



EUROHEAT & POWER

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Position Paper

Combined Heat and Power and District Heating in the EU Emissions Trading Scheme

Nearly 40 per cent of all primary energy in the European Union is used for heating purposes¹. Accordingly, harnessing the potential for emission reductions on the heat market will bring a large contribution to the objectives of the European Climate Change Programme.

For this reason, it is crucial that the current review of the emission-trading scheme takes in account the specificities of the heat market. As of today, the scheme treats unequally the different actors on this market. While district-heating installations are covered, the largest part of the heat market – heating below 20 MW – is not subject to any CO₂ constraint. This situation results in a serious oversight, and creates a competitive disadvantage for district heating in disregard to its proven records as a low-carbon technology.

Serving as hubs for surplus heat, that otherwise would be wasted, – heat from electricity production (CHP), industrial processes, waste incineration as well as heat from all kind of renewable sources – district-heating and cooling systems are 'highways for low-carbon heat'. As such, district heating will remain a decisive element in achieving the European Union objectives for 2020. An international project¹ has documented that further development of district heating will support the decoupling of energy consumption from CO₂ emissions.

Based on the experience of combined-heat-and-power and district-heating operators, Euroheat & Power would like to formulate the following set of recommendations.

HEAT MARKET

Most of the discussions regarding the first years of implementation followed the impact of trading on electricity sector that was very much equaled with the whole energy sector. Still, there is more to energy than electricity. The heat market provides the example of a market where, firstly, different options are competing to satisfy a heat demand and, secondly, where all competitors do not face a systematic CO₂ constraint (see Annex I below).

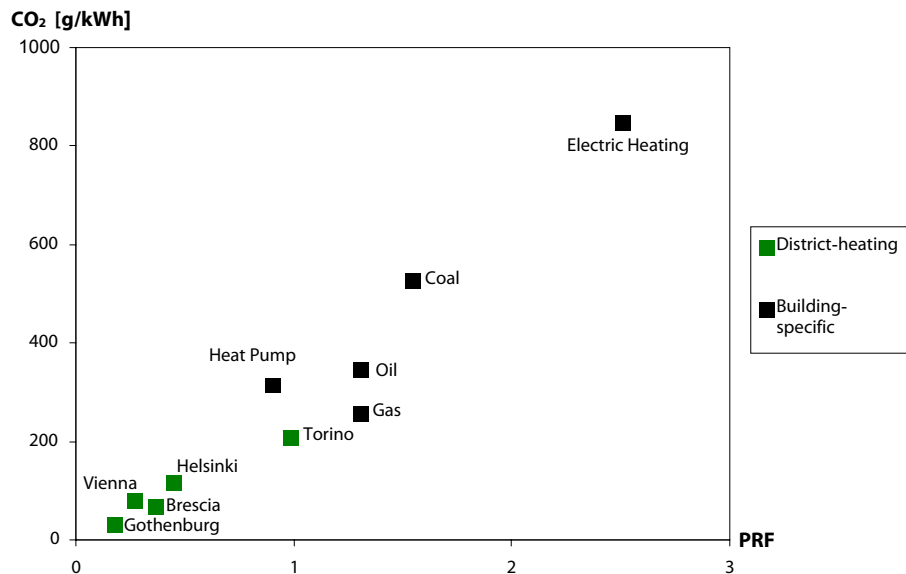
If most of district-heating installations are taking part in emission trading, the largest part of the heat market – below 20 MW - is actually free from any CO₂ obligations. The impact on the competitiveness of district-heating companies presents the risk of encouraging more carbon-intensive technologies..

This is all the more concerning as an international project under the Intelligent Energy for Europe Programme shows that doubling sales of district heat in Europe would reduce CO₂ emissions by 404 Mt/year (compared to year 2003), a reduction of over nine per cent compared to total emissions of the target area of the study.

¹ The Ecoheatcool project was co-funded by the European Commission's Programme Intelligent Energy for Europe. All project documents are available at: www.ecoheatcool.org

The environmental performance of heating systems can be assessed on the basis of primary resource factors. Primary resource factors express the ratio between the non-regenerative fuel input and final energy used. The interest of this approach is that it takes into account both the quality of fuels (fossil/renewable) as well as the efficiency throughout the whole energy cycle. Figure 1 below puts into relation the primary resource factors and CO₂ intensity for different heating sources.

Figure 1. Comparisons of different heating systems: relations between primary resource factors and CO₂



Source: work package 3 of the ecoheatcool project

On the basis of highly-efficient processes, modern district-heating systems are on average at least twice as clean as conventional heating systems.

DISTRICT HEATING AS ONE INSTALLATION

Large district-heating networks generally draw on a portfolio of several installations, including installations owned by third parties, to cover the customer heat demand.

However, under the terms of the Directive, allowances are allocated to production installations. This can result in complex situation and high transaction costs for district-heating operators, as some production plants may be within the direct responsibility of the district-heating operator while others belong to a third party – i.e. purchase of heat from industries or from waste incineration plants.

A solution would then be to consider the district-heating network as one installation with a view to enabling network operators to optimise the use of different heat sources in accordance with their CO₂ reduction merits. As a result, the network in itself creates a market for low carbon heat.

Euroheat & Power recommends that Member States are given the option to consider a district-heating network as one installation.

ORIENTATIONS FOR A EUROPEAN BENCHMARKING SYSTEM

Continuous Allocation Methodology

Background

One of the most exasperating problems with the current allocation methods is the unpredictability. The European Union Emission Trading Scheme (ETS) has been in place for more than two years, and the results for the first two years are now known. This means that the understanding of the existing installations is very good - two years of verified statistics with great accuracy. For the third period, there will be additional statistics available, and this will open the possibility to develop a harmonised benchmark system for electricity and heat.

Euroheat & Power underlines that there is a need for a more predictable method for allocation, where all units share the scarcity needed to create the impetus to reduce CO₂ emissions. The benchmarking method advocated here is suitable for all installations where the 'product' can be measured in kWh, such as heat or electricity.

We would like to underline that such a methodology based on benchmark is easy to develop for electricity and heat.

Allocation procedure

For each product (electricity and heat) a long-term goal is set, which is in line with the objectives of the European Union for 2020.

This is only used for calculation purpose (starting point). A year is set for the 'best available technology' (BAT) to be reached. A straight line between the situations (benchmark) of year one (start) for each installation is drawn. The starting point can be fuel-specific benchmarks for all Europe or different figures for each Member State. The important issue is to set a decreasing line for allocation which ends at the same figure in the near future.

The association favours a system, where separate benchmarks for the production of heat and the production of electricity are established. The benchmarks (in tons CO₂/MWh) should be based on 'best available technology' and, in the early stages, dependent on the fuel used for production.

Following this system, allowances will be allocated to the installations based on the generated output. A low efficient installation will not get enough allowances to cover its demand whereas an installation that meets the BAT-standard will get the allowances needed for the trading period. If an installation generates heat and electricity simultaneously, like in a CHP plant, allowances will also be allocated based on the generated output. For the heat-output the fuel specific BAT-heat benchmark, for the electricity-output the fuel specific BAT-electricity benchmark is used.

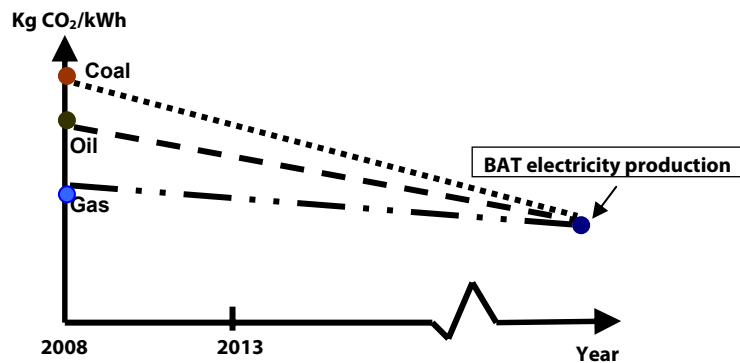
A methodology with two benchmarks is the most consistent way to allocate the allowances in the post-2012 climate framework since it favours the most efficient installations and discourages polluters. Such a methodology is also easy to update - only a few benchmarks (dependent on the number of fuel-specific benchmarks) will have to be adjusted.

Euroheat & Power recommends an approach of double benchmark to allocate allowances in the post-2012 trading period. Firstly, a single European benchmark for heat. As for electricity, national and/or fuel-specific benchmarks could be used in a transition period to acknowledge the different fuel-mix and national energy priorities across Europe. Along with the further regional and European integration of electricity markets, further harmonization of these benchmarks could be pursued. Ideally, a single benchmark should be envisaged in the long term for the whole European Union.

Euroheat & Power regards auctioning as a possible allocation method only if it is guaranteed that all actors, in both the electricity and heat markets, share a similar internalisation of CO₂ costs.

The picture below illustrates how the system would work for three installations with different fuel producing electricity.

Figure 2. Benchmark allocation procedure



Out of this a yearly reduction (%) figure is calculated for each unit. This figure is used for the future allocation to each unit every year. If an installation is changed, this is reported and the 'line' is recalculated. However, the installation keeps the old allocation initially for five years, no matter when the change is conducted. This will disconnect changes in installation from the very rigid periods of today which push players to take action close to change of periods to optimise benefits.

New entrants

New installations get the allocation based on a benchmark corresponding to the average for the same type of fuel and product. The allocation starts with the first year of operation.

Shut down of plants

If an installation is shut down, the allocation continues until five years after the last year of operation. The reason for this is to get independent of the periods in order to create a situation where it does not matter when an action is taken relatively near to end/start of the change of periods.

Auctioning

If auctioning is decided for a part of the cap, the free allocation is reduced by this figure. The adjustment is the same for all installations.

Total cap

When all installations have been given their share the total allocation amount is compared with the total cap. If these are not equal all allocations are adjusted equally according to the mismatch. This is repeated every five year period. On the other hand the free cap, the part which is allocated according to this method, can be reduced and all the fine tuning is done by auctioning. This means that the free allocation always kept below the cap and remaining allowances are auctioned by the European Union.

Summary

Harmonized allocation ensures the fulfillment of the goal. The burden is equal for all installations within the same fuel category and sector. However if member states have many installations far from the future BAT, this member state will get a faster decrease in the Member States cap. This is in line with criteria 7, early action, in Annex III. This is also the situation of today under burden sharing.

For installation with emissions very close to the future BAT the allocation will continue almost unchanged over the years. For other installations far away from BAT the allocation will decrease rapidly. This reflects the criteria 3, potential to reduce in Annex III.

COST OF COMPLIANCE

Euroheat & Power draws attention of the Commission on the high administration costs that small district-heating networks are facing to meet the monitoring and reporting requirements set in the Directive. In some cases, these compliance costs are disproportionate in comparison to effective benefits.

The case of biomass-fired installations should also be considered in the review. Currently, these installations are obliged to follow relatively complex monitoring and reporting processes to report what is zero emission.

Euroheat & Power recommends streamlined compliance rules for small and biomass-fired installations.

SUMMARY OF KEY RECOMMENDATIONS

- **Acknowledgment of the heat market**

The largest part of the heat market has not been covered so far by the scheme – in spite of the share of heat in the overall energy market. The review of the emission-trading scheme and the conclusions from the debate on the Green Paper on ‘market-based instruments for environment and related policy purposes’ should ensure that the CO₂ constraint addresses the whole heat market and does not distort competition.

- **Allocation method (heat and power)**

Benchmarking should be the option of choice. For heat, it is possible to apply a single European benchmark. For electricity, national and/or fuel-specific benchmarks could be used in a transition period in order to acknowledge the different fuel-mix and national energy priorities across Europe. In parallel to the further regional and European integration of electricity markets, benchmark values should be further harmonised. At the end of this process, a single benchmark for electricity should be envisaged for the whole European Union.

As long as all heat market actors do not share the same obligations, auctioning would give a competitive edge to the least environmentally-friendly solutions and thereby reinforce the existing distortions on the heat market.

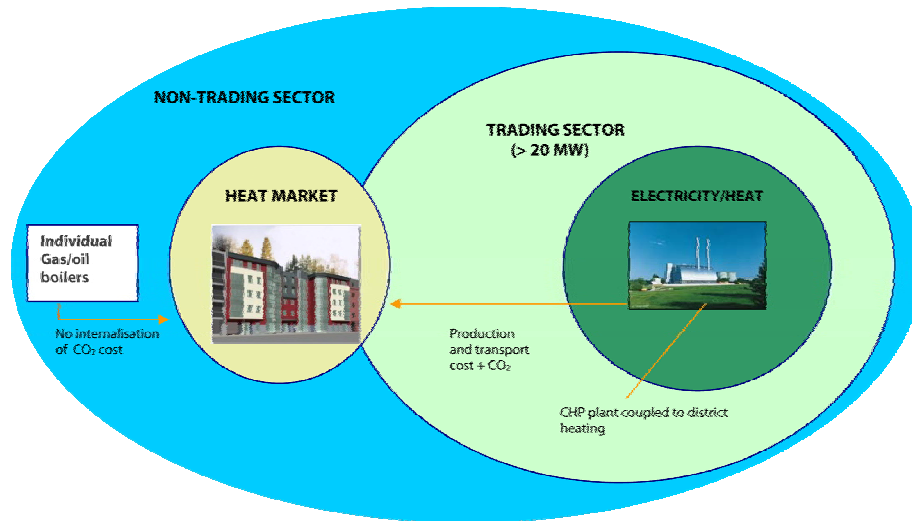
- **District heating as one installation**

With a view to increasing the consistency of monitoring, reporting, verification and CO₂ management as well as lowering compliance costs, Member States should have the option to consider district-heating installations as one installation.

- **Compliance costs**

Simplified procedures are needed for small and biomass-fired installations.

Annex I: CO₂ coverage of the heat market



BIBLIOGRAPHY

For more information on heating and cooling markets, possibilities with district heating and cooling, efficiency assessment of heating and cooling options, and recommendations for policymakers please consult the website of the ecoheatcool project: www.ecoheatcool.org

The Ecoheatcool study is a project coordinated by Euroheat & Power and co-financed by the Commission under the Programme Intelligent Energy for Europe.

Euroheat & Power is the international association representing the combined heat and power (CHP), district heating and cooling (DHC) sector in Europe and beyond. Euroheat & Power unites 23 national CHP/DHC associations and has individual members (utilities, equipment suppliers and research institutes) in 32 countries.

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