Ministry of Economic Affairs
Republic of Latvia

Report by the Republic of Latvia on the implementation 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/EC

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Introduction

One of the objectives of Latvian national energy policy is to increase the amount of energy production by cogeneration.

On 27 June 2006, the Cabinet of Ministers approved the document drawn up by the Ministry of Economic Affairs *Guidelines for the Development of Energy in 2007-2016* (hereinafter referred to as the Guidelines) setting out the basic principles, objectives and course of action of Latvian energy policy for the next ten years and marking the course of long-term development of the energy sector.

Since 2000, high-efficiency cogeneration has been rapidly spreading in the Latvian energy sector.

From 2000 to 2006, the ratio of cogeneration in the centralised heat supply and consumption increased by 18 percentage points and currently constitutes 55.4 % of the total centralised heat supplies. The ratio of electricity produced by cogeneration has also significantly increased; in 2006 compared to 2000, it increased by 171.4 %.

In accordance with the Guidelines, the undeveloped average heat load potential of the heat supply systems during the heating period amounts to approximately 550 MW_{th} which is distributed in the following way:

In Rīga – approximately 50 MW_{th}[1];
In the largest cities of Latvia – 250 MWt_h (In Daugavpils – 100 MW_{th}, in Liepāja – 80 MW_{th}, in Ventspils – 40 MW_{th}, in Rēzekne – 30 MW_{th});
In other towns (with a population of at least 4000 people) – 250 MW_{th}.

The Guidelines establish that in order to support the cogeneration technologies, it is necessary to simplify the technical and administrative procedures ensuring the access of cogeneration units to the electric power supply grid, especially of small scale cogeneration units (up to 4 MW). Special attention should be paid to the development of cogeneration technologies utilising renewable energy sources: the main source in Latvia is firewood.

One of the priority measures of enhancing the share of electricity generated from renewable energy sources[2] is support to effective use of biomass not only for heat but also for electricity production. The total planned capacity of cogeneration plants fuelled by biomass and biogas is 70-80 MW_{el}; in 2016, high-efficiency cogeneration using biomass has to constitute at least 8 % of the total amount of electric power generated from renewable energy sources (including the Daugava HPP cascade).

In accordance with the Guidelines, in the period up to 2016, it is necessary to develop the cogeneration potential in the largest cities of Latvia (including Rīga) to the total heat load of approximately 300 $MW_{th.}$ The other towns in Latvia must have the cogeneration potential of the total heat load of approximately 100 $MW_{th.}$

Promoting the development of cogeneration and energy generation from renewable energy sources, the electricity generation capacity should be enhanced both in the transmission system and the distribution system.

Two support instruments have been chosen for this purpose:

1. mandatory fixed price procurement;

[1] The development of this potential does not influence the mode of operation of cogeneration units, since their heat supply areas are not interconnected.
[2] By 2010, the ratio of electricity generated from renewable energy sources (RES-E) should reach 49.3 % of the total electricity consumption in the country.

2. earmarked subsidies for investments promoting the construction of cogeneration units which use renewable energy sources , utilising for this purpose the financing of the European Union structural funds.

1. **Laws and Regulations**

Cogeneration is regulated in Latvia by special laws and regulations: "Energy Law", "Electricity Market Law" and Cabinet of Ministers Regulation No 921 "Regulations Regarding Electricity Production in Cogeneration" issued in accordance with the "Electricity Market Law", as well as the law "On Regulators of Public Utilities" and the regulations of the Cabinet of Ministers issued in accordance with it.

1.1 Electricity Market Law

The Electricity Market Law was adopted on 5 May 2005 and it includes legal provisions based on the following EU directives:

1) Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market;
2) Directive 2003/54/EC of the European Parliament and of the Council of 26 July 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC;
3) 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.

The Law provides that a producer who produces electricity in the process of cogeneration may acquire the right to sell the produced electricity within the framework of mandatory procurement (Section 28, Paragraph 1).
According to Section 28 Paragraph 2, the Cabinet of Ministers prescribes the following criteria regarding cogeneration:

- the criteria for the qualification of cogeneration power units for acquiring the right to sell the produced electricity within the framework of mandatory procurement;
- the procedures for mandatory procurement and the supervision thereof;
- the procedures for fixing the electricity price depending on the electric capacity of a cogeneration unit and the fuel used;
- the procedures for covering mandatory procurement expenses and the procedures for waiving the right to sell the produced electricity within the framework of mandatory procurement.

If a producer wishes to use the right to sell the produced electricity within the framework of mandatory procurement and his or her cogeneration power unit conforms to the criteria specified by the Cabinet, all surplus of the produced electricity, which is left after the producer uses the electricity for his or her own needs, shall be procured by a public trader for a price fixed in accordance with the procedures specified by the Cabinet.

A public trader shall calculate separately the amount and costs of the electricity procured in accordance with the procedures specified by the Cabinet. The expenses of

such procurement shall be covered by all electricity end users in Latvia in proportion to their electricity consumption by purchasing a definite proportion of the electricity produced in cogeneration power units from the public trader or by compensating the expenses of the procurement thereof. The Cabinet shall specify the procedures for the coverage of the procurement expenses, but the Regulator – the methodology for the calculation of cost allocation (Section 28, Paragraph 5).

Cogeneration power plants which conform to the prescribed criteria may receive a guarantee of origin for the produced electricity in accordance with the procedures specified by the Cabinet. An institution authorised by the Cabinet shall issue the guarantee of origin (Section 28, Paragraph 7).

1.2 Law on Regulators of Public Utilities

The Law "On Regulators of Public Utilities" defines the energy sector including heat supply, in the production process of which electricity is generated, and consequently cogeneration, as a sector regulated by the State.

On 3 July 2001, the Cabinet of Ministers issued Regulation No 297 "Regulations on Types of Regulated Public Utilities", based on the Law " On Regulators of Public Utilities", providing that in the heat energy supply sector where electricity is produced in the production process it shall be necessary to regulate concurrent production of thermal energy and electricity in installations the peak load of which is more than one megawatt.

The Public Utilities Commission (hereinafter referred to as the PUC) shall licence the production of thermal energy and electricity in cogeneration units, fix the tariffs and the methodology for the calculation of tariffs.

The decisions adopted within the powers conferred on the PUC by the laws and regulations shall be binding administrative provisions regarding cogeneration.

Within the scope of its competence, the PUC prescribes laws regulating electricity supply and provides their explanation.

1.3 Cabinet Regulation No 921 "Regulations Regarding Electricity Production in Cogeneration"

On 6 November 2006, in accordance with the Electricity Market Law, the Cabinet of Ministers issued Regulation No 921 "Regulations Regarding Electricity Production in Cogeneration" (hereinafter referred to as CM Regulation No 921) regulating the mandatory fixed price procurement of electricity produced in a cogeneration process (see Part 2 of the Report).

CM Regulation No 921 includes legal provisions based on 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.

1.4 Draft Regulation of the Cabinet of Ministers "Provisions for Activity 3.5.2.2 'Development of Cogeneration Plants Using Renewable Energy' of the Action Programme Complement 'Infrastructure and Services' "

With the aim of essentially enhancing the production of heat and electricity from renewable sources, diversify the supply of primary energy resources and promote the domestic production of electricity, thus decreasing the dependence of Latvia on the import of primary energy resources, the Ministry of Economic Affairs of the Republic of Latvia has elaborated the draft regulation of the Cabinet of Ministers "Provisions for Activity 3.5.2.2 'Development of Cogeneration Units Using Renewable Energy' of the Action Programme Complement 'Infrastructure and Services'" laying down the procedure for allocating funding within the framework of priority 3.5 "Environmental infrastructures and the promotion of environment-friendly energy", measure 3.5.2 "The energy sector", activity 3.5.2.2 "The development of cogeneration units using renewable energy sources" of the action programme complement "Infrastructure and services".

The draft regulation envisages support to the construction of new cogeneration units and the reconstruction of the existing units. The total amount of funding is EUR 24.68 million; furthermore, the amount of support may reach 50 % of the eligible costs of the project. The minimum and maximum amount of public funding per project shall range from LVL 100 000 to LVL 4 000 000.

2. Electricity Production by Cogeneration

CM Regulation No 921, issued on 6 November 2006 in accordance with the Electricity Market Law and implementing Directive 2004/8/EEC establishes:

- the criteria by which cogeneration units shall be qualified to obtain the right to sell electricity produced within the framework of mandatory procurement;
- the procedures for mandatory procurement of electricity produced in a cogeneration unit and for the supervision thereof;
- the procedures for fixing the price for electricity produced in a cogeneration unit depending on the electrical capacity of the cogeneration unit and the fuel used;
- the procedures by which a trader may waive the right to sell electricity produced within the framework of mandatory procurement;
- the procedures by which a trader who has obtained the right to sell electricity produced within the framework of mandatory procurement, may receive a guarantee of origin.

2.1 Qualifications of cogeneration units for the requirement of meeting economically justifiable useful heat demand

CM Regulation No 921 specifies also the qualification criteria of cogeneration units and the supervision of mandatory procurement. These qualification criteria comply with the requirements of Directive 2004/8/EC.

Part II of the Regulation determines the efficiency criteria and the requirements for the qualifications of cogeneration units in order to acquire the right to sell the produced electricity within the framework of mandatory procurement.

The Regulation includes the following qualification criteria:

- technological;
- efficiency.

Cogeneration units which concurrently produce electricity and useful thermal energy using one or several of the following production technologies: the combined cycle gas turbine with heat recovery, the steam condensing extraction turbine with a steam discharge pipeline for heat supply, the steam backpress turbine, the gas turbine with heat recovery, the internal combustion engine, microturbines, Stirling engines, fuel cells, steam engines, the organic Rankine cycle or other types of technology or combinations thereof, may qualify to obtain the right to sell electricity produced within the framework of mandatory procurement or receive the guarantee of origin if by using them it is possible to produce combined electricity and useful heat.

In order to specify the efficiency of a cogeneration unit, the primary energy savings, which are obtained in producing energy by the cogeneration unit in cogeneration, shall be calculated by using the following formula:
[1]

$$PEI = \left(1 - \frac{1}{\frac{\eta_{el}^{CHP}}{\eta_{el}^{ref}} + \frac{\eta_{th}^{CHP}}{\eta_{th}^{ref}}} \right) \times 100\%$$

where

PES means the primary energy savings, obtained in producing energy by the cogeneration unit in cogeneration, [%];

η_{el}^{CHP} is the electrical efficiency coefficient of the cogeneration installation within a certain period of time, which is calculated according to the following formula:

[2]

$$\eta_{el}^{CHP} = \frac{E^{CHP}}{B}$$

where

E^{CHP} is the amount of electricity produced in the cogeneration installation within a relevant period of time which is not less than 6 months (MWh);

B – the total amount of fuel consumed for the production of electricity and useful thermal energy in the cogeneration installation within a relevant period of time, which is not less than 6 months (MWh);

η_{el}^{ref} is the efficiency coefficient for separate electricity production, depending on the type of fuel used[1].

η_{th}^{CHP} is the heat efficiency coefficient of the cogeneration installation within a certain period of time which is calculated according to the following formula:

[3]

$$\eta_{th}^{CHP} = \frac{Q^{CHP}}{B}$$

where

Q^{CHP} is the amount of useful thermal energy produced in the cogeneration installation within a relevant period of time, which is not less than 6 months (MWh);

B is the total amount of fuel consumed for the production of electricity and useful thermal energy in the cogeneration installation within a relevant period of time, which is not less than 6 months (MWh);

η_{th}^{ref} is the efficiency coefficient for separate thermal energy production depending on the type of fuel used (Annex 1).

According to CM Regulation No 921, the cogeneration unit complies with the efficiency criteria and is entitled to sell electricity produced within the framework of mandatory procurement if the primary energy savings calculated are:

more than 1 % for small scale[2] cogeneration units;
not less than 10 % for other cogeneration units.

Calculating the efficiency criteria of a cogeneration unit, it shall be assumed that the amount of electricity produced by cogeneration which is left after the cogeneration unit has used it for its own needs in the account settlement period is equal to the amount of electricity in the electricity grid if one of the following terms has been observed:

- the actual total energy production efficiency coefficient of the cogeneration installation which uses the technologies of the combined cycle gas turbine with heat recovery or the steam condensing extraction turbine with a steam discharge pipeline for heat supply, shall be 80 % or more;

- the actual total energy production efficiency coefficient of the cogeneration installation which uses some of the technologies of the steam backpress turbine, the gas turbine with heat recovery, the internal combustion engine, microturbines, Stirling engines or fuel cells, shall be 75 % or more.

[1] Listed in the annex to CM Regulation No 921.
[2] A cogeneration unit whose electricity production capacity is smaller than 1 MW.

The technological particularities of the cogeneration units shall be also taken into account when calculating the amount of the produced electricity which is based on the power to heat ratio of the relevant cogeneration installation in accordance with the data of the technical passport.

This ratio shall be calculated depending on the cogeneration technology used (see Table1).

Ratio between Electric and Thermal Capacity Set for the Cogeneration Installation for Different Cogeneration Technologies

Table 1

No	Cogeneration technology	Power to heat ratio (α)
1	Combined cycle gas turbine with heat recovery	0.95
2	Steam condensing extraction turbine with a steam discharge pipeline for heat supply	0.45
3	Steam backpressure turbine	0.45
4	Gas turbine with heat recovery	0.55
5	Internal combustion engine	0.75

The particularities of various types of fuel shall also be taken into account. Thus, for example, in calculating the primary energy savings, various efficiency coefficients for separate thermal and electrical energy production are used.

Efficiency coefficients for separate production of thermal energy

Table 2

No	Fuel	Efficiency coefficient, η_{th}^{ref}
1	Gaseous fuel	0.90
2.	Liquid fuel	0.88
3	Solid fuel	0.80

Efficiency coefficients for separate production of electricity

Table 3

No	Fuel	Efficiency coefficient, η_{el}^{ref}
1	Gaseous fuel	0.45
2	Liquid fuel	0.40
3	Solid fuel	0.30

2.2 Administrative procedure for obtaining the right to mandatory procurement of electricity produced in a cogeneration unit

A trader planning to obtain the right to sell electricity produced in a cogeneration unit within the framework of mandatory procurement shall submit an application to the Ministry of Economic Affairs in accordance with the requirements laid down in CM Regulation No 921.

The application shall be prepared according to the sample form annexed to the Regulation containing the following information:

1. information regarding the applicant (registration number, legal address, contact information);
2. information regarding the cogeneration unit (electricity production licence number, location, transmission operator, the types of fuel used, types of generation technology, set capacities, users of thermal energy, the amount of thermal energy sold);
3. information regarding the operating data of the cogeneration unit (the heating fuel consumed, the monthly breakdown of the energy produced and the annual overall amount).

The Ministry of Economic Affairs shall examine the application within the period of 20 days. If the application does not contain all the information indicated or all the documents specified are not attached to the application, the Ministry of Economic Affairs shall request to submit them within 30 days. If a trader fails to submit the necessary information and documents within the specified period of time, the Ministry of Economic Affairs shall take a decision to reject the application and inform the trader thereof.

If the application and the documents attached thereof comply with the requirements of the Regulation, the Ministry of Economic Affairs, on the basis of the information provided in the application, shall check the compliance of the cogeneration unit with the efficiency criteria of this Regulation within 20 days after the receipt of all the necessary information.

If the cogeneration unit complies with the criteria referred to, the Ministry of Economic Affairs shall take a decision of granting the rights to the trader to sell the electricity produced in the relevant cogeneration unit within the framework of mandatory procurement.

2.3 Procedures of mandatory procurement and supervision thereof

Part III of CM Regulation No 921 regulates the procedures and supervision of mandatory procurement.

Mandatory procurement shall be implemented on the basis of a contract between the public trader and the trader or a person authorised by him or her. Before entering into a contract, the trader shall submit to the trader one of the copies of the decision of the Ministry of Economic Affairs to grant him or her the rights to sell the electricity produced in the relevant cogeneration unit within the framework of mandatory procurement.

In order to sell electricity within the framework of mandatory procurement, the cogeneration unit shall be equipped with:

- electric energy meters for recording the electricity produced in the cogeneration installation, transferred to the electricity grid and received from the grid, which comply with the technical requirements specified and published by the operator of the relevant electricity grid;

- thermal energy meters or a meter system, which ensures separate recording of the thermal energy produced in the cogeneration installation, the thermal energy produced in separate boilers or thermal energy produced in another way and useful thermal energy sold to the users;

- a system of measurement equipments or measurement means which ensures separate recording of the fuel consumed in the cogeneration installation and other installations for the production of thermal energy.

The period of time for settling the accounts regarding the sale and purchase of electricity within the framework of mandatory procurement shall be 1 calendar month.

The amount of electricity produced during the settlement of accounts and which is left after the cogeneration unit has used the electricity for its own needs, shall be determined in the following way:

The actual total efficiency coefficient of the energy production of the cogeneration installation shall be calculated according to the following formula:

[4]

$$\eta_{fakt}^{CHP} = \frac{E_{np}^{v} + Q_{np}}{B_{np}} \times 100\%$$

where

E_{np}^{v} is the amount of electricity produced in the cogeneration installation during the period of time for the settlement of accounts which is specified in accordance with the indicators of the meters at the generator output (MWh);

Q_{np} is the amount of useful thermal energy produced in the cogeneration installation during the period of time for the settlement of accounts (MWh);

B_{np} is the amount of fuel consumed in the cogeneration installation during the period of time for the settlement of accounts (MWh).

It shall be assumed that the amount of electricity produced in the cogeneration installation after it has been used for the needs of the installation itself, is equal to the amount of electricity transferred to the electricity grid during the period of time for the settlement of accounts, if one of the following conditions is observed:

- the actual total efficiency coefficient of energy production of the cogeneration installation using a combined cycle gas turbine with heat recovery or a steam condensing extraction turbine with a steam discharge pipeline for heat supply, is 80 % or more;

- the actual total efficiency coefficient of energy production of the cogeneration installation using a steam backpressure turbine, a gas turbine with heat recovery, an internal combustion engine, microturbines, Stirling engines and fuel cells, is 75 % or more.

If the calculated actual total efficiency coefficient of the cogeneration installation is less than the values specified above, the amount of electricity produced by cogeneration left after its utilisation for the needs of the cogeneration unit during the period of time for the settlement of accounts, shall be calculated according to the following formula:

[5]

$$E_{xp}^{CHP} = Q_{xp} \times \alpha$$

where

α is the ratio of electric power capacity to thermal capacity set by the cogeneration installation in accordance with the data of the technical documentation. If such data are not available, the referred to value shall be determined depending on the cogeneration technology used (Annex 4).

A trader may sell the amount of electricity which is not recognised as produced in cogeneration to any player of the electricity market upon mutual agreement regarding the conditions of sale or to a trader for the lowest price in the relevant period for the settlement of accounts.

Each year up to the 1 March, a trader shall submit a report to the Ministry of Economic Affairs regarding the operation of each cogeneration unit in his or her ownership using the report form specified by CM Regulation No 921 which shall contain the following information:

- general information about the cogeneration unit (the location, the licence number, the registration number of the trader, the system operator, the electric and thermal capacities set, the cogeneration technology and the types of fuel used, the number of employees, the user of useful thermal energy);

- information regarding the operation of the cogeneration unit within a year broken down by months (the amount of fuel consumed, the produced and sold thermal energy and its price, the amount of electricity produced and transferred to the electricity grid, the actual efficiency coefficient of the cogeneration installation, electricity produced in the cogeneration process, the price of electricity produced by cogeneration).

The State Energy Inspection shall control the compliance of the operation of the cogeneration unit with the requirements of the legislation regulating the energy sector, but the system operator – the condition of the electricity and thermal energy meters.

Within 3 months after the receipt of the report, the Ministry of Economic Affairs shall evaluate the compliance of the cogeneration unit with the defined efficiency criteria. If a cogeneration unit fails to comply with the efficiency criteria, the Ministry of Economic Affairs shall send a warning to the trader regarding the non-compliance of the cogeneration unit and the possibility of losing the right to sell electricity produced within the framework of mandatory procurement.

Within 6 months after the receipt of the warning, the trader shall renew the compliance of the cogeneration unit with the defined efficiency criteria and shall submit a report to the Ministry of Economic Affairs regarding the period of time referred to in accordance with the specified form. If the data of the report indicate that the cogeneration unit still fails to comply with the efficiency criteria, the Ministry of Economic Affairs, within 20 days, shall prepare a decision to deprive the trader of the right to sell electricity produced by cogeneration within the framework of mandatory procurement and shall send it to the trader, trader and system operator.

The trader shall terminate the respective contract between the public trader and the trader on the basis of the decision referred to. After the termination of the contract, the cogeneration unit may continue operating and sell the electricity produced to any market player upon mutual agreement regarding the terms of sale.

If the trader wants to waive the right to sell electricity produced by cogeneration within the framework of mandatory procurement, he or she shall notify the trader, the Ministry of Economic Affairs and the system operator of the decision. Within 30 days after the receipt of the notification, the Ministry of Economic Affairs shall prepare the relevant administrative act and send it to the trader, the system operator and the trader. The operation of the contract for procuring electricity produced by cogeneration within the framework of mandatory procurement shall be terminated not earlier than 3 months after the notification of the trader regarding the decision to waive the right to mandatory procurement.

After the termination of the contract, the trader still has a duty to submit a report to the Ministry of Economic Affairs about the operation of each of his or her cogeneration units.

The signatures of:

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