Report

by the German Federal Ministry of Economics and Technology

in accordance with Article 10(1) read in conjunction with Article 5(3) and Article 10(2) read in conjunction with Article 6(3) of

Directive 2004/8/EC of the European Parliament and of the Council

of 11 February 2004

on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC

1 Introduction

Article 10(1) read in conjunction with Article 5(3) of Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC requires Member States to report on the national measures taken to ensure the reliability of the guarantee system for electricity from high-efficiency cogeneration.

In addition, Member States are required under Article 10(2) read in conjunction with Article 6(3) of Directive 2004/8/EC to publish a report with the result of the evaluation of progress towards increasing the share of high-efficiency cogeneration referred to in Article 6(3).

This report supplements the report on the potential for high-efficiency cogeneration in Germany, sent to the Commission in Spring 2008, and contains the latest statistics on the development of cogeneration in Germany. These current figures are presented against the background of the figures for previous years in order to highlight the expansion of high-efficiency cogeneration.

The report also describes the measures taken in Germany under Article 5(3) of Directive 2004/8/EC to ensure the reliability of the system of guarantees of origin for electricity from high-efficiency cogeneration.

2 Development of cogeneration in Germany

In 2002 the German Government adopted the Act on the maintenance, modernisation and expansion of heat-power cogeneration (the Cogeneration Act) in order to maintain the position of heat-power cogeneration on a liberalised market for grid-supplied energies given that electricity prices were falling at the time. It is clear from Table 1 that this package of measures has been successful in ensuring the continued existence of cogeneration plants in Germany and in gradually expanding their role. However, this expansion was mainly confined to small cogeneration plants with a capacity of up to 2 MW. In the 50 kW sector in particular approximately 10 000 new plants became operational between 2002 and 2006.

Cogeneration plants (Energy efficiency 75% or more)			CCGTs	Gas turbines with waste heat boiler	CHP	Back-pressure turbines	Other cogeneration plants *	**Total**
2004	Installed electr. output	MW	2 708	2 070	765	13 599	1 691	**20 833**
	Heat capacity	MW	4 622	3 831	1 277	38 393	3 849	**51 972**
	Number of CHP plants	no.	49	172	693	563	12	**1 489**
2005	Inst. electr. output	MW	3 649	2 406	894	13 891		**20 840**
	Heat capacity	MW	5 980	5 238	1 585	36 155		**48 958**
	Number of CHP plants	no.	62	166	859	571		**1 658**
2006	Inst. electr. output	MW	4 086	2 476	945	13 339		**20 846**
	Heat capacity	MW	6 202	4 815	1 558	33 212		**45 787**
	Number of CHP plants	no.	60	177	936	555		**1 728**

* No longer shown separately since 2005.

Table 1: Development of cogeneration plant capacity in Germany from 2004 to 2006

The stabilisation of cogeneration production capacities played a major role in increasing cogeneration's share of electricity production in Germany to its current level of approximately 12%. Over the same period, however, useful heat output fell back slightly. This apparent discrepancy between the growth of electricity production by cogeneration and a decline in heat output is partly the result of the greater current-efficiency of cogeneration plants following modernisation. The useful heat capacity of the modernised plants, on the other hand, remained very largely the same. In 2006 the annual electricity production of cogeneration plants reached approximately 80 TWh. The bulk of this electricity production could be attributed to high-efficiency cogeneration plants (see Table 2).

Cogeneration plants (Energy efficiency 75% or more)			CCGTs	Gas turbines with waste heat boiler	CHP	Back-pressure turbines	Other cogeneration plants	**Total**
2004	Electricity production	GWh	11 257	7 798	2 675	30 264	4 656	**56 650**
	Heat generation	TJ	52 430	43 962	14 702	388 917	34 257	**534 268**
	Fuel input	TJ	107 128	83 976	30 366	658 533	61 395	**941 398**
2005	Electricity production	GWh	14 520	10 014	2 818	29 291		**56 643**
	Heat generation	TJ	62 363	51 725	16 532	382 832		**513 452**
	Fuel input	TJ	131 795	102 290	33 292	655 460		**922 837**
2006	Electricity production	GWh	19 204	7 925	3 048	27 602		**57 779**
	Heat generation	TJ	81 061	48 120	16 972	359 681		**505 834**
	Fuel input	TJ	172 697	89 325	34 874	595 152		**892 048**

Table 2: Development of electricity production by cogeneration in Germany from 2004 to 2006

However, the efforts undertaken so far are still not enough to achieve the original target of reducing CO_2 emissions by up to 23 million tonnes by 2010. As part of its integrated energy and climate programme, the German Government is therefore proposing to improve still further the conditions for the expansion of cogeneration in Germany by means of an amendment to the Cogeneration Act. This amendment was adopted by the German Government in mid-2008.

The amending bill provides for temporary protection for cogeneration plants which have already received assistance, as well as aid for the modernisation of existing cogeneration plants and the

construction of new ones, support for the introduction onto the market of fuel cells, and support for the expansion and construction of heat networks into which heat from cogeneration plants will be fed. To this end, the scope of the support mechanism is to be extended and adapted to make it fit-for-purpose. In future, for the first time, the support for the construction of new cogeneration plants will also apply to larger plants (over 2MW), and there will be support for the production of electricity from cogeneration which will not be fed into a general supply network. The amendment has already completed the legislative procedure before Parliament and is currently at the finalisation and promulgation stage. It will enter into force on 1 January 2009.

This statutory measure, in conjunction with the voluntary commitment by industry, is intended to double the share of Germany's total annual electricity production accounted for by electricity from cogeneration to approximately 25% by 2020.

3 Guarantee of origin of electricity from cogeneration

In addition to wide-ranging changes designed to increase the expansion of cogeneration (see 2 above), the amending bill to the Cogeneration Act also includes rules on the introduction of a guarantee of origin of electricity from cogeneration.

In particular it stipulates that operators of high-efficiency cogeneration plants can apply to the appropriate office, the Federal Office of Economics and Export Control (*Bundesamt für Wirtschaft und Ausfuhrkontrolle*), for a guarantee of origin for electricity produced by cogeneration.

The cogeneration plant operator must provide the following information when making his application:

- name and address of the cogeneration plant operator,
- location, electrical and thermal capacity of the plant and date of commissioning,
- rate of use and cogeneration index of the plant,
- the total quantity of electricity produced in the cogeneration plant and the period in which the electricity was produced,
- the quantity of electricity from cogeneration produced in the plant, the period, and the quantity of useful heat produced at the same time,
- details of energy source input and lower calorific value,
- details of use of useful heat, and
- details of primary energy savings in accordance with Annex III to Directive 2004/8/EC.

The guarantee of origin must be issued by the competent office provided that the cogeneration plant in question is high-efficiency, the applicant provides the information requested, and this information is plausible and accurate. The guarantee of origin issued must then contain this information.

The office responsible for issuing the guarantee of origin may also demand more information than that listed above, on condition that it is necessary in order to meet the requirements of Community law.