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WP 4.2.2 Czech Republic

Country Study on Political Framework and Availability of Biomass

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1 Country indicators: Czech Republic

Size of country	• Total land area: 7 887 000(in hectares) • Utilised agricultural area: 4 249 000 (in %) • Utilised forest area: 2 637 290 (in %) • Nature protection area: 1 041 612 (in %)
Population indicators	• Inhabitants: 10 467 542 (total) (2008) • Inhabitants per km^2: 133
Economic indicators	• GDP per capita: 26 800 USD • Growth rate of real GDP per capita: 2,8 % (2008)
Energy indicators	• Gross inland consumption: 72 050 GWh • Total production of primary energy: 1 910 (PJ) • (thereof renewable energy: 4,7 in %) • Primary production of renewable energy: 127 (PJ) (thereof biomass and waste: in %) • Final energy consumption: (PJ) • RES (biomass) shares of final energy consumption: (in %) • Energy imports: 8 520,5 GWh • CO_2 production per capita: 14,2 tons/a
Availability of biomass ressources	• Theoretical potential: 700 PJ/a • Technical potential: 299 PJ/a) The estimated maximal technical potential will be reached in the year 2050

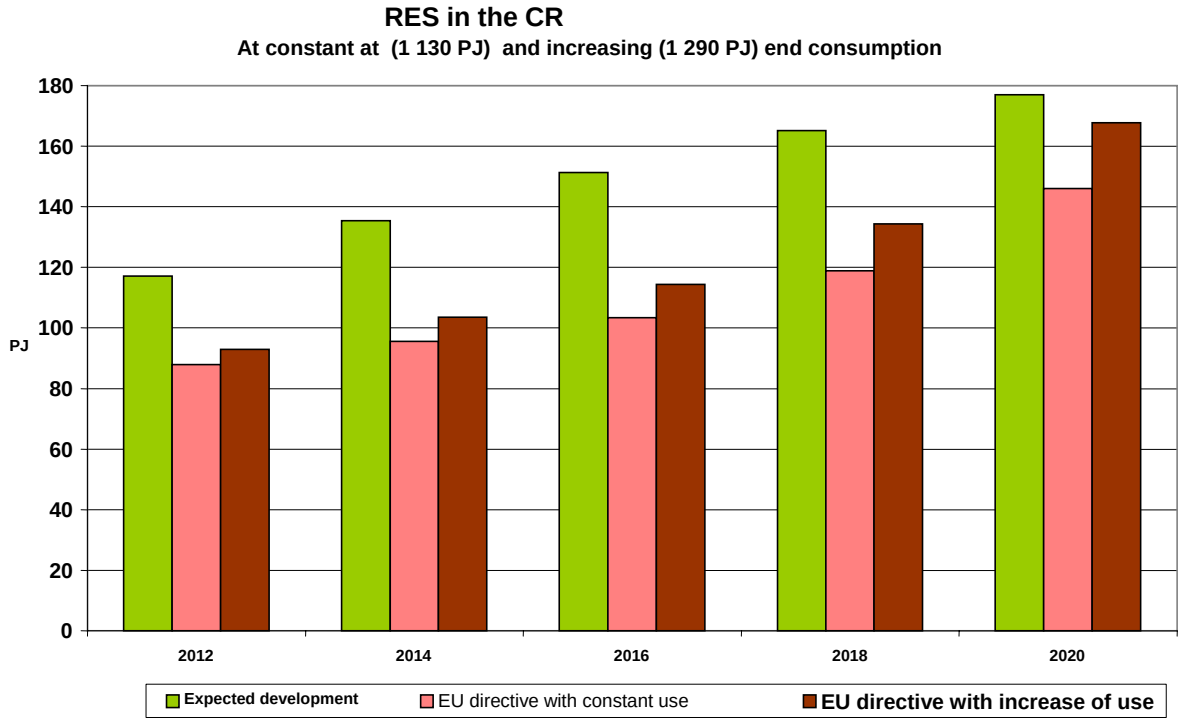
biomass	PJ
agriculture	**214**
forestry	**50**
residual	**35**
total	**299**

Source: MPO and NEK ("Pačesova komise")

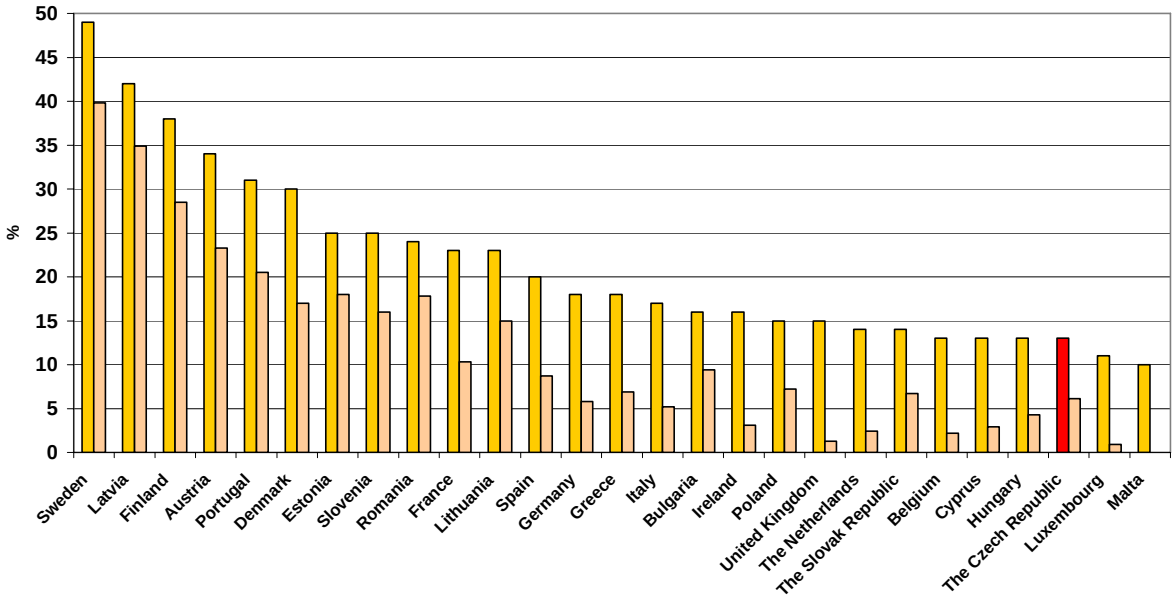
Policy assessment in the partner countries

2 National bioenergy policy for heating / cooling, electricity and transport

The task to maximize use of renewable resources is one of the key points of the energy policy of the European Union. According to the results of a survey conducted by the statistical office Eurostat, the EU, it increases the share of alternative energy sources to balance energy consumption as one of the priority tasks of their governments, 90% of citizens of member countries. In the access agreement in Athens in March 2003, has Czech Republic pledged that the share of gross electricity production from renewable sources by 2010 will be 8% of total gross consumption. Unfortunately, achieving this is to become hopeless, because, according to preliminary statistics, in the year 2007 during normal humid year achieved a share of only about 4.7%. When drafting a law on the promotion of renewable energy sources it was expected that the share of renewables in primary energy consumption would be by 2010 about 6%, which will as well not be fulfilled. Up to the year 2010 in the segment of motor fuels should be a 5.75% share of biofuels in total energy capacity of fuel in the CR. During the spring EU summit in 2007 were introduced the new EU targets for 2020. To this year, the EU as a whole should reach 20% share of renewables in final energy consumption, further savings in energy consumption of 20% compared to projections and to increase of the share of biofuels to 10% of the total fuel consumption of fuels in the EU. Specific share for the year 2020 for the CR is specified in the draft of the directive on RES support, which has been presented by the European Commission on the 23rd of January 2008. Based on the methodology of the European Commission target for the CR of 13% share of energy derived from renewable sources in final energy consumption has been set. The draft of the directive also sets strict environmental sustainability criteria for biofuel production to ensure that biofuels that are to count towards the European targets are sustainable and do not conflict with environmental goals. This means that they must achieve a minimum level of greenhouse gas savings and respect a number of requirements for biodiversity.



Draft of the EU directive on RES



- obligation to 2020 **- current stage**

3 National bioenergy strategies, targets and action plans

In the Czech Republic has been followed the EU directive and developed the national Biomass Action Plan. The plan has been developed by CZ Biom for the Ministry of agriculture of the Czech Republic.

1. The main objectives stated in the BAP are:
2. Implementing reforms for common agriculture politics to the EU energy politics strategy for support of energy crops
    - effective utilization and support of solid, liquid and gaseous biofuels
    - support of research and agriculture
3. Implementing the national programm for support of energy crops
    - the alternative is in joining the support for setting land aside and of LFA in a way to use it as well for energy crops
4. Support for establishing perennial growths of energy crops
    - such program will be an efficient alternative to other programs.
    - Program for establishment of perennial energy crops growths is a good alternative and complement to existing programs and is essential in terms of motivation, perennial crops usually give a real benefit first in the third years of harvesting, the program would compensate for the loss of the first two years after planting
5. The issue of national regulation enabling efficient management of biological waste allowing return of nutrients to the soil by management with biological waste, using aerobic or anaerobic technologies
6. The issue of national legislation on soil protection in response to the forthcoming EC directive on soil protection
7. Announcement of the Research Program in the RES area should respect the current needs of agriculture, i.e. in the breeding research and verification of energy crops on agricultural technologies, harvesting, processing, storage, treatment and utilization of biomass energy
8. Classification of solid biofuels shifting them to lower class of VAT. This is a non-timber forest biofuels, ie. the so-called agro-pellets, etc. Agrobricquettes
9. More detailed statistics on biomass. Alternatively, a single study or multi-phase research on the utilization of biomass, in the first stage dendromass
10. Adjustment of a grant system. Implementation, respectively renewing national grant title 1.U; remove a restriction for utilization of perennial grasslands use for agricultural purposes - resp. for cultivation of energy phytomass and transformation subsidy scheme intended for grassing of arable land

Processing of the National Biomass Action Plan (AP) is based not only on the recommendations of the Biomass Action Plan EU, but in particular with regard to the need to evaluate the potential uses of the limited potential of biomass for the needs for the next years and set the basic rules and resources for its effective use without prejudice to the rules of the free market, respectively. effects of competing possibilities of using biomass in consideration of existing and anticipated non-market interventions.

Biomass Action Plan for the CR was continuously consulted with all stakeholders who expressed interest and which were by the method and the possibility of using biomass significantly affected. The Action Plan deals primarily with the use of biomass for energy, but also takes into account other uses of biomass and the potential of biomass energy is determined only by assessing the current use of biomass and its trends. Potential for the use of biomass for energy in the future are set realistic with regard to the maintenance and development of all sectors that are on the sources of biomass in whole or in part dependent. Generally speaking, the main criteria should be the amount of added value in the process of evaluation and assessment of the biomass life cycle, i.e. including the return of nutrients to the soil.

The basic division of biomass for processing AP is forest, agricultural and "other" biomass, the subdivision is made according to the form of products from biomass for liquid, gaseous and solid.

Overview of specific objectives of the EU, which are relevant to the National Action Plan of the Czech Republic:

- 12% of the total share of RES in primary energy in 2010;
- 20% share of RES in primary energy sources for the year 2020 with the diversification of the share of each Member States (Government of the CR approved RES in primary energy potential of 8.6%);
- 21% share of electricity from RES to gross electricity consumption in the EU internal market in 2010; for CR 8% share of gross domestic electricity consumption in 2010 from RES;
- 5.75% share of liquid biofuels in total fuel in 2010;
- 10% share of liquid biofuels in total fuel in 2020;
- doubling the use of energy from biomass from year 2003 to r.2010 (Biomass Action Plan).

Another recently implemented strategy is the updated Climate protection policy of the Czech Republic. The policy aims at reducing emissions without building new nuclear units and removing limits of coal mining. Czech Republic can reduce greenhouse gas emissions by 2020 to 20% (28 million tons) compared to 2005 (and 40% compared to 1990). An independent expert team, which processed the Policy, has calculated, that the reduction can be done within acceptable economic cost, without building new nuclear resources and with conservation of limits of coal mining.

4 Support schemes for the promotion of the use of energy from biomass

The support of the biomass and of RES in general is done on several levels in the Czech Republic. On one side there are goals of the CR which follow the EU directives. From the national programs there is on one side the support scheme for electricity and heat production from biomass and RES which is done by governmental acts and by decisions of the Energy Regulatory Office.

From the environmental point is the support organized by the Ministry of Environment which has established the State Environmental Fund. This fund operates several programs for the support of RES utilization and energy saving. The structure of programs is:

- Operative program Environment
- National programs
- Green premiums for energy saving

4.1 List of relevant acts

4.1.1 Energy utilization of biomass

4.1.1.1 180/2005 Sb.

Act No. 180/2005 Coll., on the promotion of electricity from renewable energy sources with amendments to other laws

(Zákon o podpoře výroby elektřiny z obnovitelných zdrojů energie a o změně některých zákonů (zákon o podpoře využívání obnovitelných zdrojů)

It was designed to create appropriate framework conditions for the Czech Republic to fulfill its indicative target of providing 8% of its electricity (gross consumption) from renewable energy sources by 2010. It provides support in two ways and if SRP wood is used for the production of electricity, it benefits from this financial support.

The main aim of this law is in order to preserve the nature and climate:

a) to support the RES
b) to secure the sustainable increase of the portion of RES on the consumption of primal energy sources,
c) to support the sustainable utilization of natural resources and to the sustainable development of the society,
d) to establish conditions for achieving the indicative goal of the partition of electricity generated from RES on the gross electricity consumption in the Czech Republic in the size of 8 % up to the year 2010 and to establish conditions for further increase of this proportion after the year 2010.

4.1.1.2 5/2007 Sb.

Ordinance, which changes the ordinance 482/2005 about setting of kinds and arts of their utilization and parameters of biomass by the support of the electricity production from biomass

(Vyhláška, kterou se mění vyhláška č. 482/2005 Sb., o stanovení druhů, způsobů využití a parametrů biomasy při podpoře výroby elektřiny z biomasy)

4.1.1.3 482/2005 Sb.

Ordinance which stipulating the types, means of utilization and parameters of biomass to promote the production of electricity from biomass

(Vyhláška o stanovení druhů, způsobů využití a parametrů biomasy při podpoře výroby elektřiny z biomasy)

The ordinance sets kinds and art if their utilization which is a point of a support by futher law. The ordinance states as well five categories of biomass which receive different support for their utilization. The size of such support is given annually by the Czech Regulatory Office in their ordinances.

4.1.1.4 475/2005 Sb.

Ordinance which implements several law regulations on support of utilization of renewable energy sources

(Vyhláška, kterou se provádějí některá ustanovení zákona o podpoře využívání obnovitelných zdrojů)

This ordinance states terms and details of selection of ways for support of electricity generated from RES, terms of announcement of the intention to offer electricity

generated from RES to the mandatory purchase and technical and economical parameters.

4.1.2 Emision limits

This is the seconond group of laws which is indirectly supporting the use of RES. In general follows the Czech law EU directives on decreasing the amount of greenhouse gases. The most important acts are:

4.1.2.1 206/2006 Sb.

Government Decree amending the Government Decree No. 354/2002 Coll. Laying down emission limits and other conditions for waste incineration

(Nařízení vlády, kterým se mění nařízení vlády č. 354/2002 Sb., kterým se stanoví emisní limity a další podmínky pro spalování odpadu)

4.1.2.2 357/2002 Sb.

Decree of the Czech Ministry of Environment laying down the requirements for fuel quality in terms of air protection

(Vyhláška MŽP, kterou se stanoví požadavky na kvalitu paliv z hlediska ochrany ovzduší)

4.1.2.3 146/2007 Sb.

Government Decree on emission limits and other conditions of operation of stationary combustion sources of air pollution

(Nařízení vlády o emisních limitech a dalších podmínkách provozování spalovacích stacionárních zdrojů znečišťování ovzduší)

4.1.3 Delivery of electricity

4.1.3.1 540/2005 Sb.

Decree on the quality of electricity supply and related services in the electricity energy
(Vyhláška o kvalitě dodávek elektřiny a souvisejících služeb v elektroenergetice)

4.1.3.2 502/2005 Sb.

Decree to establish the way of reporting the amount of electricity in the joint combustion of biomass and non-renewable resources

(Vyhláška o stanovení způsobu vykazování množství elektřiny při společném spalování biomasy a neobnovitelného zdroje)

This Decree provides for the joint combustion of biomass and non-renewable resources the way of reporting the amount of electricity from renewable sources, the method of reporting the actual purchase amount of biomass and its quality and method of reporting the actual use of all the acquired biomass to produce electricity.

4.1.3.3 478/2005 Sb.

Decree amending Decree No 150/2001 Coll. Laying down minimum efficiency of energy utilization in the production of electricity and thermal energy

(Vyhláška, kterou se mění vyhláška č. 150/2001 Sb., kterou se stanoví minimální účinnost užití energie při výrobě elektřiny a tepelné energie)

4.1.3.4 475/2005 Sb.

Decree, which implements certain provisions of the Act on the promotion of renewable sources which will repeal of Decree 673/2004 Coll., 542/2005 Coll.

(Vyhláška, kterou se provádějí některá ustanovení zákona o podpoře využívání obnovitelných zdrojů která ruší vyhlášky 673/2004 Sb.; 542/2005 Sb.)

4.1.3.5 439/2005 Sb.

Decree laying down details of how to determine the amount of electricity from combined heat and power and the determination of the amount of electricity from secondary energy sources

(Vyhláška, kterou se stanoví podrobnosti způsobu určení množství elektřiny z kombinované výroby elektřiny a tepla a určení množství elektřiny z druhotných energetických zdrojů)

4.1.3.6 426/2005 Sb.

Decree on the details of the licensing business in the energy sector

(Vyhláška o podrobnostech udělování licencí pro podnikání v energetických odvětvích)

4.1.4 Price decisions

Price Decision No. 10 / 2008 - fixing the support for the production of electricity from renewable energy sources, combined electricity and heat and secondary energy sources.

Purchase prices and green premiums for electricity generation from biomass:

Date of commissioning	Purchase prices of electricity supplied to the network, in CZK/MWh	Green premiums, in CZK/MWh
Electricity generation by firing O1 category biomass only in new electricity generating plants or generating units after 1 January 2008, inclusive	4,490	2,950
Electricity generation by firing O2 category biomass only in new electricity generating plants or generating units after 1 January 2008, inclusive	3,460	1,920
Electricity generation by firing O3 category biomass only in new electricity generating plants or generating units after 1 January 2008, inclusive	2,570	1,030
Electricity generation by firing O1 category biomass only before 1 January 2008	3,820	2,280
Electricity generation by firing O2 category biomass only before 1 January 2008	3,130	1,590

Date of commissioning	Purchase prices of electricity supplied to the network, in CZK/MWh	Green premiums, in CZK/MWh
Electricity generation by firing O3 category biomass only before 1 January 2008	2,480	940
Electricity generation by co-firing category S1 biomass fuel mixtures and fossil fuels	-	1,350
Electricity generation by co-firing category S2 biomass fuel mixtures and fossil fuels	-	690
Electricity generation by co-firing category S3 biomass fuel mixtures and fossil fuels	-	40
Electricity generation by parallel firing of P1 category biomass and fossil fuels	-	1,620
Electricity generation by parallel firing of P2 category biomass and fossil fuels	-	960
Electricity generation by parallel firing of P3 category biomass and fossil fuels	-	310

Type of renewable source	Purchase prices of electricity supplied to the network, in CZK/MWh	Green premiums, in CZK/MWh
Biogas firing at AF1 category biogas stations	4,120	2,580
Biogas firing at AF2 category biogas stations	3,550	2,010
Firing of landfill gas and sludge gas from wastewater treatment plants after 1 January 2006	2,420	880
Firing of landfill gas and sludge gas from wastewater treatment plants between 1 January 2004 and 31 December 2005	2,730	1,190
Firing of landfill gas and sludge gas from wastewater treatment plants before 1 January 2004	2,840	1,300
Firing of mine gas from closed mines	2,420	880

Source: ERO

(1.5.1.) The inclusion of the various types of biomass in the O1 to O3 categories for the purpose of dedicated biomass firing, in the S1 to S3 categories for the purpose of co-firing biomass fuel mixtures and fossil fuels, and in the P1 to P3 categories for the purpose of biomass and fossil fuel parallel firing is set out in a separate legal regulation 5).

(1.6.) Purchase prices and green premiums for firing biogas, landfill gas, sludge gas, and mine gas from closed mines:

(1.6.1.) The inclusion of biogas stations in AF1 and AF2 categories is set out in a separate
legal regulation 5).

4.2 Support fort he phytomass production for energy purposes

4.2.1 Support for establishing of plantage of short rotation coppice on agriculture land

This support has been terminated in the meanwhile.

Subsidy for setting up stands of SRC within the Rural Development Program (Ministry of Environment), Axis 1 - measures I.1.1. Modernization of agricultural holdings; Submeasure I.1.1.3 Planting fast-growing trees for energy use. Subsidies for the establishing was 40-60% of applied costs, the applicant may be only an agricultural business and production (energy) must be consumed by the applicant for own purposes

4.2.2 Carbon credit

4.3 Investment support provided by EU funds under the Rural Development Program (MA) – Group III.1.1 - Diversification into non-agricultural activities

The aid is aimed at building decentralized facilities for processing and use of renewable fuels and energy sources (biomass or biogas) - for heating or power generation, boiler, heat distribution and energy, biogas plants (homogenization tank, reactor, biogas tank, storage tank, cogeneration unit, heat exchanger, etc.) and project and technical documentation, which is part of the cost of investment. Priority is to promote the use of existing buildings and areas and promoting innovative approaches. Project can be implemented in the village of 2000 inhabitants in the Czech Republic. In the case of processing and utilization of renewable energy sources, the project is implemented in the entire CR except Prague.

4.3.1 State program to promote energy saving and use of RES - Part A (MPO)

This is a program EFFECT, the promotion of renewable and secondary energy sources, sub C.2 Energy resources using biomass and biogas. Administrator is the Czech Energy Agency.(CEA). The maximum amount of support is 2 mil. respectively 40% of investment costs.

4.3.2 State program to promote energy saving and use of RES - Part B (MoE)

Support is provided by the State program to promote energy saving and use of renewable energy from SEF CR in 2007.

Table of selected programs

Program number	Program name
1.A.	Investment promotion of environmentally friendly ways of heating and hot for flats and family houses for individuals, including organic production of electricity for own consumption (biomass boilers, solar hot water systems, solar systems for heating and hot water systems for electricity generation).
2.A.	Investment support environmentally friendly ways of energy supply in villages and parts of municipalities
3.A.	Investment support environmentally friendly ways of heating and hot water in education, health and social care buildings and objects regional and local authorities

7.A.	Investment support for construction of facilities for the joint production of electricity and heat from biomass and biogas.
8.A.	Investment support environmentally friendly ways of heating and hot by specific facilities.

4.3.3 Act No. 180/2005 Coll. On the promotion of electricity from RES - a system of feed-price of green bonuses Act No. 180/2005 Coll.

On the basis of Act No. 180/2005 Coll. the transmission system operator or distribution system operators have the obligation to purchase electricity from renewable sources at prices set by the Energy Regulatory Office. Costs associated with the support of RES reflect the regulated electricity prices to all end customers in the Czech Republic in the form of a nationwide uniform allowance for the production of electricity from renewable energy sources. Amount of the contribution provides Energy Regulatory Office always for the next year. Based on purchases made are subsequently transferred funds among distribution companies, in order not to penalize those compulsorily buy more electricity from renewable energy sources.

Manufacturer of electrical energy it can offer to purchase, either through feed-in tariffs or green form of bonuses. In the case of aid in the form of feed-in tariffs has a regional distribution system operator or TSO obligation to buy from the electricity manufacturer from renewable sources the entire volume of electricity produced from a given source.

In promoting through green bonuses manufacturers must find their own buyer of electricity. The purchase price of the green bonuses producers always pays the regional grid operator or the operator. The purchase prices of electricity from renewable sources for new sources may have fallen year on year according to § 6 paragraph (4) of Act No. 180/2005 Coll. a maximum of 5% per year. A decrease in feed prices should be for each category of renewable sources for 15 years maintained the amount of revenue per unit of electricity from renewable sources.

4.4 Tax relief

4.4.1 Act No. 586/1992 Coll. On Income Tax

Exempt from income tax under the § 4, point e) are revenues from the operation of small hydro plants in a 1 MW, wind power, heat pumps, solar equipment, equipment for energy production and use of biogas and wood gas, electricity generating installations or heat from biomass plants for the production of biologically degradable substances designated special regulation, facilities using geothermal energy, in the calendar year in which were first put into service and immediately in the next five years.

4.4.2 Ecological tax reform

According to Council Directive 2003/96/EC restructuring the Community framework for taxation of energy products and electricity from 1.1. 2008 introduced a new consumer tax on electricity from natural gas and solid fuels.

A second equally important goal is to gradually change the structure of production of electricity and heat, in a way so that it would not be dominant given by the brown coal, but rather to support the environmental aspects and make them economically efficient. Primary energy sources that are environmentally friendly, should also be advantageous.

Fuel prices, which adversely affect the environment, should gradually increase and cleaner energy such as gas or biomass should be favored.

Core documents are EP and Council Directive 2003/96/EC, the Government Resolution No 25 from 3rd January 2007, Government Resolution No. 531 of 23 May 2007. Government laws related to EDR discussed on the 23rd may 2007 meeting. Within the 1st stage of the EDR new consumer taxes for electricity from natural gas and solid fuels will be introduced. The proposed exemption fro taxation applies to the following cases:

Natural gas:

- Natural gas used for electricity production
- Natural gas for households

Solid fuel:

- solid fuel for electricity production

Electricity:

- environmental friendly
- made from taxed goods which are subject to taxes on natural gas or solid fuels or consumer tax in facilities with a rated el. power to 2 MW, where it is consumed directly or exclusively supplied
- for technological purposes necessary for the production of electricity or combined electricity and heat.

5 Sustainability criteria

The Sustainable Development Strategy of the Czech Republic (SDS) was approved by Government Resolution no. 1242 of 8 December 2004 as a long-term framework for political decision-making in the context of the international commitments made by the Czech Republic in connection with its membership in the EU, OECD and UN, while respecting the specific conditions of the Czech Republic. It is the starting point for the development of strategic materials (sectoral policies and action programmes), for strategic decision-making in state administration and territorial public administration, and for their co-operation with stakeholders. By adopting the SDS, the Czech Republic fulfilled its commitments derived from the conclusions of the World Summit on Sustainable Development in Johannesburg in 2002, and acknowledged the conclusions of the Earth Summit in Rio de Janeiro in 1992, the UN Millennium Development Goals, and the 2003 conclusions of the UN Commission on Sustainable Development (particularly its International Multi-annual Action Programme until 2017). An SDS update is scheduled for 2007-2009; it is inspired by the renewed EU SDS (2006), among others.

In consequence to the SDS, Progress Reports are made under the auspices of the Government Council for Sustainable Development with the objective to map the fulfilment of the SDS goals and inform both politicians and the public about the state and development of the Czech Republic in respect of sustainable development.

5.1 Czech Government Council for Sustainable Development (CGCSD)

The Government Council for Sustainable Development (the "Council") was established by Government Resolution No 778 of July 30, 2003 as a standing advisory, initiative and coordinating body of the Government of the Czech Republic in the domains of sustainable development and strategic management. The first Statute of the Council was adopted by Government Resolution No 836 of August 6, 2003. The present Statute was adopted by the Czech Government Resolution No. 1111 of 27 September, 2006.

In accordance with Government Resolution No 836, the Council has coordinated the works on the drafting of the Czech Republic Strategy for Sustainable Development (the "Strategy"). The Council considered the final draft in its meeting held on November 15, 2004 and recommended it to the Chairman of the Council for presentation to the Government for adoption. In its session of December 8, 2004, the Government adopted the Strategy by Resolution No 1242.

In January 2007, the Council started its work on revision of the Strategy . In May 2007, the first draft will be considered and presented for a broad public discussion at the Forum on Sustainable Development. In November 2007, the final draft of the renewed Strategy is to be submitted to the Government for adoption.

According to the present Statute, the Prime Minister holds the office of the Chairman of the Council. Minister of the Environment acts as an Executive Vice-Chairman, the two Vice-Chairmen of the Council are Minister of Industry and Trade and Minister of Labour and Social Affairs. The members of the Council are representatives of central and local government authorities, social partners, NGO's and academics.
The proposal to establish the Council originated from the need to create a body that would deal with the issue of sustainable development on a systematic and long-term basis, serve as an umbrella for the present efforts promoting sustainable development, and efficiently coordinate all related activities. The activities of the Council are specified in the Statute and Rules of Procedure.

5.1.1 Present condition

At present, the **strengths** of the state of the environment in the Czech Republic in terms of sustainability include:

- A reduction in, and subsequent stabilization of, greenhouse gases emissions at a level more than 20% lower than that in 1990.
- Discontinuation of the production of, and a substantial reduction in, the use of substance depleting the ozone layer of the Earth.
- A reduction in the volume of primary mineral extraction.
- The existence and development of nuclear energy sources allowing for a substantial reduction in the production of greenhouse gases.
- A developed central heat distribution system, which is more friendly to the environment than local heating; the introduction of gas heating.
- Stabilization of the reduced level of emissions into, and pollution of, the air.
- A continuing increase in the number of inhabitants connected to the public sewage system and supplied with water from public water distribution systems.
- A significant reduction in emissions into water from point sources of pollution, sewage and industrial waste water, and a reduction in emissions from non-point (area) sources, in particular by reducing the use of fertilizers and pesticides.
- The dynamic development of organic farming, the adoption by the Czech Government of the Action Plan of the Czech Republic for the Development of Organic Farming up to 2010.

- The existence of a network of specially protected areas with various levels of protection.
- The designing and definition of the Territorial System of Ecological Stability (TSES) as an instrument for the general protection of nature and the landscape.
- A progressive moderate increase in the acreage of forest land; a moderate increase in the share of permanent grassland and a decline in the acreage of arable land.
- An increase in the production of plants not entering the food chain (technical and energy crops, medicinal herbs, etc.).
- The progressive development of systems to minimize the production of waste; waste sorting; in the framework of recycling, the use of waste as a source of material or at lest energy.
- The gradual introduction of good practice in the handling of chemicals and genetically modified organisms and products, with the application of subsequent control mechanisms.
- The existence of a stable legal and institutional framework, and economic and voluntary instruments in the field of environmental protection.
- Accession to most global and regional multilateral environmental agreements, in some cases with very effective and efficient implementation.

6 Certification

There is accompanied by a certificate PEFC about 1.9 million ha of forests in the Czech Republic. The second most common is the FSC certificate. The interest on this certificate is increasing especially by private companies. The list of those companies is not fully published yet. Recently has the Krkonoše National Park received this certificate. There are no further certificates in use.

7 Assessment of available biomass resources

7.1 Heating/cooling, electricity and transport

Potential of biomass

		With straw	Without straw
		PJ	PJ
Based on current conditions	average	143	193

Potential from grasslands

area (thousand ha)	mass (th.t)	energy (PJ)
980	2 800	40

Potential for other non-agriculture areas

	area	Annual gain	volume.mass	Annual gain	mass	Heating power	energy
	ha	m^3/ha/year	kg/m^3	t/ha/year	t/year	GJ/t	PJ
Gardens	161	7	200	1,4	226	11	2,5

	813				538		
Fruit plantages	46 990	7	200	1,4	65 786	12	0,8
Hop gardens	10 966	Not significant					
Vine yards	18 669	Not significant					
Total	**238 438**						**3,3**

Potential of wood biomass

Estimation of weood potential in the CR	**coeficient**	**total (th.m^3)**
Timber lodging		17 678
Residues from timber loging	0,1	1 768
Wood residues from wood processing	0,25	4 420
thinning	0,25	4 420
cleaning	0,005	88
Dendromass for energy purposes total th.m^3/year		**10 695**

source: ÚHÚL 2007

Dendromass for energy utilization	m^3	10 695 000
	t	5 375 521
	PJ	84,1

Potential of residual biomass

When calculating all the residual biomass it can be estimated that the total energy potential is approximately 82 PJ. Practically, however, the usable potential can be estimated only at approximately 35 PJ of energy.

8 Conflicts on utilisation of biomass

The restructuring of agriculture is expected to further reduce food production to a level sufficient to self-sufficiency. A significant proportion of agricultural land (over 45%) are located in mountainous and foothill areas with adverse soil and climatic conditions and ion this way with low economic efficiency for intensive agricultural production so far focused on traditional food commodities. The competitiveness of those commodities is steadily declining.

The potential of arable land available for development of non-food production is far from being fully used. At the same time there is the risk of not fulfilling the commitments given in by the accession to the EU in the field of renewable energy. The system of support of biomass use for energy production is in the economic and legal point inadequate.

Development of the non-food use of phytomass gives a new perspective for development of agriculture and rural areas, the application of labor and improvement of the efficiency of farm management and processing capacity.

Of the many ways of using biomass for energy purposes is at the moment in the Czech Republic the most important the combustion, biogas production or production of methyl and ethyl alcohol. According to the EU strategy the use should dominate over the combustion in the future.

For energy purposes there can be used in the CR estimated about 8 million tons of biomass. First and foremost, we need to make better use of existing predominant sources of biomass (wood, grass, straw). The rest of straw, which is consumed as fodder or for fertilization, should not remain partially on the field, as straw is a source of nutrients and raw.

The straw is at the moment being sold for prices, which allow the use of this material for energy purposes. As well with the wood chip is the cereal straw the main material for combustion of biomass for energy purposes. Straw is stated in the second group for the support of energy production from biomass.

The production of energy crops is not very developed in the Czech Republic. The production of SRC is only in experimental stage and production of energy crops on arable land is only minimal. For the cultivation of energy crops is the economic evaluation very important.

Different situation is in the production of rape seed. In the year 2006 there was produced 700 thousand tons of rape seed for industry processing. Form this amount, 300 thousand tons have been used for the production of MERO.

9 Cross country cooperation agreements

There are several programs for the cooperation in utlizatzion of biomass and RES in general between the Czech Republic and the neighbouring countries. Those subsidies are given from EU structural funds and for the Czech Republic are defined following regions of cooperation:

- CZ – Bavaria
- CZ – Poland
- CZ – Austria
- CZ – Saxony
- CZ – Slovakia

There are as well further EU programs which apply as well to the Czech republic, but those are not specific to bilateral cooperation.