Supplementation of

the National Renewable Energy Action Plan

(in response to questions from the European Commission)

The Ministry of Economy of the Slovak Republic has drawn up replies to the questions from the European Commission. These replies take into account the current situation and may differ from the original responses following approval of the amendment to Act No 309/2009 on the promotion of renewable energy sources, particularly as regards the promotion of biofuels and, to a lesser extent, the promotion of electricity from renewable sources.

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

(a) List of existing national and, where applicable, regional legislation concerning the authorisation, certification, licensing spatial planning procedures applied to plants and associated transmission and distribution network infrastructure

• Act No 71/1967 on administrative procedures (Rules of Administrative Procedure), as amended
• Act No 50/1976 on spatial planning and building regulations (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

Responsible ministries/authorities
(b) Responsible Ministries/authorities and their competences

Responsible ministries/authorities	Competences
Ministry of Economy 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 the Environment of the Slovak Republic (MoEnv SR)	environmental impact assessment of an investment plan
Ministry of Transport, Construction and Regional Development 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 a view to taking 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. Central government authorities impose no unnecessary obstacles or disproportionate requirements in relation to the authorisation, 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, or to the process for transforming biomass into biofuels or other energy products.

Minor changes to simplify certification of the compliance of an investment plan with the long-term concept of Slovakia's energy policy (Ministry of Economy) will be implemented in the new Energy Act by the end of 2012.

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

Existing regional/local measures take the form of development concepts. At regional level, there are the regional energy policies of the self-governing regions, as recommended to the chairpersons of the self-governing regions under 2006 Energy Policy.

At local level, the basic document for RES development is the *Municipal Development Plan for Heat Energy*. 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 No 952/2005-200.

The *Municipal Development Plan for Heat Energy*, once approved by a municipal council, becomes a municipal sectoral concept and is used in the drafting of the municipality's spatial planning documentation. Not all towns make sufficient use of this use 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 *Municipal Development Plan for Heat Energy* is to become a major strategic document guiding the development of heat supply in municipalities (towns) in the coming years.

No further measures are planned at regional or local level.

(e) Are there unnecessary obstacles or non-proportionate requirements detected related to authorisation, 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 for transforming biomass into biofuels or other energy products? If so, what are they?

In general, no non-proportionate requirements exist in the procedure for issuing building permits for the construction of plants and **associated transmission and distribution network infrastructure for the production of electricity, heating or cooling from renewable sources, or in the process for transforming biomass into biofuels or other energy products**. The Ministry of Economy issues certificates of compliance of an investment plan with the long-term concept of the energy policy in building permit proceedings. In the case of RES, these certificates are issued within 30 days of receipt of a request, provided that all the requirements have been met.

Authorisation from distribution system operators (DSOs) within the framework of the process for connecting renewable energy to their distribution systems is granted in accordance with the limits and deadlines laid down by primary and secondary Slovak legislation. These limits and deadlines are reflected in the operational rules approved by the Regulatory Office for Network Industries. No internal obstacles from DSOs have been recorded in the process for connecting renewable sources. Applications and the related requirements for applicants are handled by DSOs on an ad hoc basis.

Increased procedural requirements apply only to the construction of transmission and distribution system infrastructure; these requirements protract the authorisation processes in building permit proceedings. In some cases, it may take over 30 months to obtain all the permits, due to property-law relations concerning the land on which these linear structures are to be located.

(f) What level of administration (local, regional and national) is responsible for authorising, certifying and licensing renewable energy installations and for spatial planning? If more than one level is involved, how is coordination between the different levels managed? How will coordination between different responsible authorities be improved in the future?

An overview of responsibilities for the authorisation of permits and certification is provided in section 4.2.1.b).

All structures may be built, modified or have maintenance work carried out on them only in accordance with a building permit or on the basis of a notification to the building authority. A building permit is issued in administrative proceedings and, except in explicitly specified cases, the municipality (local government) is the building authority of first instance. The performance of such devolved state administration by municipalities, in their capacity as building authorities, is overseen by the regional building authority.

In administrative proceedings concerning energy facilities, the building authority is required to take into account the binding opinions issued by the relevant bodies of the Ministry of Economy and the Ministry of the Environment. The content of such binding opinions is binding on the administrative authority; it cannot take a decision if one binding opinion is inconsistent with other binding opinions.

At national level, the Ministry of Economy issues a certificate of compliance of an investment plan with the long-term concept of the Slovak energy policy in the form of a decision in administrative proceedings. These certificates are then used as documentation in zoning decisions and building permit proceedings.

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 up to 100 kW installed on a building do not need to be certified.

In the construction of heating facilities using RES, certificates of compliance of the planned construction of the heating system, or a part thereof, with the long-term concept of the Slovak Energy Policy are required for facilities with a total installed thermal capacity of more than 10 MW.

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

The RONI is responsible for energy business licensing.

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

The procedure followed by the administrative authorities at various levels is defined by the applicable laws (the Building Act, the Energy Act and the EIA Act), which set out the process for the issuance of decisions. The level of administrative proceedings and time-limits applicable to such proceedings are defined by a general law, i.e. Act No 71/1967 on administrative proceedings (Rules of Administrative Procedure), unless otherwise provided by the relevant legislation.

Under the Building Act, building authorities and other bodies responsible for proceedings and for issuing decisions or opinions are required to cooperate. In particular, they must take care to ensure that materially related administrative procedures follow on from each other as far as possible, make broad use of the results of these procedures, submit comprehensive opinions on time and provide economic, technical and other data and documents on request. No measures are planned for improving coordination between the different responsible authorities.

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

Administrative authorities are required to inform the public, intelligibly and in good time, by way of publication on the administrative authority's official notice-board, on the Internet, if they have access thereto, or by other appropriate means, of the commencement, implementation, and end of proceedings in matters which are of public interest or in cases where such publication is required under a specific law. Participants in proceedings and their representatives and persons involved in proceedings are entitled to peruse files, take extracts from files, make duplicates of files, and receive copies of files, with the exception of voting records, and are entitled to obtain information from the files, with the exception of voting records, by other means.

When an application is submitted for a building permit, if the documentation does not provide a sufficient basis for an assessment of the proposed works, or if the documentation does not comply with the conditions of a zoning decision, the building authority invites the investor to supplement the application within a reasonable time limit.

When issuing a certificate, the Ministry of Economy proceeds in accordance with a written application, the particulars of which are laid down in the Energy Act. The criteria for certification, compliance with which is a prerequisite for certification, are available on the Ministry's website. These criteria are based on, and reflect, the priorities under the approved Energy Policy.

The list of certificates issued is regularly updated and published on the MoEc SR website. The MoEc SR website publishes information about the particulars required for applications and about the procedure for submitting an application.

The Ministry keeps records of all applicants for certificates, and publishes certificates issued in the Ministry's Journal and on the Ministry's website

If an applicant's investment plan complies with the long-term concept of the energy policy, the Ministry issues a certificate within 60 days of receipt of the application; this period may be extended by 30 days. If an applicant's investment plan does not comply with the long-term concept of energy policy, the Ministry rejects the application. The reasons for refusal must be objective, non-discriminatory and duly substantiated.

In the disclosure of information, DSOs proceed in accordance with Act No 309/2009, as amended, under which DSOs provide producers of electricity from renewable energy sources who apply for a connection with information about
a) the estimated costs associated with connection,
b) a timetable for receiving and processing applications for grid connections,
c) a timetable for any proposed grid connection.

(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 authorisation/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 on an application?

Horizontal coordination is facilitated through the Ministry of Transport, Construction and Regional Development, which issues method guidelines for building authorities. These guidelines guarantee that all procedures in building permit proceedings are uniform. Where problems arise, the Ministry of Economy may contact the Ministry of Transport, Construction and Regional Development to seek guidance.

The number of procedural steps necessary to obtain a final building decision depends on the size of the installed capacity and the technology. In explicitly specified cases, it is necessary to undergo an environmental impact assessment (EIA) and obtain a certificate from the MoEc SR before a building decision can be issued. An application for a certificate from the MoEc SR, which is required for capacity of over 1 MW, must be accompanied by the following opinions:
- the opinion of the operator of the distribution system to which the facility is to be connected
- the opinion of the transmission system operator
- the opinion of the operator of a distribution network to which a gas facility is to be connected - the opinion of the municipality
- the opinion of the Regulatory Office for Network Industries.

The building authority, as a public authority, is the focal point for the coordination of all the necessary formalities. The timetables are set in advance, as procedure follows the administrative proceedings defined in Act No 71/1967 on administrative proceedings (Rules of Administrative Procedure), in which time limits are defined for the processing of applications, i.e. the building authority must decide on the matter within 30 days of the initiation of proceedings or, in particularly difficult cases, within 60 days. Where the administrative authority is unable to reach a decision within 30 or 60 days, it notifies the participant in the proceedings thereof, explaining the reasons.

The average time to obtain a decision on an application, subject to the fulfilment of all requirements, is less than 30 days.

(i) Do authorisation 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?

In the case of photovoltaics, fluctuations in electricity production are taken into account in the approval process for certification. An MoEc SR certificate is required for installations with a capacity of over 1 MW, and in the case of photovoltaic facilities with a capacity of over 100 kW. This measure was necessitated by experience of a sharp, undesirable increase in small installations in single locations, as this could cause problems in the grid.

The same criteria for defining technical conditions are in place for the connection of all types of renewable energy sources to the distribution system. In relation to the calculation of spare capacity for the connection of a source, in more complex technical cases a comprehensive connectivity study is required under the DSO rules of operation; this study distinguishes RES impacts on the DS by type of renewable energy.

(j) Are there specific procedures, for example simple notification, for small-scale, decentralised 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?)

Yes, they exist for decentralised household installations (biomass boilers and solar panels) in the form of notifications to the building authority. Under the Building Act, structures may be built, modified or have maintenance work carried out on them only in accordance with a building permit or on the basis of a 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 modifications 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.

The investor is required to notify the building authority in writing in advance of construction or structural modifications. Notifications relating to small buildings are accompanied by a simple layout drawing; for simple buildings, documents incorporating the particulars of an application for a building permit and project documentation are attached. The investor may build or modify structures only if the building authority issues written notice that it has no objections. The investor may start building a notified structure or start working on structural modifications or maintenance within two years of the date of receipt of the building authority's notice, unless otherwise determined by the building authority.

Rules, in the form of method guidelines, are available on the website of the Ministry of Transport, Construction and Regional Development; the procedure is governed by the Building Act.

(k) Where are the fees associated with applications for authorisation/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 associated with administrative proceedings on authorisation, certification (licensing) or permission are set out in Act No 145/1995 on administrative charges, as amended. The Certification Criteria for the certification procedure are also published on the MoEc SR website. The fees relate to administrative costs. There are no plans to revise these fees.

There is no fee for submitting an application for connection to the distribution system; under current legislation, the producer pays a fee only for the actual connection.

(l) Is official guidance available to local and regional administrative bodies on planning, designing, building and refurbishing industrial and residential areas to install equipment 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?

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

(m) Is there any specific training for case handlers in terms of the authorisation, certification and licensing procedures for renewable energy installations?

No specific training has been provided for case handlers in charge of the authorisation, certification and licensing procedures for renewable energy installations.

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

(b) How is it ensured that transmission and distribution grids will be developed with a view to integrating the targeted amount of renewable electricity while maintaining the secure operation of the electricity system? How is this requirement included in the transmission and distribution operators' periodical network planning?

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 medium- and long-term plans for electricity use, including use of RES, while maintaining the secure operation of the electricity grid. These documents set targets for electricity production in 2020 in accordance with this Action Plan. According to Tables 10a and 10b, the RES output growth rate will not be limited by system capacity. Existing measures designed to ensure sufficient capacity include the system operators' periodic planning and DSO technical measures. A measure has been proposed to provide greater scope to the transmission system operator in the allocation of capacities for plants with production fluctuations.

- Periodic planning of system operators
Every year, the transmission system operator, Slovenská elektriza•ná 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 line 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 that are ready for the connection of renewable sources is carried out within the scope of development plans, and on the basis of requests for the connection of sources. 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.

- Technical measures of distribution system operators
DSOs, within defined technical conditions for connection, analyse the estimated impact on the system and propose technical measures to facilitate RES connection to the DS as part of their response to an application for connection.

As the development of the distribution system has been planned so that it is able to cover the long-term needs of its users, in the connection of new sources to the DS there have been no major problems based on a lack of line transmission capacity management when connecting producers to the grid, despite the high growth in RES capacity during the past two years.

- Greater competence of the transmission system operator in the allocation of capacities for plants with production fluctuations

Existing TSO competencies ensure that the operational safety of the transmission and distribution system is maintained. These competencies include the operator's response to applications, which is regarded as a secondary opinion in the MoEc SR certification process. In the case of photovoltaics as a source of fluctuating production, in the first half of 2011 the installed power was higher than the target for 2020. The capacity limit for photovoltaics for which MoEc SR certification is required was therefore reduced from 1 MW to 100 kW. The approval of the transmission system operator is one of the requirements for MoEc SR certification.

Greater powers for the transmission system operator, planned for adoption by 2015, should optimise the temporal and spatial distribution of sources with fluctuating production, especially as regards wind power plants.

The development of these sources is determined in particular by the regulatory options and the availability of support services. The transmission system operator should therefore set clear limits for the connection of plants reporting major fluctuations in output by geographical area distribution, with a view to the safe operation of the grid.

(c) What will be the role of intelligent networks, information technology tools and storage facilities? How will their development be ensured?

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 given moment is required in relation to RES. In an intelligent DS, individual DS elements are automated. Although intelligent networks are clearly a step forward in the development of the grid, their implementation places a very costly burden on the system operators concerned.

The role of intelligent networks will be to increase the use of transmission capacity while maintaining the quality parameters of the electricity supplied. The MoEc SR will support experimental programmes for the introduction of intelligent network elements and electricity storage installations in practice with a view to establishing the possibilities and consequences of integrating RES into an intelligent network.

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 for technological reasons, 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. Considering the current capacity of PSUs and the planned Ipe• PSU, no extra storage capacity is needed for the achievement of RES objectives.

The development of intelligent networks will be ensured through the way that responsibilities are defined. In 2012, obligations to introduce smart metering systems will be defined. The decision on the implementation of smart metering systems will be supported by an economic analysis of all of the costs and benefits to all market participants; costs under the regulatory framework will be distributed according to the related benefits. Network optimisation must build on investments that have already been made in automation, including the means to control consumption.

Distribution companies support technological developments and the creation of a standard for measuring commodities, which will be implemented internationally with financial support from the European Commission's 'Open Meter Project'. The proposed standards are currently being defined and tested. ZSE Distribúcia, a.s., as part of a pilot project, started installing electric meters with radio communications in 2008, and meters with PLC communications in 2009, in order to test the smart meters currently available and compare them technically, operationally and financially. ZSE Distribúcia, a.s. will draw up an action plan for the deployment of smart metering systems further to a decision by the Ministry of Economy based on an analysis of the various forms of smart metering systems introduced. Once the standards have been set, an action plan for implementation will be drawn up at SSE-D. Východoslovenská distribu•ná, a.s. is also involved in a pilot project aimed at identifying the benefits of such metering systems to customers and the economic efficiency and benefits in terms of metering system costs.

(d) Is the reinforcement of interconnection capacity with neighbouring countries planned? If so, which interconnectors, for which capacity and by when?

Under the Energy Act, the transmission system operator is obliged to draw up an annual transmission system development plan, including a five-year plan for the development of interconnection of lines. The planning of the construction of cross-border lines is influenced significantly by the interests and approaches of transmission system operators in neighbouring countries. In the recent past, SEPS, a.s. has made frequent efforts towards

construction of a new 400 kV line to Austria and Hungary, but has so far failed to find solutions acceptable to the relevant transmission system operators in these countries.

Preparations have progressed furthest with a 2 x 400 kV inter-state line between the forthcoming new 400 kV switching station in Gab•íkovo and Hungary. There are several possible variants for the construction of this 2 x 400 kV line on the Hungarian side. So far, however, none has been officially confirmed. The start and completion dates will depend on several factors, which need to be analysed and agreed in the ongoing talks. Hungary has made the construction of the above line from the Gab•íkovo switching station conditional on the quasi-parallel construction of the 'R. Sobota – Hungary 400 kV Line'. If an agreement is reached, both lines will then presumably be constructed almost simultaneously.

Slovakia also plans to construct the 'Kapušany – Hungary 2 x 400 kV line' after 2019. It is not yet known where this line will be connected to the transmission system on the Hungarian side.

Supplementation of section 4.2.3
Measures to ensure a greater share of RES in the construction sector

• the introduction of a system of energy audits for selected types of buildings under specified conditions (other than family homes) and the interlinking of the system with support programmes
Deadline: HI 2014

• the establishment of guidelines for the use of RES in buildings (Article 14(5)), the mandatory application of the guidelines for both new buildings and buildings subject to major renovation (e.g. the SENTRO Project), and integrated planning and building design

Deadline: 2nd half 2013

• 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

Deadline: 2nd half 2014

• arrangements for the updating of and checks on the implementation of the *Municipal Development Plan for Heat Energy*

Deadline: ongoing

• 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

Deadline: 2nd half 2013

• the institutionalisation 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

Deadline: 2nd half 2012

• the promotion of energy services using RES in buildings (e.g. EAST-GSR)

Deadline: 2nd half 2012

• a support programme for biomass boilers and solar panels in households, including set technical parameters and specifications (the minimum guaranteed energy gain under standardised conditions + the Solar Keymark solar panels, requirements regarding the efficiency and emissions of biomass boilers).
Implemented since 2009.

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 created a support system for electricity from renewable sources through feed-in prices guaranteed for 15 years as of date on which a facility comes into operation or is reconstructed.

No changes are planned for the feed-in price support system, and no other support system is planned. There are no limits on the duration of this support system.

Feed-in prices are determined by the RONI in accordance with generally binding legislation. A feed-in price may be increased for one calendar year by means of a surcharge reflecting a significant increase in the price of input raw materials in the previous calendar year used to generate electricity. 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 to a surcharge calculated as the difference between the electricity price and the price of electricity for losses. 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.

Planned measures

System reform centres on the transfer of the obligation to purchase electricity from three distribution companies to a single centralised purchaser and the introduction of a system of auctions for the allocation of capacity for wind and solar power plants. The changes are due to be introduced in 2013. These changes will result in a reduction in system costs and the enhanced temporal and spatial distribution of sources with fluctuating production. The auction system will facilitate fulfilment of the objectives for these sources under this Action Plan.

A reverse auction is proposed; this 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 requested feed-in prices of electricity will be successful. This means that during the auction the pressure is on minimising the feed-in price.

Legislation

Regulations can set target(s) and obligations. In case there is such an obligation please detail it:

The legislation does not set an overall goal or objectives for each technology to be achieved in individual years. There are no plans to introduce such objectives.

Financial support

Financial support is takes the form of
- *financial support for investments,*
- *feed-in prices.*

The feed-in price system is described in general in the introduction to this part and in the replies in the section dealing with specific questions on the fixed tariffs of feed-in prices.

Financial support for investments

(a) What is the name and a short description of the scheme?

Name: ***Competitiveness and Economic Growth Operational Programme***

This is an Operational Programme under the Structural Funds. The main vehicle of such aid in the energy sector, it 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. 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.

(b) Is it a voluntary or obligatory scheme?

It is a voluntary scheme.

(c) Who manages the scheme? *(Implementing body, monitoring authority)*

The managing authority is the Ministry of Economy of the Slovak Republic.

(d) What are the measures taken to ensure availability of the budget/funding needed to achieve the national target?

The Operational Programme is only an ancillary means of achieving the objective. No measures are needed to ensure the availability of funding.

(e) How is long-term security and reliability addressed by the scheme?

This Operational Programme ends in 2013. As the main instrument for achieving the production of electricity from RES is the feed-in prices, this is an ancillary programme and there is no need for it to continue.

(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?

The scheme is controlled and optimised after an analysis of approved projects. Optimisation is realised through the setting of evaluation criteria.

The duration of the scheme is

(g) Does support differ according to technology?

The amount of support does not differ according to the technology. The use of biomass, hydro, geothermal and solar energy is supported. Support covers up to 50% of the eligible costs of a project.

(h) What are the expected impacts in terms of energy production?

Up to 5% of total electricity production from RES.

(i) Is support conditional on meeting energy efficiency criteria?

No.

(j) Is it an existing measure? Could you please indicate national legislation regulating it?

This is an existing measure. It entails the use of EU funds based on the Slovak Republic's National Strategic Reference Framework for 2007–2013. This strategic document was prepared in accordance with new European Union (EU) regulations on the Structural Funds and Cohesion Fund, and was subsequently approved by the Slovak Government on 6 December 2006 and by the European Commission on 17 August 2007.

(k) Is this a planned scheme? When would it be operational?

It is an existing system.

(l) What start and end dates (duration) are set for the whole scheme?

The duration of the scheme is from 2007 to 2013.

(m) Is there a maximum or minimum scope for the authorised scheme?

The maximum scope of the scheme is determined by the funds allocated.

(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulative?

(o) Are there regional/local schemes? If so, please specify, using the same criteria.

Regional/local schemes have not been established.

<u>Specific questions for financial support for investment:</u>

(a) What is granted under the scheme? (subsidies, capital grants, low interest loans, tax exemption or reduction, tax refunds)

Non-repayable financial resources are granted.

(b) Who can benefit from this scheme? Is it specific to a certain technology(/ies)?

Aid beneficiaries are from the private sector. Aid is granted as a non-repayable financial contribution to investment costs.

(c) Are applications continuously received and granted or are there periodical calls? If periodical, could you please describe the frequency and conditions?

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.

Specific questions for fixed feed-in tariffs:

(a) What are the conditions for getting a fixed tariff?

The electricity producer must have a RONI-granted licence to produce electricity, a pricing decision on the amount of the feed-in price, and separate metering of RES-produced electricity via a certified meter. Based on the amount of electricity measured, the electricity producer submits information on electricity production to the distribution system operator and invoices that amount.

(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the tariff?

No annual limit is set for the volume of electricity produced.

The law sets a support limit per installation, which is a maximum installed capacity of 125 MW. This capacity is increased to 200 MW if the electricity is produced from high efficiency cogeneration and if the energy share of renewable energy sources in the fuel is higher than 20%.

The feed-in price consists of two parts: the price of electricity for losses (market price) and a surcharge. The market price is paid for all electricity supplied from facilities that meet the above support limits. The surcharge is billed by the electricity producer for the electricity generated, less the internal technological consumption of electricity. In installations with an installed capacity of more than 10 MW, or 15 MW for wind parks, the surcharge is paid only for the proportionate amount of electricity produced annually. For installations using solar energy, the surcharge applies to facilities with an installed capacity of up to 100 kW which are located on the roof or cladding of one building.

(c) Is it a technology specific scheme? What are the tariff levels for each?

The tariff depends on the technology and the installed capacity. The tariff levels are set out in the table below.

Electricity prices (EUR/MWh)	2010	H1 2011	H2 2011	2012
From hydropower with total installed capacity				
up to 1 MW inclusive	109.08	109.08	109.08	109.8
from 1 MW to 5 MW inclusive	97.98	97.98	97.98	97.98
over 5 MW	61.72	61.72	61.72	61.72
From solar power with total installed capacity				
up to 100 kW inclusive	430.72	387.65	259.17	194.54
over 100 kW	425.12	382.61	-	-
From wind power	80.91	80.91	79.29	79.29
From geothermal power	195.84	195.84	195.84	190.51

From incineration				
purposely grown biomass	113.1	113.1	112.24	112.24
waste biomass (other)	125.98	127.96	122.64	122.64
From the co-incineration of biomass or waste with fossil fuels	126.14	126.14	123.27	123.27
From incineration				
landfill gas or gas from sewage treatment plant gas	96.36	96.36	93.08	93.08
biogas produced by anaerobic fermentation technology with total installation capacity of up to 1 MW inclusive	148.72	148.72	145.00	136.33
biogas produced by anaerobic fermentation technology with total installation capacity of over 1 MW	131.45	132.45	129.44	118.13
thermochemical gasification in a gasification generator	159.85	159.85	159.85	139.87

(d) Are there other criteria differentiating tariffs?

There are no criteria apart from those above.

(e) For how long is the fixed tariff guaranteed?

The feed-in price of electricity is determined for a 15-year period.

(f) Is there any tariff adjustment foreseen in the scheme?

Tariffs are adjusted regularly, at annual or biannual intervals (e.g. 2011). Tariffs in the subsequent period for a newly-constructed installation are determined by the RONI on the basis of price trends in technology. However, the tariff in a subsequent period for new installations, except for wind and solar power plants, must not be less than 90% of the tariff applicable in the current year.

Feed-in premium

The surcharge, as an element of the feed-in price, can be regarded as a form of feed-in premium. The electricity producer is entitled to it even if it does not supply electricity to the distribution system. The surcharge is determined as the difference between the feed-in price and the electricity price for losses. All the replies in respect of the fixed tariffs of feed-in prices apply to the surcharge.

Tenders

The support of electricity in Slovakia is based only on feed-in prices and financial support for investments; therefore, no system of public tendering has been introduced.

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 address a support system for heat production from renewable energy sources that would financially favour producers of heat.

The support of heat from renewable energy sources mainly takes the form of financial support for investments, namely:

- **Structural Funds**
• *Competitiveness and Economic Growth Operational Programme*
• *Environment Operational Programme*
- **Programme for the Greater Use of Biomass and Solar Energy in Households**

The preference for heat supplies produced from renewable sources is addressed by legislation. However, there is no target for the production of heat from RES or objectives for individual technologies to be achieved in individual years.

Under Act No 657/2004 on heat energy, as amended, the following applies when heat take-off is terminated: *'If a heat supplier, supplies heat that is more than 10% and less than 60% produced from renewable energy sources, the heat customer may terminate heat take-off only if it secures a supply of heat produced from renewable energy sources at a rate 20% higher than the current supplier of heat. If a heat supplier supplies heat that is more than 60% produced from renewable energy sources, the heat customer may terminate heat take-off only if it secures a supply of heat wholly produced from renewable energy sources, with the exception of heat generated by the ignition of a renewable energy source by a fossil fuel.'*.

The consumer's preference for heat take-off is set so that, for the provision of a contractually agreed heat supply, there is a requirement to take off heat which is produced from renewable energy sources or in a combined heat and power facility if

• the price of heat is not increased for purchasers,
• the heat-conveying fluid from the system of thermal installations for the production of heat from renewable sources of heat is the same heat-conveying fluid,
• heat take-off at the designated or approved price from renewable energy is as economically efficient as heat take-off from other heat sources.

Similarly, the following applies to the construction of a new heat-consuming structure: *'If, in a defined territory, there are plans to build a new heat consumption structure and the heat supplier, in this defined territory, supplies heat from renewable energy sources, the heat supply from that supplier must be used as a matter of preference, if technical conditions and the installed capacity of the heat sources permit.'*.

The following proposed measures are set out in Table 5:

– Compulsory RES use in new and renovated buildings (introduction after 2012)
- Minimum quantity in new and renovated buildings (introduction after 2013)
- Financial support (use of Structural Funds for the 2014–2020 period)

Financial support

- **Structural Funds**
• *Competitiveness and Economic Growth Operational Programme*
• *Environment Operational Programme*

(a) What is the name and a short description of the scheme?

Name: *Environment Operational Programme*

The operational objective supports activities aimed at reducing greenhouse gas emissions, and cutting emissions of basic pollutants in the production of heat, including changes to 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 are also supported for the installation of heat pumps to replace heat and hot water generation from non-renewable resources.

(b) Is it a voluntary or obligatory scheme?

It is a voluntary scheme.

(c) Who manages the scheme? *(Implementing body, monitoring authority)*

The Managing Authority is the Ministry of the Environment of the Slovak Republic.

(d) What are the measures taken to ensure availability of the budget/funding needed to achieve the national target?

No action is necessary to ensure the availability of funding because the allocation of funds for the years 2007–2013 has been secured.

(e) How is long-term security and reliability addressed by the scheme?

This Operational Programme ends in 2013. It is assumed that the support of heat from RES will continue in the new programming period from 2014 to 2020.

(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?

The scheme is controlled and optimised after an analysis of approved projects. Optimisation is realised through the setting of evaluation criteria.

(g) Does support differ according to technology?

The amount of support is not determined by the technology; the use of biomass, geothermal and solar energy is supported. Support covers up to 50% of the eligible costs of a project.

(h) What are the expected impacts in terms of energy production?

Up to 10% of the total production of heat from RES.

(i) Is support conditional on meeting energy efficiency criteria?

No.

(j) Is it an existing measure? Could you please indicate national legislation regulating it?

This is an existing measure. It entails the use of EU funds based on the Slovak Republic's National Strategic Reference Framework for 2007–2013. This strategic document was prepared in accordance with new European Union (EU) regulations on the Structural Funds and Cohesion Fund, and was subsequently approved by the Slovak Government on 6 December 2006 and by the European Commission on 17 August 2007.

(k) Is this a planned scheme? When would it be operational?

(l) What start and end dates (duration) are set for the whole scheme?

The duration of the scheme is from 2007 to 2013.

(m) Is there a maximum or minimum scope for the authorised scheme?

The maximum scope of the scheme is determined by the funds allocated.

(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulated?

(o) Are there regional/local schemes? If so, please detail using the same criteria.

Regional/local schemes have not been established.

- Programme for the Greater Use of Biomass and Solar Energy in Households

(a) What is the name and a short description of the scheme?

Name: Programme for the Greater Use of Biomass and Solar Energy in Households

Investment support for the use of solar energy and biomass for heating and hot water for apartments and houses is available for individuals in the form of subsidies for:
• biomass boilers,
• solar power systems.

Subsidies may be granted upon written request, submitted by the applicant after the installation of solar collectors or after the installation of a biomass boiler, but not later than six months after installation.

Applicant eligibility:
• the owner or co-owner of a house,
• the owner of an apartment in an apartment building (if the applicant's apartment is not supplied with hot water from a joint hot water distribution system in the apartment building and consent to the installation of solar panels on the apartment building, as required under special regulations, is attached to the application)
• an association of owners of apartments or non-residential premises, the manager of an apartment building, or another legal entity managing and maintaining residential and non-residential premises for apartment owners in an apartment building, if the applicant's apartment is not supplied with hot water from a joint hot water distribution system in the apartment building and consent to the installation of solar panels on the apartment building, as required under special regulations, is attached to the application.

Subsidy
• EUR 200 per m^2 area of solar panels installed in a house, up to a maximum of 8 m^2,
• EUR 100 per m^2 area of solar panels installed in an apartment building; the maximum subsidy is EUR 300 per apartment in an apartment building using hot water produced via the installed solar panels.

The subsidy for the use of biomass may be granted for up to 30% of the purchase price of a biomass boiler installed in the applicant's house, up to a maximum of EUR 1 000.

The technical specifications are provided in section 4.2.2.

(b) Is it a voluntary or obligatory scheme?

It is a voluntary scheme.

(c) Who manages the scheme? *(Implementing body, monitoring authority)*

The managing authority is the Ministry of Economy of the Slovak Republic.

(d) What are the measures taken to ensure availability of the budget/funding needed to achieve the national target?

This is a supplementary programme; no measures have been taken to ensure the availability of funding.

(e) How is long-term security and reliability addressed by the scheme?

This programme ends in 2015.

(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?

In view of the simplicity of the scheme, periodic inspections are not required. The scheme was optimised through the approval of a new law, *Act No 181/2011 on the provision of subsidies within the competence of the Ministry of Economy of the Slovak Republic*.

(g) Does support differ according to technology?

The use of biomass and solar energy is supported, and the support does differ. Biomass is supported by funding the cost of boilers; solar energy is supported by funding the area of the solar panels.

(h) What are the expected impacts in terms of energy production?

Up to 10% of total heat production from RES.

(i) Is support conditional on meeting energy efficiency criteria?

Yes, support is conditional on compliance with the technical criteria for installations. More details can be found in section 4.2.2.

(j) Is it an existing measure? Could you please indicate national legislation regulating it?

This is an existing measure governed by *Act No 181/2011 on the provision of subsidies within the competence of the Ministry of Economy of the Slovak Republic.*

(k) Is this a planned scheme? When would it be operational?

(l) What start and end dates (duration) are set for the whole scheme?

The duration of the scheme is from 2008 to 2015.

(m) Is there a maximum or minimum scope for the authorised scheme?

The maximum scope of the scheme is determined by the funds allocated.

(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulative?

This is not possible.

(o) Are there regional/local schemes? If so, please detail using the same criteria.

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

Legislation

Regulations can set target(s) and obligations. In case there is such an obligation please detail it:

(a) What is the legal basis for this obligation/target?
• 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.
• Act No 309/2009 on the promotion of renewable energy and high efficiency cogeneration and amending certain laws.
• Act No 98/2004 on excise duties on mineral oil.

(b) Are there any technology-specific targets?

There is a target for biofuels, determined as the biofuel energy content share calculated from the energy content of the total quantity of petrol and diesel fuel placed in the market. There are also targets for the minimum content of biofuels in each litre of a particular type of fuel (diesel and petrol). The minimum content of biofuels for the years 2011 to 2020 is established in Annex 1 to Act No 309/2009.

(c) What are the specific obligations/targets per year (per technology)?

The obligation to market fuel with biofuel content with a reference value calculated from the total energy content of the quantity of fuel marketed in the Slovak Republic is determined as follows for the years 2011 to 2020:

- 3.8% up to 31 December 2011,
- 3.9% up to 31 December 2012,
- 4% up to 31 December 2013,
- 4.5% up to 31 December 2014,
- 3.8% up to 31 December 2015,
- 5.5% up to 31 December 2016,
- 5.8% up to 31 December 2017,
- 7.2 % up to 31 December 2018,
- 7.5% up to 31 December 2019,
- 8.5 % up to 31 December 2020,

The minimum volume of biofuel in diesel fuel in the years 2011 to 2020 is set as follows:

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
biodiesel	5.2%	5.3%	5.4%	6.8%	7.5%	7.6%	7.8%	9.7%	10.1%	11.5%

The minimum volume of biofuel in petrol in the years 2011 to 2020 is set as follows:

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bioethanol component	3.1%	3.2%	3.3%	4.1%	4.5%	4.6%	4.7%	5.9%	6.2%	7.0%
Minimum share of bio-ethyl-tertiary-butyl-ether	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
- of which: volume of the bioethanol component (0.47^{x} volume of bio-ethyl-tertiary-butyl-ether)	1.41%	1.41%	1.41%	1.41%	1.41%	1.41%	1.41%	1.41%	1.41%	1.41%

(d) Who has to fulfil the obligation?

A legal or natural person who:

a) releases excise fuel for consumption in Slovakia in accordance with Act No 98/2004,
b) transports fuel to Slovakia, outside the suspension of duty, for business purposes,
c) transports fuel to Slovakia from third countries,
d) markets fuel in a manner other than that described under (a) to (c).

(e) What is the consequence of non-fulfilment?

Non-fulfilment of obligations under Act No 309/2009 is subject to a fine imposed by the customs office.

(f) Is there any mechanism for monitoring fulfilment?

State monitoring of compliance with Act No 309/2009 and thus with the reference value set by that Act is provided by the customs office under Act No 98/2004.

(g) Is there any mechanism for modifying obligations/targets?

The targets for the period from 2011 to 2020 are prescribed by law and may be amended by law.

Financial support

Financial support can be classified in various ways. Examples:
financial support for investment, capital grants, low interest loans, tax exemptions or reductions, tax refunds, tender schemes, renewable energy obligations with or without green certificates (tradable green certificates), feed-in tariffs, feed-in premiums, voluntary schemes.

For every scheme you use, please give a detailed description answering the following questions:

(a) What is the name and a short description of the scheme?

In the Slovak Republic, in 2010 the obligation to use energy from renewable sources in transport was supported in the form of an exemption of excise duty on the quantity of biofuel contained in the fuel. Since 2011, support has taken the form of a reduced rate of excise duty on diesel or petrol provided that it contains the minimum proportion of biofuels set for diesel and petrol. The minimum proportion is stated in paragraph (c) of the preceding section.

(b) Is it a voluntary or mandatory scheme?

It is a mandatory scheme.

(c) Who manages the scheme? *(Implementing body, monitoring authority)*

State monitoring of compliance with Act No 309/2009 and thus with the reference value set for each year is provided by the competent customs office.

(d) What are the measures taken to ensure availability of the budget/funding needed to achieve the national target?

Since this is a scheme in the form of tax relief, no budget/funding is required to achieve the set objectives.

(e) How is long-term security and reliability addressed by the scheme?

The reference value for the share of biofuels in final energy consumption in transport is determined by Act No 309/2009 up to 2020, i.e. the rise in the share of energy from renewable sources in transport is secured over the long term.

(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?

State monitoring of compliance with Act No 309/2009 and thus with the reference value set for each year is provided by the customs office. Checks are conducted through quarterly reports, which economic operators subject to this obligation are required to submit to the competent customs office.

(g) Does support differ according to technology?

Support is not differentiated by technology.

(h) What are the expected impacts in terms of energy production?

The estimated total contribution expected from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative trajectory for the shares of energy from renewable resources in the transport sector in the period from 2010 to 2020 is provided in Table 12.

(i) Is support conditional on meeting energy efficiency criteria? Is this an existing measure? Could you please indicate national legislation regulating it?

Support is not conditional on meeting energy efficiency criteria.

(j) Is this a planned scheme? When would it be operational?

It is a scheme that is already operational.

(k) What start and end dates (duration) are set for the whole scheme?

Act No 309/2009 sets obligations to market fuels containing biofuels by 2020. An amendment to the Act setting reference values for the share of biofuels in final energy consumption in transport entered into effect on 1 January 2011.

(l) Is there a maximum or minimum scope for the authorised scheme?

None are set for biofuels.

(m) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulative?

In the Slovak Republic, one type of support measure is applied – a preferential tax regime.

(n) Are there regional/local schemes? If so, please detail using the same criteria.
There are no regional/local schemes.

Additional points

(a) What are the concrete obligations/targets per year (per fuel or technology)?

Act No 309/2009 on the promotion of renewable energy set the obligation for motor fuel producers and retailers to market fuels containing biofuel with a reference value calculated from the energy content of the total quantity of fuel placed on the market. These reference values and obligations for the period from 2011 to 2020 are listed in the section *Regulations* (paragraph c) for each fuel.

(b) Is there a differentiation of support according to fuel types or technologies? Is there any specific support for biofuels that meet the criteria of Article 21(2) of the Directive?

Support is not differentiated by fuel type or technology. A scheme comprising a preferential tax regime is applied to all fuels.

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. Legislative measures are being prepared in the Slovak Republic that will place these biofuels at an advantage to some extent.

Biomass supply

1. The figures in the columns 'primary energy production (2015 and 2020)' in Table 7a include the energy contained in biofuels (RME, ethanol and biogas).

2. Imports of biomass for incineration are not envisaged. Domestic production of maize is sufficient to produce the bioethanol under Table 12. To produce enough biodiesel to meet the target, oilseed imports from EU countries and Ukraine with a total biofuel energy value of 30 ktoe are expected in 2020.

3. The calorific value of the various types of biomass is given below. Conversion factors used for the energy content of fuels: 1 tonne of ester = 0.812 toe; 1 tonne of bioethanol = 0.600 toe; 1 tonne of ETBE = 0.282 toe (as the product of 0.47 x 0.600); 1 toe = 41.868 GJ; 1 tonne of rapeseed produces 0.384 t of RME; 2.5 tonnes of maize is needed to produce 1 m^3 of bioethanol.

4. The proportion of the biodegradable element of municipal solid waste was determined by objectives in the waste management sector; the proportion of the renewable element was estimated at 50%. This share of renewable components is consistent with the current situation. The quantity of biodegradable industrial waste components was determined directly by an expert estimate.

5. Point 3 of Table 8 specifies the value of total land used for energy crops, i.e. land used for planting short rotation trees (point 1), land used for other crops intended for energy production, such as grass (point 2), and land used for growing grain maize (10 634 ha), rape (68 631 ha) and wheat (25 ha) for energy purposes.

Calorific value of biomass

Type of biomass	**Heat of combustion in $MJ.kg^{-1}$**	**Calorific value in $MJ.kg^{-1}$**	**Ash content in %**
rape – seed	27.67	26.40	3.1
rapeseed cake from RME production	21.86	20.62	6.1
juniper – whole plant	20.94	19.62	2.4
birch – wood	20.77	19.48	1.2
rape – whole plant	20.43	19.17	4.3
aspen – wood	20.12	18.84	2.6
miscanthus – straw	19.97	18.75	6.6
alder – wood	19.89	18.61	1.2
rose hip – wood	19.80	18.51	2.1
hawthorn - wood	19.57	18.29	4.8
willow - wood	19.54	18.27	1.6
elder – wood	19.54	18.22	3.3
apricot – wood	19.33	18.06	4.1
hazel – wood	19.20	17.94	1.8
oats – grain	19.19	17.92	3.2
apple – wood	19.13	17.84	1.8
vine – wood	18.73	17.44	2.5
maize – grain-free spindle	18.63	17.34	1.6
maize – grain	18.64	17.34	1.2
sallow – wood	18.54	17.29	2.9
forage mix pellets	18.64	17.21	9. 5
wheat – grain	18.46	17.18	1.6
technical hemp	18.33	17.16	10.4
maize – straw	18.36	17.11	4.6
knotweed	18.40	16.97	4.1
rape – straw	17.78	16.49	6.9
triticale – straw	17.75	16.49	4.5
meadow hay	17.92	16.48	5.5
wheat – straw	17.67	16.37	5.7
triticale – grain	17.65	16.35	1.9

soybean – straw	17.48	16.26	7.2
wheat – whole plant	17.50	16.22	2.7
barley – straw	17.36	16.06	5.7
artichoke – straw	17.19	16.02	11.4
pea – straw	17.30	16.01	6.1
triticale – whole plant	17.25	16.00	4.4
tobacco – stems	17.16	15.94	7.1
barley – husks	17.03	15.79	11.6
grain dust pellets	16.51	15.26	15.3
amaranth (pigweed) – straw	16.28	15.14	13.5
sunflower – straw	14.31	13.16	12.9
lignite	13.25	12.05	7.3
organic manure separation from biogas	10.51	9.80	53.4

Source: Rovinka Agricultural Technical and Testing Institute