

23 April 1998 A4-0145/98

REPORT

on the communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on a Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development (COM(97)0514 - C4-0596/97)

Committee on Research, Technological Development and Energy

Rapporteur: Mrs María Teresa Estevan Bolea

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By letter of 5 November 1997 the Commission forwarded its communication on a Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development to Parliament.

At the sitting of 21 November 1997 the President announced that he had referred the communication to the Committee on Research, Technological Development and Energy as the committee responsible and to the Committee on the Environment, Public Health and Consumer Protection for its opinion.

At its meeting of 9 December 1997 the Committee on Research, Technological Development and Energy appointed Mrs María Teresa Estevan Bolea rapporteur.

It considered the Commission communication and the draft report at its meetings of 16 March and 21 and 22 April 1998.

At the latter meeting it adopted the motion for a resolution unopposed with one abstention.

The following were present for the vote: Scapagnini, chairman; Quisthoudt-Rowohl, vice-chairman; Adam, vice-chairman; Estevan Bolea, rapporteur; Ahern, Argyros, Bernard-Reymond (for Soulier, pursuant to Rule 138(2)), Caudron (for Lange), Chichester, Denys, Desama, Elchlepp (pursuant to Rule 138(2)), Elmalan, Flemming (for Ferber), de Gaulle, Graenitz (for Rothe), Holm (for Bloch von Blottnitz), Izquierdo Collado (for Stockmann), Linkohr, McNally, Marset Campos, Matikainen-Kallström, Mombaur, Plooij-van Gorsel, Pompidou, Rovsing, Tannert and W.G. van Velzen.

The opinion of the Committee on the Environment, Public Health and Consumer Protection is attached.

The report was tabled on 23 April 1998.

The deadline for tabling amendments will be indicated in the draft agenda for the relevant part-session.

A
MOTION FOR A RESOLUTION

Resolution on the communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on a Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development (COM(97)0514 - C4-0596/97)

The European Parliament,

- having regard to the communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on a Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development (COM(97)0514 - C4-0596/98),
- having regard to the Council Resolution on a Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development,
- having regard to the communication from the Commission on the European Community gas supply and prospects (COM(95)0478),
- having regard to its resolution of 14 November 1996 on the communication from the Commission on the European Community gas supply and prospects(),
- having regard to the Commission White Paper on an energy policy for the European Union (COM(95)0682),
- having regard to the communication from the Commission on an overall view of energy policy and actions (COM(97)0167),
- having regard to the communication from the Commission concerning the organization of cooperation around agreed Community energy objectives (COM(97) 0436),
- having regard to the proposal for a Council decision adopting a multiannual framework programme for actions in the energy sector (1998-2002) and connected measures (COM(97)0550),
- having regard to the Council Decision of 16 December 1996 concerning a multiannual programme for the promotion of energy efficiency in the European Union (Save II),
- having regard to the communication from the Commission on the energy dimension of climate change (COM(97)0196),
- having regard to the communication from the Commission on a Community strategy to combat acidification (COM(97)0088),

⁽¹⁾ OJ C 362, 2.12.1996, p. 291.

- having regard to Directive 96/92/EC concerning common rules for the internal market in electricity,

- having regard to the common position of the Council on the proposal for a directive concerning common rules for the internal market in natural gas C4-0103/98,
 - having regard to the opinion of the Committee of the Regions,
 - having regard to the opinion of the Economic and Social Committee,
 - having regard to the communication from the Commission entitled 'Energy for the future: Renewable sources of energy' (COM(97)0599),
 - having regard to the report of the Committee on Research, Technological Development and Energy and the opinion of the Committee on the Environment, Public Health and Consumer Protection (A4-0145/98),
- A. having regard to the three basic objectives of European Union energy policy: competitiveness, security of supply and protection of the environment,
 - B. having regard to the problems of pollution and atmospheric change caused by the use and consumption of energy,
 - C. having regard to the absolute and urgent need to make more efficient use of natural resources and specifically of energy resources,
 - D. noting that the use of new technologies in electricity generation such as combined cycles or the combined production of electricity and steam or heat, i.e. cogeneration, makes it possible to achieve significant energy savings,
 - E. having regard to the necessary competitiveness required from electricity generators by the liberalization of electricity markets,
 - F. having regard to the opportunity to extend the use of gas in Europe opened up by cogeneration,
 - G. having regard to the large resources of gas existing in various areas of the planet, which make diversified supplies of gas possible, and the foreseeable increase in gas consumption in the EU in the coming years,
1. Supports the Commission proposal to promote cogeneration and dismantle barriers to the development of combined heat and power (CHP);
 2. However, would like to see the proportion of CHP in the Commission's strategy increased from the current 18% to at least 25%;
 3. Points out that the more efficient use of energy which cogeneration represents will help to improve the competitiveness of those industries which are large energy consumers;
 4. Suggests that the Commission and above all the Member States introduce administrative and economic measures to boost the combined production of power and heat to supply hot water and heating for domestic purposes;

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5. Affirms that cogeneration in industry, combined cycles in the electricity sector, in particular where cogeneration and the combined production of heat and power for domestic purposes make a significant contribution to reducing the emission of pollutants into the atmosphere by making more efficient use of energy;
6. Points out that the higher energy efficiency obtained in the new forms of production of power and heat or steam in industry and for domestic purposes represents the most positive step in reducing the greenhouse effect, particularly if renewable CO₂-neutral forms of biomass are used;
7. Proposes that, when national targets are set for the reduction of CO₂ emissions, account be taken of cogeneration's contribution to meeting the Kyoto commitments on climate change;
8. Suggests that, for barriers to the development of cogeneration to be effectively dismantled, electricity market operators must accept as a priority the excess power not consumed by the cogenerator, competing with auto-producers, and on the market;
9. Notes that the effective dismantling of barriers to the development of cogeneration requires:
 - that cogenerators - whatever their consumption - be in all cases considered qualified customers as electricity producing plants in the internal market for gas;
 - access to European gas pipeline networks;
 - that district heating and cooling plans be fostered;
 - the purchasing - at market prices - of all electricity generated by auto-producers and not consumed by them;
 - the internalization of environmental protection costs in all sources and forms of electricity generation, which entails compliance with the legislation in force on environmental pollution and increased obligations of public administrations with regard to monitoring the implementation of that legislation;
 - support for research and technological development in the area of energy saving and efficiency;
10. Insists that Community actions geared to sustainable development should necessarily require improving the energy efficiency of processes and facilities, and requests concrete proposals from the Commission;
11. Calls on the Commission and the Member States for Objective 1 regions to receive aid through the Structural Funds to increase energy efficiency, with priority being given to cogeneration facilities and renewable energies;
12. Calls on the Commission to ensure that preference is given to funding cogeneration facilities for the production of heat and power, as well as renewable energies, and especially renewable cogeneration, when allocating cooperation funds with third countries in the area of energy, and requests concrete proposals from the Commission;
13. Calls on the Commission and the Member States to ensure that electricity system operators, as a matter of priority, accept electricity produced in seawater desalination plants using combined electricity and steam cogeneration cycles; believes that the prices charged should

be determined by competition on the electricity market and hence that the new electricity markets should operate under normal economic conditions;

14. Approves the conclusions submitted by the Commission:

15. Instructs its President to forward this resolution to the Commission and Council.

B
EXPLANATORY STATEMENT

1. Background

In the White Paper on an energy policy for the European Union, the Commission undertook to present a strategy offering a coherent approach for the promotion of combined heat and power (cogeneration) in the European Union. This initiative is geared to ensuring the necessary cooperation between the Community, its Member States, utilities and consumers of electricity and heat to assist in dismantling barriers to the development of this environmentally friendly and energy-saving concept.

The Council and Parliament have also called for such an initiative on numerous occasions.

The Commission's purpose is therefore to propose a strategy, in the context of EU energy policy, which will facilitate the development of CHP in Europe and its penetration in the European energy market as an energy saving and environmentally friendly system of heat and power production. The Commission believes that this strategy should be based on an appropriate combination of mutually reinforcing measures at both the Community and Member State levels. It should also be consistent with and take into account the different Community policies which will potentially be affected.

2. Substance of the communication

The Community has promoted the concept of CHP since 1974, when an industrial expert group was set up to investigate the possibilities of improving the conversion efficiency of thermal power stations.

In 1994 CHP plants supplied around 9% of the electricity consumed in the EU. A number of studies have estimated that the technical potential of CHP might be as much as 40% of the total supply, even though the penetration of CHP (expressed as the CHP electricity production by private and public utilities as a fraction of the total electricity production) has decreased in the period 1974-90. Electricity production by CHP plants in the European Union was insufficient and varied significantly between Member States', ranging from 1% to 40%. Only in recent years has this trend been reversed.

The liberalization of electricity and gas markets in the EU entails operating in highly competitive markets. These changing legal frameworks create a new situation for CHP, where there is less price stability and increased environmental concerns. In this new framework for the energy industry, CHP should play more than a marginal role and it is vital that efforts to promote CHP should be consistent with the new industry dynamic. The Commission fully shares the view of the Council and Parliament that CHP should be promoted as a measure 'protecting the environment and reducing energy dependency on satisfactory economic terms'.

The efficient use of energy reduces the emission of pollutants (SO₂, NO_x, CO₂ and others) into the atmosphere and is recognized as the single most important policy measure in the EU in order to attain the objective of stabilizing and then reducing the CO₂ emissions which have such an impact on climate change.

Cogeneration and the use of combined cycles in the electricity sector are some of the few technologies which can make a short- or medium-term contribution to improving the efficient use of energy in the European Union while also making a positive contribution to the environmental policies of the EU.

2.1. Barriers to CHP and district heating and cooling

The difficulties in the way of a greater expansion in CHP and district heating and cooling networks vary tremendously between the 15 Member States. The overriding factor in all cases is the national policy on CHP.

The relation of CHP plants with the power market remains highly significant. Remuneration of power sold to the grid remains a critical point, particularly now that electricity markets have been liberalized and CHP is required to operate in open markets, at a sale price defined by competition.

There are thus economic, legal and administrative barriers.

District heating and cooling networks face greater difficulties and specific barriers. The first is an economic one arising from the distances over which heat must be transported, which makes the cost of installing an extensive network significantly higher than the costs of installing a private or CHP system.

During its operational lifetime, the DH network needs a steady market for the heat output, must secure fuel inputs at competitive prices and must be prepared to match competing sources of heat for price and availability. The highly competitive situation of gas distribution networks can also act as a disincentive for investment in district heating systems.

3. Combined heat and power in the EU

CHP involves the simultaneous production of thermal and electric energy from the same fuel source. For a given application, this is achieved through one of a number of different electricity generation technologies in which heat is diverted part-way through the electricity production process and used to satisfy thermal requirements.

The efficiency gains represented by CHP may be significant but will vary depending upon the technology and fuel source used by CHP systems. An efficient CHP plant can convert between 85 and 90% of the energy content of the fuel into useful energy. Even though part of the heat will be lost before reaching the consumers, total efficiency will remain in the area of 80% or more. Conventional electric production systems typically convert between 30 and 40%, with new combined-cycle gas turbine systems capable of up to 55%. Where heat demand is covered by heat-generation plants with an efficiency of 90%, the total efficiency for the separate production of electricity and heat will be up to 70%.

CHP has been used in industry for more than 50 years. What is necessary for the user is to have medium or high demand for thermal energy (steam, hot water, hot gases, cooling etc.) over prolonged periods of time (more than 5000 hours/year). Power generation industry, manufacturing industry (chemicals, paper industry, iron and steel, ceramics, motors, food, textiles, timber, bricks and heavy clays etc.) and service industry (hospitals, sports centres, hotels, etc.) are areas where CHP systems are an option for the investors.

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Industrial CHP installations can operate for 8000 hours/year or more. In industrialized countries, the heat potential in industry is large enough to enable CHP to provide a significant proportion of the baseload demand for electricity.

District heating or cooling means centralized production and distribution of thermal energy. Heat is produced in thermal plants and is circulated through a pipe network to the users in the form of steam or hot water. The district heating and cooling system can be regarded as the sum of the production facilities and distribution/return network. The most common competitors to district heating are individual heating systems. A large number of district heating systems continue to be supplied by heat-only boilers, and their replacement by CHP plants would significantly improve their results in economic terms.

In the residential and commercial sector, CHP systems are used in hotels, sport and leisure centres, hospitals and multi-residential accommodation. They are smaller units comprising a diesel engine which has been converted to run on natural gas, a generator and a heat recovery system, generally housed in a container. The diesel engines can also be run on other types of fuel.

4. Objectives of the strategy

The three principles governing EU energy policy are: competitiveness of European businesses in the context of the growing globalization of markets, environmental protection and security of supply.

The potential of CHP to contribute significantly and cost-effectively to all three objectives of energy policy is clear.

The Commission's proposal for the promotion of CHP includes a number of guidelines for these policies while ensuring that the market conditions implied by the Community's internal market proposals are consistent with the application of new energy options.

In 1994 the electricity generation by CHP plants was 204 Twh (9% of the total electricity generation in that year). With 29 GWe of new CHP installed capacity (conventional wisdom scenario) or 48 GWe (pre-Kyoto scenario) in the period 1994-2010, this production could reach 11% or 14% respectively of total electricity generation in 2010. The Commission believes that this anticipated growth has to be reached and if possible exceeded. According to analyses made, a doubling of the current share of CHP from 9% to 18% of the total gross electricity generation of the Community produced by CHP by the year 2010 is realistically achievable. This would imply doubling the existing installed CHP electrical capacity and increasing the annual load factor by 30%, and would require that Member States remove the various obstacles to greater penetration of CHP in their energy systems. The environmental benefits would be significant.

5. Commission conclusions

The Commission takes the view that the CHP share in EU energy production should be increased significantly in order for the Union to achieve its energy policy objective of improving energy efficiency and its environmental objective of reducing greenhouse gas emissions. It is proposed that the current share be doubled from 9% to 18% in 2010 by means of a series of actions to promote CHP to be launched by the Member States.

OPINION
(Rule 147)

for the Committee on Research, Technological Development and Energy

on the communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions A Community strategy to promote combined heat and power (CHP) and to dismantle barriers to its development (COM(97)0514 - C4-0596/97); (report by Mrs Estevan Bolea)

Committee on the Environment, Public Health and Consumer Protection

Letter from the committee chairman to Mr Scapagnini, chairman of the Committee on Research, Technological Development and Energy

Brussels, 17 April 1998

Dear Mr Scapagnini,

The Committee on the Environment, Public Health and Consumer Protection considered the above subject at its meeting of 16 April 1998.

At the last meeting it adopted the following conclusions unanimously():

Introduction

(^{b)} The following took part in the vote: Collins, chairman and draftsman; Poggiolini and Lannoye, vice-chairmen; Aparicio Sánchez (for Apolinário), Blokland, Bowe, Burtone, Cabrol, Corbett (for Díez de Rivera Icaza), De Coene (for Graenitz), Estevan Bolea (for Bébéar), Florenz, González Álvarez, Hulthén, Jackson, Jensen K., Lange (for Kokkola), Needle, Oomen-Ruijten, Pollack, Roth-Behrendt, Schleicher, Sjöstedt (for Bertinotti), Tamino, Trakatellis, Valverde López, Virgin and White.

Combined heat and power (CHP) involves the simultaneous production of thermal and electric energy from the same energy source. This is achieved through one of a number of different electricity generation technologies in which heat is diverted part-way through the electricity production process and used to satisfy thermal requirements. An efficient CHP plant can convert some 85-90% of the energy content of the fuel into useful energy. Even though a part of the heat will be lost before reaching the consumer, the total efficiency will be 80% or more. Conventional electric production systems convert 30-40% with new combined-cycle gas turbine systems capable of up to 55%. The development of CHP offers high energy conversion rates and lower emissions of CO₂ thereby being an environmentally friendly method of energy production and making it possible to achieve significant energy savings.

It its Communication the Commission proposes that the CHP share in EU energy production should be doubled from today's 9% to 18% in 2010 by means of a series of actions to promote CHP to be launched by Member States.

Conclusions

The Committee on the Environment, Public Health and Consumer Protection asks the Committee on Research, Technological Development and Energy to include the following conclusions in its motion for a resolution:

1. States that one of the most efficient measures for boosting energy efficiency and reducing CO2 emissions in the EU is the use of decentralised Combined Heat and Power (CHP) plants using renewable energies, especially biomass.
2. States that, from a energy efficiency perspective, the combination of district heating and CHP is the most useful approach.
3. Notes that CHP, in combination with the use of renewable energies, presents a number of positive aspects, namely:
 - decentralised use,
 - CO2 reduction,
 - improved competitiveness and export possibilities for EU industry,
 - possibility to create employment in less favoured areas,
 - increased security of energy supply in the EU.
4. Supports the Commission's approach that EU measures must be complemented with measures on national level based on a twofold objective; support to R&D and application of CHP, and the dissemination of information on the advantages of CHP.
5. States that the internalisation of external costs from energy production must be improved, particularly in the area of conventional energy use.
6. States that a fundamental requirement for increased use of decentralised CHP is fair access to the electricity market by way of long term minimum indemnification standards for electricity generated by CHP. This approach could avoid lengthy and difficult negotiation with local energy distributors which very often hampers the increased use of CHP.
7. Calls on the Commission to put forward proposals on harmonised tax reductions on energy produced by CHP-plants using renewable energies.

8. Calls on the Commission to set a priority, within the 5th R&D framework programme, for CHP using biomass as fuel in order to support development, demonstrations and marketing of these innovative technologies.

Yours sincerely,

(sgd) Ken Collins