



carbon emission policies and market introduction of technologies - the European perspective

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Legislation and policies on topics of energy and climate being relatively new, the European experience of the Energy Services Directive shows that countries can learn a lot on Energy Efficiency simply by comparing methods and achievements.



The history of carbon emission abatement is about forty years old now, if we consider the report, "Limits to Growth" of 1972 as the beginning of the emission abatement history in print. Given that limited timeframe, it is remarkable that there is now sound scientific proof for the climate change, for which the IPCC deserves to be commended. At the same time it is no wonder that we are struggling for an approach to tackle the issue; time has simply been too short.

This article looks at carbon emission policies in Europe, in the light of the opening remarks. Europe is a forerunner on legislation on carbon emission. It is also a forerunner in facing the difficulties of implementing and enforcing legislation. These experiences should be shared in order to provide others insight into national or regional legislation, rules and guidelines to reduce CO₂ emission. Further, this article focuses on the implementation of the Energy Services Directive (ESD) that aims at structural reduction of energy use in the 27 Member States (MS) of the European Union (EU).

Europe is a forerunner on legislation on carbon emission; also a forerunner in implementing and enforcing legislation. These experiences need to be shared.

The EU foundation has been built on energy topics. The European Coal and Steel Community (1951) and the European Atomic Energy Community (1957) were the first formations among six countries aimed at releasing political tension and stimulating economic growth. On these pillars the EU was founded in 1993. Ever since the first collaboration in 1951 energy has been a priority area in the EU and among its 27 Member States (MS).

During the energy crisis in the seventies the dependency of Europe on energy import became clear. Guidelines were set in Green Papers, followed by shared actions (White Papers, Energy Action Plans) to reduce energy use. The main drivers of energy policy are¹ sustainability, competitiveness and security of supply.

A number of energy directives were adopted by the EU Parliament. Together, these have to ensure that energy efficiency actions lead to better results. The main directives are: Ecodesign, Labeling, Cogeneration, Renewable Energy, Energy Performance of Buildings and Energy Services.

All these aim at efficiency improvement and market introduction of different technologies that contribute to CO₂ emission reduction. In addition, the European Union Greenhouse Gas Emission Trading System (EU ETS) was introduced in January 2005 for industries. This trading system provides financial incentives to industries to reduce emission without being linked to specific technologies, unlike other directives.

All these directives combinely aim to realize the 20 - 20 - 20 goal of the EU: a commitment to reduce consumption of primary energy by 20% by 2020.

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ESD - General Description

The Directive 2006/32/EC of the European Parliament and of the Council on energy end-use efficiency and energy services, normally referred to as ESD, was adopted in April 2006 repealing the Council Directive 93/76/EEC.

The Directive sets a non binding target of 9% energy efficiency for each member State, to be achieved by 2016. This Directive applies in general to all energy sectors and in particular to providers of energy efficiency improvement measures, energy distributors, distribution system operators and retail energy sales companies, and the public sector.² The indicative target is non binding, but a number of requirements have to be met. These requirements make it plausible that the overall target will be met.

The MS have to write three (National) Energy Efficiency Action Plans (NEEAP) to be submitted to the EU by mid 2007, 2011 and 2014.

They address the general target of the ESD which is to enhance the cost-effective improvement of end-use energy efficiency. MS are supposed to provide incentives besides institutional, financial and legal frameworks to remove existing market barriers as well as imperfections that impede the efficient end use of energy.

Concerted Action

The textbook definition of a concerted action is "An activity that is planned, agreed upon, arranged, and carried out by parties acting together with the shared intent to pursue some scheme or cause."

The ESD has its own Concerted Action (CA ESD) launched to exchange information between the MS during their implementation of the directive and as such facilitating this process.

CA-ESD enables participants to share its knowledge and experience, and draw from that of others, in order to adopt the most successful approaches towards implementation and avoid pitfalls highlighted by others.

The work of the CA ESD is structured around five themes covering the key requirements of the ESD: NEEAP, the role of the Public Sector, the role of the Energy Sector, auditing,



metering/billing and the use of Financial Instruments

As this is a very functional clustering of the topics, we follow the structure of these themes.

The National Energy Efficiency Action Plans

The first NEEAP have been analyzed in several ways, by the Energy Efficiency Watch (EEW)³, Eufores (Schule, Becker & al.(2009)) and by the Commission itself.

Based on these studies, some conclusions can be drawn. The main one is that the plans are hardly comparable, they differ considerably in the given data and in the level of integrity.

A second conclusion is that the countries are struggling to address all the elements of the directive. Evaluation is on the whole, the weakest part of all the plans. This major problem is caused by the lack of a common reporting format in the directive.

The NEEAP's purpose was to encourage MS to think ahead and provide insight into measures they could implement between 2008 and 2016, leading to their national energy savings target.

Another problem for MS is the indicative target. Nine percent of the average annual end-use energy over the time period of the directive, as stated in Article 4 of the ESD, seems obvious. It was argued, however, that this target does not do justice to the earlier actions of MS aimed to accomplish energy efficiency.

The problem could be solved by the possibility to take early actions into account. An example is the use of energy efficient building codes in the years before the adoption of ESD. Savings generated by introducing these "early actions" may be included. These early action components of savings do, however, complicate a transparent monitoring even further.

Implementing the First NEEAP

A challenge with each piece of EU legislation is the transposition into national legislation. Drafting policy has its own cycles which are seldom in synchronism with the EU policy cycles. Getting National and EU policies in the same gear is a lengthy process where submissions are sometimes overdue.

Still MS think that the course set is the right one. Twenty-six countries indicated that they want to make better use of NEEAP for national purposes in the future and the process is seen as a very good opportunity to cooperate with and learn from other Member States (source: CA ESD reports).

The opportunity to learn from one another is certainly available. The plans of the Member States describe a wide range of EEI-measures to be implemented. Overall 1348 measures were reported in the 27 National Plans. These measures can be divided into different groups: legislative, financial, cooperative, communication and enabling measures. There is a big difference in the preferred types among the countries, which makes discussion on evaluation even more valuable. Dividing the measures into target groups shows that "Buildings" is the group that gets





the most attention, followed by "Multi-targeting" and "transport".

The highest potential of energy saving in the public sector is in buildings. MS often use building codes for public buildings that are stricter than energy saving measures for other sectors.

The Role of the Public Sector

The Public Sector has an exemplary role to play. An example is the building sector. MS often use stricter building codes for public buildings compared to the standards for other sectors, to set an example. Besides, green procurement is another method by which the public sector may implement the ESD. Sixteen States are already working with green procurement. The success of Energy Star⁴ is seen as a good example on how to introduce public procurement. The European market, with 495 million inhabitants, can have a significant impact using procurement. The way public procurement is shaped is the responsibility of the individual MS. Some have substantial

experience, others have just started using this instrument. Good examples are available in several MS, like Austria⁵ and the Netherlands⁶.

The Role of the Energy Sector

This theme covers a wide area, a wide variety of topics. Implementing these is not binding, but MS have to take options mentioned in the directive into serious consideration. Among these are Voluntary or Long Term Agreements (LTA) and Qualification, Accreditation, and Certification Schemes (QUACS).

We will first look at the Voluntary Agreements. As these are legally binding contracts the term voluntary is misleading, Long Term Agreements is more correct. Eleven of the 27 Member States have voluntary agreements in place, eight of them for a period greater than 10 years. In response to ESD, 9 countries are considering LTA. LTA are appreciated as policy instruments for a number of reasons as the following:

- ◆ First of all, the relation between public and private sector improves as parties negotiate the aspects of the agreement, which forms a good basis for cooperation (SenterNovem, 2008).



- ◆ While a lot of implementation measures lack a good estimate on the possible effects, LTA is based on good potential studies and has excellent possibilities for monitoring and evaluation.
- ◆ Through long experience in some countries elements to draft a successful LTA are available⁷.

On Qualification, Accreditation and Certification Schemes (QACS) the directive states: "... MS shall ensure, ... the availability of appropriate qualification, accreditation and/or certification schemes for providers of energy services, energy audits and energy efficiency improvement measures...

A majority of the MS have qualification schemes in place and more are planned. But the scope of the schemes is broad. Implementation deals with ESCOs and other audit organizations that provide energy services. CA-ESD provides MS with lots of possibilities and good examples, based on the best practices. Harmonization and broader market introduction are likely to be the next phase of implementing QACS.

Auditing, Metering and Billing

Simplified, the ESD requires MS to have individual meters installed (with limited exception). This is interpreted in very different ways by MS. It seems only logical that in the long run smart meters will be rolled out on a large scale to enable direct feedback to ensure energy efficiency. A major hurdle is the issue of consumer protection as whether smart meters are infringement of this.

Conclusions on a European scale cannot be drawn yet, but the annual report of the IEE project, ESMA provides excellent insight into this technical possibility. (ESMA 2010).

Auditing programmes are widespread in the EU. Only three countries indicate that they don't have a programme, based on national or regional guidelines. Audits are primarily done in industry or buildings. About a third of all evaluations is linked to industrial LTA.

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The Use of Financial Instruments


Financial instruments are widely used to promote Energy Efficiency. After legislation, financial instruments are the most used tools for most target groups in the EU27 (Bosseboeuf, 2009). This theme divides financing into two categories on first review: fiscal instruments and funds and funding mechanisms. Fiscal instruments to promote energy efficiency exist in a number of countries. About seven

countries consider the introduction of new measures to comply with the ESD. Conclusion is drawn by the ESD experts of the MS that monitoring of the results of this instrument in terms of energy savings is scarce, as in the case of other instruments

Conclusions and Recommendations

Legislation on energy and climate topics is relatively new, certainly on as large a scale as that of the European Union. Lessons learnt, even if they are not yet fully quantifiable, can be used to improve not only European directives, but can also be used by other major countries that dominate in the energy and climate scene. An example of the learning is in the EU Renewables Directive, where the reporting and monitoring aspect were already established before adopting the Directive.

The experience of the ESD shows that by cooperation a lot can be learnt on Energy Efficiency by MS simply by comparing methods and developments. Variety in approach and possibilities have been identified. Behind these descriptions are numerous examples of good and bad practices that serve as extra inspiration to those involved.

It will take time to synchronise national and EU policies. Streamlining the reporting obligations and monitoring the results in a standardized manner will certainly support this. The main step after sharing best practices will be the removal of market barriers to the implementation of policies, a topic that has been only marginally touched upon. This conclusion is not a call for unified measures and approaches. The variety of Europe in all its dimensions (culture, climate, economy etc.) demands policies which make implementation that respects and benefits from the patchwork quilt; it makes Europe what it is. 

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