

**Progress Report on Cogeneration  
in the Czech Republic  
pursuant to Directive 2004/8/EC**

Ministry of Industry and Trade of the Czech Republic  
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Decree No 439/2005

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## **1. INTRODUCTION**

Directive 2004/8/EC of 11 February 2004 on the promotion of cogeneration based on a useful heat demand was adopted with a view to increasing energy efficiency and improving the security of energy supply in EU Member States.

Under Article 6 of Directive 2004/8/EC, i.e. 'National potentials for high-efficiency cogeneration', the following requirement is laid down:

- Member States shall for the first time not later than 21 February 2007 and thereafter every four years, following a request by the Commission at least six months before the due date, evaluate progress towards increasing the share of high-efficiency cogeneration.

This Report, on progress in the field of cogeneration in the Czech Republic, 'fulfils the requirement under Article 6 of the Directive. This Report is drawn up by reference to legislative steps building on the aforementioned EU Directive. Those steps are geared towards the further promotion of high-efficiency cogeneration in the Czech Republic'.

### **The Czech Republic's energy concept in the field of cogeneration states the following:**

- In keeping with EU Directive 2004/8/EC on the promotion of cogeneration, to ensure compliance therewith, in particular by means of new rules and the expansion of the Energy Regulatory Office's competence, including, where necessary, the preparation of a separate law on the promotion of cogeneration as follows:
  - To maintain the current principle of priority connection to the transmission or distribution system and the right to preferential transport via the transmission or distribution system.
  - Initially, to maintain the principle of the mandatory purchase of power and heat at market prices with a regulated additional price.
  - Based on the results of analyses, and if the approach to the promotion of cogeneration is standardized within the European Union, to adapt the system of promotion in the Czech Republic to that uniform system.

### **In the preparation of this Report and the Czech Republic's opinion of the issue, the following unconditional factors should be taken into account:**

- The amount of heat energy supplied to the end-user is directly proportional to climatic conditions.
- The high degree to which district heating has been developed in the Czech Republic.

## **1.1 Current state of cogeneration in the Czech Republic**

The baseline situation regarding cogeneration use and development in the Czech Republic is generally good. It can be characterized by the following attributes:

- There is a long-standing tradition of cogeneration plants and district heating in the Czech Republic. In particular, the application of steam condensing extraction and steam backpressure turbines was supported and developed as far back as the times when the economy was centrally planned.
- Modern technologies are available, a network of financial services is in operation, there is sufficient operating experience and know-how for the preparation and implementation of new cogeneration projects.
- The promotion of cogeneration is enshrined in Act No 458/2000 (Amendment No 670/2004) on conditions of business and on state administration in energy industries and amending certain laws (the Energy Act). This Act has implemented Directive 2004/8/EC.
- The promotion of cogeneration is enshrined in Act No 406/2000 on energy management, or in the amendment being prepared to this legislation.
- The promotion of cogeneration is declared in the State Energy Concept and in the State Environmental Policy.
- The procedure for the issue of certificates of origin of electricity from cogeneration and the method to determine the quantity of electricity from cogeneration have been enacted under Decree of the Ministry of Industry and Trade of the Czech Republic No 439/2005.
- A system to promote the purchase of electricity from cogeneration by means of price regulation has been implemented by the Energy Regulatory Office pursuant to energy legislation in force.
- Cogeneration investment aid projects feature in the subsidy schemes run by the Czech Energy Agency (• EA) and the State Environmental Fund (SFŽP), although only to a limited degree.

## **2. LEGISLATIVE PROGRESS**

### **2.1 Situation prior to legislative amendments**

In the first law to regulate the terms and conditions of business in energy industries in the Czech Republic, i.e. Act No 222/1994, electricity production was regulated in Section 18 as follows.

#### **Purchase of electricity**

- (1) In so far as it is technically possible, the supplier shall purchase electricity:
  - a) from cogeneration to a degree corresponding to the technological need for heat generation,
  - b) produced from renewable and secondary energy sources.
- (2) Costs linked to the connection of a source under paragraph (1) shall be borne by the owner of that installation.
- (3) The method for the connection of a source under paragraph (1) to a distribution installation shall be determined by the supplier.

(4) Price regulations shall determine the price of purchased electricity within the meaning of paragraph (1).

The new 'Act on conditions of business and on state administration in energy industries and amending certain laws' (the Energy Act) expressed support for cogeneration in Section 32:

### **Cogeneration**

(1) Producers operating a cogeneration installation shall be entitled, should they so request and technical conditions allow, to the priority transport of electricity via the transmission system and the distribution systems.

(2) This right shall apply solely to the quantity of electricity demonstrably linked to the production of heat with a view to the supply thereof to natural or legal persons and for technological purposes.

**In this respect, in Section 25 – in the part on the 'Distribution system operator' – the following provision was issued expressing the purchasing obligation and providing authorization to promulgate an implementing regulation:**

(12) In so far as it is technically possible, the distribution system operator shall purchase renewable electricity in accordance with Section 31(1) and electricity from cogeneration in a quantity pursuant to Section 32 in the manner laid down in an implementing regulation.

This gave rise to Decree No 252/2001 on the method for the purchase of renewable electricity and electricity from cogeneration, containing detailed purchasing obligations and the necessary procedural processes. This Decree, even though it could not foresee the plans of European legislation, anticipated a future philosophy where the promotion of cogeneration would be developed in the EU.

In the amendment to the Energy Act, necessitated primarily by the need to transpose the European Directives 2003/54/EC and 2003/55/EC on the opening up of the markets in electricity and gas, thanks to the previously applied principles it was also possible to ensure the transposition, a little later, 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/EC; this Directive was adopted to improve energy efficiency and enhance the security of energy supply in EU Member States.

## **2.2 Current situation**

As the directives on the opening-up of the markets in electricity and gas virtually excluded the possibility of mandatory purchases of electricity, in an amendment to Act No 458/2000, the promotion of cogeneration was expressed in Section 32 as follows:

### **Cogeneration and the production of electricity from secondary energy sources**

(1) In order to increase the efficient use of cogeneration and reduce the production of greenhouse gases, a producer of heat shall examine the possibility of introducing cogeneration in accordance with special legislation.

(2) Producers operating a cogeneration installation or an installation for the production of electricity from secondary energy sources shall be entitled, should they so request and technical conditions allow, to the priority transport of electricity via the transmission system and the distribution systems, apart from of the allocation of the capacity of international transmission or distribution interconnectors. Further, they shall be entitled to the priority connection of the production installation to the transmission or distribution system, provided that they so request and provided that they comply with the conditions for the connection and transport of electricity laid down in an implementing regulation.

### **These rights shall not apply to electricity**

a) produced in installations using secondary energy sources in a quantity corresponding to the share of the energy potential of secondary energy sources entering the production process.

b) produced in cogeneration installations in one process in a quantity demonstrably linked to the quantity of heat supplied to the district heating systems or direct supplies to natural or legal persons for further use and for technological purposes, with the exception of the energy source's internal consumption.

(3) A basic condition of cogeneration is the supply of useful heat for further use. The criterion for the assessment of cogeneration is the primary fuel savings resulting from the difference between the overall efficiency of cogeneration and the reference value. The overall efficiency of cogeneration shall comply with the values of minimum energy use efficiency under special legislation<sup>6a)</sup> and the overall efficiency of cogeneration shall be at least 10% higher than the reference value for the classification of electricity as electricity from cogeneration. This requirement need not be met in the case of cogeneration installations with an installed capacity of up to 1 MW.

(4) Contributions to the price of electricity from cogeneration or of electricity produced from secondary energy sources shall be paid to producers by the operators of distribution systems directly connected to the transmission system, where producers are connected to such distribution systems, or by the operator of the transmission system, if the producer is connected directly to the transmission system. The amount of the contribution shall be set by the Energy Regulatory Office.

(5) The quantity of electricity from cogeneration and secondary energy sources shall be registered by the Energy Regulatory Office.

(6) Details regarding the method to determine the quantity of electricity from cogeneration based on the ratio of heat to electricity, and to determine electricity from secondary energy sources, shall be laid down by the Ministry in an implementing regulation.

(7) Certificates of the origin of electricity from cogeneration or from secondary energy sources (hereinafter referred to as 'certificates'), which are essential for the application of electricity from cogeneration and electricity from secondary energy sources on the market in electricity shall be issued by the Ministry pursuant to an application for a certificate. The application shall contain the applicant's identification information, the identification

information of the production plant, a description and diagram of the production installation and the technological process of cogeneration or of the production of electricity from secondary energy sources, information about the fuel, the current and projected overall efficiency and the reference value, and the method to determine the ratio of heat to electricity. If information in the application runs is false, the Ministry shall not issue a certificate or, if a certificate has already been issued, the Ministry shall revoke that certificate. Details regarding the application and a specimen of the application shall be laid down in an implementing regulation. An application shall be submitted by an operator of cogeneration or of the production of electricity from secondary energy sources within six months of the date on which this Act enters into effect.

(8) Electricity traders shall preferentially purchaser and supply electricity offered by the producers of electricity from cogeneration or producers of electricity from secondary energy sources. Details concerning the method to determine and trade in electricity from cogeneration and from secondary energy sources shall be laid down in an implementing regulation.

(9) Derogations in the capacity of an installation on account of the natural character of cogeneration shall not constitute a reason not to comply with the obligations under paragraphs (4) and (8).

It follows from this provision of the Energy Act that direct state aid for cogeneration is not applied, but that legislation in force facilitates the promotion of cogeneration in the system of price regulation operated by the Energy Regulatory Office. Negligible direct state aid is addressed in an annually declared state programme for the promotion of energy savings by means of a contribution to investments in the construction of new cogeneration plants and by means of consulting support. The state programme is implemented by the Czech Energy Agency and currently applies virtually only to the construction of sources with electrical output of up to 1 MW.

**The promotion of developments in the production of electricity from cogeneration is also expressed legislatively in Section 7 of Act No 406/2000:**

#### Cogeneration

(1) Each producer of heat with a source with a total capacity of more than 5 MW<sub>t</sub> shall have, in relation to the construction of new sources or in the event of a change to completed structures in cases of sources already standing, construction documentation subjected to an energy audit from the perspective of the introduction of electricity production.

(2) Each producer of electricity from heat processes with a source with a total capacity of more than 10 MW<sub>t</sub> shall have, in relation to the construction of new sources or in the event of a change to completed structures in cases of sources already standing, construction documentation subjected to an energy audit from the perspective of the introduction of heat supply. Where gas turbines are used, this obligation shall apply to capacity of more than 2 MW<sub>e</sub>, and where internal combustion engines are used, this obligation shall apply to capacity of more than 0.8 MW<sub>e</sub>.

(3) Should a producer decide, pursuant to paragraphs (1) and (2) to engage in cogeneration, that producer shall observe the rules for the design of the installation and for the efficiency of energy use.

(4) Details for the preparation and implementation of cogeneration shall be laid down in a decree.

The implementing Decree No 212/2001 'laying down details for the preparation and implementation of cogeneration' addresses rules for the design of installations for cogeneration in heat sources and electricity production plants.

**Conclusion:**

*It follows from the legislative trends described above that Czech legislation regarding the promotion of cogeneration currently complies fully with the intentions of Directive 2004/8/EC and makes a significant contribution to the possibility of primary energy savings and reductions in the environmental burden.*

**3. PROCEDURAL PROGRESS – APPLICATION OF THE DIRECTIVE'S PRINCIPLES**

The amendment to the law was followed up by a new decree, Decree No 439/2005 (superseding Decree No 252/2001) laying down the details regarding the method to determine the quantity of electricity and heat and to determine the quantity of electricity from secondary energy sources. The Decree applies in particular to procedures laid down in annexes to Directive No 2004/8/EC and addresses the necessary procedural aspects.

The consolidated text of the Decree is provided in an annex to this Report.

This Decree made it possible to highlight the difference between high-efficiency cogeneration and installations which do not comply with national efficiency parameters.

The actual support available for these high-efficiency installations is not direct state aid for cogeneration, but support in the system of price regulation run by the Energy Regulatory Office. Only those entities to which the Ministry of Industry and Trade grants the certificate laid down in the Energy Act, based on an application containing, in particular, the technical parameters of the relevant installation, are entitled to such assistance.

**Conclusion:**

*Despite the very short time that has passed since amendments to Czech legislation entered into effect, we can confirm the force and effect of all the procedural steps that have been initiated.*

**4. PROGRESS IN STATISTICAL MONITORING**



With regard to statistical evaluations of developments in the quantity of electricity from cogeneration on the basis of requirements laid down in Directive No 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market, there is currently insufficient documentation as the interval that has passed since it entered into force is not long enough to make any comparisons. In addition, in the heating sector there has been a significant reduction in the consumption of useful heat for the welcome reasons that heat production, distribution and (especially) consumption have been rationalized. There is still potential to make savings in heat consumption, although the downward trend is now decelerating. Even so, this fact will continue to distort the informative value of figures on the volume of electricity produced from cogeneration because, as an analysis of cogeneration potential shows, there is now little room for the construction of new cogeneration sources in the Czech Republic on account of previous development in the heating sector. Nevertheless, the current situation is confirmed by certain statistics from the Energy Regulatory Office.

	Actual values of the purchase of electricity from cogeneration		contribution to cogeneration in the distribution price
	MWh	TCZK	CZK/MWh
2003	8 255 671	653 056	7.0
2004	8 757 822	583 614	8.5
2005	8 651 394	578 765	7.7
2006*	8 757 822	435 439	7.6
2007*	8 651 394	502 992	8.6

*\* the reduction in the values relating to the purchase of electricity expressed in MWh and CZK can be attributed to the removal from the statistical monitoring of cogeneration installations not complying with the conditions of high efficiency.*

### **Changes to ministerial electricity and heat statistics relating to cogeneration**

The ministerial arrangements for the collation of statistics at the Ministry of Industry and Trade did not provide data sufficient to evaluate cogeneration. Therefore, new versions of Ministry of Industry and Trade statistical statements were prepared relating to electricity and heat production and supply statistics; these new versions offer an improved insight into cogeneration. A new separate block was incorporated into the statements, facilitating the acquisition of cogeneration data in the necessary scope and quality.

**Conclusion:**

*The interval between the application of principles under Directive No 2004/8/EC and due statistical monitoring has been too short to provide coherent data so far. Despite this, increased interest in the production of electricity from cogeneration has been recorded in the Czech Republic. This situation is confirmed by certain statistics maintained by the Energy Regulatory Office.*

**5. RECORDS OF CERTIFICATES ISSUED FOR HIGH-EFFICIENCY COGENERATION INSTALLATIONS**

The annex contains tables documenting records of high-efficiency cogeneration installations structured as follows:

- comprehensive overview of all high-efficiency cogeneration installations
- comprehensive overview of all high-efficiency cogeneration installations where the primary energy source comprises solid fossil fuels
- comprehensive overview of all high-efficiency cogeneration installations where the primary fuel is natural gas
- comprehensive overview of all high-efficiency cogeneration installations using other primary fuels