

Translation of letter

Date: 4 November 2011

From: Ms. Sara Romano, Director-General, Directorate-General for Nuclear Energy, Renewable Forms of Energy and Energy Efficiency, Department of Energy, Italian Ministry for Economic Development

To: Philip Lowe, Director-General, DG ENER

Subject: **Request by the Commission for a report in accordance with Article 6(3) and Article 10(2) of Directive 2004/8/EC of the European Parliament and of the Council**

Referring to your Note ENER/PL/jma/pc/S-309427, please find enclosed a report on progress made in Italy towards increasing the share of high-efficiency cogeneration. I would like to point out that this text has been published on the Ministry's website: <http://www.sviluppoeconomico.gov.it/images/stories/documenti/Relazione-cogenerazione-2011.pdf>.

**Report on**  
**COGENERATION IN ITALY**  
**in response to request ENER/PL/jma/pc/S-309427**  
**by the European Commission, DG ENER**

*19 October 2011*

## **1 Regulatory Framework for High-Efficiency Cogeneration**

With Directive 2004/8/EC of the European Parliament and of the Council [1] the European Parliament recognised that cogeneration is a major technological step towards fulfilling the Kyoto Protocol, making the progressive spread of high-efficiency cogeneration one of the EU's priorities.

The Directive laid down the method, based on the total electricity produced by a specific plant, of calculating the relative share of cogeneration production, as well as determining the conditions this share of cogeneration must meet in order to be defined as 'High-Efficiency Cogeneration' (HEC).

The Directive was first implemented in Italy with Legislative Decree No 20 of 8 February 2007 [2] which among other things brought in the guarantee of origin for HEC. Pursuant to this Decree, the conditions for defining HEC laid down in the Directive only apply from 31 December 2010; electricity produced prior to that date shall, however, be assessed on the basis of the previous rules (Decision No 42/2002 by the Regulatory Authority for Electricity and Gas (AEEG) [3]). Please note that the option set out in Article 12(2) of the Directive of using other calculation methods was not used.

The Directive was implemented with the Ministry for Economic Development's Decree of 4 August 2011, issued in consultation with the Ministry for the Environment, Protection of Natural Resources and the Sea. The issuing of this Decree was necessary to take account of two Commission Decisions [12, 13] adopted after this Directive.

Italian legislation grants several benefits regarding HEC electric energy. The main benefits are as follows:

- Exemption from the obligation to purchase Green Certificates (an obligation imposed, in general, on electricity from non-renewable sources) [4].

- The right to priority use, after electricity solely from renewable sources [4].
- The right to use the 'on-site exchange service' (for plants with a nominal output of no more than 200 kW) [2,5]. This service enables producers to feed excess electricity into the public grid and then to withdraw it whenever their requirements exceed their production.
- Ability to obtain energy efficiency certificates (White Certificates) equivalent to the annual primary energy savings [6,7].
- Ability to obtain Green Certificates (only for HEC plants which are part of district heating networks and provided they fulfil requirements regarding the date of commissioning [2,8,9], or which are part of farming communities [10].
- Simplified electricity grid connection procedure; reduced connection costs [11].
- Simplified authorisation procedure (only for plants with an output of less than 1 MWe, provided they are certified) [2,9].
- Special treatment regarding the transmission and distribution costs of the electricity produced, and regarding the purchase of back-up or additional electricity [2].

Special mention must be made of the Law [9] providing incentives for and facilitating cogeneration under the White Certificate system for a minimum period of ten years, based on the primary energy savings, using values in line with similar support schemes in Europe. On the basis of these provisions, the Minister for Economic Development, on 5 September 2011, issued a decree setting up a support scheme for HEC. This scheme, for plants which meet the appropriate technical and administrative conditions, is based on the issue of White Certificates equivalent to the plant's primary energy savings in a given year, calculated on the basis of the method introduced by the abovementioned Decree of 4 August 2011. Finally, a decree is about to be adopted by the Minister for Economics and Finance, in consultation with the Ministry for Economic Development, which will simplify the installation and introduction of fiscal provisions for high-efficiency micro-cogeneration plants (with an output of up to 50kW). The decree will also simplify the payment of duties and other taxes and fiscal charges.

## **2 HEC's development in recent years**

Enclosed please find collated data (Tables 1, 2 and 3) on HEC in Italy. This data is the result of work based on applications for HEC status received and –where appropriate - approved each year by the energy regulatory agency (GSE). Variations from one year to another, although slight, can be attributed to the fact that, according to the rules, the same plant may be granted HEC status one year and lose it the next.

Table 1 charts the general progress made in HEC in Italy between 2004 and 2010.

The marked increase (around 3 000 MW or 40%) in total cogeneration output is highly significant. This figure shows that the policy of providing incentives for cogeneration was effective, even though the process was still continuing during the period in question. Thanks to this policy more than half of Italy's potential HEC output, which the report on HEC's development potential [14] prepared pursuant to Article 6 of and Annex IV to the Directive estimates to be at least 17 000 MW, has been effectively realised.

The increase in electricity production, by 47%, was also significant, in spite of a slight drop in 2008 and 2009 (perhaps due among other things to the difficult economic conditions at that time). This confirms the figures in the Italian Energy Efficiency Action Plan 2011 [15], which estimates 2020 electricity production from cogeneration plants using fossil fuels at 72 TWh (Table 2.1).

As was to be expected, fuel consumption increased (25%) less than electricity production. This is proof that plants' average efficiency has improved.

The most used fuel remains natural gas, which still represents 70% and more of total consumption. Renewable sources are almost completely missing. However, this is only an apparent absence, as there are plants for which the incentives for renewable sources have been requested rather than those for cogeneration, because the two categories cannot be combined. Therefore these plants, which in fact are cogenerative, could not be included in the table.

Finally, and most comfortably, the fact is that cogeneration enables Italy, each year, to save 27-28% of fuel compared to the corresponding separate production, which equals around 4.5 million tonnes of oil equivalent.

Table 2 goes into greater detail, describing the 'composition' of Italy's cogeneration with regard to two macroeconomic activity sectors, i.e. industrial and civil. The share of the civil sector (which practically coincides with the sector of district heating or to be more exact of urban heating) has increased during the period in question, from 8% in 2004 to 16% in 2010. The increase, particularly evident in 2009, is mainly due to the legislation (see section 1 above) which, under certain conditions, grants Green Certificates to cogeneration plants which form part of district heating networks.

Finally, Table 3 illustrates the different technologies used in Italy's cogeneration process. The most rapid development has been with regard to internal combustion engines, where the total output has more than doubled from 2004 to 2010.

Also very obvious was the growth (around 60% in output) of combined cycle gas-steam plants thanks to major recent investment.

The number of gas turbines has decreased following growth from 2005 to 2006. This can be explained by the common practice of adding a steam turbine to an existing gas turbine so as to increase total output. In this way a new combined cycle gas-steam turbine has apparently taken over from the present gas turbine which seems to have 'disappeared'. Finally, there is a clear decrease in steam turbines, output from which has approximately halved during the period in question. This is another sign of the renewal process going on in Italy's cogeneration.

## References

- [1] European Parliament and Council, 2004, Directive 2004/8/EC, 'Promotion of cogeneration based on a useful heat demand in the internal energy market'.
- [2] Decreto Legislativo 8 febbraio 2007, n.20, 'Attuazione della direttiva 2004/8/CE sulla promozione della CAR basata su una domanda di calore utile nel mercato interno dell'energia, nonché modifica alla direttiva 92/42/CEE' (Legislative Decree No 20 of 8 February 2007, 'Implementation of Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC')
- [3] Autorità per l'Energia Elettrica e il Gas , 2002, Deliberazione n. 42/02 , 'Condizioni per il riconoscimento della produzione combinata di energia elettrica e calore come CAR ai sensi dell'articolo 2, comma 8, del decreto legislativo 16 marzo 1999, n. 79' (Decision No 42/2002 by the Regulatory Authority for Electricity and Gas, 'Conditions for recognising combined electricity and heat production as HEC pursuant to Article 2(8) of Legislative Decree No 79 of 16 March 1999').
- [4] Decreto Legislativo 16 marzo 1999, n. 79, 'Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica' (Legislative Decree No 79 of 16 March 1999, 'Implementation of Directive 96/92/EC concerning common rules for the internal market in electricity').
- [5] Deliberazione 3 giugno 2008 - ARG/elt 74/08, 'Testo integrato delle modalità e delle condizioni tecnico-economiche per lo scambio sul posto (TISP)' (Decision of 3 June 2008 - ARG/elt 74/08, 'Integrated text of the modalities and the technical and economic conditions for on-site exchange').
- [6] Ministero delle Attività Produttive, Decreto 20 luglio 2004, 'Nuova individuazione degli obiettivi quantitativi per l'incremento dell'efficienza energetica negli usi finali di energia, ai sensi dell'art. 9, comma 1, del decreto legislativo 16 marzo 1999, n. 79' (Ministry of Productive Activities, Decree of 20 July 2004, 'A new identification of the quantitative

objectives for increasing energy efficiency in final energy use, pursuant to Article 9(1) of Legislative Decree No 79 of 16 March 1999').

[7] Ministero delle Attività Produttive, Decreto 20 luglio 2004, 'Nuova individuazione degli obiettivi quantitativi nazionali di risparmio energetico e sviluppo delle fonti rinnovabili, di cui all'art. 16, comma 4, del decreto legislativo 23 maggio 2000, n. 164' (Ministry of Productive Activities, Decree of 20 July 2004, 'A new identification of the quantitative national objectives for energy saving and the development of renewable sources, as provided for in Article 16(4) of Legislative Decree No 164 of 23 May 2000').

[8] Legge 23 agosto 2004, n. 239, 'Riordino del settore energetico, nonché delega al Governo per il riassetto delle disposizioni vigenti in materia di energia' (Law No 239 of 23 August 2004, 'Reorganisation of the energy sector, delegating power to the Government to rework the provisions in force concerning energy').

[9] Legge 23 luglio 2009, n. 99, 'Disposizioni per lo sviluppo e l'internazionalizzazione delle imprese, nonché in materia di energia' (Law No 99 of 23 July 2009, 'Provisions for the development and internationalisation of businesses, also in the field of energy').

[10] Legge 3 agosto 2009, n. 102, 'Conversione in legge, con modificazioni, del decreto-legge 1° luglio 2009, n. 78, recante provvedimenti anticrisi, nonché proroga di termini e della partecipazione italiana a missioni internazionali' (Law No 102 of 3 August 2009, 'Conversion into law, with amendments, of Decree-Law No 78 of 1 July 2009 laying down anti-crisis measures and extending various deadlines and Italian participation in international missions').

[11] Autorità per l'Energia Elettrica e il Gas, 2008, Deliberazione ARG/elt 99/08, 'Testo integrato delle condizioni tecniche ed economiche per la connessione alle reti elettriche con obbligo di connessione di terzi degli impianti di produzione di energia elettrica (Testo integrato delle connessioni attive - TICA)' (Regulatory Authority for Electricity and Gas, Decision ARG/elt 99/08, 'Integrated text of the technical and economic conditions for connection to electricity grids with a third-party access requirement for electricity production plants (Integrated text of active connections)').

- [12] Commission Decision 2007/74/EC of 21 December 2006 establishing harmonised efficiency reference values for separate production of electricity and heat in application of Directive 2004/8/EC of the European Parliament and of the Council.
- [13] Commission Decision 2008/952/EC of 19 November 2008 establishing detailed guidelines for the implementation and application of Annex II to Directive 2008/4/EC of the European Parliament and of the Council.
- [14] Gestore dei Servizi Energetici - GSE S.p.A, 'Analysis of the Italian potential for the application of high-efficiency cogeneration', 2009 ([www.code-project.eu](http://www.code-project.eu)).
- [15] Ministero per lo Sviluppo Economico, 'Piano d'Azione Italiano per l'Efficienza Energetica 2011', 2011 (Ministry of Economic Development, 'Italian Energy Efficiency Action Plan 2011').