



The CELSIUS response to the revision of the Energy Efficiency Directive (EED)

The FP7-funded Smart Cities project CELSIUS (www.celsiuscity.eu) aims to facilitate the deployment of smart district heating and cooling systems across cities in the EU. It brings together excellence from 20 key partners along the value chain: cities, industries and leading universities in the partner cities Gothenburg, London, Genoa, Rotterdam and Cologne. In the hope of creating ripple effects across Europe, the project has committed 50 cities into the CELSIUS vision. The goal is to assist the new CELSIUS city members with practical information necessary for the development and maintenance of their DHC systems - including technical, social, economic and legal advice.

1. Overall assessment

The EED has above all helped raising the awareness and spread best practices in the field of energy efficiency at the EU level. It was especially important as it was the first EU regulatory instrument that recognized the importance of district heating and cooling (DHC) and Combined Heat and Power (CHP) technologies. The directive is however too weak in some of its provision in order to really make an impact. For instance, the role of DHC systems being able to utilise waste or surplus heat in the city allowing it to be used to meet heating demand in a city has a direct contribution to reducing the demand for primary energy upstream and allows energy efficiency to be undertaken at a city level as well as a building level. This has the same benefit for reducing greenhouse gas emissions and supporting the energy system as reducing demand through energy efficiency at a building level and should be recognised as being able to make a positive contribution to the EU's energy efficiency targets.

There is a general need for a more coherent regulatory framework in the field of energy and climate at an EU level. For instance, the current version of the EED encourages member states to recover more surplus heat from waste incineration, sewers, industries etc, whereas the Energy Performance of Buildings Directive (EPBD) instead focuses on measures at a building level and favors on-site production of renewable energy ahead of connecting to a district heating network. Moreover, production plants that form part of district or citywide heating systems fall under the scope of the EU Emission Trading System (EU ETS) as their installations in most cases have a capacity of over 20MW, whereas there is no corresponding price signal on carbon for smaller boilers. This is remarkable considering that the large bulk of EU's heating demand is supplied by millions of small boilers burning oil and gas. Only a few countries have introduced a tax on CO₂ that covers non ETS sectors as well.



The EED has not been properly implemented in most MS yet. Though one lesson that already can be made is how important it is that the directive makes a framework with common targets, metrics and definitions, but acknowledges the different conditions in Europe and leave member states with some flexibility in how to fulfill the objectives of the directive.

Other lessons include:

- Focus on ensuring that information is available on benefits of improving EE to groups intended to develop such measures.
- Those investing in EE measures are not always the ones receiving the direct benefit. There is a need to further align financial incentives.
- The long term financial and wider benefits of improved EE are often regarded as less certain, due to a lack of trusted information in the market

The Commission should apply a holistic perspective and ensure that the revised directive expresses its targets in terms of primary energy - not just in final savings - as it will lead to savings throughout the entire chain of the energy system and not just at a building level. Final energy savings does not necessarily translate into savings if the entire energy chain is taken into account. With a primary energy target though, district heating systems with efficient energy transformation (i.e. the use of recoverable heat and renewable energy) will get credit for their capacity to reduce greenhouse gases and primary energy demand. It is important that the EED encourages energy savings across the whole energy chain and taps the potential where it is the most cost-effective. For instance, as shown by Heat Roadmap Europe, policies should not aim at achieving zero energy consumption in existing buildings when it is more cost effective to switch to a more efficient heat supply instead.

In sum, the EU should provide a coherent and consistent regulatory framework (with harmonized definitions) that leaves member states with some flexibility to achieve energy savings in the most cost-effective way across the whole energy chain given their national context. In the area of heating, it is important that synergies are being made between policies that reduce demand and policies that promote the switch to cleaner heat supply with recoverable or renewable heat.

2. Energy Efficiency obligation schemes

We are pleased with article 7 on Energy Efficiency Obligation schemes, as it is flexible and allows for member states to use either obligation schemes or alternative measures to achieve final energy savings. A focus on primary energy would however be more cost effective as it allows for integrated solutions (synergies between demand reduction and cleaner supply) and savings at the level of energy transformation (i.e. the use of recoverable heat). The option to use alternative measures to reach the target is very useful however. By pursuing this member states can use a variety of policy instruments and include savings gained at the level of transformation and transport/distribution. With this flexibility, we can ensure that investments are being made where the cheapest savings are to be done.

3. Metering, billing information and cost of access to metering and billing information

As the regulatory and political frameworks differ significantly from country to country, it is important that it continues to be up to each member state to decide whether it is technically feasible and/or cost effective to introduce individual metering. The provision requiring individual meters to be technically feasible and/or cost effective in order to be installed is welcome. In the case of DHC it is difficult to install individual metering for several reasons. For one, heat travels between flats, which mean that the flat in the middle of the house always will benefit from the neighbours' heat and individual metering can thus lead to tension between neighbours. It is also technically challenging to measure the amount of heat delivered to one apartment as it is a vertical heat distribution system. Lastly, it is generally the case that the DH operator supplies heat to an intermediary (building owner) who in turn invoices the end-users. With individual metering, the incentive for the owner to make more important measures for EE will decrease. It is moreover the customers who will pay for the development of new measures. It is therefore absolutely necessary that such measures really lead to real and cost-effective savings.

4. Energy efficiency national fund, financing and technical support

- A price signal on carbon (i.e. a CO₂ tax) covering the entire heating market (not only the installations covered by ETS) would trigger investments in low carbon heating systems.
- The upper limits for investment aid as described in the Guidelines for Environmental Protection and Energy is not sufficient to promote EE projects with CHP/DHC.
- The establishment of a dedicated Project Development Funding Stream, similar to the EIB's ELENA, that allow cities to assemble the specialist support that they need to develop a pipeline of commercially viable projects that they can then seek funding for from public/private investors is welcome.
- Establish a new or identify an existing investment mechanism or fund that recognises the inherent risk profile of district heating and cooling, high in their early operational stages and dropping off as consumers are signed up. Examples of this in London include the London Green Fund.

5. Reporting and monitoring and review of implementation

By using heating degree days for a certain year compared with a long period average heating degree days it is possible to get information if real energy efficiency have been reached or if its due to climate conditions the actual year.