

Ministry of Economy and Construction of the Slovak Republic

National Renewable Energy Action Plan

(Slovak Republic)

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LIST OF ABBREVIATIONS

APA	– Agricultural Paying Agency
CHP	– combined heat and power
CO	– carbon monoxide
CSEU	– Classified Soil-Ecological Units
DH	– district heating
DS	– distribution system
DSO	– distribution system operator
EC	– European Community
EEC	– European Economic Community
EHPA	– European Heat Pump Association
EN	– European standard
EP	– European Parliament
ESTIF	– European Solar Thermal Industry Federation
ETBE	– ethyl tertiary-butyl ether
EU	– European Union
GWh	– gigawatt hour
ha	– hectare
HTU	– Higher Territorial Unit
IT	– information technology
kg	– kilogram
kPa	– kilopascal
ktoe	– thousand tonnes of oil equivalent; 1 ktoe = 41.868 TJ
kV	– kilovolt
kW	– kilowatt
kWh	– kilowatt hour
m	– metre
mg	– milligram
MJ	– megajoule
MoA SR	– Ministry of Agriculture of the Slovak Republic
MoAERD SR	– Ministry of Agriculture, the Environment and Regional Development of the Slovak Republic
MoE SR	– Ministry of the Environment of the Slovak Republic
MoE SR	– Ministry of the Environment of the Slovak Republic
MoEC SR	– Ministry of Economy and Construction of the Slovak Republic
MoF SR	– Ministry of Finance of the Slovak Republic
MW	– megawatt
MWh	– megawatt hour
NFC	– National Forest Centre
NREAP	– National Renewable Action Plan
PG	– permanent grassland
PSU	– pumped storage unit
RES	– renewable energy sources
RIAFE	– Research Institute for Agriculture and Food Economy
RONI	– Regulatory Office for Network Industries
SEI	– State Energy Inspectorate
SEPS	– Slovenská elektrizačná prenosová sústava, a.s. (Slovak Electricity Transmission System)
SIEA	– Slovak Innovation and Energy Agency

SMEs	– small and medium-sized enterprises
SMR	– statutory management requirements
SPP	– Slovenský plynárenský priemysel
SR	– Slovak Republic
SSE-D	– Stredoslovenská energetika – distribúcia
SSI	– Slovak Standards Institute
STN	– Slovak technical standard
t	– tonne
TJ	– terajoule; $1 \text{ TJ} = 10^{12} \text{ J}$
TS	– transmission system
VAT	– value added tax
ZSE	– Západoslovenská energetika

1. SUMMARY OF NATIONAL RENEWABLE ENERGY POLICY

One of the main priorities of Slovakia's Energy Policy, approved in 2006, is to increase the share of renewable energy sources (RES) in power and heat generation in order to create appropriate additional resources needed to cover domestic demand.

RES and energy security

The gas crisis in early 2009 was an unprecedented situation which saw supplies of Russian gas intended for Slovakia, transmitted via Ukraine, come to a complete standstill for several days. During this period of crisis, the heat sector's high dependence on natural gas highlighted the vulnerability of heat supply security. Slovakia's reserves of individual energy sources indicate that only renewable energy sources (especially biomass) can play a role in reducing overall dependence on natural gas imports.

Use of RES as domestic energy sources has been shown to increase security to some extent and partially diversify energy supply while reducing economic dependence on unstable oil and natural gas prices. RES use is based on advanced, environmentally-friendly technologies and helps to reduce greenhouse gases and pollutants.

RES and industrial diversification

Renewable energy sources play a role in the strengthening and diversification of the structure of industry and agriculture. With an active support policy, the initial stage of importing foreign technology and know-how can be accelerated and opportunities can be created for investment in the manufacture and assembly of components, entire systems, and the establishment of research facilities affiliated to universities. Renewable energy sources encourage the innovation and development of information technology, open up new paths, and are one of the pillars in the building of a knowledge economy. Rational management of domestic renewable energy resources is consistent with the principles of sustainable development, making it one of the pillars supporting the sound economic development of society.

RES risks

Despite the benefits, RES use also carries certain risks. The most significant risk lies in the nature of these energy sources. The generation of solar and wind power suffers from fluctuations which can have an adverse effect on the safety and reliability of grid operations. Producers of electricity from RES create derogations from planned production for which they are not held accountable. These derogations and the risk they pose to grid safety are placed in the hands of system operators.

Another risk is significant electricity price hikes. The promotion of the production of electricity from RES in the Slovak Republic is based on a feed-in price, paid to producers for the electricity they generate. The feed-in price is set with a view to ensuring a reasonable return on the investment. In many countries where a feed-in price system has been introduced,

the rapid fall in the price of photovoltaic (PV) modules has focused investor attention on the use of solar energy. The significant reduction in PV module prices has resulted in windfall profits for investors. The feed-in price paid for electricity from solar energy, which is several times higher than the market price of electricity, is reflected in electricity prices to a large degree.

These risks will be eliminated by a new approach to the building of those plants characterized by fluctuations in energy production. Measures include the establishment of a tender system so that the construction of plants creating the above risks is consistent with the estimated production contributions listed in Section 5.

Background

Electricity production from RES is dominated by electricity generated in large hydropower plants, accounting for more than 90% of all plants using RES. In this respect, the production of electricity from RES in recent years has been highly dependent on hydropower.

Act No 309/2009 on the promotion of renewable energy and high efficiency cogeneration and amending certain laws (“Act No 309/2009 on the promotion of RES”) was approved in 2009 with a view to promoting the production of electricity from RES. That law has improved the functioning of the electricity market in renewable energy and created a stable business environment. It has delivered a long-term guarantee of feed-in prices for 15 years and has guided the path followed in the production of electricity from renewable energy sources by encouraging the construction of small and decentralized facilities.

The increase in prices of non-renewable fossil fuels, reflected, in mid-2008, in the highest ever oil prices, shifted biomass as an energy alternative to the centre of economic and political attention. In recent years, the heat sector has witnessed a significant increase in the use of biomass, indicating that in the coming years it will continue to be the most widespread RES. Furthermore, Slovakia has large production capacity to produce pellets and briquettes, most of which must currently be placed on foreign markets. This provides the assurance that, despite the rapidly growing number of biomass boilers being installed, the scarcity of this fuel will not be an issue.

Strategic lines of action

The principle of minimizing costs by means of an integrated approach to the use of renewable energy sources and reductions in greenhouse gas emissions was taken into account when projecting how to apply renewable energy sources. As a result, an appropriate combination of RES and low-carbon technologies will reduce fossil fuel consumption and, by extension, greenhouse gas emissions. The priority will be technologies whose use leads to energy prices close to market prices with the aim of delivering a reasonable final energy cost.

The priority is biomass, use of which can, in many cases, can compete with fossil fuels in terms of price. Increasing biomass use, combined with energy savings and geothermal and solar energy, will reduce the quantity of natural gas consumed for heating purposes.

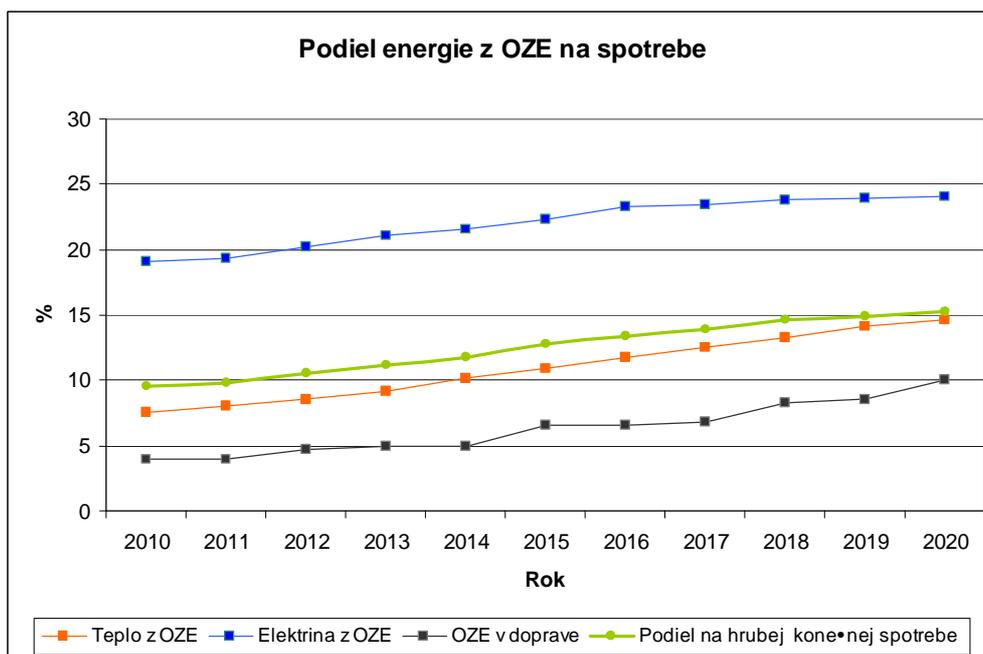
Legislative conditions have been created to promote the use of biomethane as a refined type of biogas. Once technical conditions have been met, biomethane can be granted preferential access to the distribution network and can be distributed. Producers of electricity from biomethane who generate electricity in the form of CHP receive support. Biomethane producers need to be guaranteed the purchase of their biomethane, provided that they meet all of the requirements of a gas market participant, by means of legislative amendments.

Climate change also has an impact also on the intensity of rainfall, resulting in floods. One flood prevention measure is the construction of hydropower plants that are aligned with flood protection plans; in this regard, the use of the idle hydropower potential is a priority.

In the field of biofuels, significant growth in second-generation biofuels is projected by around 2020, which will make an appreciable contribution to the target of 10% use in transport. Not even the gradual marketing of electric vehicles after 2015 is expected to make the same impact in achieving this target as second-generation biofuels.

The path followed by Slovakia in the use of renewable energy is set out in the Energy Security Strategy of the Slovak Republic, which was approved in 2008 and which states that the greatest prospects offered by RES up to 2020 lie in heating and cooling.

Graphs of RES contributions up to 2020

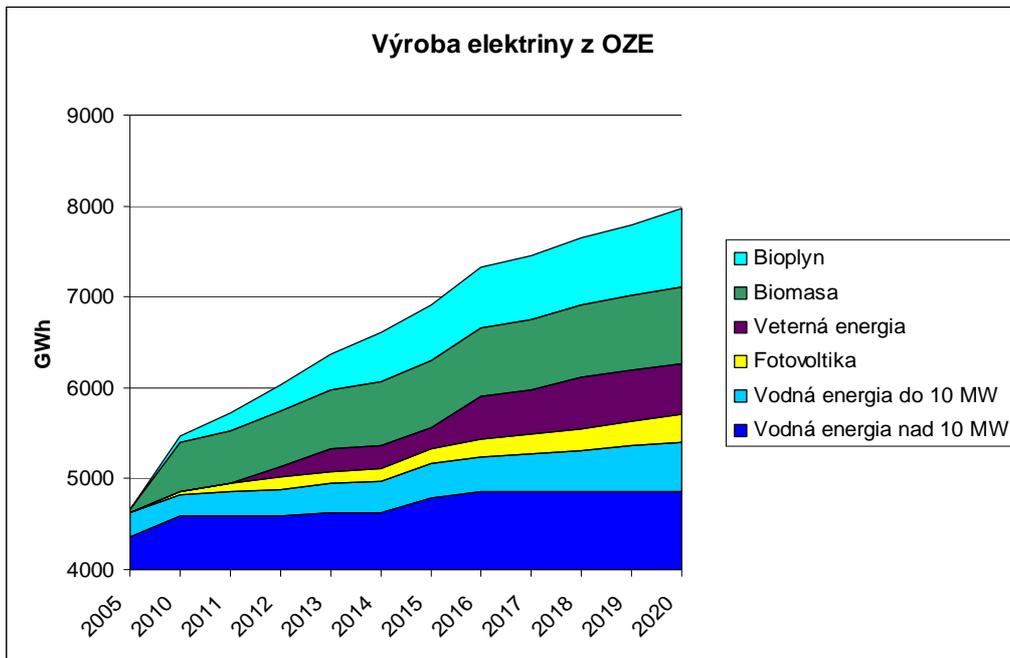


Share of energy from RES in consumption

Year

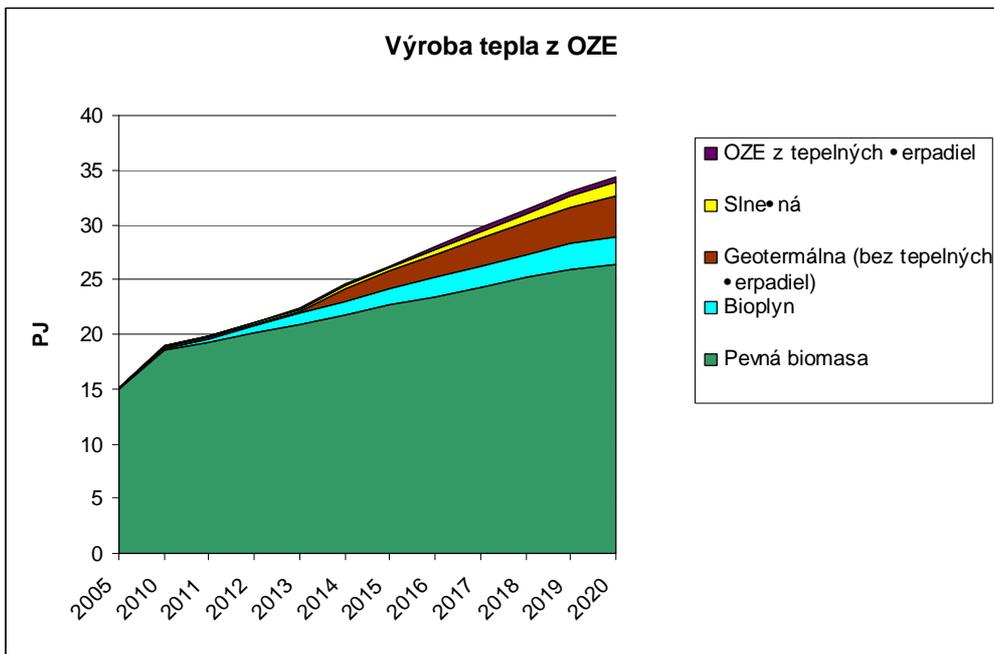
- Heat from RES
- Electricity from RES
- RES in transport
- Share in gross final consumption

Graph 1 Share of RES in heat, electricity, transport and total gross final consumption



Production of electricity from RES	
-	Biogas
-	Biomass
-	Wind energy
-	Photovoltaic
-	Hydro energy up to 10 MW
-	Hydro energy above 10 MW

Graph 2 Projection of the production of electricity from RES



Production of heat from RES	
-	RES from heat pumps
-	Solar
-	Geothermal (less heat pumps)
-	Biogas
-	Solid biomass

Graph 3 Projection of the production of heat from RES

2. EXPECTED FINAL ENERGY CONSUMPTION 2010–2020

Table 1: Expected gross final energy consumption of the Slovak Republic in heating and cooling, electricity and transport up to 2020 taking into account the effects of energy efficiency and energy saving measures 2010-2020 (ktoe)

	2005	2010		2011		2012		2013		2014	
	base year	reference scenario	additional energy efficiency								
(1) heating and cooling [ktoe]	6 162	5 971	5 971	6 019	5 923	6 067	5 876	6 114	5 828	6 162	5 780
(2) electricity [ktoe]	2 412	2 460	2 460	2 603	2 556	2 650	2 586	2 698	2 617	2 747	2 649
(3) transport as in Article 3(4)a [ktoe]	1 744	2 221	2 221	2 269	2 245	2 341	2 293	2 436	2 341	2 508	2 409
(4) Gross final energy consumption [ktoe]	10 199	10 653	10 653	10 891	10 724	11 058	10 755	11 249	10 786	11 417	10 838

	2015		2016		2017		2018		2019		2020	
	reference scenario	additional energy efficiency										
	6 210	5 732	6 258	5 685	6 306	5 661	6 353	5 637	6 401	5 613	6 449	5 613
	2 796	2 681	2 846	2 713	2 898	2 745	2 950	2 778	3 003	2 812	3 057	2 866
	2 556	2 449	2 627	2 491	2 699	2 532	2 794	2 603	2 866	2 675	2 938	2 747
	11 562	10 862	11 731	10 888	11 902	10 938	12 098	11 018	12 270	11 100	12 443	11 226

Source: Ministry of Economy and Construction of the Slovak Republic

3. RENEWABLE ENERGY TARGETS AND TRAJECTORIES

3.1. National overall target

The expected amount of energy from renewable sources corresponding to the 2020 target of 14% was calculated from the expected total adjusted energy consumption according to the additional energy efficiency scenario (Table 1). The figures in Table 1 are expert estimates by the Ministry of Economy. Expected amount of energy from renewable sources for Slovakia is 1 572 ktoe (66 PJ).

Table 2: National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2005 and 2020

(A)	Share of energy from renewable sources in gross final consumption of energy in 2005 (S2005) (%)	6.7%
(B)	Target of energy from renewable sources in gross final consumption of energy in 2020 (S2020) (%)	14.0%
(C)	Expected total adjusted energy consumption in 2020	11 226
(D)	Expected amount of energy from renewable sources corresponding to the 2020 target (calculated as B x C)	1 572

Source: Ministry of Economy and Construction of the Slovak Republic

3.2. Sector targets and trajectories

According to Article 4(1) of Directive 2009/28/EC, Member States are required to set their targets for the share of energy from renewable sources in 2020 in the following sectors:

- heating and cooling,
- electricity,
- transport.

The total of the three sectoral targets, translated into expected volumes (ktoe) including the planned use of flexibility measures, has to be at least as high as the expected amount of energy from renewable sources that corresponds to the Member State's 2020 target. The transport target, in addition, has to be compatible with the requirements of Article 3(4) of Directive 2009/28/EC for a 10% share of renewable energy in transport.

Table 3: National 2020 target and estimated trajectory of energy from renewable sources in heating and cooling, electricity and transport

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
RES-H&C (%)	6.1	7.6	8.0	8.5	9.2	10.2	10.9	11.7	12.5	13.3	14.1	14.6
RES-E (%)	16.7	19.1	19.3	20.2	21.0	21.5	23.0	23.3	23.3	23.7	23.9	24.0
RES-T (%)*	0.6	4.1	4.2	4.3	4.4	5.0	6.0	6.3	6.8	8.3	8.5	10.0
Overall RES share (%)	6.7	9.5	8.2	8.2	8.9	8.9	10.0	10.0	11.4	11.4	13.2	14.0
Of which from cooperation mechanism (%)		0	0	0	0	0	0	0	0	0	0	0
Surplus for cooperation mechanism (%)			1.7	2.2	2.1	2.9	2.8	3.3	2.5	3.2	1.7	1.3
As part B of Annex I to the Directive			2011-2012		2013-2014		2015-2016		2017-2018			2020
			S ₂₀₀₅ + 20% (S ₂₀₂₀ -S ₂₀₀₅)		S ₂₀₀₅ + 30% (S ₂₀₂₀ -S ₂₀₀₅)		S ₂₀₀₅ + 45% (S ₂₀₂₀ -S ₂₀₀₅)		S ₂₀₀₅ + 65% (S ₂₀₂₀ -S ₂₀₀₅)			S ₂₀₂₀
RES minimum trajectory (%)			8.2		8.9		10.0		11.4			14.0
RES minimum trajectory (ktoe)			881		962		1 088		1 252			1 572

* achievement if target in accordance with Article 3(4) of Directive 2009/28/EC

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Overall RES share without cooperation mechanism (%)	6.7	9.5	9.9	10.4	11.0	11.8	12.8	13.3	13.9	14.6	14.9	15.3

Source: Ministry of Economy and Construction of the Slovak Republic

As well as setting sectoral targets for 2020, Member States must also describe the trajectory that they expect the growth of renewable energy use in each sector to follow between 2010 and 2020. The sectoral renewable targets in electricity and heating and cooling and the sectoral trajectories are estimations.

Calculation Tables 4a and 4b provide guidance in the preparation of Table 3. Table 4a sets out planned RES consumption by sector. Table 4b shows the expected RES share in transport within the scope of the transport target.

Table 4a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(A) Expected gross final consumption of RES for heating and cooling	361	452	474	502	534	587	627	667	710	750	790	820
(B) Expected gross final consumption of electricity from RES	404	471	493	522	551	570	617	631	641	658	671	688
(C) Expected final consumption of energy from RES in transport	8	90	94	98	103	120	147	155	165	197	195	207
(D) Expected total RES consumption	772	1 013	1 061	1 122	1 188	1 277	1 391	1 453	1 516	1 605	1 656	1 715
(E) Expected transfer of RES <u>to</u> other Member States			181	240	228	313	305	364	269	349	190	143
(F) Expected transfer of RES <u>from</u> other Member States and 3rd countries		0	0	0	0	0	0	0	0	0	0	0
(G) Expected RES consumption adjusted for target (D) – (E) + (F)		1 013	879	882	960	965	1 086	1 089	1 247	1 256	1 466	1 572

Source: Ministry of Economy and Construction of the Slovak Republic

Table 4b: Calculation table for the renewable energy in transport share (ktoe)

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(C) Expected RES consumption in transport	8	90	94	98	103	120	147	155	165	197	195	207
(H) Expected RES electricity in road transport	0	0	0	0	0	0	0	1	2	3	4	5
(I) Expected consumption of biofuels from wastes, residues, non-food cellulosic and lingo-cellulosic material in transport	0	0	0	0	0	0	0	1	1	14	27	60
(J) Expected RES contribution to transport for the RES-T target: (C) + (2.5 - 1) x (H) + (2 - 1) x (I)	8	90	94	98	103	120	147	158	169	216	228	275

Source: Ministry of Economy and Construction of the Slovak Republic

4. MEASURES FOR ACHIEVING THE TARGETS

4.1. Overview of all policies and measures to promote the use of energy from renewable resources

Table 5: Overview of all policies and measures

No	Name and reference of the measure <i>Reference to section</i>	Type of measure	Expected result	Targeted group and/or activity	Existing (E) or planned (P)	Start and end dates of the measure
1.	Compulsory blending of bio-components into motor fuels <i>Section 4.5.</i>	financial, regulatory,	increased use of RES in transport	motor fuel producers	E	2006 → *
2.	Promotion of RES use in the business sector <i>Section 4.4.</i>	financial	production of electricity and heat from RES	investors	E	2007 - 2013
3.	Promotion of RES use in households <i>Section 4.2.3.e)</i>	financial	1. installation of biomass boilers 2. installation of solar panels	households	E	2009 - 2015
4.	Promotion of electricity production by means of feed-in prices <i>Section 4.3</i>	legislative, regulatory	increase in electricity production by 2.5 TWh	investors	E	2009 →
5.	Biomethane access to the gas network <i>Section 1</i>	regulatory	biomethane production	use of agricultural biomass	E	2009 →
6.	Guarantee of compulsory biomethane purchasing <i>Section 4.6.2.e)</i>	legislative, regulatory	production of biomethane at a volume of 60 ktoe	use of agricultural biomass	P	2011 →
7.	Establish a system of tenders for the construction of plants with fluctuations in electricity production <i>Section 4.3</i>	legislative, regulatory	elimination of risks to the security and reliability of the electricity grid	investors	P	2011 →

8.	Promotion of fast-growing trees <i>Section 4.6.2.c)</i>	legislative, regulatory	increased supply of biomass	agricultural holdings	P	2011 →
9.	Growth in the production of wood raw material <i>Section 4.6.2.f)</i>	legislative, regulatory	increased supply of biomass	forestry undertakings	P	2011 →
10.	Promotion of RES in the construction sector <i>Section 4.2.3.e)</i>	legislative, regulatory	heating	investors	P	2011 →
11.	Establishment of a scheme for the certification of installers <i>Section 4.2.5)</i>	regulatory	better quality heating facilities	installers	P	2012 →
12.	Compulsory RES use in new and renovated buildings <i>Section 4.2.3.f)</i>	regulatory	heating	planners	P	2012 →
13.	Minimum quantity in new and renovated buildings <i>Section 4.2.3.g)</i>	regulatory	heat and power generation	planners	P	2013 →
14.	Support for the upgrading of heat distribution systems <i>Section 4.2.9.b)</i>	financial	energy savings, encouragement of district heating	investors	P	2014 - 2020
15.	Promotion of RES use in the business sector <i>Section 4.4.</i>	financial	production of heat from RES	investors	P	2014 - 2020
16.	Promotion of RES for heating and cooling in public buildings <i>Section 4.2.3.d)</i>	financial	heating and cooling in public buildings	public administration	P	2014 - 2020

* → end of measure not set

4.2. Specific measures to fulfil the requirements under Articles 13, 14, 16 and Articles 17 to 21 of Directive 2009/28/EC

4.2.1. Administrative procedures and spatial planning (Article 13(1) of Directive 2009/28/EC)

- a) List of legislation concerning authorization, certification, licensing procedures and spatial planning:
- Act No 71/1967 on administrative procedure (Rules of Administrative Procedure), as amended
 - Act No 50/1976 on spatial planning and building rules (the Building Act), as amended
 - Act No 656/2004 on energy and amending certain laws, as amended
 - Act No 657/2004 on heat energy, as amended
 - Act No 24/2006 on environmental impact assessments and amending certain laws
 - Act No 145/1995 on administrative charges, as amended
 - Act No 276/2001 on network industry regulation and amending certain laws, as amended
 - Regulation of the Government of the Slovak Republic No 317/2007 laying down rules for the functioning of the electricity market, as amended
 - land-use plans of the relevant municipalities, generally binding municipal regulations
- b) Overview of authorities and their competences

Responsible ministries/authorities	Competences
Ministry of Economy and Construction of the Slovak Republic (MoEC SR)	certification of the compliance of an investment plan with the long-term concept of Slovakia's energy policy certification of the compliance of the planned construction of a system of heating facilities or parts thereof with the long-term concept of Slovakia's energy policy
Ministry of Agriculture, the Environment and Regional Development of the Slovak Republic (MoAERD SR)	environmental impact assessment of an investment plan
Ministry of the Interior of the Slovak Republic	central government authority in charge of building authorities
Regulatory Office for Network Industries (RONI)	business licensing
Building authorities	spatial planning and planning permission

- c) Revision foreseen with the view to take appropriate steps as described by Article 13(1) of Directive 2009/28/EC

Current administrative procedures and regulations are consistent with Article 13(1) of Directive 2009/28/EC; nevertheless, there are plans to review them shortly. Central government authorities impose no unnecessary obstacles or non-proportionate requirements related to authorization, certification and licensing procedures applied to plants and associated

transmission and distribution network infrastructure for the production of electricity, heating or cooling from renewable sources, and to the process of the transformation of biomass into biofuels or other energy products. In view of the keen interest in constructing facilities with fluctuating production, clear certification criteria will be proposed.

d) Summary of existing and planned measures at regional/local levels (where relevant):

The *Concept of Municipal Development in Heat Energy* [Koncepcia rozvoja obce v tepelnej energetike] is an appropriate document for RES development at local level. Under Act No 657/2004 on heat energy, municipalities with a population of more than 2 500 are required to prepare such a Concept if a contractor or a customer calculating the volume of heat supplied to the final consumer operates in the municipality. The Concept should be prepared in accordance with the long-term concept of Slovak energy policy and by reference to Guideline of the Ministry of Economy and Construction No 952/2005-200.

The *Concept of Municipal Development in Heat Energy*, once approved by the municipal assembly, becomes a municipal sectoral concept and is used in the production of the municipality's spatial planning documentation. Not all towns make sufficient use of this instrument, as evidenced by the illogical disconnection of heat customers from the central supply and the uncoordinated construction of new heat plants which are technically and environmentally unjustified as they are within reach of existing district heating systems.

The *Concept of Municipal Development in Heat Energy* is to become a major strategic document guiding the development of heat supply in municipalities (towns) in the coming years.

e) Are there unnecessary obstacles or non-proportionate requirements detected related to authorization, certification and licensing procedures applied to plants and associated transmission and distribution network infrastructure for the production of electricity, heating or cooling from renewable sources, and to the process of transformation of biomass into biofuels or other energy products? If so, what are they?

Increased requirements related to procedures apply to the construction of transmission and distribution system infrastructure; they protract the authorization processes.

f) What level of administration (local, regional and national) is responsible for authorizing, certifying and licensing renewable energy installations and for spatial planning?

Certificates of the compliance of an investment plan with the long-term concept of Slovakia's energy policy (in accordance with Act No 656/2004 on energy) are issued by the Ministry of Economy and Construction. Electricity generating facilities with a total installed capacity of up to 1 MW which use a primary energy source other than solar power, and facilities generating electricity from solar power with a total installed capacity of 100 kW which are installed on a building do not need to be certified. These certificates are a document put forward for zoning decisions and building permit proceedings.

A heating plant system with a total installed thermal output of up to 10 MW may be constructed only on the basis of a binding opinion issued by the municipality on the compliance of the planned construction of the heating system with the *Concept of Municipal Development in Heat Energy*.

A heating plant system or part thereof with a total installed thermal output of at least 10 MW may be constructed only on the basis of a Certificate confirming the compliance of the planned construction of the heating system or part thereof with the long-term concept of Slovak Energy Policy. This certificate is issued by the MoEC SR.

The RONI is responsible for energy business licensing.

The spatial planning authorities are municipalities, self-governing regions and regional building authorities.

- g) How is it ensured that comprehensive information on the processing of authorization, certification and licensing applications and on assistance to applicants is made available? What information and assistance is available to potential applicants for new renewable energy installations on their applications?

In the certification procedure, Certification Criteria are published online. The list of certificates issued is regularly updated and published on the MoEC SR website. Information is available to applicants on the MoEC SR website.

- h) How is horizontal coordination facilitated between different administrative bodies, responsible for the different parts of the permit? How many procedural steps are needed to receive the final authorization/licence/permit? Is there a one-stop shop for coordinating all steps? Are timetables for processing applications communicated in advance? What is the average time for obtaining a decision for the application?

In the construction process, a building permit must be obtained in building permit proceedings. The building authority, as a public authority, is the focal point for the coordination of all the necessary formalities.

It follows the administrative procedure under Act No 71/1967 on administrative procedure (Rules of Administrative Procedure), as amended, in which time limits are set for the processing of applications.

- i) Do authorization procedures take into account the specificities of the different renewable energy technologies? If so, please describe how. If they do not, do you envisage taking them into account in the future?

Authorization procedures do not take into account the specificities of the different technologies.

- j) Are there specific procedures, for example simple notification, for small-scale, decentralized installations (such as solar panels on buildings or biomass boilers in buildings)? If so, what are the procedural steps? Are the rules publicly available to citizens? Where are they published? Is the introduction of simplified notification procedures planned in the future? If so, for which types of installation/system? (Is net metering possible?)

Structures may be built, adjusted or have maintenance work carried out on them only in accordance with a building permit or on the basis of notification to the building authority. In the following cases in particular it is sufficient simply to notify the building authority:

- for a simple building, or the horizontal or vertical extension thereof, if so designated by the building authority in its zoning decision;
- for small buildings which play a supplementary role in relation to the main building and which cannot have a significant environmental impact;
- for structural adjustments which do not substantially change the appearance of the building, do not affect the load-bearing structures, do not change the method of use of the building and do not compromise the interests of society.

Act No 50/1976 on spatial planning and building rules (the Building Act), as amended, clearly defines procedures for the construction of energy installations.

- k) Where are the fees associated with applications for authorization/licences/permits for new installations published? Are they related to the administrative costs of granting such permits? Is there any plan to revise these fees?

The fees are set out in Act No 145/1995 on administrative charges, as amended. They are also published in the Certification Criteria. There are no plans to revise these fees.

- l) Is official guidance available to local and regional administrative bodies on planning, designing, building and refurbishing industrial and residential areas to install equipments and systems using renewable energy sources in electricity and heating and cooling, including in district heating and cooling? If such official guidance is not available or insufficient, how and when will this need to be addressed?

Local support for the installation of facilities using RES is set out in the *Concept of Municipal Development in Heat Energy*. A detailed description of the concept is provided under paragraph d). Since these concepts have not adequately encompassed the development of renewable energy sources, in the short term guidelines need to be drawn up which are aimed at increasing the share of RES in heat production.

- m) Are there specific trainings for case handlers of authorization, certification and licensing procedures of renewable energy installations?

No specific training has been provided for case handlers of authorization, certification and licensing procedures of renewable energy installations.

4.2.2. Technical specifications (Article 13(2) of Directive 2009/28/EC)

To benefit from support schemes do renewable energy technologies need to meet certain quality standards? If so, which installations and what quality standards? Are there national, regional standards that go beyond European standards?

The Ministry of Economy and Construction subsidizes biomass boilers and solar panels for households from the central government budget. Installations must meet specified technical parameters.

For solar collectors, the Solar Keymark certificate is used, with a minimum energy gain of 525 kWh/year per square metre of aperture area under the defined conditions.

Technical parameters for the potential support of biomass boilers which are not designed for the incineration or co-incineration of fossil fuels reflect environmental requirements. Types of

biomass boilers subsidized: boilers designed to burn wood pellets, wood briquettes, wood chips and solid wood with a gasification system. All these boiler types must meet the following specifications:

- The boiler efficiency, determined by the direct method and confirmed for the type of boiler by an accredited European laboratory, must be at least 84%.
- The emission values certified by an accredited European laboratory, converted to normal conditions (pressure of 101.325 kPa, temperature of 0 °C, dry gas) and to benchmark 10% oxygen, must not exceed
 - for carbon monoxide (CO): 1 500 mg/m³,
 - for particulate matter: 100 mg/m³.
- A boiler with an automatic fuel dispensing system must be equipped with protection against re-ignition.
- A boiler with a gasification system must be equipped with a safety heat exchanger and a continuous combustion management system.

Compliance with European standards is essential in the provision of support for RES technologies from other aid schemes. There are no national or regional standards in the Slovak Republic that go beyond European standards.

4.2.3. Buildings (Article 13(3) of Directive 2009/28/EC)

The focus here is on increasing local supply of heat and/or electricity to individual buildings.

- a) Reference to existing national legislation and summary of local legislation concerning the increase of the share of energy from renewable sources in the building sector:
 - Act No 555/2005 on the energy performance of buildings and amending certain laws, as amended by Act No 17/2007, Section 4(2) (formal requirement with no specification)
 - Act No 657/2004 on heat energy, as amended, Sections 12, 31 and 32
 - Act No 309/2009 on the promotion of renewable energy sources and high-efficiency cogeneration and amending certain laws
 - Decree of the Ministry of the Environment of the Slovak Republic No 532/2002 laying down details on general technical requirements regarding construction and on general technical requirements regarding structures used by persons of limited mobility and orientation
 - Concept of Municipal Development in Heat Energy
- b) Responsible ministries and authorities:
 - Ministry of Economy and Construction of the Slovak Republic,
 - Ministry of the Environment of the Slovak Republic,
 - Slovak Innovation and Energy Agency (SIEA),
 - State Energy Inspectorate (SEI),
 - Public Procurement Office,
 - Regulatory Office for Network Industries,
 - Slovak Standards Institute,
 - local and regional government bodies.
- c) Revision of rules

Legislation will be amended in the process of transposing Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, and in accordance with the revised text of Directive No 2002/91/EC on the energy performance of buildings.

List of relevant legislation, which needs to be revised:

- Act No 309/2009 on the promotion of RES
- Act No 555/2005
- Building Act
- Act No 25/2006 on public procurement and amending certain laws, as amended
- Decree of the Ministry of the Environment of the Slovak Republic No 532/2002

The revision will also include the incorporation of the following requirements:

- Requirements regarding the use of set minimum levels of energy from RES in new buildings and in buildings subject to major renovation, incorporated into building regulations in appropriate cases by 31 December 2014 (Article 13(4) of Directive 2009/28/EC)
- Requirements regarding the exemplary role to be fulfilled by new public buildings and buildings subject to major renovation from 1 January 2012 onwards (Article 13(5) of Directive 2009/28/EC)
- Requirements regarding the energy efficiency of technical systems for new buildings and renovated or modernized systems in existing buildings in 2012 (Article 8 of Directive 2002/91/EC).

d) Summary of the existing and planned measures at regional and local levels

For new buildings, arrangements shall be made before construction starts to ensure that, where available, the technical, environmental and economic feasibility of alternative systems is considered and taken into account; such systems include:

1. decentralized systems for the supply of energy from renewable sources;
2. cogeneration;
3. block heating or district heating or cooling, especially those systems making full or partial use of energy from renewable sources;
4. heat pumps.

A tightening of requirements under building regulations so that, as of 31 December 2020, all new buildings are nearly-zero-energy buildings, and, after 31 December 2018, so that public authorities housed in and owning a new building ensure that the building is a nearly-zero-energy building.

e) Minimum levels for the use of energy from renewable sources in building regulations

Minimum levels for the use of energy from RES are not included in national, regional or local building regulations. Building authorities must respect the *Concept of Municipal Development in Heat Energy*.

Measures to ensure a greater share of RES in the construction sector
<ul style="list-style-type: none">• the introduction of a system of energy audits for selected types of buildings under specified conditions (other than family homes) and the interlinking thereof with support programmes

- the establishment of guidelines for the use of RES in buildings (Article 14(5)), its mandatory application for both new buildings and buildings subject to major renovation (e.g. the SENTRO Project), integrated planning and building design
- the establishment of guidelines for the use of RES in urban units at regional and local government level on the basis of the cost-effectiveness of heat supply by means of different types of fuels and energy
- arrangements for the updating of and checks on the implementation of the *Concept of Municipal Development in Heat Energy*.
- the establishment of guidelines to calculate the cost-optimal levels of minimum building energy performance requirements and their mandatory application in new buildings and, where appropriate, in existing buildings
- the institutionalization of training schemes for installers, e.g. EUCERT.HP (QualiCert and other projects) and other systems for other renewable energy sources (solar panels, biomass boilers), and for designers and architects, so that they are in a position to evaluate the right combination of RES and energy efficiency in measures for the planning, design, construction and renovation of buildings using new highly efficient technologies and district heating and cooling
- the promotion of energy services using RES in buildings (e.g. EAST-GSR)
- a support programme for biomass boilers and solar panels in households, including set technical parameters and specifications (the minimum guaranteed energy gain under standardized conditions + the Solar Keymark for solar panels, requirements regarding the efficiency and emissions of biomass boilers).

f) Planned rise in the use of energy from RES in buildings

Table 6: Estimated share of renewable energy in the building sector (%)

	2005	2010	2015	2020
Residential	1	4	7	12
Commercial	1	2	4	8
Public	1	2	4	8
Industrial	1	1	2	3
TOTAL	1	3	5	9

Source: Ministry of Economy and Construction of the Slovak Republic

g) Consideration for the obligation to use minimum levels of renewable energy in new and newly refurbished buildings in the energy policy

No obligations for new and newly refurbished buildings are currently defined in energy policy. The updated energy policy, expected to be approved in 2011, will take into account the possibility of determining minimum levels of energy from RES in such buildings.

h) Consideration for the obligations related to public sector buildings

Public buildings at national, regional and local level should play an exemplary role by using renewable energy installations or becoming zero energy buildings from 2012 onwards.

The first step, in cooperation with all ministries, will be to carry out a comprehensive inventory of the technical conditions of selected buildings, which will serve as a model. Based on an analysis of the options resulting in effective solutions, measures are selected to ensure

significant savings in energy consumption and RES use. The priorities in the coming years are energy savings and an associated reduction in operating costs.

i) Promotion of energy efficient technologies for energy from RES

Slovakia promotes energy efficient technologies via a scheme for households financed from the central government budget. The technical parameters of biomass boilers and solar panels are set out in Section 4.2.2.

4.2.4. Information provisions (Article 14(1), (2) and (4) of Directive 2009/28/EC)

The Slovak Innovation and Energy Agency (SIEA) is responsible for disseminating information about the possibilities of using renewable energy and energy efficiency. It was set up in 1999 and is an organization partly subsidized by the Ministry of Economy and Construction.

The SIEA provides information on measures to promote the use of renewable energy sources in the production of electricity, heating and cooling through its website, in the media, during presentations at seminars and conferences, and by means of leaflets containing information about its activities.

This dissemination of information is related to the fact that the SIEA has been mandated to implement various support programmes on the use of RES and to promote energy efficiency.

Since 2009, it has been responsible for the administration of the Government-approved Programme for the Greater Household Use of Biomass and Solar Energy. In this context, it provides information on the conditions of support for the target group and the general public primarily through its website, press releases and media statements.

Since the MoEC SR instructed the SIEA to hold calls for applications for non-repayable grants from the Structural Funds, the SIEA has continuously informed potential applicants of the opportunities for such support on its website, by telephone and through free informational seminars. In connection with the organization of seminars, the SIEA is also responsible for promoting potential support for renewable energy use in the media.



Existing awareness-raising programmes and training programmes

Increases in the level and quality of public awareness of energy efficiency and RES use are the aim of a national project aimed at professional energy consultancy run by the SIEA.

The project, entitled “Promoting awareness and consulting in energy efficiency and in the use of renewable energy sources, including public awareness”, was launched by the SIEA in early 2009 under a contract with the Ministry of Economy from funds allocated from the Structural Funds and from the central government budget.

The project's main target groups, at which individual activities will be aimed, are households, businesses, the public sector, children and students. During the project (2009-2013), the SIEA will organize numerous activities designed to provide practical information on the use of renewable energy sources.

The main project activity is the provision of free professional advice. To this end, three advice centres have been opened for the public in Banská Bystrica, Košice and Trenčín, where professional consultants provide information on RES arrange for professional advice to be imparted by experts. Applicants can seek advice electronically, by telephone (including via a toll-free number) or in person directly at these centres.

Professional consultants at the branches sum up respondents' enquiries. The most common questions will be accessible to the general public via its website at www.zitenergiou.sk, which is part of the SIEA site. The site will include structured information by type of renewable energy source. Specific information for different target groups (households, businesses, the public sector, children and students) will also be available. The SIEA site will offer visitors the chance to express an interest in subscribing for news according to their preferences. In this respect, the SIEA will have the opportunity, if specific activities are planned, to e-mail interested parties directly and provide them with information and/or invitations to take part in such activities.

Those visitors to a centre who are interested in receiving more specific advice on individual problems from energy experts can book consultations with energy experts to help them solve their problems or assess the feasibility of their investment plans.

Planned awareness-raising programmes and training programmes

The SIEA will also continue its current activities related to the provision of information and utilization of renewable resources, consisting of the organization of conferences, seminars and workshops on this topic. All of the SIEA's informational and educational activities will include presentations on how to use RES and receive support for the use of RES.

The SIEA will invite interested parties to participate in group excursions to interesting places where projects harnessing RES have been implemented.

The general public will also be able to attend local information events where they live. In this respect, the SIEA is preparing a road show with a specially adapted bus to explain to visitors the details and circumstances of RES use. Close cooperation on this project is envisaged with representatives of the villages and towns visited, who will be able to make suggestions and comment on the specific agenda of individual trips reflecting the preferences of local inhabitants.

The SIEA, in the preparation of printed or electronic informational materials, will also take into account the fact that informative documents produced under the project could be used and distributed, as part of their activities, by target groups such as builders, facility managers or such suppliers of equipment using renewable energy sources.

4.2.5. Certification of installers (Article 14(3) of Directive 2009/28/EC)

- a) Reference to existing national and/or regional legislation (if any) concerning certification or equivalent qualification schemes for installers according to Article 14(3) of the Directive 2009/28/EC

There are no national or regional regulations on the certification of installers. Any regulations that do exist are internal policies issued by companies engaged in the manufacture or sale of equipment for the use of individual types of RES. These companies provide installers only with the training required to install and start up the equipment they make or sell. “Mastership examinations” for installers, based on the German Chamber of Craft Trades, are advocated by the Guild of Heating, Thermal Technology and Installations. In view of the absence of legislation in this area, no such examinations are available.

- b) Responsible body/(ies) for setting up and authorising certification/qualification schemes by 2012 for installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps

Currently, under the Trade Licensing Act, competence to engage in craft trades is demonstrated by a vocational certificate or other evidence of full completion of an apprenticeship or relevant field of study and evidence of subsequent experience. No national system exists; instead, these activities depend on the relevant professional association or company.

The scheme now being prepared for the certification of installers should be based on the certification scheme under ISO 17024 and training provided under accredited training programmes. This installer training system will establish clear rules so that training, qualifications and skills are comparable throughout Europe.

- c) Are such certification schemes/qualifications suitable? If so, please, describe.

Such certification/qualification systems are suitable because they facilitate the mutual recognition of skills by EU Member States. This process must be transparent and clearly defined by the Member State or the administrative body it appoints. The installer training programme offered by providers should be interlinked with other areas, have regional or national coverage, and be linked to lifelong learning in installations.

- d) Is information on these schemes publicly available? Are lists of certified or qualified installers published? If so, where? Are other schemes accepted as equivalent to the national/regional scheme?

Information on certification schemes is not publicly available because no such system has been set up. Any lists of installers that do exist are maintained only by companies or professional associations engaged in the manufacture or sale of equipment for the use of individual types of RES. These lists are usually published on their websites. For example, the European Heat Pump Association (EHPA) holds training and certification for heat pump installers, and a list of qualified installers is published on the website of the corresponding Slovak professional association.

- e) Summary of the existing and planned measures at regional and local levels

Active collaboration currently exists with the European Solar Thermal Industry Federation (ESTIF), in the form of the QAIST project, and with the EHPA – EU-CERT.HP. Technický skúšobný ústav Pieš•any, š. p. (Pieš•any Technical Testing Institute) and the Slovak Association of Refrigeration and Air-conditioning Technology are involved in these projects. As part of the requirements of the Directive, a uniform system of installer training is being prepared which will also be based on the recommendations forthcoming from the results of the QualiCert project. The training system will include an accreditation and certification scheme. Professional associations, institutes and equipment manufacturers will be involved in the provision of training.

4.2.6. Electricity infrastructure development (Article 16(1) and Article 16(3) to (6) of Directive 2009/28/EC)

Under Section 3(1) of Act No 656/2004 on energy and amending certain laws, as amended (the “Energy Act”), state administration in the field of energy is the responsibility of:

- a) the MoEC SR;
- b) the RONI;
- c) the SEI.

The MoEC SR, in relation to the electricity infrastructure, can take measures to ensure the security of electricity supply and measures to safeguard plans for the support of electricity production from RES.

- a) Reference to existing national legislation concerning requirements related to the energy grids (Article 16):

Key primary energy legislation:

- Act No 656/2004 on energy;
- Act No 276/2001 on network industry regulation and amending certain laws (the “Regulation Act”);
- Act No 309/2009 on the promotion of RES.

Most important secondary legislation:

- Regulation of the Government of the Slovak Republic No 317/2007 laying down rules for the functioning of the electricity market, as amended;
- RONI Decree No 1/2009 on the scope of price regulation in network industries and the method of implementation thereof, as amended;
- RONI Decree No 2/2008 establishing the regulation of prices in the electricity sector, as amended;
- RONI Decree No 490/2009 laying down details on the promotion of renewable energy sources, high efficiency cogeneration and biomethane;
- Decree of the Ministry Economy of the Slovak Republic No 599/2009 implementing certain provisions of the Act on the Promotion of Renewable Energy Sources and High Efficiency Cogeneration;
- Decree of the Ministry of Economy of the Slovak Republic No 459/2008 laying down details on procedure for the declaration of an emergency, the declaration of restrictive measures in an emergency and on measures to eliminate an emergency.

The strategic document setting out the basic principles and methods for network industry regulation is the “Regulatory Policy for the Upcoming Regulatory Period”. The RONI approves the operational procedures and technical conditions of system operators.

- b) Development of transmission and distribution systems in the integration of the targeted amount of renewable electricity while maintaining the secure operation of the electricity system

The development of the transmission system is based on the following basic documents in force in Slovakia:

- Energy Security Strategy of the Slovak Republic
- Energy Policy of the Slovak Republic

These documents set out the medium- and long-term plans for electricity use, including use of RES, while maintaining the secure operation of the electricity grid. In order to ensure electricity grid stability and the security of the electricity supply, capacity limits have been imposed for MoEC SR certification in relation to applications for the construction of photovoltaic power plants.

Periodic planning of system operators

Every year, the transmission system operator, Slovenská elektrizačná prenosová sústava, a.s., draws up and updates the medium- and long-term Transmission System Development Programme. This programme draws on the basic documents above and is prepared in keeping with the requirements of individual users, especially distribution system operators (DSOs) and electricity producers connected to the transmission system. It also specifies the impact of renewable sources on the development of the transmission system and proposes measures for their implementation.

The development of distribution systems ready for the connection of renewable sources is carried out within the scope of development plans, with reference to connection requirements. Distribution systems are developed in accordance with the “Five-year DSO Development Plan”.

The target quantities of renewable electricity planned under the current Energy Security Strategy can be gradually incorporated into the electricity grid on a year-by-year basis so that they have no significant direct impact on the development of the transmission system while maintaining security criteria.

At present, there is a risk of hazardous effects on the development of the transmission and distribution system and on the maintenance of security criteria because the current construction of renewable energy facilities may exceed the planned amount of installed RES capacity envisaged in the current Energy Security Strategy. Any such excessive unplanned capacity could jeopardize the safe management of the Slovak grid for the following reasons in particular:

- The construction of RES will be too fast for the RES implementation infrastructure to keep up
- The planned capacity of renewable sources will also place demands on the infrastructure which cannot be covered financially
- The storage of electricity from RES is not adequately secured. RES investors should also arrange for the storage/backup of their own electricity

- Production on the basis of interest currently expressed by RES investors will significantly affect the power balance in the regulatory area, for which cross-border lines may not be adequately prepared. Agreement needs to be reached on both sides for the construction of these lines
 - In the field of regulation, sufficient electricity sources for the regulation of the electricity grid will not be secured to meet the requirements of parallel system cooperation with full RES operations; legislatively guaranteed preferential purchasing of all RES production will exist and RES investors will not be held accountable for its deviations and will not have their own dispatch centre to accommodate deviations.
- c) Role of intelligent networks, information technology tools and storage facilities. Arrangements to ensure their development.

The term intelligent network mainly means the development and operation of distribution systems (DS) and the development of facilities for the accumulation (or “storage”) of electricity in times of surplus, as opposed to immediate consumption; under current legislation, purchasing of the entire production at any moment is required in relation to RES. The role of intelligent networks will be to increase the use of transmission capacity while maintaining the quality parameters of the electricity supplied. Legislation on intelligent networks is being prepared and there are no clear expectations in this area at present. In this respect, a detailed analysis of alternatives for the construction of intelligent networks needs to be conducted to determine the opportunities and impacts of integrating RES into intelligent networks, and, where appropriate, of integrating electricity storage installations. The MoEC SR will support experimental programmes for the introduction of intelligent network elements and electricity storage installations in practice.

Intelligent networks are associated with the high-automation of plants, the high costs of building such automated facilities and electricity storage and accumulation facilities, and, where appropriate, the remote management of consumption. Their implementation is necessary to increase transmission capacity, reliability, flexibility of operation, the influencing of consumption in real time, measurements, billing, etc. To some extent, this could also increase the level of customer service, although such a sophisticated grid requires numerous qualitative changes which are highly demanding on staffing, technology and finances. An intelligent network, for example, includes the integration of new electrical and electronic facilities and the sources distributed (mainly RES) into distribution systems. The connection of RES to DS is much more difficult for an intelligent network, and it is questionable who will contribute to these higher costs and to what extent. Essentially, increased demands are also placed on dispatch control and on cooperation between the transmission system operator and distribution system operators.

As far as storage facilities are concerned, pumped storage units (PSU) in particular are being considered in the Slovak Republic. Their current installed capacity is 916 MW. In the long-term, Slovakia’s Energy Security Strategy is expected to support the construction of the new Ipe• PSU (600 MW) with a weekly accumulation cycle, which could help regulate the production of electricity from unpredictable RES capacity (mainly wind and photovoltaic power plants).

The construction of additional storage capacity is currently highly problematic and no significant improvement in this area is expected in the coming years. Therefore, there are no realistic prospects for the construction of such industrial-size installations in Slovakia before 2020, and they are not being considered in the handling of network problems.

Obligations to introduce smart metering systems are not defined by current legislation. Under Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, the decision whether to introduce smart metering systems should be based on economic assessment of all costs and benefits for all market participants. Regarding this issue, distribution companies are monitoring technological developments and creating a standard for measuring commodities, which will be implemented internationally with financial support from the European Commission's "Open Meter Project". Standards are currently being defined and the estimated completion date is around 2020. ZSE Distribúcia, a.s., as part of a pilot project, started installing electric meters with radio communications in 2008, and with PLC communications in 2009, to test the smart meters currently available and compare them technically, operationally and financially. Once the standards have been set, an action plan for implementation will be drawn up at SSE-D. Východoslovenská distribučná, a.s. is also involved in a pilot project aimed at identifying the benefits of such metering systems to customers and the economic advantages and benefits in terms of metering system costs.

d) Plans to reinforce the interconnection capacity with neighbouring countries

Under Section 22(2) of the Energy Act, the power transmission system operator is obliged to draw up an annual transmission system development plan, including a five-year plan for the development of the interconnection of lines. The planning of the construction of cross-border lines is influenced by the interests and approaches of transmission system operators in neighbouring countries.

SEPS, a.s. is involved in ongoing negotiations with all neighbouring transmission system operators on how to strengthen their joint sections. In this regard, the priority is to reinforce the section between Slovakia and Hungary. In light of the ongoing negotiations and the unsatisfactory approach by the Hungarian transmission system operator, it is currently impossible to set concrete dates for the reinforcement of the Slovak - Hungarian section with any confidence. Most projects to reinforce international interconnection capacity do not appear to be viable until after 2015 or 2020.

e) Current status and legislation, bottlenecks detected and plans to streamline procedure with timeframe of implementation and expected results.

During system construction, it is necessary to obtain:

1. An EIA opinion on the project in accordance with Act No 24/2006 on environmental impact assessments and amending certain laws. This infrastructure approval process takes approximately 16 months. Documentation for the assessment comprises the technical specifications of the planned lines approved in the investment requirement during the internal investment approval process.
2. The issue of a zoning decision for the project in accordance with Section 39 of the Building Act (Act No 50/1976, as amended). The time requirement is approximately six months. The aim here is to consult and approve the project design documentation prepared for zoning proceedings based on the route of the line approved in the MoE SR's final opinion in preceding procedure (see 1)

3. The issue of a building permit for the project in accordance with Section 66 of the Building Act (Act No 50/1976, as amended). The time requirement is approximately eight months. This is a decision in which the building authority sets binding conditions for the construction and use of the structure and decides on objections raised by the parties to the proceedings.

Altogether, the process of obtaining these documents takes 2.5 to 3 years.

At present, critical documents for the issue of a building permit for the construction of transmission system facilities are:

- Decisions by land offices on the reclassification of agricultural land in accordance with Section 17 of Act No 220/2004 on the protection and use of agricultural land and amending Act No 245/2003 on Integrated Pollution Prevention and Control and amending certain laws
- Decisions by forestry offices on the reclassification of forestland in accordance with Section 7 of Act No 326/2005 on forests, as amended

Process could be accelerated by harmonizing laws on the construction of linear electrical structures. This would entail the harmonization of cadastral, agricultural and forestry legislation with the Building Act and the Energy Act.

The overall concept of infrastructure development is determined on the basis of the strategy adopted for the connection of new service points and electricity generating plants, and for improvements in the quality parameters of the system. Within the in-house corporate process, intermediate stages in the approval procedure are kept to a minimum; a one-step process has been introduced for technical proposals which constitute the introductory documents defining the scope of the project. A common problem lies in the coordination of these plans with individual municipalities' land-use plans and with municipalities' plans to upgrade other infrastructure. Subsequently, the biggest problems are building permits and property settlements, combined with the reluctance of local inhabitants to tolerate electrical installations on their property. On average, it takes about a year to obtain a building permit for a current HV/LV project (the most common type of project).

In an effort to speed up the process for obtaining the relevant permits, distribution companies, as part of their medium-term and long-term distribution system development planning communicate with the relevant institutions involved in land-use planning (especially higher territorial units, municipalities and towns). In this area, it is recommended to strengthen the definition of public buildings in view of the difficulties in reaching land property settlements.

- f) Coordination between grid infrastructure approval and other administrative planning procedures

Work on the development of the transmission system has resulted in an investment scheme containing a list of structures that need to be built. The structures have been sited and their territorial scope has been determined. The structures on this scale are claimed to be necessary for the electricity sector (the transmission system) in the master land-use plans of large territorial units in Slovakia, i.e. regions (*kraje*) in the country's administrative management. The need to draw up master land-use plans and the content of those plans are determined by the Spatial Planning Act.

Territorial requirements for the development of the transmission system have been accepted in land-use plans and a territorial reserve has been established for the construction of TS installations until the relevant structures are completed. However, this land-use planning does not guarantee the final success of construction, since the attitudes of landowners, environmental bodies and groups, and municipalities are not inclined towards the construction of new transmission system facilities.

Conditions for the extension of the distribution system applicable to producers of electricity from RES are set out in the distribution system operator's Operating Procedure.

In the long-term distribution system development planning, the distribution system operator actively coordinates its procedures with the transmission system operator and, in doing so, is governed by the relevant laws in force in Slovakia. Coordination takes the form of an annual planning process, into which other administrative procedures are integrated. These include the preparation of annual plan for the shutdown of electrical installations, the planning of installation capacity, the planning of purchases of materials, and the planning of costs for individual projects. This work also needs to be coordinated with operational activities to prevent the same installation from being shut down twice. A planning process has been implemented which defines the periods when individual sub-outputs of planning must be made available so that they can be correctly aligned with each other.

- g) Provision of priority connection rights or reserved connection capacities for new installations producing electricity from renewable energy sources

Under Section 22(2)(o) of the Energy Act, the transmission system operator is required to enter into access contracts and system connection contracts with anyone who so requests, provided that they meet the technical and commercial conditions for access and connection to the system. Under Section 24(8) of the Energy Act, the distribution system operator is required preferentially to connect the installations of a producer of electricity from renewable energy sources to its system upon payment of the connection price, if the producer meets the commercial conditions and technical conditions for connection to the system in such a way as to maintain the safety, reliability and stability of system operations.

Under Section 24(8) of the *Act on the Promotion of RES (Act No 309/2009)*, the production of electricity from renewable energy sources and the promotion of the production of electricity in the form of high efficiency cogeneration are ensured, inter alia, by the priority connection of electricity generating installations to the regional distribution system and by access to the system. Under Section 4(1) of the above Act: A producer of electricity who qualifies for support under Section 3 ("electricity producer entitled to support") has a right to priority connection to the distribution system, priority transmission of electricity, priority distribution of electricity and priority supply of electricity if the electricity generating installation meets the technical conditions of the system operator under special legislation and does not compromise the safety and reliability of the system; priority transmission of electricity does not apply to electricity transmission via connection lines.

Rights and obligations regarding priority access, in accordance with those laws, are safeguarded by the document "Operating Procedure of the Distribution System Operator". In this process, the DSO requires only the submission of necessary documents under applicable legislation and documents certifying that the installation does not have a negative impact on the safety and operation of the system.

- h) Are any renewable installations ready to come online but not connected due to capacity limitations of the grid? If so, what steps are taken to resolve this and by when is it expected to be solved?

There are currently no such facilities to produce electricity from renewable sources or other technologies which have already been built but not connected to the transmission system because of the capacity limitations of the grid.

- i) Rules on cost sharing and bearing of network technical adaptations

(Cost bearing rules define which part of the costs is covered by the generator wishing to be connected and which part by the transmission or distribution system operator. Cost sharing rules define how the necessary cost should be distributed between subsequently connected producers that all benefit from the same reinforcements or new lines.)

The method, procedures and conditions for connection to the system, the determination of the method for calculating the maximum price, the procedure and conditions of pricing for the connection of electricity market participants to the grid and for the new connection of an electricity producer to the system, and the scope and structure of eligible costs and the method for the reimbursement thereof are set out in Annex 6 to RONI Decree No 2/2008 establishing the regulation of prices in the electricity sector, as amended. These conditions are also included in the operating procedure of the transmission system operator and distribution system operators.

Under Section 5(3) of *Act No 309/2009 on the promotion of RES*, an electricity producer's facility is connected to the distribution system if the distribution system has the technical capacity for the connection, is nearest to where the electricity generating installation is located, and another system is not in a technically and economically better location for the connection. The distribution system is considered to have technical capacity even if the collection of electricity without detriment to the priority under paragraph (2) is only possible by the economically efficient extension of the system, in which case the distribution system operator, at the request of the electricity producer, is required to extend the system.

The rules are non-discriminatory and transparent, and are applied equally to each applicant. Their approval is subject to a review process where these rules are examined by the regulator not only for eligibility, but also in terms of objectivity, transparency and non-discrimination.

There are no special rules for producers located in peripheral regions and regions with low population density.

- j) Rules for the allocation of the costs of connection and technical adaptation and investment costs

(There are several options for distributing grid connection costs. Member States are likely to choose one or a combination of these. According to the "deep" connection cost charging the developer of the installation generating electricity from renewable energy sources bears several grid infrastructure related costs (grid connection, grid reinforcement, and extension). Another approach is the "shallow" connection cost charging, meaning that the developer bears only the grid connection cost, but not the costs of reinforcement and extension (this is built into the grid tariffs and paid by the customers). A further variant is when all connection costs are socialised and covered by the grid tariffs.)

Costs are borne by the producer in accordance with the relevant legislation, RONI Decree No 2/2008, as amended, which sets the connection applicant (a producer of electricity from RES) a coefficient, determining the applicant's co-participation, at 0.9 for the adjustment of the connection price to reflect costs associated with the connection of the applicant. Under the approved DSO Operating Procedure, the construction of dedicated facilities solely for the producer's needs is not permitted.

According to RONI Decree No 2/2008, as amended:

1. costs incurred by the transmission system operator in connecting a distribution system operator's electricity installation, in increasing the maximum reserved capacity of a distribution system operator's existing electricity installation connected to the transmission system, or in adapting transmission system installations at the request of a distribution system operator, shall be distributed among the relevant system operators as follows:
 - a) the transmission system operator's share is 60% of the costs;
 - b) the distribution system operator's share is 40% of the costs.

The costs referred to in the preceding paragraph include:

- a) costs related to the acquisition of the electricity installation, including the transportation thereof to the designated location;
- b) costs related to the acquisition of automatic fire extinguishing systems;
- c) costs related to the acquisition of a management system;
- d) installation costs;
- e) other costs associated with the preparation, design and construction of an electricity installation and adaptations required to the transmission system's electricity installations.

The costs incurred by the transmission system operator are determined, on the basis of the costs in the preceding paragraph, from the point at which the distribution system operator's electricity installations are connected to the transmission system's technological facilities up to the point where available input is required in the transmission system.

2. All actually established expenses incurred by the transmission system operator in relation to an application from a final customer of electricity or electricity producer for a connection, for the provision of the required input of new electricity installations or for adjustments to the existing electricity installations of the transmission system operator are covered by the final customer or the electricity producer. These costs include the following:
 - a) costs related to the acquisition of the electricity installation, including the transportation thereof to the designated location;
 - b) costs related to the acquisition of automatic fire extinguishing systems;
 - c) costs related to the acquisition of a management system;
 - d) installation costs;
 - e) other costs associated with the preparation, design and construction of an electricity installation and adaptations required to the transmission system's electricity installations.

The costs incurred by the transmission system operator are determined, on the basis of the costs in the preceding paragraph, from the point at which the applicant's electricity installations are connected to the transmission system's technological facilities up to the point where available input is required in the transmission system.

3. The distribution system operator's costs in securing the maximum reserved capacity by building new electricity installations or by adjusting the existing electricity installations of the distribution system operator, incurred by connecting an applicant, are borne by the applicant.

The N_c costs of connecting an applicant's electricity installation to the distribution system include:

- a) costs related to the acquisition of the distribution system operator's electricity installation, including the transportation thereof to the designated location;
 - b) costs related to the acquisition of automatic fire extinguishing systems;
 - c) costs related to the acquisition of a management system;
 - d) installation costs;
 - e) other costs associated with the preparation, design, construction and connection of the distribution system operator's electricity installation and the costs incurred by the operator of the system to which the regulated entity is connected.
4. The distribution system operator's costs associated with connecting an applicant to the distribution system with a view to distribution required beyond the standard set in the technical conditions are reimbursed to the distribution system operator in full.

Where an applicant's electricity installation is already connected to the distribution system and the applicant has secured the maximum reserved capacity required and has applied for connection to a different voltage level, which is not forced by a change in the technical connection conditions, this is also regarded as an above-standard connection.

5. If an applicant requires an increase in the existing maximum reserved capacity, the connection price for the increase in the maximum reserved capacity is calculated from the difference between the required and the original maximum reserved capacity.

If an assigned maximum reserved capacity is not in use after two years as of the contractually agreed date, it is reduced to the actual level of use (but to a maximum of 50% of the initially agreed maximum reserved capacity), unless the applicant and the system operator agree otherwise. Further to a request from an applicant for re-allocation of the original maximum reserved capacity, this capacity is re-allocated to the applicant free of charge.

6. A connection fee is not required from an electricity customer in the event of:
 - a) a change of electricity supplier without an increase in the existing maximum reserved capacity;
 - b) a change of electricity customer without an increase in the existing maximum reserved capacity pursuant to the system operator's operating procedure;
 - c) the re-allocation of the original maximum reserved capacity to a collecting electricity installation (at low voltage if the electricity customer's collecting electricity installation is connected to the system after 31 December 2004).

7. The connection price for the short-term consumption of electricity is determined by the distribution system operator at the amount of costs actually incurred by the distribution system operator upon connecting the electricity customer.
8. The price for the new connection of an electricity producer to the distribution system of a distribution system operator at a voltage of up to 1 kV, from 1 kV to 110 kV inclusive, and 110 kV, or upon an increase in the maximum reserved capacity in the distribution system at a voltage of up to 1 kV, from 1 kV to 110 kV inclusive, and 110 kV, includes the costs of constructing the distribution system operator's required electricity installation and any necessary adjustments to electricity installations in the distribution system of the distribution system operator and in the transmission system, and calculated according to the following formula:

$$N_o = N_c * \frac{P_{MRK}}{P_D} * k ,$$

where

N_o - connection price in euro,

N_c - the distribution system operator's total costs associated with the applicant's connection and related modifications to the distribution system and transmission system in euro,

P_D - the available connection capacity created by adjustments to electricity installations in the distribution system operator's distribution system necessitated by the connection of an applicant to the distribution system, in megawatts,

P_{MRK} - the maximum reserved capacity of the connection applicant, in megawatts,

k - the coefficient of the applicant's co-participation, k equals 1; if the connection applicant is a producer of electricity from renewable energy sources or cogeneration, k equals 0.90.

There are no plans for changes over the current three-year regulatory period. The RONI establishes rules in the form of a decree. These rules are updated annually by a new decree.

k) Rules for sharing the costs between initially and subsequently connected producers

As the price reflects the actual costs associated with or incurred in connecting a producer, the producer bears only the cost of the connection. The connection of producers is included in the "New connection" category and, in this case, if the adjustments are used for multiple end-users, these costs are broken down among them based on the capacity used or reserved.

l) Provision of the necessary information on costs, a precise timetable for processing their requests and an indicative timetable for their grid connection

All the necessary information is contained in primary and secondary legislation; details and procedures are set out in the operating procedures of the transmission system operator and distribution system operators. Further information is provided on the websites of the transmission system operator and regional distribution system operators (www.sepsas.sk, www.zse.sk, www.sse.sk and www.vsd.ssk).

The transmission system operator addresses these issues on a case-by-case basis, with each party interested in a connection, as part of the negotiations on the signing of a Contract on Joint Construction Procedure or a Contract on Connection to the Transmission System.

All the necessary information regarding connection to the DS, including the dates and timetable for the connection of a producer to the distribution system, is defined in the connection contract. The DS, through their websites, provide information to new producers on the procedural steps for connection to the DS. Specific information and conditions associated with a producer's connection are notified to the applicant in the DS operator's response to the DS connection application in accordance with the distribution system operator's technical conditions and the DS operator's operating procedure. Under RONI Decree No 315/2008 on quality standards for supplied electricity and service provision, and further to the Operating Procedures of DS operators, an opinion on a connection application should be drawn up within 30 days. The DSO also establishes procedures in its operational regulations enabling applications to be processed within statutory time limits, and ensures that they are observed.

Another source of information is the customer call centre, where interested parties can receive the information they require.

4.2.7. Electricity network operation (Article 16(2) and Article 16(7) and (8) of Directive 2009/28/EC)

- a) Transmission and distribution of electricity from RES guaranteed by transmission and distribution system operators. Guarantee of priority access.

Under Section 3 of *Act No 309/2009 on the promotion of RES*, the production of electricity from renewable energy sources and the promotion of the production of electricity in the form of high efficiency cogeneration are ensured:

- a) by priority
 1. connection of an electricity generating installation to the regional distribution system;
 2. access to the system;
 3. electricity transmission, electricity distribution and electricity supply;
- b) in the form of the collection of electricity by the operator of a regional distribution system to which the electricity producer's installation is connected directly or through a local distribution system at the electricity price for losses;
- c) by a supplementary payment,
- d) by the assumption of responsibility for a deviation by the operator of a regional distribution system.

Under Section 4(1)(a) of this Act, a producer of electricity who qualifies for support has a right to priority connection to the distribution system, priority transmission of electricity, priority distribution of electricity and priority supply of electricity if the electricity generating installation meets the technical conditions of the system operator under special legislation and does not compromise the safety and reliability of the system; priority transmission of electricity does not apply to electricity transmission via connection lines.

Rules on access to the distribution system are the same for all participants. Act No 309/2009 on the promotion of RES defines the obligation for a regional distribution system operator to provide priority connection and ensure priority access and electricity distribution for producers' generating installations based on renewable electricity sources.

Commercial conditions for electricity access, connections and distribution are set out in the distribution system operator's Operating Procedure. Approval of this document by the RONI guarantees the distribution of electricity from RES provided that the electricity producer complies with all conditions required under the published document in relation to the DS operator.

b) Priority for those installations generating electricity from RES

Under Section 24(2) of the Energy Act, the distribution system operator is required preferentially to connect the installations of a producer of electricity from renewable energy sources and by cogeneration to its system upon payment of the connection price, if the producer meets the commercial conditions and technical conditions for connection to the system in such a way as to maintain the safety, reliability and stability of system operations.

Under Section 24(6) of the Act, a distribution system operator who provides electricity distribution to more than 100 000 connected customers preferentially purchases electricity from renewable sources to cover losses in the distribution of electricity.

Under Section 26(3) of the Act, an electricity producer may require that the transmission system operator's electricity dispatching centre give priority to the integration of generating installations producing electricity from renewable sources, by cogeneration or from domestic coal.

c) Grid- and market-related operational measures to minimize the curtailment of electricity from RES

(Market and grid design that enable the integration of variable resources could cover measures such as trading closer to real time (changing from day-ahead to intra-day forecasting and rescheduling of generators), aggregation of market areas, ensuring sufficient cross border interconnection capacity and trade, improved cooperation of adjacent system operators, the use of improved communication and control tools, demand-side management and active demand-side participation in markets (through two-way communication systems — smart metering), increased distributed production and domestic storage (e.g. electric cars) with active management of distribution networks (smart grids).)

In view of the low share of RES in the Slovak grid, no operational measures concerning the curtailment of electricity produced from RES are being prepared. However, the impact of wind and solar power plants on grid stability is examined in detail in the building permit process.

The DS operator is obliged to assume responsibility for deviations in respect of plants generating electricity from RES (plants generating up to 4 MW) and is required to purchase all their electricity to cover losses in the DS, regardless of the level of losses.

Under the Dispatching Rules on the Management of the Slovak Electricity Grid, the DS operator is entitled, via second-level system dispatching control, to restrict or suspend the supply of electricity only for the purposes of ad hoc grid management in emergencies and in the event of a temporary lack of capacity further to an order of the transmission system operator.

- d) Provision of information to the regulatory authority about measures to minimize the curtailment of electricity production from RES. Does it have the competence to monitor and enforce implementation of these measures?

No measures of this nature are currently being prepared.

The RONI is kept informed of all measures regarding producers using renewable energy sources as it is responsible for approving the operating procedures of distribution system operators. The RONI also approves the system operation tariff, taking into account the planned proportion of costs to promote electricity from RES and CHP.

In order to increase transparency in the activities of system operators, the requirement will be considered for transmission and distribution system operators to submit information to the MoEC SR and the RONI concerning spare capacity in the connection of producers of electricity from RES to the network, broken down by

- the amount of spare capacity;
- the location of the technological facilities of the producer of electricity from RES;
- the point of connection to the system;
- the production of electricity from RES, by type of installation.

- e) Integration of plants generating electricity from RES into the electricity market. What are their obligations regarding participation in the electricity market?

Every producer of electricity is an electricity market participant as defined by Section 18(2) of the Energy Act. Therefore, producers of electricity from RES are electricity market participants – with the right of priority access and electricity consumption. Those who do not exercise this right may sell the electricity they generate on the open market. Their generally higher costs per MWh of electricity generated mean that these producers would be unable to establish themselves on the open market without assistance. Slovak legislation, particularly the RES Act, offers several types of support facilitating the sale of electricity produced in these installations. The forms of support, as mentioned above, are addressed by the RES Act (especially Section 3). In the formation of the feed-in price for electricity, RES is also integrated into the market by positive discrimination.

An electricity producer eligible for support shall

- present the regional distribution system operator with a certificate of the origin of electricity from renewable energy sources issued for the following calendar year or for the previous calendar year;
- notify the regional distribution system operator with whom the electricity producer has an electricity supply contract of the anticipated characteristics of supply on the dates indicated in the regional distribution system operator's operating procedure, if the installation's total installed capacity is more than 1 MW;
- notify the RONI and the regional distribution system operator that it is invoking the support under Section 3(1)(b) and (c), including the expected amount of electricity to be supplied, as at 15 August for the following calendar year; where an electricity producer's installations are put into service after 15 August, the electricity producer shall inform the regional distribution system operator of the exercise of the right under paragraph (1) not later than 30 days before the electricity producer's installation is put into service.

Installations generating electricity from renewable sources are integrated into the electricity market and are obliged to comply with Government Regulation No 317/2007 and related energy legislation.

All installations generating electricity from RES which are connected to the distribution system and which meet the conditions under the Operating Procedure and current legislation on RES benefit from the priority purchasing of electricity to cover losses or final payment. The obligations of individual electricity producers are governed by current legislation depending on the type of installation, as, ultimately, is producer interest in support services for the transmission system operator.

A distribution system operator, in accordance with *Act No 309/2009 on the promotion of RES*, is required to purchase electricity from RES to cover losses in the distribution system. Any surpluses may be sold on the electricity market.

- f) Rules for charging transmission and distribution tariffs to generators of electricity from RES

The charging of transmission and distribution tariffs is subject to regulation. Access to the TS and electricity transmission, as well as access to the DS and electricity distribution, are subject to price regulation. A producer of electricity connected to the system who produces electricity on the basis of a licence or certificate of compliance with notification requirements (such certification is applicable to generating installations with output of up to 1 MW) does not pay the electricity transmission or distribution tariff.

An electricity producer connected to the system who produces electricity on the basis of a licence to produce electricity is not charged for reserved capacity, system services or system operation when buying electricity exclusively for its own use in the production of electricity, further to a request submitted to the DS operator. When a producer becomes a purchaser of electricity from the distribution system, rules on the charging of distribution tariffs enter into force in accordance with applicable pricing decisions and in accordance with rules set out in the operating procedure, depending on the voltage to which the plant is connected.

4.2.8. Biogas integration into the natural gas network (Article 16(7) and Article 16(9) and (10) of Directive 2009/28/EC)

- a) Ensuring the non-discriminatory charging of biogas transmission and distribution tariffs

The gas distribution network operator, *Spolo•nos• SPP – distribúcia, a. s.*, by virtue of a RONI decision, applies approved uniform distribution tariffs for all participants in the gas market to whom it provides its services. This also ensures that the distribution network operator does not discriminate against producers of gas from renewable energy sources.

- b) Assessment of the need to extend the gas network infrastructure to facilitate the integration of gas from renewable sources

Approximately 77% of municipalities (accounting for about 94% of the total population) have been gasified in Slovakia. In view of such extensive gas network infrastructure, and in light of the fact that no requests have been registered for the connection of a biogas producer to the distribution network, there is currently no reason to assess the need to extend the distribution

network to facilitate the integration of gas from renewable energy sources. If a biogas producer submits an application for connection to the distribution network to a distribution network operator, the operator, by reference to the information in the application, sets technical and commercial conditions for connection to the distribution network. Any costs incurred in making a connection to the network are split between the biomethane producer and the gas distribution network operator.

c) Publication of technical rules on network connection and connection tariffs for biogas

As the distribution network operator, SPP – distribúcia, a.s., in accordance with the Energy Act, has published technical conditions for access and connection to the distribution network in the regulation “SPP – distribúcia, a.s. Technical Conditions”. If a biogas producer is to be connected, the biogas composition must meet the quality parameters set out in Annex 1 to the Technical Conditions. The technical conditions for connecting biogas producers to the distribution network are set on a case-by-case basis depending on the technical parameters of the gas installation to be connected and the connection point requested; the term “follow-on network” also covers the gas installations of biogas producers. SPP – distribúcia, a.s. is preparing a new website where it will publish guidelines for connection applicants – biogas producers.

The price for connecting a biogas producer is determined individually, based on the actually incurred and documented costs of the distribution network operator in accordance with the RONI Decree establishing the regulation of prices in the gas sector, as amended.

4.2.9. District heating and cooling infrastructure development (Article 16(11) of Directive 2009/28/EC)

Please provide an assessment of the need for new district heating and cooling infrastructure using renewable energy sources and contributing to the 2020 target. Based on this assessment, are there plans to promote such infrastructures in the future? What are the expected contributions of large biomass, solar and geothermal facilities in the district heating and cooling systems?

a) Current district heating situation in Slovakia

Slovakia is characterized by a developed system of district heating (DH) meeting more than 58% of total energy requirements (by producing approximately 116 000 TJ of heat).

In DH systems, most heat (about 54%) is produced in combined systems (*harnessing the benefits of combined heat and power generation*). Other heat production comes mainly from local and district heating installations (*heating stations, heat plants*) with their own heat pipes in the corresponding heat circuits.

The structure of primary energy sources in heat generating installations is dominated by solid fossil fuel. In other installations, natural gas accounts for more than 90% of the fuel base. The majority of heating installations and heat distribution systems were built and developed in the past in tandem with the intensive development of urban agglomerations, particularly municipal residential construction projects.

In general, the current situation regarding district heating systems can be characterized by the following features:

- primary energy sources have drawn level with global prices; since 2003 there has been a sharp increase in production costs (*mainly the cost of fuel inputs*);
- the price of heat has become an important item for those seeking to establish themselves on the heat market – the tendency among customers to disconnect from the DH system in the past was mainly motivated by distortions in natural gas tariffs;
- in the past 10 years, there has been a substantial reduction in heat production and supply because heat consumption has been terminated in some quarters (*among industrial customers in cities where district heating systems have been developed*), and especially because of savings achieved in the amount of heat required for space heating and the production of hot water following the implementation of demand-side rationalization measures (*hydraulic regulation, the installation of thermostatic valves, the thermal insulation of residential buildings*); the decrease in heat supply is between 30% and 40%;
- heating installations (*CHP plants, heating plants, heating stations*) have become too large. Heat distribution grids have also become oversized, which has increased heat loss during distribution;
- insufficient funds are channelled into DH system investment and upgrading;
- when Act No 657/2004 on heat energy entered into effect, a legislative framework was created which gave heat supply a regional nature. It was expected that the Concepts of Municipal Development in Heat Energy (*which municipalities were required to draw up under the above law*) would become a major strategic document guiding the development of heat supply in municipalities in the coming years. Not all towns make sufficient use of this instrument, as evidenced by the illogical disconnection of heat customers from the central supply and the uncoordinated construction of new heat plants which are technically and environmentally unjustified as they are within reach of existing systems;
- the price of heat is regulated by Act No 276/2006, as amended, on the basis of RONI decrees which, every year since 2003, have set the scope and method of regulation, the scale and structure of eligible costs, the method used to determine reasonable profit, and supporting documentation for price proposals.

A two-component heat price is used in regulation to take into account the differing needs of individual heat consumers and enable them to influence the level of their heating costs (*a motivational factor to reduce their heat consumption*). It is divided into a fixed price component, based on regulatory input at supply points, and a variable component, based on the measured amount of heat.

The calculation of the heat price cannot incorporate ineligible costs, which, inter alia, include lack of economic viability in the production and distribution of the heat. Fuel costs are limited by the normative heat generation and distribution efficiencies, as set by Slovak Innovation and Energy Agency by reference to the results of checks on the efficiency of the operation of heating installation systems in accordance with Act No 657/2004 on heat energy. The results of these checks are used to exert pressure on heat producers to improve the technical standard of heat production and distribution and eliminate extra costs associated with loss beyond those prescribed.

- b) Need for new district heating infrastructure and measures to increase the amount of heat in district heating from renewable energy sources in order to contribute to the 2020 target

The Slovak Republic has a developed system of district heating. **This high degree of heat supply centralization creates sound technical conditions for the use of renewable energy sources.**

Efficient demand-side measures taken in recent years, and currently intensified by schemes to promote the thermal insulation of residential buildings, ultimately reduce the amount of heat supplied. This causes an increase in the share of heat suppliers' fixed costs in total costs. To maintain their competitiveness, heat suppliers must find new heat customers, a task which is very difficult in the current climate due to the reduction in housing and civil construction.

If the system has sufficient capacity to cover the supply of heat, the construction of RES installations will be supported as a complete replacement for old heat plants.

In view of the available potential of biomass in Slovakia, a prospective solution for central heat supply, with the aim of reducing the production costs of the variable component of the heat price, is the construction of RES-based heat plants which can be operated in the interconnected systems of other heat plants' individual circuits and, by means of a coordinated approach, make effective use of the installed capacity of these plants.

This requires the construction of new heat distribution systems to deliver thermal output to customers, including compact heat exchanger stations at supply points, as well as the creation of heat distribution systems to link up the previously separate circuits of other heat plants in order to expand the supply of heat from RES. This solution, if it results in the acquisition of new heat demand, will form the basis for the greater density of heat supply, which will have a positive impact on the fixed component of the heat price.

At present there are hardly any financial instruments to support the construction, replacement or reconstruction of heat distribution systems needed to promote the development of central heat supply based on RES.

According to the current scheme for the provision of financial assistance from the EU Structural Funds under the Competitiveness and Economic Growth Operational Programme, support is available for the use of renewable energy sources, i.e. the construction, upgrading or reconstruction of heat plants, but aid for the construction, upgrading and reconstruction of distribution systems is limited to those systems located on the premises of the aid beneficiary. This financial aid mechanism is illogical, does not reflect the specific situation of district heating systems, and needs to be changed.

The imposition of penalties by the State Energy Inspectorate for non-compliance with normative heat production and distribution indicators does not appear to be expedient in the development of heating installations and the use of RES.

Inefficiency in the production and distribution of the heat is not an eligible cost item in the regulated heat price and cannot be applied in the heat price. Regulated entities failing to comply with normative indicators make a financial loss which they must cover from profits or savings in other costs forming the heat price. This heat price regulation mechanism indirectly provides regulated entities in the heat energy sector with the motivation to increase the technical standard of their heat production and distribution installations, and to improve the energy efficiency of heat production and distribution, and thereby compliance with normative efficiencies, which are determined during checks on the efficiency of the operation of heating installation systems in order to eliminate financial losses caused by inefficiency in the supply

of heat. The imposition of penalties by the SEI results in the duplication of sanctions for the same shortcoming and, subsequently, in the restriction of investment funds for the further development of heating installation systems.

Measures to develop infrastructure in district heating systems using renewable sources

- by legislative means, ensure that the *Concept of Municipal Development in Heat Energy* is regularly updated and that the implementation of measures under the binding part thereof are monitored;
- review the application of the requirement for the energy efficiency of heating plants and distribution systems using renewable energy sources in the system of heat price regulation;
- create conditions for the provision of financial assistance from the EU Structural Funds for the construction, upgrading and reconstruction of heat distribution systems using heat from RES;
- cancel SEI penalties for non-compliance with normative indicators of heat production and distribution.

4.2.10. Biofuels and other bioliquids – sustainability criteria and verification of compliance (Articles 17 to 21 of Directive 2009/28/EC)

- a) How will the sustainability criteria for biofuels and bioliquids be implemented at national level? (Is there legislation planned for implementation? What will be the institutional setup?)

Sustainability criteria are currently implemented in Slovakia partially in accordance with existing legislation on the protection of nature, the landscape and soil.

1. Section 3 of Act No 543/2002 on the protection of nature and the landscape, as amended, legally enshrines the obligation not to disturb:
 - the territorial system of ecological stability
 - components of ecosystems
 - significant landscape elements
 - biocentres of ecosystems or groups of ecosystems
 - biocorridors
 - interaction elements
 - wetlands
 - specially protected parts of nature and the landscape, parts of nature and the landscape with protected species, protected areas, sites of Community importance, private protected areas, protected structures, buffer zones
 - habitats

Sites hosting habitats of European importance and habitats of national importance, habitats of species of European importance, habitats of species of national importance and habitats of birds, including migratory species, for the protection of which protected areas are declared, significant landscape features or areas of international importance may be declared protected areas. In each protected area, a particular level of protection or buffer zone applies, and certain activities may be prohibited under the relevant decision. The law precisely specifies which activities can and cannot be carried out at the different levels of protection or in the buffer zones.

2. Act No 220/2004 on the protection and use of agricultural land and amending Act No 245/2003 on Integrated Pollution Prevention and Control and amending certain laws provides for:
 - a) the protection of the properties and functions of agricultural land and the safeguarding of the sustainable management and agricultural use thereof;
 - b) the protection of the environmental functions of agricultural land, which are: biomass production, filtration, neutralization and metabolism in nature, the maintenance of the ecological and genetic potential of living organisms in nature;
 - c) the protection of agricultural land from unauthorized expropriation for non-agricultural use;
 - d) the procedure to change the land type and the procedure for the reclassification of agricultural land for non-agricultural purposes;
 - e) penalties for breach of obligations established by this Act.

The whole system of sustainability criteria for biofuels and bioliquids, as well as specific rules, conditions and procedures for their certification, is to be implemented in the form of a law or governmental regulation entering into effect by the end of 2011; during the period up to 31 December 2011, biofuel producers will be able to submit

and use certificates issued by other certification bodies certified for such activities by another Member State of the EU under the rules of Directive No 2009/28/EC.

- b) How will it be ensured that biofuels and bioliquids that are counted towards the national renewable target, towards national renewable energy obligations and/or are eligible for financial support comply with the sustainability criteria set down in Article 17(2) to (5) of Directive 2009/28/EC? *(Will there be a national institution/body responsible for monitoring/verifying compliance with the criteria?)*

Each biofuel must have a certificate indicating whether the biofuel meets sustainability criteria and also stating the percentage savings in greenhouse gas emissions. A mass balance system must be applied to processes from soil treatment to the final product manufactured – biofuel. Once certified biofuel is placed on the market, the competent authority (certification body) issues the fuel supplier with a biofuel certificate in accordance with the rules laid down in Article 18 of Directive 2009/28/EC.

A national system for the registration, declaration and verification of compliance with set criteria will be set up to ensure that checks are conducted on compliance with sustainability criteria for biofuels and bioliquids and that records of quantities are kept to calculate the share in the set target. It will be based primarily on the existing network of professional workplaces of the MoEC SR and MoAERD SR.

Further to a life-cycle analysis of biofuels and bioliquids, we envisage that the following **measures** will be taken to cover the Directive's requirements for demonstrating compliance with sustainability criteria:

1. Arrange for the calculation and verification of greenhouse gas emission savings throughout the entire chain of the biofuel or bioliquid life cycle in accordance with Article 19.

Responsible ministries: MoAERD SR, MoEC SR

2. Conduct a review of legislation so that the sustainability criteria adequately cover protected areas and ecosystems (Article 17(3)) and areas with high carbon stock (Article 17(4) and (5)), and where appropriate prepare changes to or publish ministerial guidance on the implementation of sustainability rules (via the Environmental Policy Department)

Responsible ministry: MoAERD SR, in cooperation with the Slovak Standards Institute (SSI)

3. Arrange for the protection of ecosystems, establish rules for introducing and growing invasive species and, where appropriate, prepare methodology for application to biofuels and bioliquids

Responsible ministry: MoAERD SR

4. Establish and guarantee an incentive system for biofuels and bioliquids that meet the sustainability criteria (Article 17).

Responsible ministries: MoEC SR and the ministries affected

5. Support, in the form of schemes, the research and development of types of biofuels which are likely to meet the sustainability criteria.

Responsible ministries: MoEd SR and the ministries affected

- c) If a national authority/body will monitor the fulfilment of the criteria, does such a national authority/body already exist? If so, please specify. If not, when is it envisaged to be established?

No independent body has been set up in Slovakia to monitor compliance with the sustainability criteria in accordance with Directive 2009/28/EC on the promotion of the use of energy from renewable sources. The appropriate organizations, within the meaning of paragraph b), are expected to be designated in 2011.

- d) Please provide information on the existence of national law on land zoning and national land register for verifying compliance with Article 17(3) to (5) of Directive 2009/28/EC. How can economic operators access this information? *(Please provide information on the existence of rules and distinction between different land statuses, like biodiversity area, protected area etc; and on the competent national authority who will monitor this land register and changes in land status.)*

Legislation: Spatial planning

- Act No 215/1995 on geodesy and cartography, as amended
- Decree of the Geodesy, Cartography and Cadastre Authority of the Slovak Republic No 300/2009

Access to information

Economic operators can obtain information by communicating with relevant organizations or using public information portals.

A cadastral data register is kept in paper form and in electronic form via an application.

The Soil Portal is managed by the Soil Science and Conservation Research Institute, a nationwide organization responsible for comprehensive soil research in Slovakia. The following information may be accessed by all entities:

1. plotted CSEU¹ maps
2. LPIS land register.

The database contains details of the X, Y coordinates of polygons describing the boundaries of individual CSEU sites and other units of land: forests, bodies of water, other areas (barren land), land within municipal boundaries and other built-up areas. It also includes the coordinates of the corners of map sheets and identification data: CSEU numerical codes and the alphabetical codes of other land occurring in CSEU maps. The database was created by digitizing the technical content of original CSEU maps drawn up on the basis of a 1:5000

¹ Classified Soil-Ecological Units

State map. The database does not contain data from cartographic documentation (including elevation or planimetric data).

- e) As far as protected areas are concerned, please provide information under which national, European or international protection regime they are classified.

Act No 543/2002 on the protection of nature and the landscape, as amended, Section 12a of which provides for territorial protection with five levels of protection, is applicable in Slovakia. The scope of restrictions expands with the increasing degree of protection. In the Slovak Republic, the first level of protection applies unless provided otherwise by the Act or by a generally binding legal regulation issued on the basis of this law.

According to this Act, sites hosting habitats of European importance and habitats of national importance, habitats of species of European importance, habitats of species of national importance and habitats of birds, including migratory species, for the protection of which protected areas are declared, significant landscape features or areas of international importance may be declared protected areas:

- a) protected landscape area;
- b) national park;
- c) protected area;
- d) nature reserve;
- e) natural monument;
- f) protected landscape element;
- g) special protection areas for birds.

The Slovak Republic, by transposing Council Directive 79/409/EEC on the conservation of wild birds and Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, has enshrined:

- A. sites of Community importance, which the law interprets as areas in the Slovak Republic consisting of one or more sites:
 - containing habitats of European importance or species of European importance, for the protection of which protected areas are declared;
 - which are included in the national list of such sites prepared by the Ministry and discussed with the Ministry of Agriculture.
- B. the NATURA 2000 European network of protected areas, which consists of protected bird areas and sites of Community importance declared as protected areas or buffer zones. The aim of this European network of protected areas is to ensure the favourable conservation of habitats and species of European importance.

For these two areas, the Act also precisely defines activities which are permitted and prohibited, the authorization method, the determination of the level of protection, and the zones in them.

The location, size, level of protection, and any prohibited activities can be verified at the competent regional and district environmental offices. Individual protected areas are published in the Journal of the Ministry of the Environment. A list and interactive map of protected areas can be found at: <http://www.sopsr.sk/natura/index1.php?p=4&lang=sk&sec=2>

- f) What is the procedure for changing the status of land? Who monitors and reports at national level on land status changes? How often is the land zoning register updated (monthly, annually, bi-annually, etc.)?

The procedures and decisions regarding a change in the status of land (the type of agricultural land and forest land) are covered in the Slovak Republic by Act No 220/2004 on the protection and use of agricultural land and amending Act No 245/2003 on Integrated Pollution Prevention and Control and amending certain laws, as amended.

Procedure for changing the status of land

1. According to Section 9 of the Act, the body for the protection of agricultural land, at the request of the owner or user of agricultural land, shall issue a decision changing the agricultural land type to forest land.
2. Prior to the issue of this decision, statements are necessary from the relevant central government authorities protecting public interests under special legislation, the opinion of the owner and user, and cadastral information about the land, without prejudice to the provisions of special legislation.
3. The body for the protection of agricultural land, which is the District Land Office, on its own initiative or at the request of the owner or user, is responsible for deciding, in case of doubt, whether or not the land is agricultural land. The owner's request includes an annex containing cadastral information about the land, and, where appropriate, technical documentation to indicate the change in the type of land in the land register necessary for such change to be registered. The land register documentation is obtained by the owner or user. In its decision-making, the body for the protection of agricultural land takes into account the expert opinion provided by the Soil Service.
4. In this case, the decision-making concerns agricultural land types which:
 - a) due to natural processes and the purpose of use, have changed to the extent that they cannot be cultivated (e.g. gorges, ravines, high boundaries with shrubs or rocks, and land that does not provide lasting benefits for other reasons, especially areas overgrown with shrubs or clogged with gravel or stones, peat, waterlogged areas, areas covered with peat moss, areas lacking viability);
 - b) based on the nature of their soil profile and properties, are consistent with agricultural land, but are recorded in the register as non-agricultural land;
 - c) have been long forested and are suitable for reassignment to forest land in order to organize records thereof in the register; the body for the protection of agricultural land takes decisions on a change in agricultural land type to forest land with the consent of the government authority responsible for forestry.
5. The body for the protection of agricultural land, on its own initiative or at the request of the owner or user, decides on a change in agricultural land type if the following conditions are met:
 - a) before 25 June 1992, human activity resulted in a change in the character of the land to the extent that it is no longer consistent with agricultural land;
 - b) it has been administratively withdrawn from agricultural land stock and the reason for and the purpose of such withdrawal have ceased to exist, and the character of the agricultural land has not changed;

- c) the consent of a nature protection body has been issued in accordance with Section 9(1)(k) of Act No 543/2002 on the protection of nature and the landscape.

Under Act No 220/2004 on the protection and use of agricultural land, administration at national level is the responsibility of:

- the Regional Land Office, which processes and submits to the Ministry information about agricultural land losses in the region's territory;
- the District Land Office, which monitors and evaluates the agricultural land losses within the district at yearly intervals, approves them, and addresses any discrepancies with the competent government authority responsible for land register matters.

Changes to land types and developments in land resources in the Slovak Republic are recorded by the Geodesy, Cartography and Cadastre Authority. The Spatial Planning Register is updated annually for the purposes of Articles 17 to 21.

- g) How is compliance with good agro-environmental practices and other cross-compliance requirements (required by Article 17(6) of Directive 2009/28/EC) ensured and verified at national level?

The Slovak Republic's basic legislative framework for cross-compliance, based on Council Regulation (EC) 73/2009, is provided by Act No 543/2007 on the competence of state administration authorities in the granting of aid to agriculture and rural development, as amended.

Rules on cross-compliance are also established in the form of government regulations, stipulating the conditions and forms of aid for agriculture:

- Regulation of the Government of the Slovak Republic No 20/2009 on the conditions for the granting of aid to agriculture in the form of direct payments, as amended by Regulation of the Government of the Slovak Republic No 155/2009 and Regulation of the Government of the Slovak Republic No 597/2009;
- Regulation of the Government of the Slovak Republic No 499/2007 on the conditions for the granting of aid under the rural development programme, as amended by Regulation of the Government of the Slovak Republic No 121/2009.

The granting of aid to applicants is subject to the obligation to meet cross-compliance conditions, which, according to Section 8 of Government Regulation No 20/2009, are:

- good agricultural and environmental conditions
Compliance with good agricultural and agro-environmental practices and other cross-compliance requirements (required by Article 17(6) of Directive 2009/28/EC) is verified in checks conducted by inspection bodies in accordance with Articles 22, 53 and 54 of Council Regulation (EC) No 73/2009. Those checks are conducted to determine compliance with the cross-compliance requirements listed in Annex II to the Regulation – Statutory management requirements (SMR) and in Annex III - Good agricultural and environmental conditions.
- management requirements

Statutory management requirements are divided into groups A, B and C. Under Council Regulation (EC) 73/2009, checks on the requirements of group A (SMR 1–8) should be initiated by 1 January 2009, on the requirements of group B (SMR 9–15) by

1 January 2011, and on the requirements of group C (SMR 16–18) by 1 January 2011 at the latest.

The inspection bodies are:

- the Agricultural Paying Agency (the coordinating inspection body and inspection body for statutory management requirements set out in Annex II to Council Regulation (EC) No 73/2009, numbers 1 and 5, and the inspection body for the conditions set out in Annex III to Council Regulation (EC) No 73/2009);
- the Central Agricultural Control and Testing Institute (the inspection body for statutory management requirements set out in Annex II to Council Regulation (EC) No 73/2009).

Each cross-compliance check focuses on consistency in adherence to established legal rules in accordance with Annexes II and III to Council Regulation (EC) No 73/2009 and, on this basis, the set requirements and standards which are the subject of the check itself. As mentioned above, these requirements and standards are set out in Annexes 2 and 3 to Government Regulation No 20/2009 on the conditions for the granting of aid to agriculture in the form of direct payments.

- h) Do you intend to help develop voluntary “certification” scheme(s) for biofuel and bioliquid sustainability as described in the second subparagraph of Article 18(4) of Directive 2009/28/EC? If so, how?

We expect that it will be possible to make a combination with other emerging certification mechanisms, e.g. voluntary certification mechanisms for environmental technology.

4.3. Support schemes to promote the use of energy from renewable resources in electricity applied by the Member State or a group of Member States

Support schemes can be regulatory, providing for targets and/or obligations. They may provide financial support either for investment or during the operation of a plant. There are also soft measures like information, education, or awareness-raising campaigns. As soft measures are described above in section 3.2.2, this assessment should focus on regulatory and financial measures.

Please describe existing schemes with legal reference, details of the scheme, duration (indicating start and end dates), past impact and explain whether any reform or future schemes are planned and by when. What are the expected results?

General characteristics

Electricity produced from RES is comprehensively covered by *Act No 309/2009 on the promotion of RES*, which was approved by Parliament on 19 June 2009.

This Act optimizes the functioning of the electricity market in the field of renewable energy sources and combined heat and power generation, and creates a stable economic and administrative environment.

Guaranteed electricity feed-in prices for 15 years support the construction of installations and have a positive impact on the opportunities for investment in electricity generation technology for small and medium-sized enterprises, which contribute to regional and local development.

The price of electricity produced from renewable energy sources and high-efficiency cogeneration is set by the RONI in accordance with a generally binding legal regulation (a RONI decree). When setting the price, it takes into account the type of renewable energy source, the technology used, the date on which the electricity generating facility was put into operation and the installed capacity. The electricity price also reflects the reconstruction and upgrading of an installation. The electricity price may be increased by a coefficient which takes into account the technology used and core inflation. If an electricity producer is granted aid to procure an installation under support schemes funded by the national budget or the European Union's funds, the electricity price is reduced. The electricity price determined by the RONI for the subsequent period of not more than three years must not be less than 90% of the price applicable in the period in that particular year.

In particular, the Act regulates the conditions and method for the promotion of electricity production from renewable energy sources and high-efficiency cogeneration, as well as the rights and obligations of producers of electricity from renewable energy sources and cogeneration, biomethane producers, and other electricity market participants.

Producers of electricity from these sources are entitled to the priority connection of their electricity generating installations to the regional distribution system, priority access to the system, and the priority transmission, distribution and supply of electricity regardless of the capacity of their installations. Electricity producers are entitled to take electricity at the price of electricity for losses and for a surcharge calculated as the difference between the electricity price and the price of electricity for losses. The Act sets a cap on assistance, under which the maximum installed capacity is 125 MW, increasing to 200 MW if the electricity is produced from high-efficiency cogeneration and the energy share of renewable energy sources in the fuel is higher than 20%.

Surcharge for an electricity producer's installation with an installed capacity of more than 10 MW, or more than 15 MW in an installation using wind energy as a source, does not apply to all electricity generated, only to a certain specific part. The assumption of responsibility for a deviation by a regional distribution system operator is limited for installations with a total installed capacity of up to 4 MW. For an electricity producer's installation with a total installed capacity of up to 1 MW, it is proposed that the right to take electricity and the assumption of responsibility for a deviation apply to the lifetime of the electricity producer's installation.

The Act also regulates the rights and obligations of producers of a specific type of electricity from a renewable energy source – biomethane. The draft of the law defines biomethane as treated biogas with technical parameters comparable to the technical parameters of natural gas.

Certificates of the origin of electricity from renewable energy sources and certificates of the origin of biomethane are issued by the RONI and are used by producers as proof of their entitlement to electricity production support.

Legislation

Slovak legislation does not set an overall goal or objectives for each technology to be achieved in individual years.

Distribution system operators are required to take all electricity generated from renewable energy sources to cover their losses. Details about cooperation between electricity producers and system operators are regulated by system operators in their operational procedures. A regional distribution system operator is entitled to use the electricity it has taken only to cover losses. If the swing capacity of the electricity taken exceeds the amount needed to cover losses in the distribution system, the distribution system operator is entitled to sell the electricity at the market price.

Financial support

- Competitiveness and Economic Growth Operational Programme (Management Authority: Ministry of Economy and Construction)

In the field of energy, this Operational Programme is aimed at bringing energy intensity to a level comparable with the EU-15, achieving energy savings, increasing efficiency in the use of primary energy sources in order to reduce energy costs, and increasing the share of renewable energy sources in overall energy consumption. Support is available for activities that lead to increased use of renewable energy sources, as well as activities focused on energy savings and efficiency in industry and related services.

Forms of State aid:

- State aid scheme to increase energy efficiency in both production and consumption and to introduce advanced technologies in energy;
- scheme to promote sustainable development (de minimis aid scheme);
- financial engineering (particularly in the form of guarantee schemes, schemes for SME soft loans and schemes to support start-ups).

Under the State aid scheme, the minimum aid amount is EUR 60 000, rising to a maximum of EUR 5 million; the total eligible project expenditure must not exceed EUR 25 million.

With de minimis aid, the minimum amount is EUR 20 000; the maximum amount of aid per beneficiary must not exceed EUR 200 000 in total over three consecutive fiscal years.

Aid beneficiaries are from the private sector. The use of biomass, hydro, geothermal and solar energy is supported. Aid is granted as a non-repayable financial contribution to investment costs. Applications are received within the scope of calls; during the 2007–2013 programming period, two calls for the State aid scheme and calls for the de minimis scheme were published.

Tradable certificates

As the Slovak Republic has not introduced a system for a mandatory share of RES in electricity supply, trading in certificates does not apply. The possibility of using tradable certificates will be considered.

Tariffs set for feed-in prices

The feed-in price for electricity from RES consists of two components. The first component is the price of electricity for losses, which reflects the market price of electricity and is defined as the arithmetic average of the prices of electricity to cover the losses of all the regional distribution system operators. The second component is a surcharge comprising the difference between the electricity price and the price of electricity for losses paid to a producer of electricity from renewable energy sources or to a producer of electricity from high-efficiency cogeneration by the operator of the regional distribution system to which the electricity producer's installation is connected or in the defined territory of which it is located.

The distribution system operator is required to take electricity and pay the price of electricity for losses. The producer is entitled to a surcharge on the basis of an accounting document (invoice) issued by the distribution system operator for the actual amount of electricity produced in the calendar month from renewable energy sources, less the internal technological consumption of electricity.

No limit is set for the total volume of electricity produced. Installations with a total installed capacity of less than 125 MW are entitled to the tariff; if the electricity is produced from high-efficiency cogeneration and the energy share of renewable energy sources in the fuel is higher than 20%, this limit is 200 MW.

The feed-in price of electricity is determined for a 15-year period. Tariffs for installations newly built in the next period are determined by the RONI on the basis of price trends in technology.

Feed-in premium

The surcharge can be regarded as a form of feed-in premium. In installations with a total installed capacity of up to 10 MW, or 15 MW for wind energy, it is paid for all the electricity produced. In installations above this limit, the surcharge is paid only on a proportional amount of the electricity produced. The size is always designed so that, when combined with the price of electricity for losses, it forms the feed-in price of electricity.

Planned measures

The existing support system creates certain risks related not only to the nature of the RES, but also in relation to the impacts on the price of electricity. These risks are described in the first section. The setting of feed-in prices for the following year, if there is a significant decline in technology prices during the year, leads to unexpected investor interest. If a plant has fluctuating electricity production, installing a disproportionately large capacity could result in

problems in ensuring the safety of the system. Therefore, measures are proposed which will operate on the reverse-auction principle.

A reverse auction is a model of dynamic downward pricing with a focus on the buyer. At the beginning of the auction, the duration of the auction is set with the maximum price the buyer is willing to pay for acquisition. The announcer of the auction sets the maximum installed capacity for the year for plants with fluctuating production so that it is consistent with the expected contributions of production referred to in section 5. Investors submit their bids for the construction of power plants, knowing that those who submit the lowest feed-in prices of electricity will be successful. This means that during the auction the pressure is on minimizing the feed-in price.

Measures for the development of plants with fluctuating production
<ul style="list-style-type: none">• Establish a system of tenders for the construction of plants with fluctuations in electricity production (solar and wind power plants) on the basis of reverse auctions

4.4. Support schemes to promote the use of energy from renewable resources in heating and cooling applied by the Member State or a group of Member States

General characteristics

Slovak legislation does not set a goal for the production of heat from RES or objectives for each technology to be achieved in individual years.

Financial support

Financial support from the Structural Funds – the Competitiveness and Economic Growth Operational Programme (MoEC SR), Environment OP (MoE). These are support schemes under relevant EU legislation

- Environment Operational Programme (Managing Authority: Ministry of the Environment)

Heat production plants (combustion processes in CHP plants), including small plants, given their prevalence and distribution, have a significant impact on the production of greenhouse gas emissions; in the interests of air protection and the prevention of the adverse effects of climate change, it is necessary to focus on heat production.

The operational objective supports activities aimed at reducing greenhouse gas emissions, along with cuts in emissions of basic pollutants in the production of heat, including changes in the fuel base of energy sources in favour of renewable sources.

As part of the activities aimed at reducing greenhouse gas emissions, along with cuts in emissions of basic pollutants in the production of heat, particular support is channelled into projects to change the fuel base in favour of lower-carbon fuels and renewable energy sources (biomass, solar energy, geothermal energy), which target a reduction in greenhouse gas emissions together with cuts in emissions of basic pollutants in the production of heat, including in combination with cogeneration. Projects for the installation of heat pumps to replace the generation of heat and hot water from non-renewable resources are also supported.

Additional points

- a) How are the support schemes for electricity from renewable energy sources adapted to encourage the use of CHP from renewable energy sources?

Act No 309/2009 on the promotion of RES lays down support in the form of a surcharge for electricity generated by burning biomass only in the case of CHP, which ensures the efficient use of biomass. Another measure is aimed at the use of biomethane in cogeneration. A producer of electricity from cogeneration, irrespective of the year in which an installation with a total installed capacity of up to 125 MW is put into service, who provides a regional distribution system operator with a certificate of the origin of electricity from renewable energy sources is entitled to a surcharge at the same amount as the surcharge of a producer of electricity from biogas. The surcharge applies to the amount of electricity produced from biomethane if the biogas production installation is not more than 15 years old.

- b) What support schemes are in place to encourage the use of district heating and cooling using renewable energy sources?

An appropriate support scheme is the financial support available for investment in district heating.

An appropriate measure to achieve heat targets is the introduction of the compulsory minimum use of RES in heat supply.

- c) What support schemes are in place to encourage the use of small-scale heating and cooling from renewable energy sources?

For households, subsidies for the transformation of an original source into an RES-based source are an appropriate form of support. However, the principle of territorial differentiation should apply. Subsidies should not be available in cases where a better solution would be a connection to district heating. The most appropriate form of support is a subsidy per installed kW of capacity multiplied by a coefficient related to the normative consumption of the building, in order to prevent the building of speculative excess capacities.

- d) What support schemes are in place to encourage the use of heating and cooling from renewable energy sources in industrial applications?

The form of support available in industrial installations to promote the use of heating and cooling in industrial installations using renewable energy sources is similar to that in point b).

4.5. Support schemes to promote the use of energy from renewable sources in transport applied by the Member State or a group of Member States

Legislation

Slovak legislation on biofuels includes compulsory blending.

- Regulation of the Government of the Slovak Republic No 246/2006 on the minimum quantity of fuel produced from renewable sources in petrol and diesel fuel placed on the market of the Slovak Republic (effect: 1 May 2006)

The producer and the seller are required to offer, in petrol and diesel fuel for transport purposes, a minimum quantity of biofuels (or other renewable fuels), expressed

- up to 31 December 2006 as a reference value of 2%, calculated on the basis of energy content, of the total quantity of petrol and diesel fuel placed in the market;
- from 1 January 2007 to 31 December 2008, as a reference value of 2%, calculated on the basis of energy content, of the total quantity of petrol and diesel fuel placed in the market;
- from 1 January 2009 to 31 January 2009, as a reference value of 3.4%, calculated on the basis of energy content, of the total quantity of petrol and diesel fuel placed in the market;
- from 1 January 2010 to 31 December 2010, as a reference value of 5.75%, calculated on the basis of energy content, of the total quantity of petrol and diesel fuel placed in the market.

As Government Regulation No 246/2006 imposes compulsory blending only until 31 December 2010, it is necessary to adopt an amendment incorporating a trajectory for renewable energy sources in transport in accordance with the values in Table 3.

Financial support

Biofuels are promoted with reduced excise duty. It follows from the key measures of the approved aid scheme that:

- excise duty exemption applies to a fuel mixture of petrol with ETBE and diesel with esters; the reduction in excise duty for these fuel mixtures is established up to a level of 7.05% volume for a mixture of petrol and ETBE and 5% volume for a mixture of diesel and esters;
- a reduction in the excise duty on biofuels is granted, in the tax territory, to all companies releasing biofuels for consumption in the tax territory;
- this measure should be applied for six years (from the date on which the Act on Excise Duty on Mineral Oil enters into effect) under specified conditions; the reduction in excise duty is provided from state resources and is designed to support companies that produce the fuel, import it from third countries or receive it from other Member States.

Notification of State aid for the implementation of the biofuels programme

In its notification procedure, the European Commission issued a decision (written notice of 19 July 2007) approving “State aid N 360/2006 – Slovakia. Advantageous tax treatment for utilisation of fuels from renewables pursuant to Directive 2003/96/EC (Biofuels)”.

Fulfilment of obligation

Compliance with the reference value depends on the practical implementation of Government Regulation No 246/2006 together with the application of requirements on the quality of motor fuels and biofuels in accordance with Directive 98/70/EC.

The extent to which the reference value for 2009 is actually achieved is expressed by the value 3.4% of the energy content of the total quantity of petrol and diesel fuel.

Failure to comply with objectives is covered by Act No 656/2004.

Support according to fuel types and technologies

Support is not differentiated by fuel type and technology. The exemption applies to the mixing of ETBE into petrol in such a manner that the tax rate is reduced by 47/100 of the percentage of biogenic substance (ETBE) in the mixture, up to a maximum of 7.05%. For the mixing of esters into diesel fuel, the rate is reduced by the percentage of biogenic substance in the mixture, up to a maximum of 5%.

Article 21(2) of Directive 2009/28/EC regards the contribution made by biofuels produced from wastes, residues, non-food cellulosic material and ligno-cellulosic material as twice that made by other biofuels for the purposes of demonstrating compliance with national obligations in all modes of transport.

Specific support for such preferential biofuels has not yet been implemented. It is expected that after 2015 these biofuels will gradually contribute to the objective. In light of their importance, after 2015 it will be necessary to introduce investment and operational support mechanisms for them which particularly take into account the savings in greenhouse gas emissions.

4.6. Specific measures for the promotion of the use of energy from biomass

Biomass has an important role as primary energy in all the three sectors: heating and cooling, electricity and transport. National biomass strategy is crucial to plan the role and the interaction of uses between the energy end uses and interaction with other non-energy sectors. Therefore Member States are required to assess their domestic potential and increased mobilisation of domestic and imported biomass resources. The impact on and the interaction with other non-energy sectors (as the food and feed industry, pulp and paper industry, construction industry, furniture industry etc.) should be analysed.

Overall, the theoretical energy potential of agricultural biomass in Slovakia can be quantified at 29 449 GWh or 106 054 TJ of heat, which is 13.2% of total energy consumption (800 PJ).

Fuel wood biomass produced on forest land, on non-forest land currently overgrown with forest trees, waste from wood processing and the pulp and paper industry and from other industry, and from the municipal sector are among the most important renewable energy sources in Slovakia. The current rate of use and efficiency is significantly short of potential, which means there is an opportunity for rapid growth in production and use in Slovakia in the next decade.

The reported data are in line with the Slovak Forestry Strategy (2008), the National Forest Programme (2007), the Indicative Action Plan for the National Forest Programme (2008), the Forecast and Vision for the Development of Slovak Forestry (2007), the National Forest Inventory (2007) and the Biomass Action Plan (2008).

4.6.1. Biomass supply: both domestic and trade

Under this point Member States should assess the supply of domestically available biomass and the need for imports.

There should be a distinction between biomass (A) from forestry — (1) direct and (2) indirect supply; (B) from agriculture and fisheries — (1) directly provided and (2) by-products/processed crops; and (C) from waste — (1) biodegradable fraction of municipal solid waste, (2) biodegradable fraction of industrial solid waste and (3) sewage sludge. Data is required for the above-mentioned first subcategories, while more detailed information is optional. However the aggregated figures shall reflect the following categorisation and give information in the units of Table 7. The role of imports (EU and non-EU) and exports (if possible, EU and non-EU) must be reflected.

Table 7: Biomass supply in 2006

Sector of origin		Amount of domestic resource ²	Imported		Exported	Net amount	Primary energy production
			EU	Non-EU	EU		
A) Biomass from forestry³	<i>Of which:</i>						
	1. direct supply of wood biomass from forests and other wooded land for energy generation	820 000 t	-	-	54 000 t	766 000 t	183
	<i>Optional — if information is available you can further detail the amount of feedstock belonging to this category:</i>						
	a) fellings						
	b) residues from fellings (tops, branches, bark, stumps)	800 000 t			51 000 t	749 000 t	179
	c) landscape management residues (woody biomass from parks, gardens, tree rows, bushes)	15 000 t			1 000 t	14 000 t	3.3
	d) other (please define)	5 000 t			2 000 t	3 000 t	0.7
2. indirect supply of wood biomass for energy generation	1 125 000 t	-	-	184 000 t	941 000 t	270.4	
<i>Optional — if information is available you can further detail:</i>							
a) residues from sawmilling, woodworking, furniture industry (bark, sawdust)	511 000 t			142 000 t	369 000 t	105.8	
b) by-products of the pulp and paper industry (black liquor, tall oil)	510 000 t			-	510 000 t	146.2	
c) processed wood-fuel							
d) post consumer recycled wood (recycled wood for energy generation, household waste wood)	95 000 t			40 000 t	55 000 t	15.8	
e) other (please define)	9 000 t			-	9 000 t	2.6	
B) Biomass from agriculture and fisheries	<i>Of which:</i>						
	1. agricultural crops and fishery products directly provided for energy generation						126.8
	a) arable crops (cereals, oilseeds, sugar beet, silage maize)						
	Rape seed	259 650	5 712		123 206	95 716	47.2
	Maize (corn)	838 300	229 400		788 000	127 400	79.6
	b) plantations - maize silage						
c) short rotation trees							
c) other energy crops (grasses)	540						
d) algae							
e) other (please define)							
2. Agricultural by-products/processed residues and fishery by-products for energy generation						25	
<i>Optional — if information is available you can further detail:</i>							
a) straw							
b) manure							
d) meat and bone meal	233 000 m ³					25	
e) cake by-products (incl. oil seed and olive oil cake for energy)							
f) fruit biomass (including shell, kernel)							
g) fishery by product							
g) clippings from vines, olives, fruit trees							
h) other (please define)							
C) Biomass from waste	<i>Of which:</i>						
	1. Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste						8

² Amount of the resource in m³ (if possible, otherwise in appropriate alternative units) for category A and its subcategories and in tonnes for categories B and C and their subcategories.

³ Biomass from forestry should also include biomass from forest-based industries. Under the category of biomass from forestry processed solid fuels, such as chips, pellets and briquettes should be included in the corresponding subcategories of origin.

from food processing plants) and landfill gas						
2. Biodegradable fraction of industrial waste (including paper, cardboard, pallets)	8 000 t	-	-	1 000 t	7 000 t	2.0
3. Sewage sludge						10

Source: Ministry of Agriculture of the Slovak Republic

- Please explain the conversion factor/calculation methodology used above for the conversion of the amount of available resources to primary energy.

The biodegradable fraction of industrial waste used for energy production was calculated from a reliable estimate.

Calorific value of biomass: 14–16 MJ/kg.

Calorific value of biogas: 22 MJ/m³.

Biogas recovery rate: liquid manure: 30 m³ from 1 m³ of liquid manure
maize middlings: 300–400 m³ from 1 t of raw material,
grass silage: 200 m³ from 1 t of raw material,
maize silage: 200–250 m³ from 1 t of raw material.

- Please use Table 7a to give an estimated contribution of biomass energy use in 2015 and 2020. (Following the categorisation used in Table 7.)

Table 7a: Estimated biomass domestic supply in 2015 and 2020

Sector of origin		2015		2020	
		Expected amount of domestic resource (t)	Primary energy production (ktoe)	Expected amount of domestic resource (t)	Primary energy production (ktoe)
A) Biomass from forestry:	1. direct supply of wood biomass from forests and other wooded land for energy generation	1 818 000	434	2 721 000	650
	2. indirect supply of wood biomass for energy generation	1 900 000	545	1 995 000	572
B) Biomass from agriculture and fisheries	1. agricultural crops and fishery products directly provided for energy generation		180		194
	a) biofuels				
	- rape	134 250	44	150 000	50
	- maize	200 000	48	225 000	54
	b) maize silage	838 642	88	850 000	90
2. agricultural by-products/processed residues and fishery by-products for energy generation			2 000		2 000
	a) phytomass – for combustion	4 990 000	1 620	4 990 000	1 620
	b) biogas from livestock manure for biogas	11 357 600	200	11 357 600	200
	c) biogas from PG	3 200 000	180	3 200 000	180
C) Biomass from waste	1. biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas	200 000	50	300 000	75
	2. biodegradable fraction of industrial waste (including paper, cardboard, pallets)	8 000	2	8 000	2
	3. sewage sludge		12		13

Source: Ministry of Agriculture of the Slovak Republic

- What is the estimated role of imported biomass up to 2020? Please specify the quantities expected (ktoe) and indicate possible import countries.

Imports of biomass for energy use are not envisaged by 2020.

Table 8: Current agricultural land use for production of crops dedicated to energy in 2006/07

Agricultural land use for production of dedicated energy crops	Surface (ha)
1) Land used for short rotation trees (willows, poplars)	150
2) Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum	200
3. Total land used for energy crops	79 640

Source: APA, RIAFE, NFC – Forecast and Vision for Slovak Forestry (2007)

4.6.2. Measures to increase biomass availability, taking into account other biomass users (agriculture and forest-based sectors)

Mobilisation of new biomass sources

- a) Please specify how much land is degraded.

The area of degraded land in forestry is currently estimated at 10 000 ha, mainly due to air pollution and erosion. Records are not kept of the quantity of degraded agricultural land.

- b) Please specify how much unused arable land there is.

Approximately 450 000 ha of agricultural land is currently not used for agricultural production. An inventory has shown that 275 000 ha of this land (“blank areas”) are grown over with forest trees, mainly due to natural succession. Stocks of wood raw material amount to approximately 36.5 million m³.

300 000 ha of permanent grassland (PG) is available for energy use.

- c) Are any measures planned to encourage unused arable land, degraded land, etc. to be used for energy purposes?

Measures are focused on the amendment of legislation to facilitate the use of different types of land for planting fast-growing trees on agricultural land.

Measures to increase the supply of biomass on agricultural land
<ul style="list-style-type: none"> • Draw up a monitoring, registration, and statistical system covering the quantity of domestically produced biofuels, the quantity of biomass produced and areas sown with energy crops (quantification by species) • Establish and maintain the principle of bioenergetic sufficiency (defined, adequate phytomass production for energy purposes) in agriculture (and forestry) • Use common agricultural areas, as well as unused arable land and degraded land, for the production of raw materials for biofuels and other energy bioliquids. It is also necessary to set a limit for the carbon content of soils unsuitable for producing raw materials for biofuels and other bioliquids

- Monitor the impacts of energy crop cultivation on the biological, physical, chemical and production properties of the soil
- Consider the introduction and use of rules to prevent the uncontrolled spread of invasive species if introduced in cultivation programmes for energy purposes
- Draw up procedures to return land used for the cultivation of energy crops to land intended for the cultivation of traditional crops
- Adopt expedient financial support mechanisms for the production of phytomass with energy recovery, particularly in the use of less valuable and degraded land
- In experimental conditions, test the cultivation of non-traditional energy crops and draw up methods of effective cultivation
- Monitor the impact of the cultivation and production of energy crops on the price of food raw materials and foodstuffs, feed and other non-food products
- Undertake research programmes

d) Is energy use of certain already available primary material (such as animal manure) planned?

The use of available primary material in biogas plants is supported by Act No 309/2009 on the promotion of RES, which promotes the production of electricity from biogas and the production of biomethane.

e) Is there any specific policy promoting the production and use of biogas? What type of uses are promoted (local, district heating, biogas grid, natural gas grid integration)?

The Ministry of Agriculture is particularly supportive of agricultural biogas plants which process waste from primary agricultural production, livestock production and agricultural waste.

It promotes the integration of biomethane into the natural gas network. If this integration is to be strengthened, legislative measures need to be taken that will guarantee the compulsory purchase of biomethane for a fixed price. Biomethane will be used in cogeneration.

Biomethane distribution will reduce the adverse impact on regulated prices for the use of the distribution network, which results in reduced natural gas consumption.

f) What measures are planned to improve forest management techniques in order to maximise the extraction of biomass from the forest in a sustainable way? How will forest management be improved in order to increase future growth? What measures are planned to maximise the extraction of existing biomass that can already be put into practice?

From a technological point of view, conditions for the rapid development of technology for the comprehensive processing of timber in forestry need to be established and/or improved. These conditions are:

- the use of technological processes facilitating the processing of tree tops without excessive degradation of the natural environment,

- the use of technological processes facilitating the processing of tree biomass from tree felling and disaster cleanup,
- an increase in the accessibility of forest stands, the establishment and/or improvement of the space available for the production of fuel chips.

In terms of growth in the production of wood raw materials on forest land and unused forest land, it is necessary:

- to review the degree of restrictions limiting the uniform effective extraction of wood raw materials on forest land,
- on forest land with satisfactory habitat conditions, to intensify the production of wood raw materials by using fast-growing trees and employing procedures for their management,
- on unused agricultural land (“blank areas”) in suitable natural conditions, to legally facilitate and intensify the production of wood raw material,
- to increase the productive potential of riparian vegetation and linear planting and the use thereof,
- to increase the competitiveness of producers of fuel chips on forest land by support measures so that the productive potential of forest stands can be uniformly used, and, in the provision of support, to take into account the further positive impacts of biomass fuel production (hygiene, health, safety, the stability of stands and non-productive functions),
- to stimulate, in appropriate natural conditions, the production of wood biomass on unused agricultural and other land for the needs of the energy sector and wood processors,
- to ensure growth, by means of support measures, in the production of wood biomass for the social development of rural areas,
- to develop a strategy to optimize production and the energy use of fuel wood biomass from a territorial perspective with a view to maximizing efficiency (production costs, the burden on the environment, employment, etc.).

Legislative and regulatory measures to increase the supply of wood biomass
<ul style="list-style-type: none"> • Support for the implementation of technologies for extracting and processing fuel wood biomass • Support for the production of wood biomass (energy forest chips) <p>Actions associated with the production of forest chips should be supported: the collection of materials from the tending of trees, the felling of undesirable trees and the collection of residues after logging etc.</p> <ul style="list-style-type: none"> • Support for the establishment of energy crops <p>Plantations of fast-growing tree species should be established on forest and non-forest land as an alternative method for the use thereof, based on suitable habitat conditions with the corresponding tree structure for the production of wood chips and wood fibre.</p> <p>The measure for the establishment of energy plantations should be implemented when the demand for chips has increased to the extent that there will be an insufficient natural source of biomass (material left after logging, cutting, thinning,</p>

and disasters, and trees from “blank areas”).

Impact on other sectors:

- a) How will the impact of energy use of biomass on other sectors based on agriculture and forestry be monitored? What are these impacts? (If possible, please provide information also on quantitative effects.) Is the monitoring of these impacts planned in the future?

The main forestry-based sectors are the pulp and paper industry and the wood industry. The influence of the measures on the use of biomass and the impact on forestry-based sectors will be monitored from the aspect of the production of renewable resources (the volume of biomass and its interchangeable ranges of wood raw materials – pulp and poles, and pricing on the market in Slovakia and the EU). Monitoring will focus on the development of the potential for renewable energy production (compliance with the national action plan).

Any problems will be addressed by means of measures to promote the availability of wood, for example by improving the availability of stands, supporting the comprehensive processing of tree biomass, and intensifying timber production on forest and non-forest land.

- b) What kind of development is expected in other sectors based on agriculture and forestry that could have an impact on the energy use? (E.g. could improved efficiency/productivity increase or decrease the amount of by-products available for energy use?)

Increased productivity, efficiency and output in forestry-based sectors can reduce the quantity of by-products available for energy use. This may create pressure on the growth of sustainable wood production on forest and non-forest land, especially unused and unproductive land. In the future, this will increase resources for the needs of wood processors and the energy sector.

Considering the existing single market and demand for raw materials for biofuel production in other Member States, any supply shortfall could be offset through market pricing mechanisms on the pan-European market. In analyses and projections forming the basis for measures to use biomass for energy purposes, it is necessary to take into account the evolution of the European and global food market and the impacts on the problem of food security. A limiting factor for agricultural production in Slovakia that should be pointed out is the unequal conditions compared with other Member States, with a particular emphasis on the amount of contributions (direct payments) paid to farmers by the EU.

4.7. Planned use of statistical transfers between Member States and planned participation in joint projects with other Member States and third countries

4.7.1. Procedural aspects

- (a) Describe the national procedures (step by step) established or to be established, for arranging a statistical transfer or joint project (including responsible bodies and contact points).

The Ministry of Economy and Construction is responsible for achieving RES objectives. Legislation should be amended so that the Ministry of Economy and Construction can arrange for bilateral and multilateral agreements with other States on the statistical transfer of energy from renewable sources and on the establishment of a joint project dealing with the use of renewable energy sources.

Rules, conditions and guidelines relating to statistical transfers and planned participation in joint projects will be posted on the website of the Ministry of Economy.

- (b) Describe the means by which private entities can propose and take part in joint projects either with Member States or third countries.

The Slovak Republic does not currently envisage any joint projects on its territory.

- (c) Give the criteria for determining when statistical transfers or joint projects shall be used.

The criteria will be posted on the website of the Ministry of Economy and Construction.

- (d) What is going to be the mechanism to involve other interested Member States in a joint project?

The Slovak Republic does not currently envisage any joint projects on its territory.

- (e) Are you willing to participate in joint projects in other Member States? How much installed capacity/electricity or heat produced per year are you planning to support? How do you plan to provide support schemes for such projects?

The Slovak Republic will consider any offers to take part in joint projects. The Slovak Republic does not define how much installed capacity is to be supported because such support is determined for projects on a case-by-case basis. The support scheme will be based on the current legislative status of support in Slovakia.

4.7.2. Estimated excess production of renewable energy compared to the indicative trajectory which could be transferred to other Member States

Table 9: Estimated excess production of renewable energy compared to the indicative trajectory which could be transferred to other Member States (ktoe)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Estimated excess in forecast document	-	29	84	79	146	91	179	115	220	334	143
Estimated excess in NREAP	-	181	240	228	313	305	364	269	349	190	143
Estimated deficit in forecast document	-	-	-	-	-	-	-	-	-	-	-
Estimated deficit in NREAP	-	-	-	-	-	-	-	-	-	-	-

Source: Ministry of Economy and Construction of the Slovak Republic

4.7.3. Estimated potential for joint projects

- (a) In which sectors can you offer renewable energy use development in your territory for the purpose of joint projects?

The Slovak Republic does not envisage any joint projects on its territory.

- (b) Has the technology to be developed been specified? How much installed capacity/electricity or heat produced per year?

The Slovak Republic does not envisage any joint projects on its territory.

- (c) How will sites for joint projects be identified? (For example, can local and regional authorities or promoters recommend sites? Or can any project participate regardless its location?)

The Slovak Republic does not envisage any joint projects on its territory.

- (d) Are you aware of the potential for joint projects in other Member States or in third countries? (In which sector? How much capacity? What is the planned support? For which technologies?)

In light of the low level of awareness, the potential for joint projects in the Member State is unknown. The Slovak Republic expects to prepare an analysis of the potential for joint projects with Ukraine.

- (e) Do you have any preference to support certain technologies? If so, which?

In the absence of relevant analyses, there is no preference in the support of any particular technology.

4.7.4. Estimated demand for renewable energy to be satisfied by means other than domestic production

The Slovak Republic is not expected to report any demand for energy from renewable sources. See Table 9.

5. ASSESSMENTS

5.1. Total contribution expected of each renewable energy technology to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity, heating and cooling and transport

Table 10a: Estimation of total contribution (installed capacity, gross electricity generation) expected from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity 2010-2014

	2005		2010		2011		2012		2013		2014	
	MW	GWh										
Hydro:	1597	4 638	1 622	4 834	1 632	4 863	1 640	4 887	1 660	4 947	1 668	4 971
<1 MW	16	80	25	75	28	83	31	92	34	101	37	110
1 MW – 10 MW	46	198	55	164	62	185	67	200	72	215	77	229
>10 MW	1535	4 360	1542	4595	1542	4595	1542	4595	1554	4631	1554	4631
<i>Of which pumping</i>	0	0	0	0	0	0	0	0	0	0	0	0
Geothermal	0	0	0	0	0	0	4	28	4	28	4	28
Solar												
<i>photovoltaic</i>	0	0	60	30	120	90	130	130	140	140	150	150
<i>concentrated solar power</i>	0	0	0	0	0	0	0	0	0	0	0	0
Tide, wave, ocean	0	0	0	0	0	0	0	0	0	0	0	0
Wind:												
<i>onshore</i>	5	7	5	7	5	8	150	120	150	240	150	240
<i>offshore</i>	0	0	0	0	0	0	0	0	0	0	0	0
Biomass:												
<i>solid</i>	47	27	100	540	110	570	120	600	130	650	140	700
<i>biogas</i>	2	5	18	70	30	200	45	300	60	400	70	546
<i>bioliquids</i>												
TOTAL	1 651	4 677	1 805	5 481	1 897	5 731	2 089	6 065	2 144	6 405	2 182	6 635
<i>of which in CHP</i>	49	32	118	610	140	770	165	900	190	1050	210	1246

Source: Ministry of Economy and Construction of the Slovak Republic

Table 10b: Estimation of total contribution (installed capacity, gross electricity generation) expected from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity 2015-2020

	2015		2016		2017		2018		2019		2020	
	MW	GWh										
Hydro:	1 732	5 161	1 760	5 245	1 771	5 278	1 783	5 313	1 798	5 358	1 812	5 400
<1 MW	40	119	43	128	46	137	50	149	55	164	60	179
1 MW – 10 MW	82	244	87	259	95	283	103	307	113	337	122	364
>10 MW	1610	4798	1630	4857	1630	4857	1630	4857	1630	4857	1630	4857
Of which pumping	0	0	0	0	0	0	0	0	0	0	0	0
Geothermal	4	28	4	28	4	28	4	28	4	29	4	30
Solar												
photovoltaic	160	160	170	170	190	190	210	210	250	250	300	300
concentrated solar power	0	0	0	0	0	0	0	0	0	0	0	0
Tide, wave, ocean	0	0	0	0	0	0	0	0	0	0	0	0
Wind:												
onshore	300	480	300	480	300	480	350	560	350	560	350	560
offshore	0	0	0	0	0	0	0	0	0	0	0	0
Biomass:												
solid	145	725	150	750	155	775	160	800	165	825	170	850
biogas	80	624	85	663	90	702	95	741	100	780	110	860
bioliquids												
TOTAL	2 421	7 178	2 469	7 336	2 510	7 453	2 602	7 652	2 667	7 802	2 746	8 000
of which in CHP	225	1349	235	1413	245	1477	255	1541	265	1605	280	1710

Source: Ministry of Economy and Construction of the Slovak Republic

Table 10c: Estimation of total electricity production from pumping in pumped storage units

	2005		2010		2011		2012		2013		2014	
	MW	GWh										
Pumped storage units	916	103	916	250	916	250	916	255	916	255	916	260

	2015		2016		2017		2018		2019		2020	
	MW	GWh										
Pumped storage units	916	265	916	270	916	275	916	275	916	280	916	280

Source: SEPS

Table 11: Estimation of total contribution (final energy consumption) expected from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling 2010-2020 (ktoe)

ktoe	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Geothermal (excluding low temperature geothermal heat in heat pump applications)	3	3	3	3	4	28	40	50	60	70	80	90
Solar:	0	2	3	3	4	5	7	10	15	20	25	30
Biomass:												
<i>solid</i>	357	443	460	480	500	520	540	560	580	600	620	630
<i>biogas</i>	1	4	7	15	23	30	36	41	46	51	55	60
<i>bioliquids</i>												
Renewable energy from heat pumps:												
– of which aerothermal	0	0	0	0	1	1	1	2	3	3	3	3
– of which geothermal	0	0	1	1	1	2	2	2	3	3	4	4
– of which hydrothermal	0	0	0	0	1	1	1	2	3	3	3	3
TOTAL	361	452	474	502	534	587	627	667	710	750	790	820
Of which DH	52	55	62	74	88	130	160	190	230	270	315	360
Of which biomass in households	33	35	36	37	38	39	41	43	46	49	52	55

Source: Ministry of Economy and Construction of the Slovak Republic

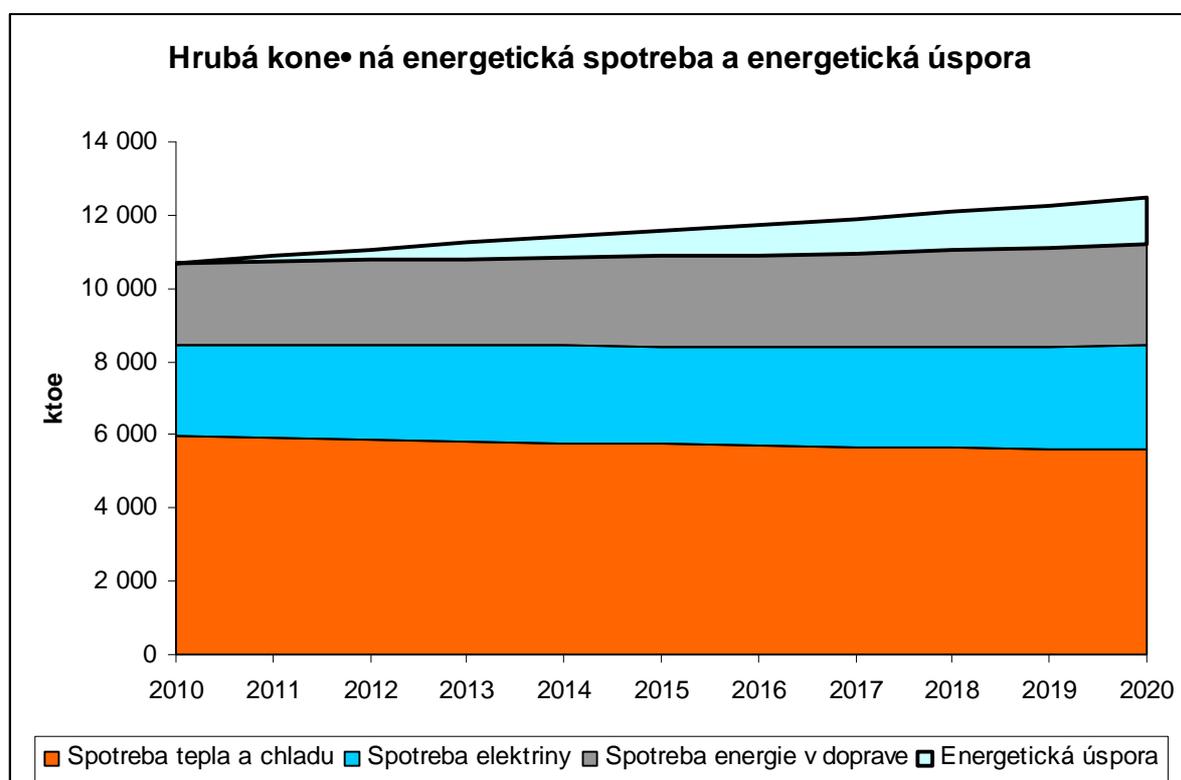
Table 12: Estimation of total contribution expected from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector 2010-2020 (ktoe)

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bioethanol/bio-ETBE	0	15	16	17	19	24	30	33	38	65	65	75
<i>Of which biofuels under Article 21(2)</i>	0	0	0	0	0	0	0	0	0	6	8	25
<i>Of which imported</i>	0	0	0	0	0	0	0	0	0	0	0	0
Biodiesel	0	67	70	72	75	87	107	110	113	115	110	110
<i>Of which biofuels under Article 21(2)</i>	0	0	0	0	0	0	0	0	0	5	15	30
<i>Of which imported</i>	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen from renewables	0	0	0	0	0	0	0	0	0	0	0	0
Renewable electricity	8	8	8	9	9	9	10	11	13	14	16	17
<i>Of which road transport</i>	0	0	0	0	0	0	0	1	2	3	4	5
<i>Of which non-road transport</i>	8	8	8	9	9	9	10	10	11	11	12	12
Others – biogas	0	0	0	0	0	0	0	1	1	3	4	5
<i>Of which biofuels under Article 21(2)</i>	0	0	0	0	0	0	0	1	1	3	4	5
Total	8	90	94	98	103	120	147	155	165	197	195	207

Source: Ministry of Economy and Construction of the Slovak Republic

5.2. Total contribution expected from energy efficiency and energy saving measures to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity, heating and cooling and transport

The expected total energy savings in 2020 compared to the reference scenario are 1 218 ktoe (see Table 1). The amount in a given year primarily depends on the heating and cooling sector, in which, thanks to energy efficiency measures (particularly thermal insulation), a reduction in energy consumption compared to 2010 is envisaged. In contrast, the reference scenario anticipated an increase in energy consumption in this sector too. In other sectors, an increase in energy consumption in both scenarios has been projected.



Gross final energy consumption and energy savings

- Consumption of heating and cooling
- Consumption of electricity
- Consumption of energy in transport
- Energy savings

Graph 4 Expected energy savings

5.3. Assessment of the impacts (optional)

5.4. Preparation of the National Renewable Energy Action Plan and the follow-up of its implementation

- a) How were regional and/or local authorities and/or cities involved in the preparation of this Action Plan? Were other stakeholders involved?

Contributions to the preparation of the Action Plan were made by staff from the following ministries: the Ministry of Agriculture, the Ministry of the Environment, the Ministry of Construction and Regional Development and the Ministry of Finance. In addition to these Ministries, the following organizations were also involved: the Slovak Innovation and Energy Agency, the Slovak Association of Heat Producers, the Association for the Production and Use of Biofuels, and representatives of motor fuel and heat producers.

The Action Plan also took into account the recent outputs of the projects “RE-Shaping project” and “REPAP 2020”, which were consulted at a meeting of experts in Bratislava.

- b) Are there plans to develop regional/local renewable energy strategies? If so, could you please explain? In case relevant competences are delegated to regional/local levels, what mechanism will ensure national target compliance?

Plans for local RES development are set out in Concepts of Municipal Development in Heat Energy. These are sectoral concepts drawn up by municipalities and are used when preparing a municipality’s spatial planning documentation.

- c) Please explain the public consultation carried out for the preparation of this Action Plan.

The Action Plan is subject to comment procedure, during which the public has a right to raise comments and suggestions. Once such observations have been made, a public consultation on them can be held.

- d) Please indicate your national contact point/the national authority or body responsible for the follow-up of the Renewable Energy Action Plan?

The responsible body is the Ministry of Economy and Construction of the Slovak Republic.

- e) Do you have a monitoring system, including indicators for individual measures and instruments, to follow-up the implementation of the Renewable Energy Action Plan? If so, could you please give more details on it?

The Statistical Office of the Slovak Republic keeps energy statistics. The Ministry of Economy and Construction draws on such statistics in its monitoring of the necessary indicators. Where appropriate, the monitoring of the indicators of individual measures and instruments can be supplemented by the keeping of energy statistics at the Statistical Office, or the monitoring of selected indicators can be introduced at the Ministry of Economy and Construction.