

**Report on progress in the promotion and use of
energy from renewable sources**
(in accordance with Article 22 of Directive 2009/28/EC)

Slovak Republic

Bratislava 2019

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding two years (n-1; n-2 e.g. 2010 and 2009) (Article 22(1)(a) of Directive 2009/28/EC)

Table 1: Sectoral (electricity generation, heating and cooling, transport) and overall shares of energy from renewable sources¹

	Year 2017	Year 2018
Renewable energy sources – heating and cooling ² (%)	10.1	11.0
Renewable energy sources – electricity generation ³ (%)	22.2	22.2
Renewable energy sources – transport ⁴ (%)	6.9	7.0
Overall share of renewable energy sources ⁵ (%)	11.8*	12.3*
<i>Of which from cooperation mechanism^{6 7}</i>	0	0
<i>Surplus for cooperation mechanism¹ (%)</i>	0	0

* Figures are higher than Eurostat figures [11.46% (2017) and 11.90% (2018)] due to the clearer definition of electricity generation from renewable energy sources and the inclusion of heat pump data in 2017 and 2018 obtained by the Slovak Ministry of Economy at the end of 2019; Eurostat did not have this data at its disposal.

Table 1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)⁸

	Year 2017	Year 2018
A. Gross final consumption of RES for heating and cooling	613	668
B. Gross final consumption of renewable electricity	568	565
C. Gross final consumption of renewable energy in transport	161	160
D. Gross total consumption of RES⁹	1,342	1,393
E. Transfer of RESs to other Member States	0	0
F. Transfer of RESs from other Member States and third countries	0	0
G. RES consumption adjusted for target (D) - (E) + (F)	1,342	1,393

¹ Facilitates comparison with Table 3 and Table 4a of the NREAPs (National Renewable Energy Action Plans).

² Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Article 5(1)(b) and Article 5(4) of Directive 2009/28/EC) divided by gross final consumption of energy for heating and cooling. The procedure is the same as that applied in Table 3 of the NREAP.

³ Share of renewable energy in electricity: gross final consumption of electricity from renewable sources (as defined in Article 5(1)(a) and Article 5(3) of Directive 2009/28/EC) divided by gross final electricity consumption. The procedure is the same as that applied in Table 3 of the NREAP.

⁴ Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1)(c) and Article 5(5) of Directive 2009/28/EC) divided by the transport consumption of 1. petrol; 2. diesel; 3. biofuels used for road and rail transport and 4. electricity in land transport (as indicated in row 3 of Table 1). The procedure is the same as that applied in Table 3 of the NREAP.

⁵ Share of renewable energy in gross final energy consumption. The procedure is the same as that applied in Table 3 of the NREAP.

⁶ In percentage points of overall RES share.

⁷ In percentage points of overall RES share.

⁸ Facilitates comparison with Table 4a of the NREAP.

⁹ In accordance with Article 5(1) of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources are to be taken into account only once. No double counting is allowed.

Table 1.b: Total effective contribution (installed capacity, gross electricity generation) from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the share of energy from renewable resources in electricity¹⁰

	Year 2017		Year 2018	
	MW	GWh	MW	GWh
Hydro ¹¹ :				
unpumped	1,607	4,294	1,612	4,311
< 1 MW	28	75	29	78
1 MW - 10 MW	48	128	52	139
> 10 MW	1,531	4,091	1,531	4,094
pumped	916	299	916	289
mixed ¹²		100		111
Geothermal	0	0	0	0
Solar:				
<i>photovoltaic</i>	535	592	538	585
<i>concentrated solar power</i>	0	0	0	0
Tide, wave, ocean	0	0	0	0
Wind:				
<i>onshore</i>	3	5	3	5
<i>at sea</i>	0	0	0	0
Biomass: ¹³				
<i>solid biomass</i>	224	1,249	224	1,242
<i>biogas</i>	103	634	104	598
<i>bioliquids</i>	0	0	0	0
Total (excluding pumped storage)	2,472	6,774	2,481	6,741
<i>of which in CHP</i>	327	1,883	328	1,840

Table 1.c: Total effective contribution (final energy consumption¹⁴) from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the share of energy from renewable resources in heating and cooling (ktoe)¹⁵

	Year 2017	Year 2018
Geothermal (excluding low-temperature geothermal heat in heat pump applications)	5	5
Solar	7	7

¹⁰ Facilitates comparison with Table 10a of the NREAP.

¹¹ Standardised in accordance with Directive 2009/28/EC and Eurostat methodology.

¹² In accordance with the new Eurostat methodology.

¹³ Take into account only those complying with the sustainability criteria (see Article 5(1) of Directive 2009/28/EC last subparagraph).

¹⁴ Direct use and district heating as defined in Article 5(4) of Directive 2009/28/EC.

¹⁵ Facilitates comparison with Table 11 of the NREAP.

Biomass: ¹⁶		
<i>solid biomass</i>	539	583
<i>biogas</i>	45	44
<i>bioliquids</i>	0	0
Renewable energy from heat pumps:		
– of which aerothermal	14	25
– of which geothermal	2	2
– of which hydrothermal	1	2
TOTAL	613	668
<i>Of which DH¹⁷</i>	150	141
<i>Of which biomass in households¹⁸</i>	31	37

Table 1d: Total effective contribution from each renewable energy technology in the Slovak Republic to meet the binding 2020 targets and the indicative interim trajectory for the share of energy from renewable resources in the transport sector (ktoe)^{19,20}

	Year 2017	Year 2018
– Bioethanol	14.52	13.97
– Biodiesel (MERO)	123.51	127.53
– Hydrogenated vegetable oil (HVO)	—	—
– Biomethane	—	—
– Fischer-Tropsch diesel	—	—
– Bio-ETBE	10.68	10.18
– Bio-MTBE	—	—
– Bio-DME	—	—
– Bio-TAEE	—	—
– Biobutanol	—	—
– Biomethanol	—	—
– Pure vegetable oil	—	—
Sustainable biofuel total	148.71	151.68
of which	—	—
sustainable biofuel produced from feedstock listed in Annex IX part A	—	—
other sustainable biofuels eligible for the target set out in Article 3(4)(e)	—	—
sustainable biofuel produced from feedstock listed in Annex IX part B	—	0.0367
sustainable biofuel for which there is a limited contribution for the target set out in Article 3(4)(d)	148.71	151.71

¹⁶ Take into account only those complying with the sustainability criteria (see Article 5(1) last subparagraph of Directive 2009/28/EC).

¹⁷ District heating and/or cooling from total renewable heating and cooling consumption (RES-DH).

¹⁸ Of total renewable heating and cooling consumption.

¹⁹ For biofuels take into account only those complying with the sustainability criteria (see Article 5(1) last subparagraph).

²⁰ Facilitates comparison with Table 12 of the NREAP.

imported from third countries	—	—
Hydrogen from renewables	—	—
Electric power from renewables	14.4	14.5
of which		
consumed in road transport	0.6	0.6
consumed in railway transport	12.1	12.3
consumed in other transport sectors	1.7	1.6
Others (please specify)	—	—

2. Measures taken in the preceding two years and/or planned at national level to promote the growth of renewable energy use taking into account the indicative trajectory outlined in the National Renewable Energy Action Plan for achieving the national renewable energy targets (Article 22(1)(a) of Directive 2009/28/EC)

Table 2: Overview of all policies and measures

Title and reference of measure	Type of measure*	Expected result**	Targeted group and/or activity***	Existing or planned****	Start and end dates of the measure
Support for household use of RESs (AP RES Measure No 3)	financial	installation of biomass boilers, solar panels, PV and heat pumps	households	continuation	2016-2020
Support for the renovation of heat distribution pipes (AP RES Measure No 14)	financial	energy saving, promotion of district heating	investors	existing	2016-2020
Support for business use of RESs (AP RES Measure No 15)	financial	RES heat production	investors	existing	2016-2020
Support for RESs for heating and cooling in the public sector (AP RES Measure No 16)	financial	heating and cooling	government	existing	2016-2020

* Indicate if the measure is (predominantly) regulatory, financial or soft (i.e. information campaign).

** Is the expected result behavioural change, installed capacity (MW; + t/year), energy generated (ktoe)?

*** Who are the targeted persons: investors, end-users, public administrations, planners, architects, installers, etc.? Or what is the targeted activity/sector: biofuel production, energy use of animal manure, etc.)?

**** Does this measure replace or complement measures contained in Table 5 of the NREAP?

2.a Describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of energy from renewable sources. (Article 22(1)(e) of Directive 2009/28/EC)

In 2013 and 2014 administrative procedures were simplified for plants with an output of 10 kW or less. Prior to this period the focus was on improving administrative procedures for plants with a capacity of 1 MW or less. The amendment to the legislation since the beginning of 2014 has made it much easier for households to connect small sources of 10 kW or less, which cover a large part of their energy consumption. For small producers, a simple notification procedure has been introduced, which consists of a one-off information obligation without further reporting obligations for the producer. Such a producer is entitled to free connection to the distribution system at a point where there is an existing take-off point, free installation of a meter calculating power produced and supplied between phases in real time and free installation of a cut-off device that mechanically separates the connection contacts in the event of a loss of voltage in the distribution system, where it is possible for the small source to operate during an outage of the electricity distribution system.

2.b Describe the measures for ensuring the transmission and distribution of electricity produced from renewable energy sources and improving the framework or rules for

bearing and sharing costs related to grid connection and reinforcement of the grid.
(Article 22(1)(f) of Directive 2009/28/EC)

Priority for the transmission and distribution of electricity from RESs is guaranteed by law. Similarly, the law guarantees the purchase of electricity from RESs at a specified price for a period of 15 years from the commissioning of a plant.

The question of developing and reinforcing the distribution network for RESs is under assessment, and in particular the impact of intermittent-production RESs on the electricity system is being analysed. The development of the distribution system on the basis of five-year development plans safeguards the long-term needs of its users. In 2017 and 2018 there was no restriction on the distribution and transmission of electricity which had guaranteed priority for transmission or distribution.

The transmission system operator's existing powers ensure the operational safety of the transmission and distribution system. The sharing of costs related to connecting and extending the system is governed by legislation issued by the independent regulator (the Office for the Regulation of Network Industries). The rules are non-discriminatory and transparent, and are applied to every applicant in the same way. The rules also form part of the operating rules for the transmission system operator and distribution system operators.

It is established in law that plants belonging to an electricity producer shall be connected to the distribution system if the distribution system is technically capable of such a connection, if it is the closest to the place where the electricity production plant is located, and if no other system offers a better technical and economic connection. A distribution system is also considered technically capable when the purchase of electricity, without prejudice to the priority arrangement, is possible by means of an economically beneficial extension of the system; in such cases a distribution system operator is required to extend the system at the request of the electricity producer.

2. Describe the support schemes and other measures currently in place that are used to promote the use of energy from renewable sources and to provide information on developments in the measures used in connection with the measures set out in your National Renewable Energy Action Plan. *(Article 22(1)(b) of Directive 2009/28/EC)*

A. Operating aid for the production of renewable electricity is provided through the following support schemes:

1. feed-in tariffs
2. support for electricity generation installations through auctioning (feed-in premiums)
3. support for a local source (self-consumer support)

Feed-in tariffs

The objective is to guarantee electricity producers the same purchase price for 15 years. The right to this tariff applies to facilities whose total installed capacity is lower than 500 kW. The limit on the total volume of installed capacity for new plants is determined by the Ministry of the Economy and published on its website.

The independent regulatory authority (Office for the Regulation of Network Industries) sets the tariffs for the following calendar year by implementing decree on the basis of trends in technology prices.

Electricity for installations with an output of less than 250 kW is fed in by an electricity feeder which charges spot-market prices for the electricity taken (day-ahead). The electricity feeder for

such installations also assumes responsibility for an imbalance. If the electricity producer sells the electricity generated on the market, it is also responsible for the imbalance.

The additional payment for the electricity produced, which is the difference between the indicated tariff and the market price, is paid by the entity responsible for clearing support.

The electricity feeder is an entity chosen on the basis of the auction that is authorised to purchase electricity from the electricity producer entitled to support and assumes responsibility for an imbalance from the electricity producer. The auction determines the amount of remuneration for the activity of purchasing and assuming responsibility for an imbalance.

Support for electricity generation installations through auctioning (feed-in premiums)

The basic form of support for all installations with an installed capacity of more than 500 kW is the bonus (feed-in premium) provided by the entity responsible for clearing support. The electricity producer is itself responsible for the sale of electricity. A precondition for support to be provided in the form of a bonus for all installations with an installed capacity is success in the selection procedure (auction). If prices are negative, no support is granted.

Support for a local source (self-consumer)

Support for electricity generation at the place of consumption is ensured by the producer at a local source. A local source is a plant for generating electricity from a renewable energy source that generates electricity to cover demand from a supply point identical to the delivery point of that power generation installation and whose total installed capacity is less than 500 kW but not more than the maximum reserved capacity of such a supply point. When the conditions are met, the producer in the local source has the right to access the distribution system free of charge and to be attached to the distribution system before other installations.

Electricity produced at a local source may be supplied to other electricity market participants, but not for more than 10% of the total installed capacity of the local source. An electricity producer in a local source that consumes electricity as a consumer at the place of electricity production does not pay for the electricity consumed the tariff which other electricity consumers pay to meet the costs of support for electricity.

B. Financial support for the construction and renovation of facilities producing electricity and heat from renewable energy sources

In addition to operational support for electricity, financial support is also in place, the main financial instrument being the *Quality of the Environment Operational Programme* for 2014-2020. The operational programme supports the following areas:

1. use of RESs in the business sector
2. use of RESs in households
3. renovation of heat distribution pipes
4. Support for RESs for heating and cooling public buildings.

Support for the use of RESs in the business sector

Support is focused on promising and innovative technologies using RESs, with a view to increasing heat and power production from RESs. In particular, support is given to integrated projects for the construction of RES plants with smart management of energy production and consumption, at which local consumption of energy produced in real time or through

accumulation will be prioritised. Eligible activities for the business sector are:

- A. The construction of plants using biomass by renovating and upgrading existing fossil-fuel energy installations with a maximum thermal input of 20 MW
- B. Construction of plants:
 - producing biomethane;
 - using hydropower;
 - using aerothermal, hydrothermal or geothermal energy using heat pumps;
 - using geothermal energy directly to produce heat, possibly in combination with a heat pump;
 - producing and using biogas, landfill gas and gas from sewage treatment plants.

Support for household use of RESs

This support for households replaced a programme for greater use of biomass and solar energy, which in 2009-2012 was aimed at supporting the installation of biomass boilers and solar panels. Support for the installation of small-scale installations for electricity production represents a sustainable and innovative approach. Aid recipients (households) have an incentive to consume most of the electricity themselves and to keep supplies to the grid to a minimum. The construction of heat plants using RESs is also supported. The national Green Households project had EUR 45 million available during its first phase, up to the end of 2018. The total amount of support for small RES plants for 2016-2022 is EUR 115 million.

Support for plants in the Green Households project includes:

- small power plants with an output of 10 kW or less
 - photovoltaic panels
- heat plants covering the energy needs of a family home or residential building
 - solar panels
 - biomass boilers
 - heat pumps.

Support for the renovation of heat distribution pipes

To maintain and increase the share of heat from renewable sources and high-efficiency cogeneration, support is provided for projects to renovate heat distribution pipes in district heating systems. The bulk of heat distribution pipes were installed 20-30 years ago, which is reflected in their technical condition. Owing to the sharp decline in heat demand over the last 10 years, some heat distribution pipes are over-dimensioned, resulting in greater relative losses when heat is distributed. Support for this activity stabilises the price of heat and ensures the development of efficient district heating systems.

Support for RESs for heating and cooling public buildings

Support for the installation of equipment using RES in public buildings is aimed at reducing energy consumption in buildings not just by using renewable energy sources but also by improving the thermal characteristics of structures or upgrading heating and air-conditioning systems. The priority is to reduce energy consumption and cover unavoidable consumption with efficient district heating systems or by installing equipment using RESs in or very near the building itself.

C. Regulatory measures

Mandatory blending of biocomponents into transport fuels

A requirement has been established in law for producers and sellers of motor fuels to place on the market fuels with a biofuel content corresponding to a reference value calculated from the energy content of the total amount of fuels placed on the market. Since 2011, sustainability

criteria have been established for biofuels.

There are also targets for minimum biofuel content by volume for individual types of fuel (diesel and petrol). The biofuel reference values and the minimum biofuel content by volume for 2013-2020 have been laid down in law.

Simplification of access to the gas network for biomethane

In 2011 access to the gas network was simplified for biomethane. Time limits have been laid down in law for the distribution system operator to notify the terms and conditions for connection to its network. The law provided for connection costs to be shared as follows: on a 75%-25% basis, with 75% being borne by the distribution network operator.

Table 3: Support schemes for energy from renewable sources

RES support schemes – 2017		Unitary support	Total (EUR million)*
[(sub)category of specific technology or fuel]			
Instrument (Please provide the relevant data)	Obligation/quota (%)	5.8% of biofuel energy content in motor fuels	n.a.
	Penalty (biofuels)	EUR 2/litre	n.a.
	Average certificate price		
	Tax exemption/refund		
	Investment subsidy (capital grant) for households	EUR 304/kW	EUR 16.7 million
	of which electricity	EUR 1,110/kW	EUR 4.6 million
	of which heating	EUR 240/kW	EUR 12.1 million
	Production incentives		
	Feed-in tariff	Hydropower EUR 97.95-111.25/MWh Photovoltaics EUR 84.98/MWh Wind energy EUR 44.18/MWh Geothermal energy EUR 108.71/MWh Biomass EUR 70.31-92.17/MWh Biogas EUR 90.02-102.00/MWh	EUR 402 million
	Feed-in premium		
Tendering procedure			
Estimated total annual support in the electricity sector	Feed-in tariff additional payment – EUR 141/MWh	EUR 406.6 million	
Estimated total annual support in the heat production sector		EUR 12.1 million	
Estimated total annual support in the transport sector		00	

* The quantity of energy supported by unitary support provides an indication of the effectiveness of support for individual technologies.

RES support schemes – 2018		Unitary support	Total (EUR million)*
[(sub)category of specific technology or fuel]			
Instrument (Please provide the relevant data)	Obligation/quota (%)	5.8% of biofuel energy content in motor fuels	n.a.
	Penalty (biofuels)	EUR 2/litre	n.a.
	Average certificate price		
	Tax exemption/refund		
	Investment subsidy (capital grant) for households	EUR 257/kW	EUR 16.2 million
	of which electricity	EUR 1,030/kW	EUR 3.1 million
	of which heating	EUR 220/kW	EUR 13.1 million
Production incentives			
	Feed-in tariff		378 million EUR
	Hydropower	EUR 97.95-111.25/MWh	
	Photovoltaics	EUR 84.98/MWh	
	Wind energy	EUR 44.18/MWh	
	Geothermal energy	EUR 108.71/MWh	
	Biomass	EUR 70.31-92.17/MWh	
	Biogas	EUR 90.02-102.00/MWh	
	Feed-in premium		
	Tendering procedure		
Estimated total annual support in the electricity sector		Feed-in tariff additional payment – EUR 121/MWh	EUR 381.1 million
Estimated total annual support in the heat production sector			EUR 13.1 million
Estimated total annual support in the transport sector			00

* The quantity of energy supported by unitary support provides an indication of the effectiveness of support for individual technologies

Measures introduced

Establishment of a certification system for installers

Since 2011 a system for the certification of installers has been introduced by law. Certificates are issued by the Ministry of the Economy, which also sets up the examination board. An applicant may sit the test after completing accredited vocational training. The first certificates were issued in 2012. There are now accredited training courses for all equipment covered by the Directive.

Support for cultivation of fast-growing trees

In 2014, legislation was adopted amending *Act No 220/2004 on the protection and use of farmland and amending Act No 245/2003 on integrated pollution prevention and control and amending certain acts* by establishing conditions for the cultivation of fast-growing trees. It allows them to be cultivated on agricultural land and eliminates barriers to the removal of agricultural land for this purpose.

Grants are also available for establishing plantations of fast-growing trees. Government Regulation No 342/2014 laying down rules for the provision of support for agriculture under

decoupled direct payment schemes also allows single-area payments for cultivating fast-growing trees under the SAPS.

Growth in production of woody feedstock – support for establishing energy crops

In 2014 legislation was adopted that defined the setting-up of energy crops and forest plantations and creates conditions for the cultivation of reproductive material for this purpose. Act No 326/2005 on forests, as amended, defines an energy crop as forest vegetation with a maximum production function generally in the first 15 years from which yields are mainly used for energy production. The legislation governing forest management does not restrict the establishment of energy crops, which is left to the discretion of forest managers.

In the 2014-2020 programming period, the rural development programme is supporting the acquisition of technologies for the extraction and processing of woody biomass fuel. There is also support for improving the accessibility of forest stands, building and improving land for the production of fuel chips. The objective of the measure is to step up the production of woody feedstock on forest land with suitable conditions, in particular through the use of fast-growing trees and procedures for their management.

3.1. Please provide information on how supported electricity is allocated to final customers for the purposes of Article 3(6) of Directive 2003/54/EC. (Article 22(1)(b) of Directive 2009/28/EC)

The electricity supplier is required to provide the electricity buyer with information on the shares of the different types of primary energy sources in the electricity produced and supplied in the previous year. The information must also be supplied, upon request, to the relevant State authority. However, the electricity supplier is not required to demonstrate that its supply contains a specific share of electricity from renewable sources of energy.

4. Please provide information on how any applicable support schemes have been structured to take into account renewable energy applications that give additional benefits in relation to other comparable applications, but may also have higher costs, including biofuels made from waste, residues, non-food cellulosic material, and ligno-cellulosic material. (Article 22(1)(c) of Directive 2009/28/EC)

The support scheme for electricity from RESs was designed to achieve efficient use in the use of biomass and biogas. Electricity linked to the production of heat is supported.

In the case of biomass and bioliquids, purchase price support is given only to electricity produced through high-efficiency cogeneration, where biomass meets requirements and quality parameters and bioliquids meet sustainability criteria. This condition does not apply to the combustion of municipal waste with a biodegradable waste content of up to 55% inclusive. The purchase price for electricity produced from biogas is reduced by 30% where the supply of usable heat is less than 50% of the annual production of heat.

The option to double-count energy values was introduced for biofuels made from non-food cellulosic material and from ligno-cellulosic material and biofuels made from used cooking oil and used vegetable or animal fats (in categories 1 and 2 of Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption).

5. Please provide information on the functioning of the system of guarantees of origin for electricity and heating and cooling from renewable energy sources and the measures taken

to ensure the reliability and protection against fraud of the system. (Article 22(1)(d) of Directive 2009/28/EC)

The legislation approved in 2018, which reformed support for electricity, provided that, as from 2020, the renewable electricity guarantees would be issued by the organiser of the short-term electricity market. That entity is also responsible for clearing support. Until the end of 2019, guarantees of origin were issued by an independent regulatory body (the Office for the Regulation of Network Industries) at the request of the electricity producer.

Guarantees of origin are not issued for heating and cooling.

The reliability of guarantees of origin for electricity from RESs is ensured by the regulatory body, which creates an electronic database in which it registers electricity producers before issuing a guarantee of origin. When applying for a guarantee of origin, the electricity producer must provide all the information necessary to be entered in the electronic database; the regulatory body then verifies this information.

The regulatory body also has the following powers:

- > it maintains a record of guarantees of origin for electricity from RESs in the electronic database;
- > it cancels guarantees of origin for electricity from RESs;
- > it exercises supervision over the transfer of guarantees of origin for electricity from RESs.

The guarantee of origin contains all the particulars set out in Directive 2009/28/EC. Guarantees of origin for electricity from RESs which were issued in a different Member State under a mechanism ensuring accuracy and reliability in the issuing of guarantees of origin are recognised for the purposes of the Act. The Office may refuse to recognise guarantees of origin for electricity from RESs issued in a different Member State if there are reasonable grounds to doubt their accuracy, reliability or authenticity. When this happens, the regulatory body checks the correctness of the guarantee of origin and asks the applicant to resolve these concerns within a certain time limit. If the concerns are not resolved within the time limit, the regulatory body does not recognise the certificate of origin and prohibits its transfer.

6. Please describe developments in the preceding two years in the availability and use of biomass resources for energy purposes. (Article 22(1)(g) of Directive 2009/28/EC)

Interest in fuel wood and feedstock for producing wood chips from forest land has gradually increased. There is a growing mismatch between the location of the sources of biomass for wood fuel and the places where it is consumed. The planting of energy crops has not increased significantly. According to an inventory that was drawn up, 288,000 ha of agricultural land ('white areas') were under woodland plants, mainly as a result of natural succession. 300,000 ha of permanent grassland (11.3% of agricultural land) are available for energy sector use.

It is recommended that tables 4 and 4a be used to provide more detailed information on the biomass supply.

Table 4: Supply of biomass for energy use

	Quantity of domestic feedstock(*)	Primary energy in domestic feedstock (ktoe)	Quantity of feedstock imported from EU(*)	Primary energy quantity feedstock imported from EU (ktoe)	Quantity of feedstock imported from outside EU(*)	Primary energy in quantity of feedstock imported from outside EU (ktoe)

	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	2018	Year 2017	Year 2018	Year 2017	Year 2018	Year 2017	Year 2018
Supply of biomass for production of heat and electricity:												
Direct supply of wood biomass from forests and other wooded land for energy generation (felling, etc.)	1,425,000 m ³	1,410,000 m ³	323.4	320.0	9,000 m ³	9,000 m ³	2.0	2.0	13,200 m ³	11,900 m ³	3.0	2.7
Indirect supply of wood biomass (residues and by-products from timber industry, etc.)**	1,003,000 t	998,000 t	524.5	521.9	0	0	0	0	22,000 t	21,000 t	11.5	11.0
Energy crops (grasses, etc.) and short rotation trees (please specify)	450,000 m ³	435,000 m ³	102.1	98.7	0	0	0	0	0	0	0	0
Agricultural by-products/processed residues and fishery by-products**	0	0	0	0	0	0	0	0	0	0	0	0
Biomass from waste (municipal, industrial, etc.)**	63,000 t	62,000 t	17.7	17.4	0	0	0	0	0	0	0	0
Other (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)	Rapeseed 219,964 t	Rapeseed 222,800 t	65	68	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Maize 249,900 t	Maize 360,000 t	8.4	13.7								
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)	0	0	0	0	0	0	0	0	0	0	0	0
Other (please specify)												

* Quantity of feedstock, if possible in m³ for biomass from forestry and in tonnes for biomass from agriculture and fisheries and biomass from waste.

** The definition of this biomass category should be understood in line with Table 7 of Part 4.6.1 of Commission Decision C(2009) 5174 final establishing a template for national renewable energy action plans under Directive 2009/28/EC.

Table 4a. Current domestic agricultural land use for production of crops dedicated to energy (ha)

Land use	Surface (ha)				
	Year 2017	Year 2018			
1 Land use for common arable crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, sunflower, etc.) (please specify main types)	Rapeseed	150	Rapeseed	154	
	082 ha		180 ha		
	of which, for energy use	73	of which, for energy use	71	
	556 ha		639 ha		
	Maize	187,800	Maize	179,000	
	ha		ha		
of which, for energy use	43,996 ha	of which, for energy use	42,502		
ha		ha			
Wheat	373,700	Wheat	403,400		
ha		ha			
of which, for energy use	16	of which, for energy use	31,380		
476 ha		ha			
2 Land used for short-rotation trees (willows, poplars) (please specify main types)	1 Short-rotation trees on forest land		Short-rotation trees		
	Poplar	530 ha		540 ha	
	of which non-energy	530 ha		540 ha	
	Willow	145 ha		145 ha	
	of which non-energy	0 ha		0 ha	
	2 Short-rotation trees on agricultural land - RRD plantation on agricultural land - intentionally cultivated	8,758,234 m ² = 875.8 ha		2 Short-rotation trees on agricultural land - RRD plantation on agricultural land - intentionally cultivated	
	Poplar	804.9 ha		Data not available	
	Willow	29.7 ha			
	Ash	0.08 ha			
	Other	40.7 ha			
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum (please specify main types)					

7. Please provide information on any changes in commodity prices and land use within your Member State in the preceding two years associated with increased use of biomass and other forms of energy from renewable sources. If possible, give references to relevant documentation on these impacts in your country. (Article 22(1)(h) of Directive 2009/28/EC)
When assessing commodity price impacts, it is recommended to consider at least the following commodities: current uptake by food and feed crops, energy wood, pellets.

EUR/tonne commodity price table

Product	2012	2013	2014	2015	2016	2017	2018
Food-grade wheat	205.40	174.40	155.26	152.74	126.24	144.51	155.75
Industrial-grade wheat	181.20	158.98	133.95	133.70	116.33	130.51	140.44
Grain maize	199.70	172.71	128.66	139.56	128.32	134.96	143.88
Sunflower	446.00	324.04	278.02	343.41	323.98	311.68	283.29
Rapeseed	484.00	369.81	335.00	359.53	356.73	375.16	343.28

Source: Slovak Statistical Office

In 2017 and 2018 the price of energy chips ranged from EUR 45 to 55/t. The reason there was no rise in chip prices compared with the last period is stagnating consumption of production from wood harvested on non-forest land (e.g. volunteer plants on meadows and pastures, riparian formations) and the disposal of wood from recurrent disasters and feedstock derived from the mechanical processing of timber in the wood-processing industry.

The prices of fuel wood ranged from EUR 42 to 55/m³ in 2017 and 2018. Wood fuel prices are influenced by the trend in natural gas prices for households. The price of wood pellets on the domestic market in 2017 and 2018 ranged from EUR 150 to EUR 240/t (including VAT). In view of the high level of gas use in Slovakia and the limited attractiveness of pellet prices compared with natural gas prices, household consumption of pellets in Slovakia is increasing slowly.

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. (Article 22(1)(i) of Directive 2009/28/EC)

In 2015 and 2016 biofuels made from waste, residues, non-food cellulosic material and ligno-cellulosic material were not mixed with motor fuels.

Table 5: Production and consumption of biofuels under Article 21(2) (ktoe)

Biofuels referred to in Article 21(2) ²¹	Year 2017	Year 2018
Production – Fuel type X (please specify)	0	0
Consumption – Fuel type X (please specify)	0	0
of which biofuels under Article 21(2)	0	0
of which biofuels under Article 21(2)	0	0
Share (%) of fuels under Article 21(2) in total renewable energy sources in transport	0	0

9. Please provide information on the estimated impact of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country in the preceding two years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts in your country. (Article 22(1)(j) of Directive 2009/28/EC).

²¹ Biofuels produced from waste, residues, non-food cellulosic material, and ligno-cellulosic material.

Biofuels and bioliquids in Slovakia meeting sustainability criteria are produced from agricultural raw materials which are grown and produced in accordance with requirements and standards for good agricultural and environmental condition pursuant to Council Regulation (EC) No 73/2009. This is guaranteed by a declaration by the farmer or biomass supplier stating that the requirements for good agricultural and environmental condition have been met.

At the moment there is no relevant data on the adverse impact of producing biofuels on biodiversity, water resources, water quality or soil quality. It is assumed that these impacts are negligible, since the area of crops cultivated for biofuels in 2010 to 2018 did not increase significantly compared with the previous period.

10. Please estimate the net greenhouse gas emission saving due to the use of energy from renewable sources. (Article 22(1)(k) of Directive 2009/28/EC).

Net greenhouse gas emission savings due to the use of energy from renewable sources were calculated for heating based on the use of EU-wide reference values for fossil fuels, in line with the report on sustainability criteria for the use of solid and gaseous biomass to produce electricity, heating, and cooling.^[1] The value used to calculate net greenhouse gas emission savings for electricity was the national average greenhouse-gas lifecycle intensity of electricity, which uses the emission factor for electricity generation of 46.35 gCO₂eq/MJ to calculate greenhouse gas emission savings for biofuels.

[1] Report available at: http://ec.europa.eu/energy/renewables/transparency_platform/doc/2010_report/com_2010_0011_3_report.pdf.

Table 6: Estimated net greenhouse gas emission savings due to the use of energy from renewable sources (t CO₂eq)

Environmental aspects	Year 2017	Year 2018
Total estimated net greenhouse gas emission savings due to the use of energy from renewable sources²²	5,598,200	5,808,300
– Estimated net greenhouse gas emission savings from the use of electricity from renewable sources	3,104,800	3,091,600
– Estimated net greenhouse gas emission savings from the use of energy from renewable sources in heating and cooling	2,155,400	2,350,700
– Estimated net greenhouse gas emission savings from the use of energy from renewable sources in transport	338,000	366,000

11. Please provide (for the preceding two years) and estimate (for subsequent years up to 2020) the excess/deficit production of renewable energy compared to the indicative trajectory which could be transferred to/imported from other Member States and/or third countries, as well as the estimated potential for joint projects until 2020. (Article 22(1)(l) and (m) of Directive 2009/28/EC)

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory in the Slovak Republic which could be transferred to/from other Member States and/or third countries (ktoe)^{23, 24}

²² The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

²³ Please use actual figures which reflect the excess production in the two years preceding submission of the report, and estimates for the following years up to 2020. In each report the Member State may correct the data from previous reports.

²⁴ When filling in the table, in the event of a production deficit, please indicate the production deficit in negative numbers (e.g. - x ktoe).

	Year n-2 (2017)	Year n-1 (2018)	2019	2020
Actual/estimated production surplus or deficit (please distinguish between different types of renewable energy and the origin/destination of import/export)	45*	84*	–	0

***Actual:** surplus compared to the indicative trajectory

The Slovak Republic is not expected to exceed the 14% target in 2020, and it is estimated that in 2020 there will be no surplus of renewable energy which could be transferred to another Member State.

11.1. Please provide details on the rules for deciding on statistical transfers, joint projects and joint support schemes.

The Slovak Ministry of the Economy is holding talks with other Member States on statistical transfers of energy from renewable sources. The rules, conditions and instructions relating to statistical transfers and planned participation in joint projects will be published on the Ministry's website. Slovakia is not currently planning any joint projects in its territory and does not give preference to joint support schemes.

12. Please provide information on how the share of biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates. (Article 22(1)(n) of Directive 2009/28/EC)

The amount of biodegradable waste in municipal waste is determined directly by companies involved in recovering energy from waste. These data are recorded and sent to the Statistical Office. As regards the incineration of municipal waste, only the biological portion of waste in municipal waste is supported, up to a maximum biodegradable-waste share of 55%. This also corresponds to analyses carried out, in which the share of biodegradable waste has been estimated at 50%.

13. Please provide the amounts of biofuels and bioliquids in energy units (ktoe) corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by the Slovak Republic for the purpose of complying with the targets in Article 3(1) and (2), and in the first subparagraph of Article 3(4).

Feedstock group	2018 (ktoe)	2019 (ktoe)
Cereals and other starch-rich crops	25.2	24.2
Sugars	0.0	0.0
Oilseeds	123.5	127.5