



CONCERTED ACTION
ENERGY EFFICIENCY
DIRECTIVE

Strategies, policies and measures (Article 14.4 and Annex VIII)

Executive Summary 7.5

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1 Summary

The focus of this study was on the requirement for Member States (MS) to adopt policies and measures in order to meet the results identified in their comprehensive assessment (CA).

The study was focused on the following linked key topics:

- **CA Methodology:** continued cooperation with the DG-ENER-JRC project with a presentation and discussion of the (draft) final results and recommendations for the proposed CA methodology
- **Development of strategies, policies and measures:** examples from Member States
- **State aid issues:** State aid rules for high efficiency cogeneration and energy efficient district heating

This report summarises the findings of a study that included a survey of MS on the status of implementation of Article 14.1, with a special focus on policy and measures aspects as structured in Annex VIII of the Energy Efficiency Directive (EED). 23 MS responded to the survey.

The survey proves the relevance of six topics linked to the increase of combined heat and power (CHP) production, development of district heating and cooling (DHC) infrastructure, location of heat demand and waste heat and connection aspects to DHC networks. A large number of measures are already used and several of them are expected to be changed or replaced with new measures. More than 70% of MS responding to the survey identified that current energy market conditions, lack of financial resources and economic incentives are key barriers and challenges for the implementation of policies and measures. In most cases, MS wait for the results of the CA before planning and deciding on new policies and measures.

Heating and cooling are key elements of the new EU policy framework (The Energy Union) and an EU Strategy for Heating and Cooling is planned to be communicated by the European Commission by the end of 2015.

There is a huge variance in the approaches, current stage and level of detail used by MS in their implementation of the comprehensive assessment (CA). The JRC methodology presented has been recognised as a useful supporting base for the implementation of the CA by several participants, although some concerns were raised as to whether the methodology is too detailed for national authorities.

In terms of the CA, cooling demand assessment still remains a major challenge for most MS. Also, at this stage, only a few MS have planned how to make use of the comprehensive assessment for the development of new policies and regulation.

New state aid rules approved in 2014 include several simplifications and new instruments for the support of high efficiency cogeneration and DHC infrastructure. In particular, the new prescribed bidding process has initiated some doubts in several MS about the real benefits of this new approach. A number of challenges associated with the implementation of this new support approach have also been identified.

Practical examples given by MS outlined the specific future role of cogeneration in each MS – each influenced by their own unique energy policy goals and energy market situation.

2 Conclusions

2.1 Survey on strategies, policies and measures

Based on the survey results of the status of six key measures from Annex VIII of the EED, we have reached the following key conclusions:

- Survey results proved that we are in a very dynamic implementation period of the CA, although several MS still seem to be at a very early stage.
- Development of district heating was the most relevant topic for 17 participating MS, with the largest interest expressed in connection of waste heat and renewable energy sources (RES) to the DHC, as well as consumer connections to the DHC network. Increase of CHP production was the second ranked policy measure in the survey (16 MS). MS seem to be in the early stages of considering location of waste heat generation close to demand and location of heat demand close to waste heat sources; these were assessed as less important.
- CHP production is the centre of attention for most existing measures. Tax relief, feed-in tariffs, certificates and investment subsidies are all commonly used instruments for this purpose. Investment subsidies are most frequently used for the support of DHC infrastructure, followed by tax relief, planning, promotion and other measures. A very limited number of measures are in place to bring together waste heat sources and heat demand as this is a rather new policy orientation.
- Current unfavourable energy market conditions were identified as the most frequent barrier for increasing CHP production and development of DHC (17 MS), followed by the lack of economic incentives (9 MS) and financial resources (8 MS) and regulatory measures for consumer connection to the DHC network. When asked about their planned activities, the most frequent MS response (up to 10 MS) was that activities are not yet planned as they will be decided based on the results of the CA, in particular in relation to linking heat sources and demand. Most new measures or changes to existing measures are planned for increasing CHP production (10 MS) and development of DHC infrastructure (7 MS).
- Only 4 MS are actively using cost-benefit analysis (CBA). A further 16 MS are still in the implementation or planning phase and it is not yet possible to assess how CBA has been or will be integrated into their national policies as a permanent instrument facilitating planning and coordination.

2.2 Other research findings

The European Commission (EC) has defined energy efficiency as an energy source and the first priority of the recently published Energy Union Framework strategy. Heating and cooling are among the key elements of the strategy. The EC has recognised that this has been a missing piece of EU energy policy and is preparing an EU strategy for heating and cooling that will be communicated by the end of 2015. The strategy aims to address the key challenges associated with delivering long-term decarbonisation objectives, energy security, the risk of a heating crisis caused by interruption of natural gas supply and increasing the competitiveness of EU industry.

To start a comprehensive discussion on the heating and cooling sector, the EC organised a Heating and Cooling Conference¹ with interesting final conclusions:

- **Integration** of the whole energy cycle and between energy carriers' chains: Think in wider system boundaries - beyond the building. Look at district and city dimensions, synergies between technologies, partnership and cooperation.
- Cost-efficient levels, cost control through **holistic pathways** to energy efficiency and decarbonisation in buildings (renovation) and industry.

¹ [Heating and cooling in the European energy transition, Brussels 26 -27 February 2015.](#)

- **Buildings and consumers:**

- Building-level and district-level energy efficiency and decarbonisation to be looked at together – to find a more cost-efficient balance
- District heating/cooling in dense cities; individual renewable solutions and heat pumps in low density and rural areas
- District heating is not in conflict with low-energy buildings: there is a need for more efficient buildings (30-50% savings) together with decarbonised solutions
- Synergies exist between energy efficient construction and low carbon efficient heat supply from district heating and cooling
- Place consumers at the centre: offer transparent prices and information and personalised advice

More information on the conference (all presentations with video recorded sessions) can be found on the project web page <http://heating-and-cooling-in-europe.eu/index.html> and a presentation given by Eva Hoos is also available (<http://www.ca-eed.eu/good-practices/member-state-presentations/chp/article-14-4-and-annex-8-strategies-policies-and-measures>).

Reporting on CHP statistics - Article 24 (6): A Memorandum of Understanding with Eurostat was signed on March 11 to resolve resource constraints. A new questionnaire is being developed (the old questionnaire will be used in the transitory period - April 2015).

The JRC draft methodology for comprehensive assessment is available to support CA EED participants in their implementation of the CA. Any feedback on the draft deliverables is welcomed by the JRC. An expert workshop is planned and, if sufficient consensus is achieved, the methodology will be published as best practice guidance. More information is available on the CA EED website here - (<http://www.ca-eed.eu/good-practices/member-state-presentations/chp/article-14-4-and-annex-8-strategies-policies-and-measures>).

Regional working group discussion – our analysis of the current status of MS implementation of the CA has shown a huge variation between MS both in terms of the stage they are at and the level of detail used.

The other main conclusions (grouped by region) are as follows:

- **Eastern region:** The CA will contribute to more clarity on the future use of extensive DHC infrastructure, influenced by different climate, energy efficiency and energy market influencing factors. Most of the 6 participating MS in this region have already started preparation of their CA; some are using a less detailed approach (without heat mapping). The methodology prepared by JRC was well received by CA EED participants as a support for their implementation of CA, although for more in-depth opinions / feedback it was recognised that more time is needed to read all of the draft deliverables. The CA puts additional pressure on local authorities and statistical offices to improve the local planning and collection of required data. Cooling planning is recognised as quite a difficult task.
- **Northern - Central region:** Generally MS reported good progress with the CA and expect delivery time from later summer to autumn. The issue of mandatory connections to district heating networks was raised during the discussion, as regulation varies significantly across the region (long standing history, recent court-ruling, allowed but not used due to public opinion, etc.). High levels of district cooling (DC) growth were assessed in the region, with clear interest in connecting to the DC network from private residents. Several MS commented that they find the level of detail in the CA methodology presented by JRC too extensive (detailed) as the national level is not suitable for such detailed local planning (the state should focus on the regulatory framework and providing the best possible information base and leave planning to market or municipal authority). On the other hand, some MS do not have the necessary knowledge or competence at the local/municipal level to support such a task – better justifying the need for more active management from the state level.
- **South region:** All 3 participating MS have started to collect the necessary data for the CA and are facing a series of challenges and barriers, including: how to find the appropriate source of data, availability and confidentiality of data (especially for installation level analysis, more detailed structure of energy data for different purposes, etc.), cooperation between all involved stakeholders and sectors. Participants expressed interest in the provision of standard EU level data for CA, for example, technology data, environmental and health externalities and projections of fuel costs (some of this data is available in the JRC methodology). CA EED participants also propose more mixed group work in order to benefit from and hear the experiences of other countries.

New state aid rules tend to be supportive of high efficiency CHP and DHC infrastructure with simplification and introduction of special rules in the:

- new **Guidelines on state aid for environmental protection and energy 2014-2020**² - investment and operation aid (simplifications for proposed bidding process)
- new **General Block Exemption Regulation (GBER)**³ – investment aid measures deemed compatible and exempted from notification.

CA EED participants expressed interest in clarification of the newly prescribed bidding process; this has initiated some doubts in several MS about the real benefits and the challenges of implementation of this new approach.

More information is available in the [State aid rules for high efficiency cogeneration and energy efficiency district heating presentation](#).

3 Practical Examples

The following is a summary of practical examples from Germany, Italy and Denmark.. More detailed information is available in the presentations which can be found on the CA-EED website (www.ca-eed.eu).

3.1 Energy policy implementation in practice: Germany - support for CHP/DH

Germany has a long tradition of CHP/DH support which has resulted in moderate growth of CHP electricity generation in the last decade (from 82 TWh in 2005 to 96 TWh in 2013), reaching 16.2% CHP share in total electricity generation in 2013.

Beside the guaranteed feed in tariff for 30,000 operating hours between 5.4 ct for small and 1.8 ct per kWh for big units above 2 MW (max. 750 Mio. €/a), investments grants are available for small CHP units (<20kWe) and there is tax relief on CHP fuel.

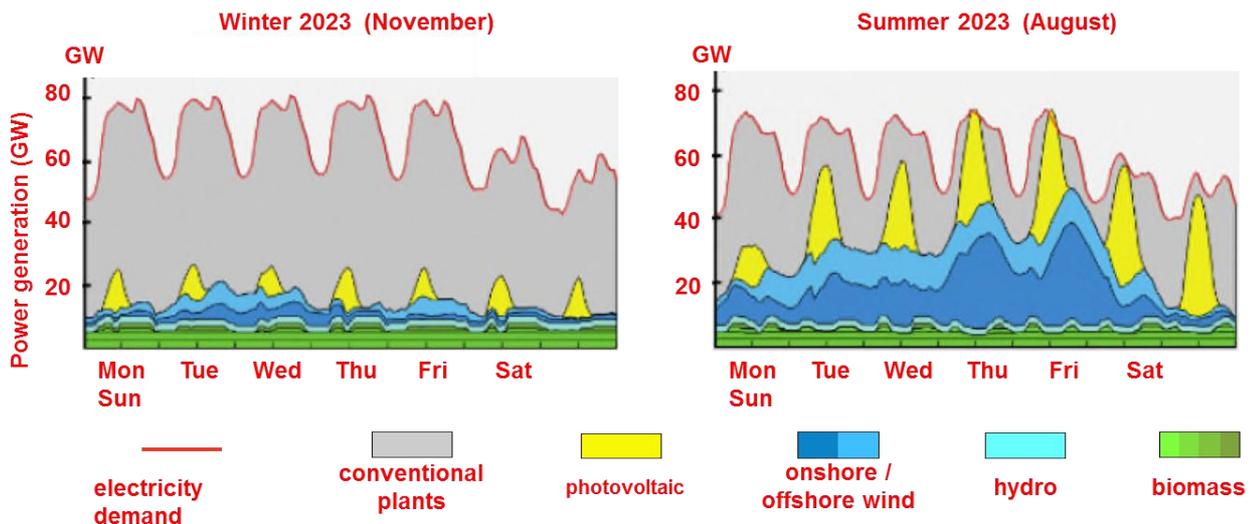
CHP is an important part of the national energy strategy “Energieviende” and the decision to base the energy system on renewables and efficiency. CHP potential is assessed as being important primarily in big cities in the long run to provide the level of flexible electricity generation required as shown in the following figure. The use of DHC as storage facilities has an important role to play in the efficient balancing of intermittent renewable electricity generation.

More information available in the [Germany](#) presentation.

² Adopted in April 2014; in force since 1 July 2014, [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014XC0628\(01\)](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014XC0628(01)).

³ Adopted in May 2014. in force since 1 July 2014 <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1404295693570&uri=CELEX:32014R0651>

Figure 1: CHP/DH– Potential, compatibility with renewables



Source: Agora Energiewende 2015

Conventional back-up capacity for the winter will still be needed.

3.2 Italy: CHP incentives and the Potential Assessment

Italy has introduced an effective certificate scheme for the support of high efficiency cogeneration (white and green certificates for cogeneration in DHC and farming communities). In 2014, white certificates for high efficiency cogeneration provided 0.7 Mtoe of primary energy savings from a total 3.4 Mtoe savings, exceeding the 2014 national target of 2.7 Mtoe.

Generating units qualifying as high efficiency CHP benefit from:

- a waiver on purchasing green certificates;
- priority dispatch of electricity recognised as CAR;
- reverse metering (SSP) for plants with a capacity of less than 200kW;
- a simplified procedure for connecting to the national electricity grid;
- an enhanced feed-in tariff for CHP based on renewable energy sources;
- an incentive for electricity produced by CHP plants fuelled by bio methane;
- exemption from the payment of general system costs;
- access to the Energy Efficiency Title (“EET” or white certificates) scheme.

GSE (Gestore dei Servizi Energetici) is the national body in charge of implementing Article 14. At a research level, ENEA has undertaken a study to identify the potential application and development of efficient local and national district heating through:

1. Analysis of existing thermal networks;
2. Identification of criteria and parameters for the development of efficient thermal networks,
3. Definition of two scenarios for decreasing use of fossil fuels:
 - **scenario maximum:** in the presence of renewable energy or waste heat, the sum of renewable energy, heat cogenerated and waste heat must be equal to 50%
 - **scenario minimum:** without renewable energy or waste heat

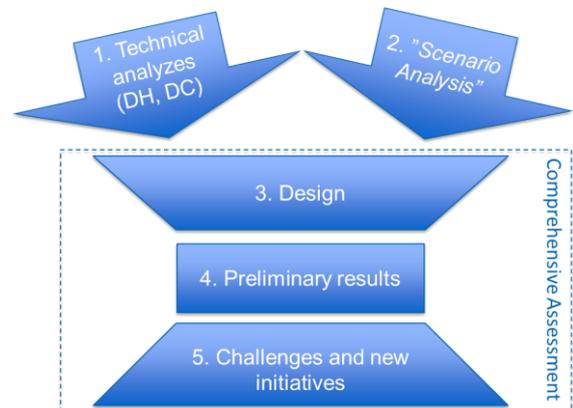
More information is available in the [Italy](#) presentation.

3.3 Comprehensive Assessment draft – Denmark

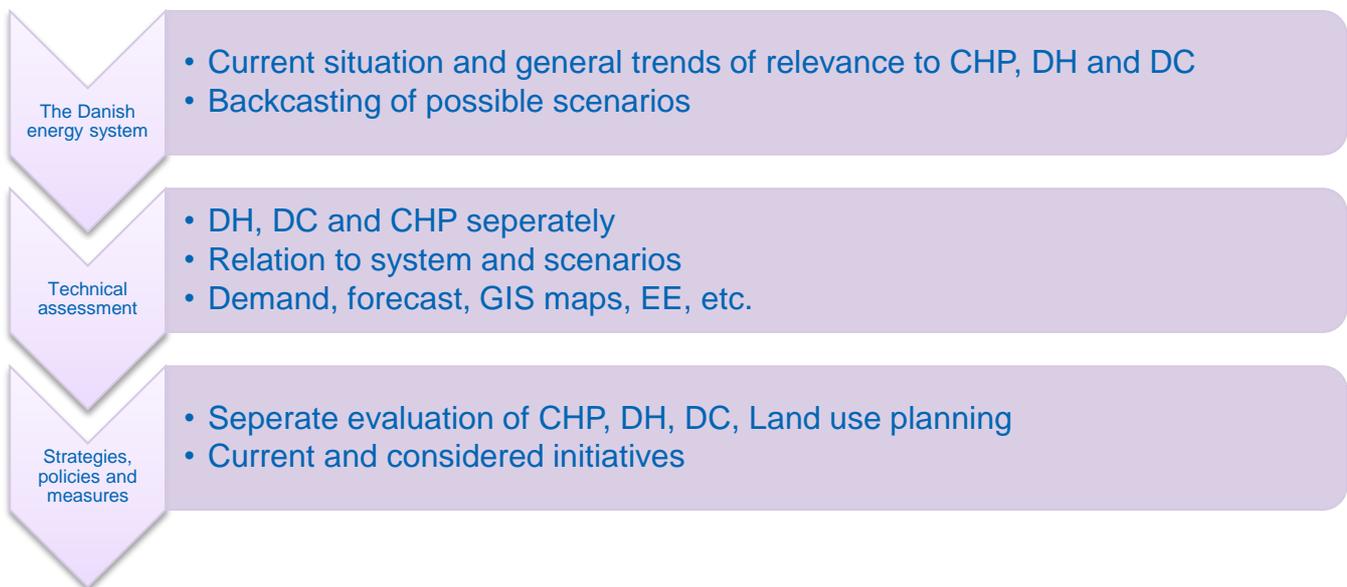
Following a comprehensive political energy agreement in March 2012, several sectoral and cross-sectoral analyses of the Danish energy system were conducted. These included a district heating and a scenario analysis. A district cooling analysis has also since been undertaken and, together, these three analyses form the basis of the Danish comprehensive assessment.

Making of the comprehensive assessment

Drawing together findings from different analyses, the actual comprehensive assessment is currently under development:



The design phase



Preliminary results, challenges and new initiatives

1. **CHP**
 - The role of CHP is diminishing
 - Many plants experience economic problems (few full-load hours)
 - Capacity is currently upheld by CBA related regulation
2. **DH**
 - Ongoing regulation through socio-economic evaluation (CBA)
 - Individual solutions (e.g. bio-boilers and heat pumps) are becoming more competitive – especially for new dwellings
 - Close “race” between individual natural gas supply areas and DH areas, this is regulated by the Heat Supply Act and socio-economic criteria
 - Demonstration programme and task force unit for large heat pumps
3. **DC**
 - Large untapped potential
 - New regulation put in place in June 2014
 - Development is monitored and further initiatives are considered by the government

More information is available in the [Denmark](#) presentation.

**For more information please email
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The Concerted Action for the Energy Efficiency Directive (CA EED) was launched by Intelligent Energy Europe (IEE) in spring 2013 to provide a structured framework for the exchange of information between the 29 Member States during their implementation of the Energy Efficiency Directive (EED).

For further information please visit <http://www.ca-eed.eu/> or contact the CA EED Coordinator Lucinda Maclagan at lucinda.maclagan@rvo.nl



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