MINISTRY OF ECONOMY

FOURTH NORTH MACEDONIAN PROGRESS REPORT ON THE PROMOTION AND USE OF ENERGY FROM RENEWABLE SOURCES

under Article 22(1) of Directive 2009/28/EC
on the promotion of the use of energy from renewable sources

September 2021

INTRODUCTION

Increasing the share of the energy from renewable energy sources (RES) in the total energy consumption is one of the major strategic objectives of the Government of the Republic of North Macedonia. This is very important for ensuring stable energy supply and energy security, thus creating conditions for sustainable development of the energy sector in the country within the regional and global sustainable energy development.

The policy for utilization of renewable energy sources is strategically set in the Strategy for utilization of RES in the Republic of North Macedonia until 2020 and Action Plan for Renewable Energy Sources until 2020.

The new Energy Law transposed the Third Energy Package in the electricity and natural gas sector, as well as RES Directive. At the beginning of 2019 in the area of renewable energy sources a number of sub laws were adopted in order to create conditions for promotion of renewable energy sources (RES) and increase RES participation in the final energy consumption.

In order to fully complete the legislation and bylaws regarding the promotion of biofuels, as well as complete transposition of the Directive 28/2009 /EC on the promotion of renewable energy in the part referring to biofuels, **Law on biofuels** was prepared and it is expected to be adopted by December 2021. Action plan for the use of biofuels (based on this Law), as well as appropriate by-laws that will complete the legal framework and regulate the issues related to the use of biofuels, in accordance with the methodology for determining the biofuels, the obligatory percentage of biofuels, such as the establishment of system for verifying biofuels, the price of mixed biofuels, the possibilities for subsidizing production and use, will be prepared after the adoption of the Law.

In accordance with the Article 15 from the Decision (2012/ 04/ EnMC) Ministry of Economy prepared the First,Second and Third Macedonian Progress Report on the Promotion and Use of Energy from RES in 2014 and 2017. This is the fourth Report and it was developed in accordance with the template recommended by the European Commission, under Article 22(1) of Directive 2009/28/EC.

The energy consumption and production data for 2018 and 2019, are taken from the Energy yearly balances for 2018 and 2019, published by the State Statistical Office. In the Energy balances, the final data for 2018 and preliminary data for 2019, are presented. Furthermore, the State Statistical Office, was used as a source of data for the installed capacity. Some part of the installed capacity data was covered from the annual reports for 2018 and 2019 from the Energy and water services regulatory commission of the Republic of North Macedonia.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years(n-1; n-2 e.g. 2019 and 2018) *(Article 22 (1) a of Directive 2009/28/EC)*.

*Please fill in the actual shares and actual consumption of renewable energy **for the preceding 2 years** in the suggested tables.*

***Table 1*: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources[1]**

	2019 *Year n-1*	**2018** *Year n-2*
RES-H&C[2] (%)	**31.8%**	**31.0%**
RES-E[3] (%)	**24.2%**	**25.2%**
RES-T[4] (%)	**0.01%**	**0.01%**
Overall RES share[5] (%)	**17.1%**	**18.4%**
Of which from cooperation mechanism[6] (%)		
Surplus for cooperation mechanism[7] (%)		

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

	2019 *Year n-1*	**2018** *Year n-2*
(A) Gross final consumption of RES for heating and cooling	190.01	198.17
(B) Gross final consumption of electricity from RES	159.04	160.72
(C) Gross final consumption of energy from RES in transport	0.10	0.09
(D) Gross total RES consumption[9]	349.15	358.97
(E) Transfer of RES to other Contracting Parties or Member States	0	0
(F) Transfer of RES from other Contracting Parties and 3rd countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	349.15	358.97

[1] Facilitates comparison with Table 3 and Table 4a of the NREAPs.
[2]Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1)b) and 5(4) of Directive 2009/28/EC divided by gross final consumption of energy for heating and cooling. The same methodology as in Table 3 of NREAPs applies.
[3]Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Articles 5(1)a) and 5(3) of Directive 2009/28/ECdivided by total gross final consumption of electricity. The same methodology as in Table 3 of NREAPs applies.
[4]Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1)c) and 5(5)of Directive 2009/28/EC divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of NREAPs applies.
[5]Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.
[6]In percentage point of overall RES share.
[7]In percentage point of overall RES share.
[8] Facilitates comparison with Table 4a of the NREAPs
[9]According to Art.5(1)of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

***Table 1.b*: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in North Macedonia to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity[10]**

	2019 *Year n-1*		**2018** *Year n-2*	
	MW	**GWh**	**MW**	**GWh**
Hydro[11]:	680.4	1,648.4	675.5	1,682.2
non pumped	680.4	1,163.7	675.5	1,791.4
<1MW	680.4		675.5	
1MW–10 MW				
>10MW				
pumped				
mixed[12]				
Geothermal				
Solar:	23.99	28.40	18.49	23.33
photovoltaic	23.99	28.40	18.49	23.33
concentrated solar power				
Tide, wave, ocean				
Wind[13]:	36.80	104.78	36.80	109.52
Wind:	36.80	101.81	36.80	97.34
onshore	36.80	101.81	36.80	97.34
offshore				
Biomass[13]:	7.60	55.10	7.00	54.05
solid biomass	0.60	0.00		
biogas	7.00	55.10	7.00	54.05
bioliquids				
TOTAL	748.8	1,836.7	737.8	1,869.1
of which in CHP				

***Table 1c*: Total actual contribution (final energy consumption[14]) from each renewable energy technology in North Macedonia to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)[15]**

	2019 *Year n-1*	**2018** *Year n-2*
Geothermal (excluding low temperature geothermal heat in heat pump applications)	4.4	4.5
Solar		
Biomass[16]:	185.6	193.6
solid biomass	185.6	193.6
biogas		
bioliquids		
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal		
TOTAL	190.0	198.2
Of which DH[17]		
Of which biomass in households[18]	172.4	179.9

[10] Facilitates comparison with Table 10a of the NREAPs.

[11] Normalised in accordance with Directive2009/28/EC and Eurostat methodology.

[12] In accordance with new Eurostat methodology.

[13] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

[14] Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.

[15] Facilitates comparison with Table 11 of the NREAPs.

[16] Take into account only those complying with applicable sustainability criteria, cf. 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] From the total renewable heating and cooling consumption.

Table 1d: **Total actual contribution from each renewable energy technology in North Macedonia to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)[19],[20]**

	2019 *Year n-1*	**2018** *Year n-2*
Bioethanol/ bio-ETBE		
Of which Biofuels[21] Article 21.2		
Of which imported[22]		
Biodiesel	0.10	0.09
Of which Biofuels[23] Article 21.2		
Of which imported[24]		
Hydrogen from renewables		
Renewable electricity		
Of which road transport		
Of which non-road transport		
Others (as biogas, vegetable oils, etc.) – please specify		
Of which Biofuels[25] Article 21.2		
TOTAL	0.10	0.09

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

***Table 2*: Overview of all policies and measures**

Name and reference of the measure	Type of measure*	Expected result**	Targeted group and or activity***	Existing or planned****	Start and end dates of the measure
New Energy Law, harmonization with the Directive (third package RES Directive)	Regulatory (Primary legislation)	Clear rules for energy sector	Energy sector stakeholders	Existing	2018
Package of secondary legislation regulating RES	Secondary legislation	Support mechanisms to increase RES utilization	Energy sector stakeholders	Existing	2019
Introduction of new market based RES support mechanism (premiums)	Regulatory/ financial	Increased RES utilization/Installation of 200 MW PV	Investors in RES	Existing	ongoing
Law on biofuels	Regulatory (Primary legislation)	Clear rules for biofuels	Energy sector stakeholders connected with biofuels	In process of adoption	2020-2021

[19]For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.
[20] Facilitates comparison with Table 12 of the NREAPs.
[21]Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[22]From the whole amount of bioethanol / bio-ETBE.
[23]Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[24]From the whole amount of biodiesel.
[25]Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

National Biofuel Action Plan	Secondary legislation	Setting the annual share of biofuels to be attained in the total fuels for transport quantities	Refineries and distribution companies of oil derivatives	after the adoption of Law on fuels	2022
Credit lines for promotion of the RES and EE	Financial	Increase share of RES	Investors in RES and EE projects	Existing	Ongoing
Program for the promotion of renewable energy sources and energy efficiency in the household for 2018 and 2019	Financial	Increased share of RES, increased public awareness, increased environmental protection	Households	Existing	2018, 2019 and ongoing
Programme of the city of Skopje for subsidizing households for purchasing pellet stoves	Financial	Increased share of RES, increased public awareness, increased environmental protection	Households, Businesses	Existing	2018 and ongoing

* 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 administration, planners, architects, installers, etc? or what is the targeted activity / sector: biofuel production, energetic use of animal manure, etc)?
**** Does this measure replace or complement measures contained in Table 5 of the NREAP?

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

The adopted Energy Law in 2018 transposed the Third Energy Package in the electricity and natural gas sector, as well as RES Directive. The provisions from the RES Directive related to the statistical transfers, joint projects and coordination of the measures with EnC and other countries are transposed in the RE section of the law. The existing feed-in-tariffs remains but are applied only for technologies (small hydro, biogas and biomass) that are regulated with a Decree adopted by the GoM. The present preferential RE producers using feed-in-tariffs, as well as future ones will continue to sell the generated electricity to the electricity market operator.

Premiums are introduced as a new RE support scheme and according to the RES Decree and the GoM decision this scheme is only applicable for PV power plants. Premiums are awarded through tender procedures with auctions. Commission established by the Ministry of Economy conduct the procedures for selecting the most advantageous tenderers that are awarded the right to premiums. The Ministry is also responsible to administer the agreements for premiums and pay the premiums using funds allocated from the state budget. The tender procedures and public auctions for awarding premiums, signing the agreements and paying the premiums are further specify within the GoM Decree. Preferential producer who is awarded a premium is not eligible for feed-in-tariff for the same power plant, and does not have guaranteed purchase of the generated electricity. The preferential producer that uses premiums is

selling the generated electricity at the electricity market. The GoM decide to implement the fix premium mechanism.

In 2019, the Ministry of Economy conducted two tenders – open procedure no. 01/2019 for awarding contract for a right to use premium for electricity generated from PV power plants built on land owned by the Republic of North Macedonia and open procedure no.02/2019 for awarding contract for a right to use premium for electricity generated from PV power plants built on land not owned by the Republic of North Macedonia or land owned by the Republic of North Macedonia on which right to use has been established. The first tender procedure for awarding contract for a right to use premium for electricity generated from PV power plants built on land owned by the Republic of North Macedonia ended in concluding contracts with 9 economic operators for constructing 11 PV power plants with total of 35 MW installed capacity. The second tender procedure for awarding contract for a right to use premium for electricity generated from PV power plants built on land not owned by the Republic of North Macedonia or land owned by the Republic of North Macedonia on which right to use has been established ended in concluding contracts with 23 economic operators for constructing 27 power plants with total of 21 MW installed capacity

Possibility for small and micro enterprises and households to install rooftop photovoltaic systems for electricity generation for their own consumption, and the surplus of electricity generated to be transferred to the distribution system is introduced. The details ate specified with the Rulebook on RE.

Energy Regulatory Commission shall obligate the appropriate operators at their own expense, to construct the grid connection for the RE producers, and to compensate these expenses through the tariffs for regulated service, when the mandatory national goals need to be met. ERC will prescribe the period when this obligation for the operators will be applied and the requirements that the RE electricity producers should meet in order to be eligible for connecting to the appropriate system, and it will also approve the project for each connection.

2.b Please describe the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements. *(Article 22(1)f) of Directive 2009/28/EC))*.

The Energy Law is the primary legislation that governs the transmission and distribution of electricity, as well as the market and grid codes, meaning those codes are adopted in line with the requirements set in the Energy Law.

Determining the electricity system's absorption capacity for particular types of RES is a complex procedure and implies complex technical and economic analyses. From the pool of renewable energy sources, wind and solar energy are characterized by highest intermittent occurrence and most often their relevant shares are subject to limitations. In general, there are no major problems related to other technologies (characterized by a relatively high intermittence).

Transmission and distribution of electricity generated by preferential RE Producers is guaranteed. The Transmission and Distribution System Operators must transmit all the power from RES delivered to the grid, and the Market Operator must purchase all the energy delivered to the grid by RE Producers that have been granted preferential status at the approved feed-in tariff as stated in Article 187 of the Energy Law.

According to the Energy Law transmission and/or distribution system operators are obliged to allow access to the relevant system in a transparent and objective manner that prevents discrimination of system users. Further, the electricity transmission or distribution system operators must provide priority access to electricity systems for the electricity generated from renewable sources, taking due consideration of technical limits on the electricity system.

Preferential RE Producers operate in parallel with the market in the sense that the Market Operator is required to purchase all power delivered to the grid at the approved feed-in tariff. In this sense, RE Producers are not dispatched, but rather run when the primary energy source (i.e., wind, water, solar radiation, etc.) and production facilities are available.

RE Producers produce energy for use in the market, thus displacing generation using non- renewable resources, but do not actually participate in the market owing to the guarantees relating to access, dispatch and purchase of the energy they deliver to the grid.

In other words, they can produce electricity at any time and at any amount, and this electricity will be taken over and paid,

With regard to dispatch, the only requirements placed on RES Producers are if obtaining the status of a preferential producer:

- to sell the electricity generated to the electricity market operator, pursuant to its electricity purchase contract;
- to submit its electricity generation plans to the electricity market operator;
- to operate in compliance with the terms and conditions stipulated in the Decree on electricity feed-in tariffs

Under the Energy Law, it is explicitly stated that network charges are paid by consumers, as follows: The electricity transmission system use charge shall be settled by electricity consumers in the Republic of North Macedonia, pursuant to the published tariff.

The electricity transmission system operator shall invoice the system use charge to:

- consumers directly connected to the electricity transmission system which act independently on the electricity market;
- suppliers or traders, for the consumers directly connected to the electricity transmission system, who do not act independently on the electricity market;
- electricity distribution system operators or electricity suppliers, for the consumers connected to the electricity distribution systems.

Energy Regulatory Commission determines the tariffs for both, transmission and distribution networks. Both tariffs, for transmission and distribution are cost reflective. All costs related to usage of both networks in accordance with the tariffs are paid by the final customers.

3. Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any developments in the measures used with respect to those set out in your National Renewable Energy Action Plan. *(Article 22(1)b) of Directive 2009/28/EC))*.

*It is suggested that **table 3** is used to provide more detailed information on the support schemes in place and the support levels applied to various renewable energy technologies. Contracting Parties are encouraged to provide information on the methodology used to determine the level and design of support schemes for renewable energy.*

1.1. Support schemes for installation of solar thermal collectors and PVC windows

Ministry of Economy continued with implementation of the program to stimulate the use of solar energy in the country, by providing subsidies through reimbursement of part of the cost for purchased and installed solar thermal collector systems in households. During 2018 and 2019 around 1,000 households were reimbursed by the Ministry of Economy. The total budget spent for this stimulation is around 180,000 EUR.
In addition to this, starting from 2017 the Ministry of Economy also reimburse the cost of purchased and installed PVC or aluminium windows (Call for applications for reimbursement of 50% of the costs for windows replacement and installation of PVC and aluminium windows, but not more than 500 €, provided by the Ministry of Economy). During 2018 and 2019 around 2000 households were reimbursed by the Ministry of Economy. The total budget spent for this stimulation is around 900,000 EUR.

1.2. Support schemes for pellets stove

In 2016, in order to support the usage of pallets and pellets stove, the Government adopted a decision reducing the VAT rate for pallets from 18% to 5%. This measure is in force starting from January, 1 2017. Additionally, in 2018 and 2019, 1,400 households that bought a pellet stove were subsidised by the Ministry of Economy. The total budget spent for this stimulation is around 670.000 EUR. In addition to MoE, a number of municipalities (City of Skopje, Aerodram, Gazi Baba, Kocani, Kavadarci and Bitola) also subsidized the purchase of pellet stoves. In total 1,056 households were supported from the municipalities.

1.3. Support schemes heat pumps

Starting from 2019 the City of Skopje and other municipalities (Aerodrom, Kocani, Kavadarci, Bitola) are subsidizing replacement of old biomass stove with a heat pumps. In total 2,103 households are subsidized for heat pumps in 2019.

In order to reduce the local pollution, the state-owned power generation company Power Plants of North Macedonia (JSC ESM-Skopje) has allocated funds of € 10 million for subsidizing the households who replace their inefficient stoves and boilers based on firewood, coal, and oil with high-efficiency heat pumps (inverter air conditioners). Hence, each household which replaced their inefficient stoves and boilers with high-efficiency heat pumps will be reimbursed for up to € 1,000. This subsidy is available for households only in the cities with the highest air pollution in the country, including Bitola, Kicevo, Tetovo, and Skopje. Subsidies for purchasing of high-efficiency heat pumps are provided to 5,200 households in Skopje, 2,500 households in Bitola, 1,500 households in Tetovo, and 800 households in Kičevo, during 2020.

Support for electricity produced from renewable sources – feed in tariffs

Status of preferential producer that uses feed in tariff can be obtained by a facility that generates electricity from RES.

Detailed description regarding the given feed-in tariffs during the years 2018 and 2019 are shown in the following table.

2. *TABLE:* FEED IN TARIFF FOR ELECTRICITY PRODUCTION IN 2018/2019

Generation capacity	Feed in tariff for electricity production in 2018/2019 (€¢/kWh)	Period of support (years)
Hydro power plants (installed capacity less or equal to 10MW)	for monthly amount of electricity delivered by units: I unit: 12.00 (≤ 85,000 kWh) II unit: 8.00 (> 85,000 и ≤ 170,000 kWh) III unit: 6.00 (> 170,000 и ≤ 350,000 kWh) IV unit: 5.00 (> 350,000 и ≤ 700,000 kWh) V unit: 4.50 (> 700,000 kWh)	20
Wind power plants (installed capacity less or equal to 50 MW)	8.9	20
Biomass thermal power plants (installed capacity less or equal to 3 MW and share of fossil fuels in the total energy value of the consumed fuels less or equal to 30%)	15	15
Biogas thermal power plants (share of fossil fuels in the total energy value of the consumed fuels less or equal to 20%)	18	15

Except for hydro, for all other technologies that will receive feed-in tariffs there is a cap on total installed capacity. . Currently the limits are:

- No limit for small hydro
- Wind
    - 160 MW for wind,
- 10 MW for biomass
- 20 MW for biogas, where:
  - 7 MW for biogas thermal power plants shall be allocated until 31 December 2019, and
  - 13 MW for biogas thermal power plants shall be allocated from 1 January 2020.

***Table 3*: Support schemes for renewable energy**

RES support schemes year 2018			No. of power plants	Installed capacity (MW)	Total (M€)* without VAT	Per unit support (MWh)
Installation of solar thermal collectors						**(€/unit)**
Instrument	Investment subsidies (capital grants or loans)				0.10	up to 30% not more than 300 (€/unit)
Hydro power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	79	72.46	15.78	77.73

Solar power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	102	16.713	4.61	202.15
Wind power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	1	36.8	8.67	89.02
Biogas power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	3	5.999	9.73	180.04
Total annual estimated support in the electricity sector					38.78	
Total annual estimated support in the heating sector					0.10	
Total annual estimated support in the transport sector						

***** The quantity of energy supported by the per unit support gives an indication of the effectiveness of the support for each type of technology

RES support schemes year 2019			**No. of power plants**	**Installed capacity (MW)**	**Total (M€)* without VAT**	**Per unit support (MWh)**
Installation of solar panels						**(€/unit)**
Instrument	Investment subsidies (capital grants or loans)				0.26	up to 30% not more than 300 (€/unit)
Installation of heat pumps						
Instrument	Investment subsidies (capital grants or loans)				1.00	up to 30% not more than 300 (€/unit)
Hydro power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	90	79.63	13.69	80.97
Solar power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	102	16.713	4.70	202.42
Wind power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	1	36.8	9.06	89.03
Biogas power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	3	6.999	9.92	180.05
Biomass power plants						**Euro/MWh**
Instrument	Production incentives					
		Feed-in tariff	1	0.6	0.00	150.06
Total annual estimated support in the electricity sector					37.37	
Total annual estimated support in the heating sector					1.26	
Total annual estimated support in the transport sector						

***** The quantity of energy supported by the per unit support gives an indication of the effectiveness of the support for each type of technology

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

Electricity bills which are paid by final customers except the general charges for the electricity system also includes the costs of incentive renewable energy sources. The energy and the costs for energy from RES is allocated to the final customers through their suppliers.

Market operator allocates the forecast of RES energy production to the suppliers, on day ahead base in accordance with their market share. In addition suppliers deliver this energy together with their energy to final customers. In the final invoices the costs for renewable energy are separately presented. The collected amount for that purpose, is paid to MEPSO. After that MEPSO pays the to the RES producers. Practically that means that the energy produced from RES and the costs thereto, are directly transferred to the final customers, and at the same time the final customers pay to the RES producers.

4. Please provide information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material*?*) *(Article 22 (1)c of Directive 2009/28/EC))*.

Not applicable.

5. Please provide information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system. *(Article 22(1)dof Directive 2009/28/EC))*.

The functioning of the system was explained in the First Progress Report on promotion and use of RES, and there are no changes made, since then. Although the system is in place, up to now, no application for guarantee of origin was submitted to the Energy Agency.

6. Please describe the developments <u>in the preceding 2 years</u> in the availability and use of biomass resources for energy purposes. *(Article 22(1)g) of Directive 2009/28/EC))*.

*It is suggested that **tables 4 and 4a** are used to provide more detailed information on the biomass supply.*

Table 4: Biomass supply for energy use

	Amount of domestic raw material (*)		Primary energy in domestic raw material (ktoe)		Amount of imported raw material from EU (*)		Primary energy in amount of imported raw material from EU (ktoe)		Amount of imported raw material from non EU(*)		Primary energy in amount of imported raw material from non EU (ktoe)	
	2019 *Year n-1*	**2018** *Year n-2*	**2019** *Year n-1*	**2018** *Year n-2*	**2019** *Year n-1*	**2018** *Year n-2*	**2019** *Year n-1*	**2018** *Year n-2*	**2019** *Year n-1*	**2018** *Year n-2*	**2019** *Year n-1*	**2018** *Year n-2*
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**	991.3	983.4	157.7	156.0	32.9	32.0	5.2	5.1				
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**	16.9	9.2	6.9	3.8	77.0	74.1	31.3	30.1				
Energy crops (grasses, etc.) and short rotation trees *(*please specify*)*												
Agricultural by-products / processed residues and fishery by-products **												
Biomass from waste (municipal, industrial etc.) **												
Others (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels *(*please specify main types*)*												
Energy crops (grasses,etc.) and short rotation trees for biofuels *(*please specify main types)												
Others (please specify)												

* Amount of raw material if possible in **m3for biomass from forestry** and in **tonnes for biomass from agriculture and fishery 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 production (ha)**

Land use	**Surface (*ha*)**	
	2019 *Year n-1*	**2018** *Year n-2*
1. Land used for common arable crops (wheat, sugar beet etc.) and oilseeds (rapeseed, sunflower etc.) *(*Please specify main types)		
2. Land used for short rotation trees (willows, poplars). (Please specify main types)		
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 <u>within your Contracting Party in the preceding 2 years</u> associated with increased use of biomass and other forms of energy from renewable sources? Please provide where available 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 suggested to consider at least the following commodities: common food and feed crops, energy wood, pellets.

During the reference period, there were no changes in the prices of commodity. However starting from 2017 the price on the pellets are changed as a result of the changes in the VAT for this type of commodity – reducing the VAT from 18% to 5%.

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

***Table 5*: Production and consumption of Art.21(2) biofuels (Ktoe)**

Article 21(2) biofuels[26]	**2019** *Year n-1*	**2018** *Year n-2*
Production – Fuel type X (Please specify)		
Consumption – Fuel type X (Please specify)		
Total production Art.21.2.biofuels		
Total consumption Art.21.2. biofuels		
% share of 21.2. fuels from total RES-T		

There were no producers of biofuels from waste, residues, food cellulosic material or ligno- cellulosic material in North Macedonia in 2018 and 2019.

[26]Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country in the preceding 2 years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country. **(*Article 22 (1) j) of Directive 2009/28/EC).***

Because in North Macedonia in 2018 and 2019 there was no production of biofuels and bio liquids, there is no assessment of impacts.

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

For the calculation of net greenhouse gas emission savings from the use of renewable energy, the following methodology is suggested:

- *For biofuels: In accordance with Article 22(2) of Directive 2009/28/EC.*
- *For electricity and heat it is suggested to use the EU wide fossil fuel comparators for electricity and heat as set out in the report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling[27], if no later estimates are available.*

If a Contracting Partychooses not to use the suggested methodology for estimating the net greenhouse gas emission savings, please describe what other methodology has been used to estimate these savings.

***Table 6*: Estimated GHG emission savings from the use of renewable energy (t CO2eq)**

Environmental aspects	2019 *Year n-1*	2018 *Year n-2*
Total estimated net GHG emission saving from using renewable energy[28]	*3,002,878*	*4,032,386*
- Estimated net GHG saving from the use of renewable electricity	1,694,166	2,599,704
- Estimated net GHG saving from the use of renewable energy in heating and cooling	1,308,554	1,432,539
- Estimated net GHG saving from the use of renewable energy in transport	158	142

11. Please report on (for the preceding 2 years) and estimate (for the following years up to 2020) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Contracting Parties, Member States and/or third countries, as well as estimated potential for joint projects until 2020. (*Article 22 (1) l, m) of Directive 2009/28/EC))*.

***Table 7:* Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Contracting Parties, Member States and/or third countries in [*Contracting Party*] (ktoe)[29],[30]**

	2016*Year n-2*	2017*Year n-1*	2018	2019	2020
Actual/estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import/export)	0	0	-	-	-

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

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

[29] Please use actual figures to report on the excess production in the two years preceding submission of the report, and estimates for the following years up 2020. In each report Contracting Party may correct the data of the previous reports.

[30] When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. –x ktoe).

11.1. Please provide details of statistical transfers, joint projects and joint support scheme decision rules. If a Contracting Party decided to implement Article 8 and/or 9 of the Ministerial Council Decision it should report on the measures taken to arrange for an independent external audit, in accordance with Article 13 of Ministerial Council Decision.

There are no this type of activities implemented by the Republic of North Macedonia.

12. Please provide information on how the share for 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)*.

There were no production of *biodegradable waste used for producing energy* in North Macedonia in 2018 and 2019.