars over 10 years if they are scrapped at an authorised facility.

The presentation with more details is available at the CA EED website www.ca-eed.eu/good-practices/member-state-presentations/neeaps/new-or-updated-ee-measures-introduced-in-ms/grant-schemes-to-improve-the-energy-consumption-of-light-vehicles-malta (→Grant schemes to improve the energy consumption of the light vehicles, Malta).

✓ Dutch Agreement for Sustainable Growth, The Netherlands

The Netherlands has negotiated an umbrella agreement for instruments and measures with the aim of achieving a completely sustainable energy supply system by 2050. The agreement brings together more than 40 organisations with divergent interests, and the agreement serves for several EU legislations.

The presentation with more details is available at the CA EED website www.ca-eed.eu/good-practices/member-state-presentations/neeaps/new-or-updated-ee-measures-introduced-in-ms/the-energy-agreement-for-sustainable-growth-netherlands (→The Energy Agreement for Sustainable Growth, The Netherlands).

6 Measuring progress in energy efficiency

According to EED (Article 24(1)) and Annex XIV Part 1, MS need to provide an annual report including analyses of the energy trends in sectors where energy consumption remains stable or is growing. In 2015, a survey was undertaken with the aim of investigating Member States' understanding and implementation of this EED requirement. The use of decomposition methodology across the MS was also investigated. In addition the Commission had a proposal to harmonise the EED Annual Report data sources and reporting.

Information below is based on details provided by MS via a questionnaire (January 2015) and input received during the session at the CA EED Plenary Meeting in March 2015.

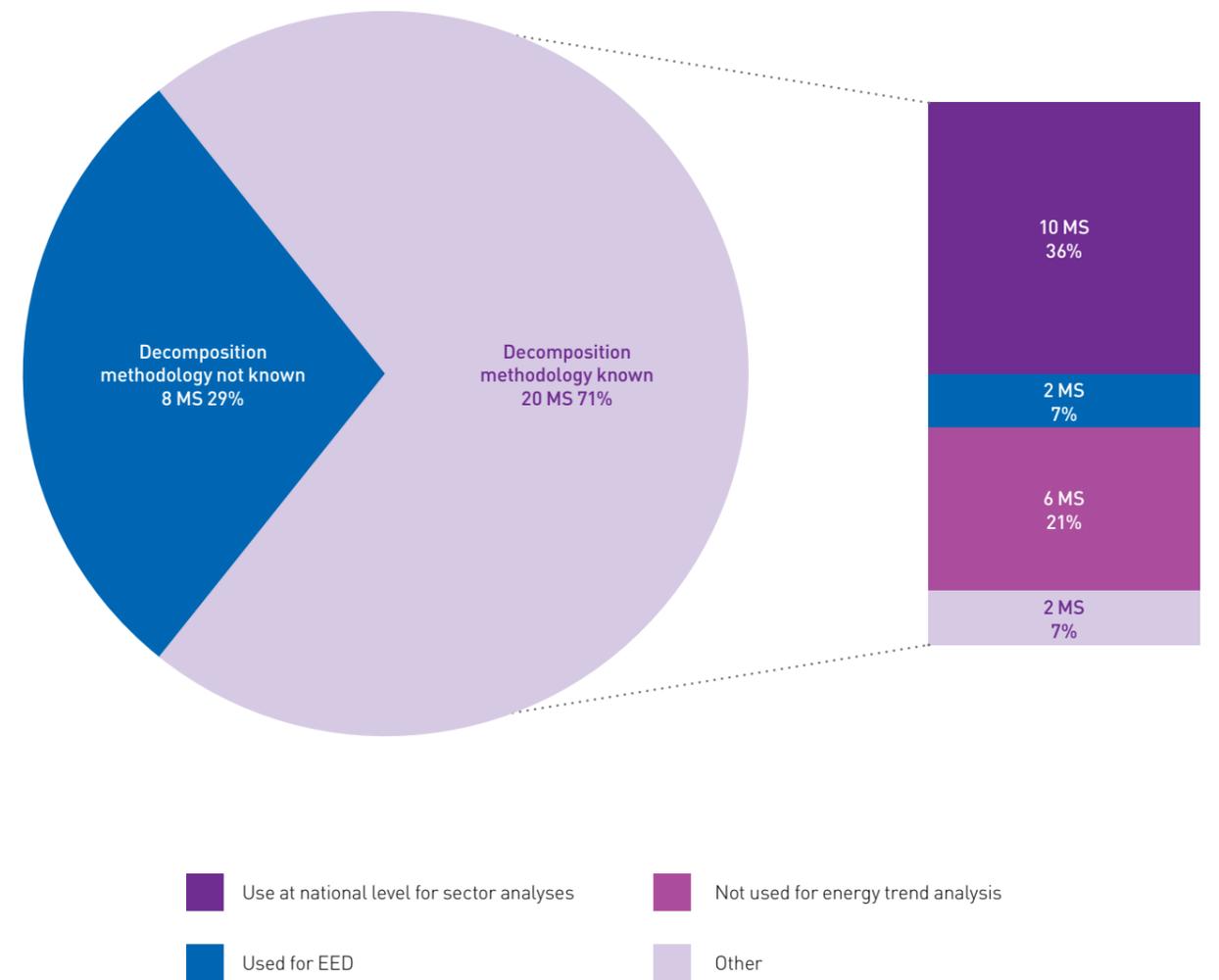
Some MS would be happy to get more guidance on analysing energy trends

The survey showed that the majority of MS are fulfilling the requirement to analyse the energy trends in sectors where energy consumption remains stable or is showing an increasing trend. However among those, there are also MS that would benefit from more guidance. Guidance was also requested by almost a third of MS who declared that they hadn't analysed these reasons.

Decomposition methodology is quite well known, but not used for EED

One of the tools that could be used to perform analyses required by the EED Annex XIV Part 1 is decomposition methodology. The survey showed that it is a rather well known methodology, mostly used for energy trends analysis at national level, for sector specific analyses. Only two MS declared using the methodology for EED purposes, which showed the possible potential in promoting the methodology further as a tool for fulfilment of EED requirements.

Figure 5: Familiarity with, and use of, decomposition methodology across 28 MS



A new decomposition facility to analyse energy trends, as part of the ODYSSEE database

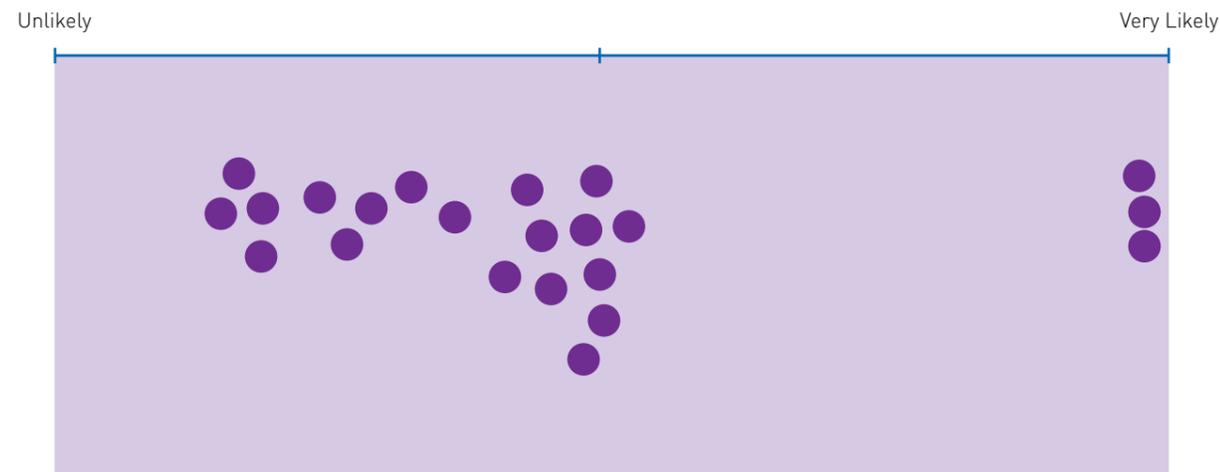
An easy to use web-tool has been developed as part of the IEE-project ODYSSEE-MURE, to complement the ODYSSEE database and allow MS to analyse energy trends using decomposition (www.indicators.odyssee-mure.eu/decomposition.html), where sufficient national (approved) data has been provided to the database. The benefits of the methodology include the level of disaggregation of influences on energy demand available to describe the trends (e.g. activity effect like variation of production, number of employees, number of dwellings in households etc., structural change, climate influence and lifestyle effects such as building size, number of appliances etc. together with the impact of savings from efficiency).

The presentation with more details is available on the CA EED website [www.ca-eed.eu/good-practices/member-state-presentations/neeaps/measuring-](http://www.ca-eed.eu/good-practices/member-state-presentations/neeaps/measuring-progress-in-energy-efficiency-art.-3/decomposition-analysis-of-the-energy-demand-methodology-and-odyssee-tool.-didier-bossebouf)

[progress-in-energy-efficiency-art.-3/decomposition-analysis-of-the-energy-demand-methodology-and-odyssee-tool.-didier-bossebouf](http://www.ca-eed.eu/good-practices/member-state-presentations/neeaps/measuring-progress-in-energy-efficiency-art.-3/decomposition-analysis-of-the-energy-demand-methodology-and-odyssee-tool.-didier-bossebouf) (→Decomposition analysis of the energy demand Methodology and ODYSSEE tool).

In the session, issues raised over the applicability of the ODYSSEE facility for reporting against EED Annex XIV include: it is as yet not possible to report on year 'x-2', where data for only 'x-3' is available in the ODYSSEE database; the requirement to use some non-official data in some cases; the interpretation of the residual or remainder fraction of the decomposition, and the need to have a top-down estimate for energy savings using an approved (preferred or alternative) indicator, given the technique is based on top-down principles. A methodological solution in ODYSSEE has been found to deal with so called 'negative-savings', by assuming that technical efficiency remains stable during such periods as shown by the analysis.

Figure 6: How likely are the participants from the 22 MS at the CA EED Plenary Meeting in March 2015 to use decomposition methodology to analyse energy trends for EED Annual Reports in future



Good practice examples

✓ Decomposition of energy demand – Ireland

Ireland's approach to addressing EED Annex 14 part 1, requiring MS to report reasons for sectoral energy trends where they are stable or increasing, was highlighted. A major annual publication, already in existence prior to the EED, is relied upon, but has been developed to include further detail on sectoral trends using decomposition analysis.

Ireland highlighted in their presentation that a comparison of top-down (TD) vs. bottom-up (BU) energy savings was provided, and indicated that the TD method produced a higher estimate when compared to the BU analysis – an expected result given that the impact of price effects and non-policy (autonomous) savings was included in the TD Figure. As mentioned earlier the ODYSSEE decomposition facility is based on TD energy savings. Ireland has sufficient data to report a decomposition analysis for the residential heating sector; they are working to improve the robustness of the data for other sectors and sub-sectors over time on the basis that while some effort is required to produce robust data, the decomposition methodology can provide useful insights for policy making.

The presentation with more details is available on the CA EED website www.ca-eed.eu/good-practices/member-state-presentations/neeaps/measuring-progress-in-energy-efficiency-art.-3/decomposition-of-energy-demand-ireland (→Decomposition of Energy Demand – Ireland).

✓ A guidance table provided by DG ENER to harmonise Annual Reporting

The Directorate-General for Energy (DG ENER) highlighted at the Plenary Meeting in March 2015 the MS reporting requirements under Article 24 (1) and Annex XIV Part 1 related to the EED annual reporting. DG ENER suggested use of Eurostat (ESTAT) data from the previous year and provided examples on other data and presentation requirements. In particular, DG ENER highlighted that MS should provide information on the definitions behind the reported data. If MS reported data in a consistent way (e.g. based on ESTAT data) this would help the Commission to report on EU progress in a meaningful and aggregated way. During the discussion some clarification on timing and content were sought, especially regarding the reporting of Annex XIV part 1 (e) requirement. It was pointed out by the participants that EED does not require reporting of energy savings achieved through the national energy efficiency obligation schemes referred to in Article 7(1), or the alternative measures adopted in application of Article 7(9) from the previous year (x-1), as was mentioned in the DG ENER presentation. Most MS argued that they are not able to report previous year savings by the end of April, something which had previously been discussed both during the ESD and EED processes and was also confirmed in the participant responses to the questionnaire for the CA EED Plenary Meeting in March 2015. During the discussion, participants also questioned whether 2013 savings need to be reported in the Annual Report 2015, as that year is not within the period 2014–2020.

The presentation with more details is available on the CA EED website www.ca-eed.eu/good-practices/member-state-presentations/neeaps/measuring-progress-in-energy-efficiency-art.-3/article-24-1-eed-annual-report-obligations.-serena-pontoglio (→Article 24(1) EED Annual report obligations).

7 Monitoring and verification for EE measures in MS

The aim of the work was to gain understanding of the terminology for those actions requiring 'monitoring and verification' and 'measurement, control and verification systems' in EED Article 7; to get an overview of MS progress, and to identify the main challenges for MS in setting up monitoring systems.

These topics were discussed in the joint working group with another CA EED Core Theme: 'Energy efficiency obligation schemes, monitoring impacts of eligible measures'.

Understanding of the terminology for actions requiring 'monitoring and verification' and 'measurement, control and verification systems' (Article 7(6) and 7 (10)), as well as an overview of MS progress and identification

of the main challenges for MS in setting up monitoring systems were mapped in a survey in June 2014. A summary of the results of the joint working group in spring 2015, covering the topic 'Monitoring and verification for EE measures in MS', can be found in the corresponding Core Theme Series Report for 'Energy efficiency obligation schemes, monitoring impacts of eligible measures' on the CA EED website: www.ca-eed.eu/reports/core-theme-series-reports

8 Concluding remarks

By presenting the reporting-related obligations of the EED in one report and making a visual reporting timeline, the CA EED has helped the participating implementing bodies and ministries keep track of the numerous reporting-related requirements and their due dates. This tool has been very well received and it gained very positive feedback from CA participants. This work also provided an insight into EED Article 3 target setting, as well as a view of how to compare and find a link between ESD/EED methodologies when reporting energy savings for the 1st EED NEEAPs. 'The mapping of measures introduced or updated after the NEEAP-2 (2011) reveals national policies which are contributing to overall national energy efficiency targets for 2020, and demonstrate the effort MS are making to implement the different kinds of measures necessary for implementation of the EED'. Mapping also lead to the conclusion that EE policies across the MS are predominantly focused on end-use sectors. The majority of MS are fulfilling the EED requirement to analyse the reasons behind consumption patterns in sectors where energy consumption remains stable or is showing an increasing trend. Decomposition methodology is quite well known in MS but only very few use it for EED analyses.

CA EED participants indicated that the EED reporting requirements would require considerably more resources than reporting under the Energy Services Directive. Resource availability within a short timeframe also caused difficulties in the comprehensive target setting process. Many MS seemed concerned that limited human and financial resources mean that reporting detracts resources from implementation.

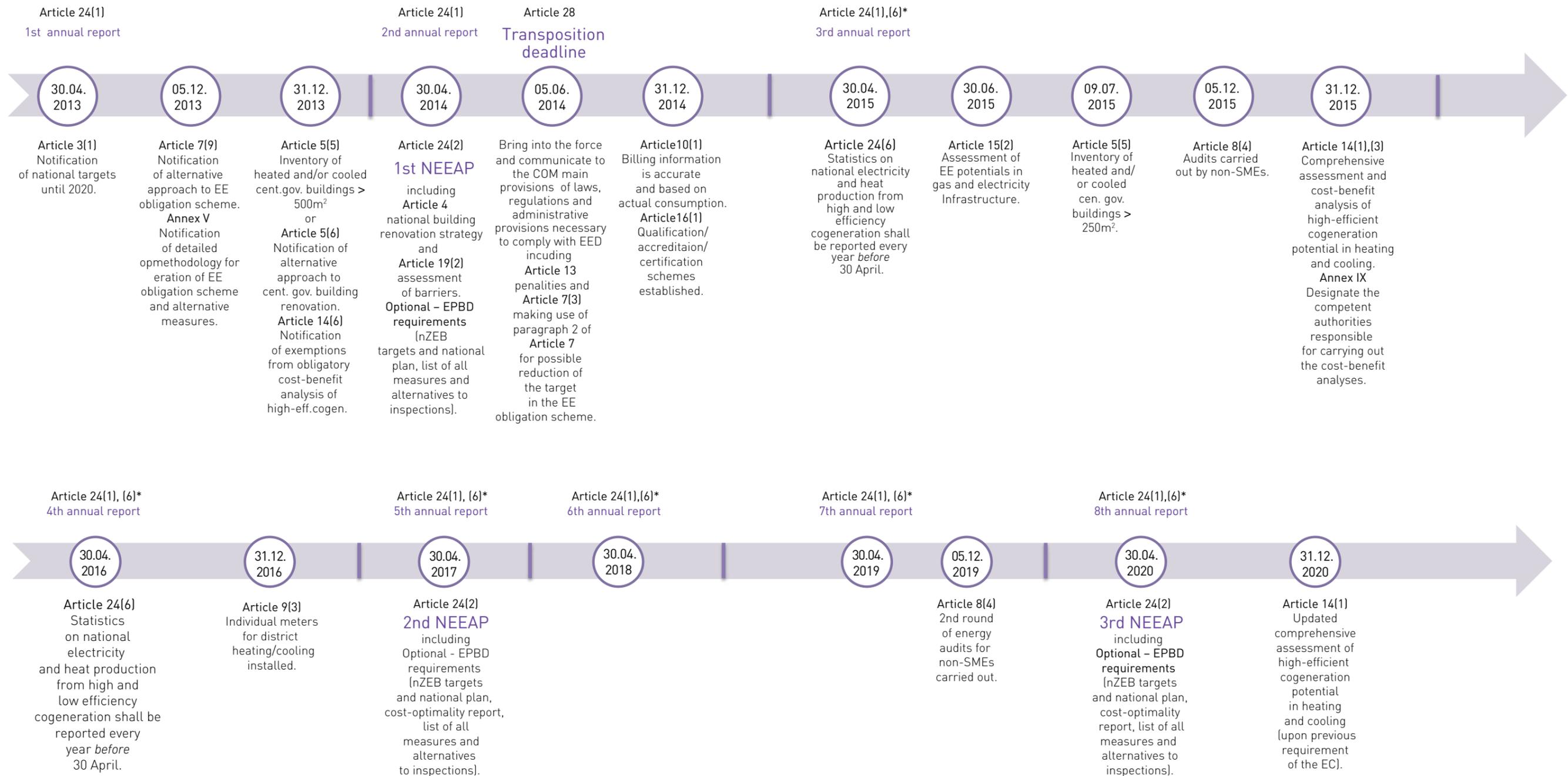
This work has provided the first overview of existing and planned methodologies for calculating primary energy savings resulting from measures set under the EED. New measures set after the 2nd ESD NEEAPs to cope with EED requirements were also mapped. It enables ministries and implementing bodies alike to gain experience from the work that's already been done and use it going forward to make more informed decisions on new measures under EED, and to start developing or improving their methodologies for both

primary and final energy saving calculations. Material covered in spring 2014 is included in the corresponding Core Theme Series Report for 'Energy efficiency obligation schemes, monitoring impacts of eligible measures' which can be found on the CA EED website: www.ca-eed.eu/reports/core-theme-series-reports

Mapping of new or updated energy efficiency measures that fulfil EED requirements, and that were introduced after the 2nd ESD NEEAP (NEEAP-2) in 2011, revealed that around 300 new or updated EE measures have been introduced in MS after the NEEAP-2, from which 40 to 60% are new depending on the target group or sector. This shows MS' overall effort to implement the different kinds of measures necessary to the implementation of the EED. However the mapping also showed there are still many MS that have no legislative or non-legislative EE measures for energy production, transmission and distribution prior to NEEAP-3. It is also worth mentioning that, in addition to many new legislative or non-legislative measures, many EE measures that were introduced before 2011 to comply with ESD requirements, which are still in place and also fulfil many EED requirements, have been (according to MS responses) updated due to the EED or some other reason. This reveals that it is not an end in itself to always create new measures, if there are already successful working measures in place.

Based on information gathered for the CA EED Plenary Meeting in March 2015, MS are using different methods to perform analyses required by the EED Annex XIV Part 1 regarding the energy trends. There are also MS that would benefit from more guidance for these analyses. One of the tools that could be used to perform the analyses required in EED annual reports is decomposition methodology. The survey showed that this is a rather well known methodology, mainly used for energy trends analysis at national level for sector specific analyses. Even though the decomposition facility developed in the IEE/ODYSSEE project is quite easy to use it requires from the user understanding of the figures and assumptions used. In addition, good data needs to be inputted to get reliable results.

Figure 7: Timelines 2013–2015 and 2016–2020 – reporting, notification and other reporting related provisions in the EED



*Article 24(6) Statistics on national electricity and heat production from high and low efficiency cogeneration shall be reported every year before 30 April starting 2015.

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For further information please visit www.eed-ca.eu or email caeed@ca-eed.eu



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