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Feedback from the 2nd NEEAPs: Top down and bottom up energy savings calculations

Executive Summary

WGR 2.2

**Core Theme 2
Working Group Report 2**

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Date: 16 May 2012

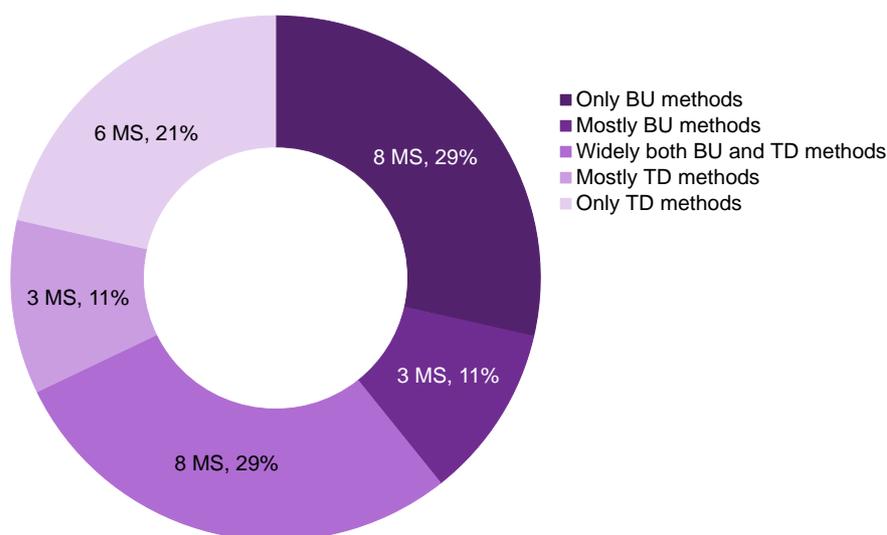
Feedback from the 2nd NEEAPs: Top down and bottom up energy savings calculations

For their 2nd National Energy Efficiency Action Plans (NEEAPs) Member States (MS) were required to calculate energy savings for different energy efficiency (EE) improvement measures/programmes. Measurement of energy savings can be calculated via top down (TD) or bottom (BU) up methods. This research provides insight into which types of calculation methods were used by MS and looks not only at the division between TD and BU but also at the extent to which the European Commission (EC) recommended methods were used, as opposed to national measurement methods. In addition the use of the EC recommended NEEAP template by MS is also reviewed, including coverage of the Energy Performance of Buildings Directive (EPBD) reporting requirement. How MS used the information and results reported in the 2nd NEEAP for other purposes was also mapped.

At the time of writing, February 2012, almost all MS has finalised their 2nd NEEAP. All CA ESD participating countries¹ provided input.

22 national CA ESD representatives out of 28 reported that they used at least some BU methods in their savings calculations for the 2nd NEEAP, of these, 8 representatives reported using BU methods exclusively. Correspondingly, 20 CA ESD representatives reported using at least one TD method in their savings calculation for the 2nd NEEAP, of these, 6 MS used them exclusively. In addition, one country used TD methods but only for checking purposes, not for reporting in the 2nd NEEAP.

Figure 1: Coverage of TD and BU methods used by MS² for savings calculations for the 2nd NEEAP



Top-down measurement

EC recommended TD methods were clearly used more than national TD methods. 17 national CA ESD representatives out of 20 reported using at least one EC recommended TD indicator in some sector. 12 of these countries used only EC recommended methods and 3 used only national TD methods. The remaining 5 countries² used both national and EC recommended methods in different sectors. In addition, 2 CA ESD representatives calculated with EC recommended TD methods but did not use them for reporting for the 2nd NEEAP.

Many CA ESD representatives reported that they appreciated the availability of EC recommended TD indicators and found them practical, useful and helpful. However, several representatives noted that they lacked (reliable) data and therefore could not use the indicators as comprehensively as they would have wished. Consequently, they applied minimum indicators primarily instead of preferred indicators or developed national indicators according to their data availability. National indicators were also used for areas where no indicators were recommended by the EC or when other reference bases seemed more accurate than those suggested by the EC.

¹ Member State Energy Services Directive implementing bodies as well as Croatia and Norway.

² Norway is not included in the figure because they have not submitted a NEEAP. NO still provided input which focused on experiences from their evaluation and described methods and indicators they would be able to use to calculate energy savings.

The EC recommended TD indicators were used the most in the transport sector (17 MS), the household sector (16 MS) and the service sector (15 MS). For the industry sector, 13 MS used EC recommended indicators. Some representatives observed that energy savings calculated with EC recommended minimum indicators were generally higher than those calculated with preferred indicators. Only 6 CA ESD representatives reported using national TD methods and these were used widely in all sectors including agriculture. The fact that statistical data is usually only available one to two years after the year to be reported was identified as a main barrier for the reporting requirements in the framework of the Energy Services Directive (ESD) TD calculations.

Bottom-up measurement

In contrast to TD methods, national BU methods were in favour compared to EC recommended BU methods. All 22 national CA ESD representatives stated that they used at least one national BU method. 13 representatives out of those 22 reported using only national BU methods. 9 representatives reported that they also used at least one EC recommended BU method. In addition, one CA ESD representative commented that their energy savings calculations will mainly be based on national BU methods where they have better statistics/data. Three quarters of the countries covered more than 40% of their final inland energy consumption with BU methods in the 2nd NEEAPs.

The main reasons for using national BU methods instead of EC recommended methods were that national methods were already available before ESD and/or they are better suited to national policy instruments. Other reported reasons were to complement the TD approach, to check the results from TD calculations, a lack of EC recommended BU methods for certain areas or at the time the monitoring started, as well as the lack of data for EC recommended methods. Experiences gained in calculating energy savings with EC recommended BU methods varied from methods being quite complex to being easy to apply, provided statistical data was available. For almost all MS, data availability was a major barrier for energy savings calculations – not only for TD but also for BU calculations.

13 national CA ESD representatives, under half, reported using some modelling for the 2nd NEEAP. The reasons models were used, and the extent to which they were used, varied a lot. Some had used models to provide data for BU calculations and some to calculate ex-ante energy savings and/or energy consumption for the years up to 2016.

Use of the 2nd NEEAP template

In general, most national CA ESD representatives found the template for reporting measures, their saving impacts and the calculation methods used very useful when preparing the 2nd NEEAPs. However, many representatives also reported that in many cases more or less significant changes had to be applied in order to fit requirements on the national level. The template can be further developed based on MS experiences of writing the 2nd NEEAP. However, one lesson already learnt is that flexibility for MS is essential for adequate NEEAP reporting in the future.

In the 2nd NEEAP reporting template and guidelines, the Commission encouraged MS to report “all energy savings”, including savings above ESD obligations associated with primary energy savings in supply and/or transmission/distribution of energy, or end-use savings not included in the scope of ESD. According to the CA ESD representatives’ answers, just over half of 28 countries (15 MS) reported some additional savings other than those essential to the ESD reporting requirements. Only one country reported all savings comprehensively.

The option to report EPBD reporting obligations in the 2nd NEEAP was at least partly used by 17 countries. Many reported that it was beneficial to streamline these two reporting obligations and so reduce the amount of work. Integration was practical because many measures and their savings are relevant to EPBD as well as ESD. Some MS, however, argued that timing of the national EPBD implementation process did not allow the two reporting obligations to be coordinated and that the two directives are commonly regarded as two separate pieces of legislation that, in practice, are under the supervision of two different ministers. Finding synergies with other reporting obligations is something which could be further investigated.

Reporting is resource intensive – useful in reasonable time intervals

A common view among CA ESD representatives was that savings calculations and their reporting need quite a lot of time and human resources. However, in principal, many CA ESD representatives also saw the process to calculate and report the savings useful and positive, stating that it increased knowledge related to energy efficiency measures in their country. In any case, due to its resource intensity, this kind of comprehensive reporting should be restricted to reasonable time intervals, as it is now, for example, every three years for the NEEAP when it has added value.

70% of national CA ESD representatives reported that they have already used or are planning to use savings calculations and their documentation for other purposes, not just to fulfil the ESD reporting requirements. The information is used for various reasons, such as preparation or revision of national energy and climate strategies,

as an information source for several purposes on the national level, national level reporting on policy and programme impacts and progress to targets, as well as for some international reporting needs (such as the MURE database and National Renewable Energy Action Plans).

Energy savings target

There are differences between the reported savings achieved in 2010 in the 2nd NEEAPs and the original interim 2010 targets in the 1st NEEAPs. Reasons for this include, for example, that the target in the 1st NEEAP was set at a conservative level in order to ensure it would be achieved, there was lack of data for the 1st NEEAP and, in addition, the ability to calculate savings for the 2nd NEEAP was greater. Some MS also only now opted for including savings from early actions and many new measures have also been taken on board in the 2nd NEEAPs. In addition, savings targets for 2020 are higher than those for 2016 for ESD and the projections in many MS are to 2020.

Comparability of energy savings calculations

Although comparability of energy savings calculations between MS would, in some cases, be useful from the CA ESD participant's point of view, it was not generally felt to be highly useful. Comparison was seen to be difficult and it was felt that use of any harmonised methods would create certain problems, especially in relation to data availability, reference values, climate corrections, economic structure etc. However, if targets for MS were binding and linked to sanctions the methods and the comparability of the savings would be crucial. If the new Energy Efficiency Directive that is under negotiation needs some comparable monitoring and calculation methods in future, MS views and suggestions should be considered with care and within manageable timelines. Experiences from the process of developing methods for ESD should also be carefully taken into account.

2.2 Added value

This research provides a comprehensive insight into the approaches the different MS took when calculating and reporting energy savings for the 2nd NEEAP, it shows which types of method were used most and in which sector. The information covers all 29 MS³.

This work also summarises how MS found the reporting template provided by the Commission for the 2nd NEEAP in terms of reporting the energy savings and calculation methods. It also includes information on whether optional reporting parts in the template were used (for reporting "all energy savings" instead of only savings in the ESD scope and EPBD reporting obligations).

MS can also see the different ways in which other MS have used the information gathered for the 2nd NEEAPs. Reasons for divergence from the original interim targets for 2010 in the 2nd NEEAPs are discussed, as well as the usefulness of the comparability of the savings calculations from the MS view point.

³ Including Norway which has not submitted a NEEAP but they still provided input. They focused on experiences from their evaluation and described methods and indicators they would be able to use to calculate energy savings.

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The Concerted Action for the Energy Services Directive II (CA ESD II) was launched by Intelligent Energy Europe (IEE) in May 2011 to provide a structured framework for the exchange of information between the 29 Member States during their implementation of the Energy Services Directive (ESD).

For further information please visit www.esd-ca.eu or contact the CA ESD Coordinator Lucinda Maclagan at lucinda.maclagan@agentschapnl.nl