

POSITION STATEMENT



**DIRECTIVE OF THE EUROPEAN
PARLIAMENT AND OF THE COUNCIL
on the promotion of cogeneration based on
the useful heat demand in the internal
energy market**

**CAPACITY THRESHOLD
FOR SUPPORT IS
UNNECESSARY AND
ARBITRARY**

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1. INTRODUCTION

The proposal for a Directive on cogeneration from the European Commission was published on 23 July 2002. Much discussion has taken place concerning this proposal since then. A focus of the discussion has been the suggestion that a capacity threshold be imposed by Member States for support for CHP at the level of 50 MWe. Above this level it is supposed by the Commission that CHP becomes economic and therefore not in need of support.

This position paper gives the views of COGEN Europe on this threshold. Other papers deal with other elements of the Directive.

2. GENERAL COMMENTS

The proposal contains a recommendation to Member States, (but it will also be used as a reference by the Commission's DG Competition for judging State Aid applications) that a 50 MWe threshold should be used for national cogeneration support schemes (see Chapter 4 in the Explanatory Memorandum (given in Annex 1 of this paper) and Recital 16 (given in Annex 2 of this paper)).

COGEN Europe believes there is no economic or environmental justification whatsoever for such a threshold, it is also in obvious contradiction with the main objective of the Directive and it will lead to sub-optimal plant design in the future.

3. SPECIFIC COMMENTS

3.1 Limits to benefits

The proposal's recommendation for Member States to focus public support capacities below 50 MWe would exclude a significant share (from 25 up to 80% in some Member States) of existing capacities and a considerable share of future potential projects from the scope of the Directive.

The Directive in general is a framework Directive whereby the Member States are required to decide all the details for each article. In this respect a restriction on the level of support that such a threshold represents is restrictive on Member State action.

3.2 Arbitrary threshold level

Capacity threshold of 50 MWe ("or lower") is arbitrary, and it is justified by saying that "large cogeneration installations have easier access to more favourable financing and fuel prices". This is not true, for instance many support policies for finance are limited to smaller generators. Also,

access to better fuel prices will depend also on the state of liberalisation of the (gas) market. In the electricity market the strongest competitive challenge will be from central CCGT plants. Electricity only plants are cheaper than equivalent CHP plants due to less complexity, thus without additional benefits being rewarded to CHP they will be at a disadvantage. Finally, bigger cogeneration units are normally more efficient in terms of fuel consumption than the smaller ones.

3.3 Lower environmental benefits

This threshold also goes against the general principle of designing the cogeneration installation following the heat demand. For instance, the Spanish experience with a threshold of (also) 50 MWe has caused plants to be specifically designed to fall inside this threshold, even when the heat demand might be bigger and it is more efficient to install a bigger unit. Examples of this aspect are given in the section entitled Illustrative Examples.

3.4 State Aid Guidelines

The State Aid Guidelines recognise the environmental benefits that CHP bring to the European economy. These benefits occur across the size range for CHP plants, from the smallest plants in the domestic sector to the largest plants in the industrial and district heating sectors. A tonne of CO₂ saved is the same regardless of size. Thus it makes no sense to limit the rewarding of environmental benefits just to smaller installations.

3.5 Purpose of the Directive

The purpose of the Directive is to promote CHP in Europe that delivers energy savings, environmental benefits and competition in the electricity market. The imposition of the threshold will hamper this purpose considerably.

4. VIEWS OF OTHERS

It is not just the views of COGEN Europe that considers this threshold to be wrong. In press announcements and positions papers both Euroheat and Power (the District Heating Association) and Eurelectric (the Electricity Association) have condemned this threshold. In addition, the green NGOs and industrial lobbies have also suggested removing the threshold.

A large number of Member States have questioned the necessity of a threshold at the Energy Council Meeting of 25 November 2002, either in the meeting itself or by written answer. In the European Parliament the Rapporteur for the Directive has recommended the removal of the threshold as restrictive, arbitrary and unnecessary.

5. CONCLUSION

There is no need for the threshold. It will result in an unnecessary restriction on the development of cogeneration leading to sub-optimal plant design and less energy savings and environmental benefits.

COGEN Europe opposes the imposition of a threshold entirely. The Directive on cogeneration must be amended by the Council and the Parliament to prevent this restrictive measure.

ILLUSTRATIVE EXAMPLES

EXAMPLE 1

Two CHP schemes can be envisaged for the same heat load of 80 MWe:

- Scheme 1: 49 MWe CCGT to comply with the threshold
- Scheme 2: 80 MWe CCGT sized without the threshold

Scheme 1		
Heat output	80	MWth
Electricity output	49	MWe
Overall Efficiency	83%	
Fuel input	155	MWf
Fuel used for heat production	100	MWf
Marginal Electrical Efficiency	88%	
Scheme 2		
Heat output	80	MWth
Electricity output	80	MWe
Overall Efficiency	85%	
Fuel input	188	MWf
Fuel used for heat production	100	MWf
Marginal Electrical Efficiency	91%	
Additional Fuel Used	33	MWf
Additional electricity produced	31	MWe
Efficiency of additional generation	94%	
Additional Energy Savings	23	MWf
Additional CO ₂ Savings	2.5	Tonnes

Notes:

- The fuel used for heat production is based on a boiler efficiency of 80%, thus 80 MW of heat output requires 100 MW of fuel input
- The Marginal Electrical Efficiency is the efficiency of producing the electricity from the CHP plant once the fuel used for producing heat has been subtracted.
- The smaller CHP plant is less efficient than the larger plant
- The purpose of this illustration is to show that the larger CHP plant will produce the extra electricity at a very high marginal efficiency.
Thus in this example Scheme 2 produces 31 MWe more than Scheme 1, but only uses an extra 33 MW of fuel. The efficiency of producing this additional electricity is 94%.
- This will result in additional CO₂ savings and energy savings (above the saving already achieved by Scheme 1) of 2.5 tonnes of CO₂ and 23 MW of fuel for every hour of operation.

Result:

- Assuming this is an industrial CHP scheme with 8000 hours operation per year, Scheme 2 would result in an additional saving of 20,000 tonnes of CO₂ and 184 GWh of fuel per year. The 50 MW threshold is likely to prevent the construction of this project.

EXAMPLE 2

Two CHP schemes can be envisaged for the same heat load of 150 MWe:

- Scheme 1: 49 MWe CCGT to comply with the threshold
- Scheme 2: 150 MWe CCGT sized without the threshold

Scheme 1		
Heat output	150	MWth
Electricity output	49	MWe
Overall Efficiency	80%	
Fuel input	249	MWf
Fuel used for heat production	188	MWf
Marginal Electrical Efficiency	80%	

Scheme 2		
Heat output	150	MWth
Electricity output	150	MWe
Overall Efficiency	85%	
Fuel input	353	MWf
Fuel used for heat production	188	MWf
Marginal Electrical Efficiency	91%	

Additional Fuel Used	104	MWf
Additional electricity produced	101	MWe
Efficiency of additional generation	97%	
Additional Energy Savings	181	MWf
Additional CO ₂ Savings	32.6	Tonnes

Notes:

- The fuel used for heat production is based on a boiler efficiency of 80%, thus 150 MW of heat output requires 188 MW of fuel input
- The Marginal Electrical Efficiency is the efficiency of producing the electricity from the CHP plant once the fuel used for producing heat has been subtracted.
- The smaller CHP plant is less efficient than the larger plant
- The purpose of this illustration is to show that the larger CHP plant will produce the extra electricity at a very high marginal efficiency. Thus in this example Scheme 2 produces 101 MWe more than Scheme 1, but only uses an extra 104 MW of fuel. The efficiency of producing this additional electricity is 97%.
- This will result in additional CO₂ savings and energy savings (above the saving already achieved by Scheme 1) of 32.6 tonnes of CO₂ and 181 MW of fuel for every hour of operation.

Result:

- Assuming this is an industrial CHP scheme with 8000 hours operation per year, Scheme 2 would result in an additional saving of 260,800 tonnes of CO₂ and 1448 GWh of fuel per year. The 50 MW threshold is likely to prevent the construction of this project.

ANNEX 1 TEXT FROM EXPLANATORY MEMORANDUM

4. FOCUSED PUBLIC SUPPORT OF COGENERATION BASED ON USEFUL HEAT DEMAND IN THE EUROPEAN INTERNAL MARKET.

The purpose of this directive, according to the subsidiarity principle, is to introduce a common and transparent framework in order to focus Member States public support for cogeneration process based on useful heat demand according to the national circumstances and energy policies, in the framework of the European competition rules. This Directive sets up common definitions of electricity from cogeneration in order to develop the same methodological background for member state support schemes. The aim of this methodology is also to ensure impacts on the internal electricity market from support schemes are transparent.

As the large cogeneration installations have easier access to more favourable financing and fuel prices direct support for production of cogenerated electricity should be concentrated to electricity produced **either** in installations with a capacity below an indicative threshold value of 50 MW (e) **or** in larger installations but then only the amount of electricity produced by the capacity below such an indicative threshold. The reason for this is not to disqualify larger installations but to avoid overcompensation of the larger installations. Larger installation would still have support for the production based on the first 50 MW, but will not receive additional support for the rest of the production. If direct support to the production of cogenerated electricity is based on a fixed amount per MWh produced, the support should not be applied to production above the indicative threshold value. Member States should use the following considerations in design of support schemes:

1. Support schemes for production of cogenerated electricity should be limited to the electricity produced in one process together with a useful heat production.
2. The economic support to the electricity production should be focused to develop the necessary economic incentive to operate efficient cogeneration plants on the basis of economically justified heat demand.
3. Direct support for production should in principle be focused on the share of cogenerated electricity produced **either** in installations with a capacity below an indicative threshold value that should be set at 50 MW(e) or lower, **or** in larger installations but then only the amount of electricity produced by the capacity below such a threshold value.
4. The cogeneration plants should be designed and sized for the actual heat demand present or foreseen with certainty.

ANNEX 2

TEXT FROM RECITAL 16

- (16) Public support schemes for promoting cogeneration should focus on support for cogeneration based on a useful heat demand and avoid encouragement of increased heat demand in order to avoid increase of fuel consumption and CO₂ emissions. Member States should take steps to prevent public financial support for electricity from cogeneration from being used to subsidise heat production, thereby creating incentives for being less careful about the proper use of the heat output. Without prejudice to the Community Guidelines on State aid for environmental protection, direct support for production should in principle be focused on the share of cogenerated electricity produced either in installations with a capacity below a threshold value that should be set at 50 MW(e) or lower or in larger installations but then only the amount of electricity produced by the capacity below such a threshold value.