



MOLDOVA ENERGY SECTOR REFORM AND EFFICIENCY IMPROVEMENTS PROJECT
“Technical Assistance to Capacity Building for Sustainable Energy Management”
Republic of Moldova

Approved
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NATIONAL RENEWABLE ENERGY ACTION PLAN OF THE REPUBLIC OF MOLDOVA FOR 2013-2020

1 SUMMARY OF THE NATIONAL RENEWABLE ENERGY POLICY

Background

Through the Energy Strategy adopted in 2007, the Republic of Moldova was, for the first time in its history, approaching the use of Renewable Energy Sources (RES) as a reliable alternative to compensate for the critical lack of other indigenous energy resources. It came as a continuation of the country's tradition of utilizing the biomass for heating, and as a consequence of the country openness to the EU's early policies supporting generation of electricity from renewable sources (RES-E) and energy for heating and cooling from renewable energy sources (RES-H&C). The RES promotion framework was completed the same year with the Renewable Energy Law (No. 160-XVI dated 12 July 2007) that asked the National Energy Regulatory Agency (hereinafter referred to as ANRE) to ensure the existence of a regulated tariff system for each type of renewable energy and biofuel, calculated by the producers based on the methodologies approved by ANRE, which provide for return of investments, as the case might be, in construction, extension or modernization of facilities, as well as in the connection lines for transportation and distribution of energy and fuels, for a term up to 15 years, providing the prescribed profitability rate does not exceed more than two times the corresponding rate for the traditional energy. Nowadays, the membership of the Republic of Moldova to the Energy Community as a Contracting Party – on the background of the Ministerial Council Recommendation in September 2010 in regards of promoting the energy from renewable sources utilisation and then the decision to adopt the Directive 2009/28/EC in April 2009, is bringing a new impetus, materialized by other three strategic documents of the Republic of Moldova, namely: the National Programme for Energy Efficiency for 2011 - 2020, the National Energy Efficiency Action Plan for 2013 - 2015 and the Energy Strategy of the Republic of Moldova up to 2030, those latest adopted in February 2013. Moreover, a revision of the Law on renewable energy since 2007 is prepared to transpose the new RES Directive 2009/28/EC according to the provisions of the Decision D/2012/04/MC-EnC of the Ministerial Council of the Energy Community on the implementation of Directive 2009/28/EC and amending Article 20 of the Energy Community Treaty. This law aims to establish a legal framework for the effective promotion and use of renewable energy. It has to ensure the appropriate conditions to achieve the targeted share of energy from renewable sources in gross final consumption of energy and also sets clear and comprehensive competences and responsibilities, as well as state policies to guarantee the established targets fulfilment.

Target setting

The overall target for the renewable energy consumption in 2020 has been set by the Energy strategy up to 2030, thus harmonising the provisions of the in force legislation in the Republic of Moldova, as 20% Renewable Energy Sources (RES) contribution to the energy consumption, the sectoral targets being set equal with 10% RES in electricity (RES-E) and 10% RES in transport (RES-T), thus resulting in 27% for heating and cooling (RES-H&C). The overall ESR target of 17% and the ESR-T target of 10% represent obligations resulting from the membership as contracting party being set by Decision D/2012/04/MC-EnC of the Ministerial Council of the Energy Community. The Draft Law on promotion of the use of energy from renewable sources consolidates the objective of Republic of Moldova to act towards implementation of Decision D/2012/04/MC-EnC.

According to this Plan, the electricity from renewable energy sources will be generated mostly from wind power starting from 2016. Wind power generation will be partially complemented by the electricity produced from biogas starting from 2015, as well as by the existing small-scale hydropower production (which contributed with circa 2% of renewables

in the energy balance and generation mix in 2009). Conditioned by an increase in the equipments' competitiveness, the photovoltaic solar technology will also contribute to the generation of power by the end of the decade.

The National Renewable Energy Action Plan (NREAP) considers not only the assessment developed by the relevant Governmental and local institutions, but also the commitments within the Energy Community framework by the approval of the Decision of the Energy Community Ministerial Council on the implementation of Directive 2009/28/EC and amending Article 20 of the Energy Community Treaty on 2012, October 18.

Strategic approach

The Republic of Moldova aims at strengthening its own generation capacity to become a competitive electricity generation platform within the framework of the regional electricity flows. It represents one of the specific objectives of the country's Energy Strategy up to 2030. The measures to fulfil this important objective of the Energy Strategy are: the promotion of wind power generation, modernisation of the municipal district heating system and of large CHPs, etc.

Another pillar of the Energy Strategy is the objective of connecting the country's power system to ENTSO-E, which will provide the necessary access to the balancing means, allowing in turn to back-up the intermittent wind power generation. For the next decade the development of a functional domestic competitive electricity market integrated within the EU internal energy market (IEM) is planned. In terms of RES-E access to the network, the in force legislation includes provisions for a shallow connection to the grids, while the transmission and system operator is taking steps towards the implementation of the primary legislation requirements regarding the provision of transparent information for terms, conditions and deadlines for connections to the network by publishing related guidelines. Implementation of the actions in the current Plan allows to set up priorities and their prompt achievement.

RES target achievement

To support RES-E, the current legislation (Law No.124-XVIII of 23.12.2009 on electricity and Law No.160-XVI of 12.07.2007 on renewable energy) is built upon the concept of tenders organising, the principles of priority acquisition and priority dispatch of electricity from renewable sources, as well as upon a regulated tariff for RES-E and biofuel production. A methodology to calculate tariffs for RES-E (as well as for biofuels) exists since 2009, but the interest of investors has been low. In this context, a new regulatory framework opportunity has been investigated. Considering the European Union's concerns regarding the overestimation of regulated RES-E tariffs and decreasing electricity systems' reliability due to the integration of intermittent sources, as well as the conditions in the Republic of Moldova, a decision to implement tendering procedures for RES-E has been adopted including two-fold caps:

- a) tenders' starting price;
- b) total volume of tendered capacities not higher than the level that the grid can absorb at a reasonable cost (about 400 MW)

Note: This technical constraint is not a binding one to achieve the 10% RES-E target as it allows renewable energy production to be significantly higher than the 10% RES-E target.

The Draft Law on promotion of the use of energy from renewable sources describes the measures to support RES utilisation.

Biomass is the most used RES for decentralised heat supply. Biomass still remains during the current decade a source of decentralized heat supply; however, in the future, there will be a niche for biomass utilization in small-scale cogeneration. The consistent involvement of the

local public administration authorities is required to promote new technologies and demonstrate examples of success. Granting various incentives at the investment stage will support the creation of industrial demonstrators. The promotion of the investment projects in the field of energy efficiency and renewable energy sources utilisation, granting technical assistance for energy efficiency and renewable project development, granting financial assistance to the projects, as well as utilisation of various means to ensure/facilitate financing are the main objectives of the Energy Efficiency Fund. The support for the installation of heating devices and renewable energy production systems (wood-fired heating, solar water heating, etc), together with the insulation of buildings, will improve both industry competitiveness and citizens' welfare.

Biofuels utilisation significantly contributes to the reduction of greenhouse gas emissions in the transport sector. The current legislative framework does not include a law concerning the regulation of biofuel production under sustainability requirements, as well as the introduction of an obligation on use of blended fuels and biofuels in transportation. Amendments to the legislative framework would provide background to enforce the indicative annual quotas set by this National Plan as milestones to achieve the foreseen 2020 target. According to these policies, the planned contribution of biofuels to the achievement of the target of 10% renewable in energy consumption in transport sector by 2020 will come entirely from imports, while the domestic contribution will become relevant only if it is able to compete with import prices. However, despite the missing support scheme, a regulation for biofuel domestic production, as well as biofuels utilization independent of source, will be developed in order to provide a clear and sustainable legal framework.

A key issue to facilitate the success of the schemes stated above would be the enlargement and refinement of the administrative procedures with regards to certificates/permits, licenses, technical requirements, land utilisation change, equipment tax exemption (VAT and/or custom tariff), as well as information provision regarding the applicable standards, certification schemes and qualified installers to the benefit of investors. All missing links will be identified and the gap filled, thus ensuring implementation of the envisaged measures. Awareness campaigns, institutional capacity building and training in energy efficiency roles and benefits of the RES utilization will be further developed under the scope of the Communication Strategy through the Communicational Plan for the correspondent time period.

State policy in the field of renewable energy sources

The Draft Law on promotion of the use of energy from renewable sources defines the objectives and the state policies to achieve those objectives.

The state policy in the renewable energy field is implemented via state, sectoral and local programs. The implementation of the policies is monitored by the central body of public administration in the energy sector.

The state policies in the RES field are:

- Adjustment of the national legislative framework to the rules and standards of the European Union;
- Promotion of energy from renewable sources, energy efficiency and energy savings through the application of support schemes and measures compliant with the national legislation;
- Ensuring social and territorial cohesion;
- The exercise of state administration in the renewable energy sector;
- Priority network access for electricity from renewables;
- Ensuring access to the information on generation and utilisation of energy from renewable sources and energy efficiency for legal entities and natural persons;

- Supervision of the process of cultivation and use of GM plant varieties for the production of renewable biofuels under a closed technological cycle.

The state policy pursues the following objectives:

- Diversification of indigenous primary energy resources;
- Achieving at least 20% share of renewable energy in the gross final consumption of energy in 2020;
- Achieving at least 10 % share of renewable energy in the final energy consumption in transport in 2020;
- Regional and local development;
- Promoting cooperation among central, regional and local public administration authorities;
- Ensuring security, health, and labour protection in the process of energy development from renewable sources;
- Promoting and encouraging energy efficiency, energy savings, cogeneration use and district heating and cooling, as well as increasing share of energy from renewable sources;
- Encouraging the international scientific and technical collaboration and implementation of international technical and scientific progress in the renewable energy field;
- Ensuring communication and public awareness in the field of energy from renewable sources.

Conclusions

The National Renewable Energy Action Plan is a key document concerning energy policies in the Republic of Moldova for the utilisation of energy from renewable sources aiming at fulfilling the main strategic objectives of increasing security of supply, sustainable development and climate change abatement. The Plan defines the sectoral targets towards achievement of 20% RES in 2020 and sets up the required legislative, regulatory and administrative actions to achieve those targets.

2 EXPECTED FINAL ENERGY CONSUMPTION FOR 2010-2020

As a basis for all calculations, the Gross Final Energy Consumption (GFEC) of 2071 ktoe in 2009 was used, divided into the following categories:

- 1224 ktoe: Heating and cooling consumption;
- 286 ktoe: Electricity consumption;
- 561 ktoe: Transport consumption.

Computer software called Markal has been used to calculate the gross final energy consumption (GFEC) until 2020. MARKAL (MARKet ALlocation) model is an integrated energy system least cost optimization model that determines the least cost option to satisfy the demand for energy services (developed by the International Energy Agency's (IEA)).

The following supply and demand analyses have been conducted:

- Development according to the Reference Scenario (Business-as-Usual or BAU): the supply and investment requirements to support the development of the national energy system in the absence of policies and programs aimed at altering the current trends.

- b) Energy Efficiency (EE) Promotion: this demand-side policy explores the range of energy efficiency measures (e.g. conservation measures, improved appliances, building shell improvements) that are the most cost-effective in order to meet the national targets aimed at reducing final energy consumption.

Energy demand growth is driven by an assumption on economic growth based on a compound aggregate growth rate (CAGR) of GDP averaging approximately 5.3%.

The Energy Efficiency Promotion (EE) assumes the uptake of more efficient devices, the most cost-effective technologies, incentivised by policies and programmes (like labelling of energy efficient equipment, buildings' energy performance) resulting in an overall energy saving of 20%. The most cost-effective overall reductions occur when deploying efficient space and water heating systems that leads to 1% increase in electricity consumption (471 ktoe) by 2020 compared to the Reference Scenario (412 ktoe). More efficient appliances utilisation allows a significant reduction in gas and biomass consumption in the residential sector.

For the transport sector, hybrid vehicles against light duty vehicles, light commercial vehicles, and heavy cargo vehicles will be procured, with an expected reduction of 20% in fuel demand by 2020 as compared to the same year in the Reference Scenario.

Taking into account all the above mentioned issues, GFEC is estimated to be 2160 ktoe by 2020 with the following composition:

- a) 1258 ktoe: Heating and cooling consumption;
- b) 417 ktoe: Electricity consumption;
- c) 485 ktoe: Transport energy consumption.

Overall, all this implies a compound annual growth rate (CAGR) of about 0.5% in GFEC in the EE scenario, which will be the base case for further analysis. The growth in both heat and transport sectors is negligible, only electricity drivers being able to increase the GFEC (CAGR of about 3.5%).

In order to calculate the share of aviation, the aviation energy consumption (AEC) is divided by the gross final energy consumption (GFEC):

$$\begin{aligned} \text{AEC (2009)} &= 14 \text{ ktoe;} \\ \text{GFEC (2009)} &= 2071 \text{ ktoe;} \\ \text{Share} &= 0.67\%. \end{aligned}$$

This is below the limit stated in Art. 5(6) of Directive EC/28/2009.

Table 1

Expected gross final energy consumption of Republic of Moldova in heating and cooling, electricity and transport up to 2020 taking into account the effects of energy efficiency and energy saving measures¹ 2010-2020 (ktoe).

| | 2009 | 2010 ² | | 2011 ³ | | 2012 | | 2013 | | 2014 | |
|---|-----------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|
| | Base year | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency |
| (1) Heating and cooling ⁴ | 1224 | 1273 | 1260 | 1323 | 1280 | 1370 | 1264 | 1405 | 1246 | 1434 | 1230 |
| (2) Electricity ⁵ | 286 | 316 | 316 | 319 | 320 | 335 | 338 | 340 | 342 | 350 | 352 |
| (3) Transport ⁶ | 561 | 561 | 545 | 550 | 550 | 540 | 548 | 535 | 562 | 530 | 568 |
| (4) Gross final energy consumption ⁷ | 2071 | 2150 | 2121 | 2192 | 2150 | 2245 | 2150 | 2280 | 2150 | 2314 | 2150 |

| | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | | 2020 | |
|--|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|--------------------|------------------------------|
| | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency | Reference scenario | Additional energy efficiency |
| (1) Heating -cooling ⁸ | 1485 | 1210 | 1539 | 1195 | 1518 | 1255 | 1617 | 1248 | 1692 | 1259 | 1676 | 1258 |
| (2) Electricity ⁹ | 360 | 367 | 371 | 374 | 381 | 385 | 389 | 397 | 402 | 406 | 412 | 417 |
| (3) Transport ¹⁰ | 525 | 573 | 520 | 581 | 587 | 510 | 594 | 505 | 599 | 495 | 605 | 485 |
| (4) Gross final energy consumption ¹¹ | 2370 | 2150 | 2430 | 2150 | 2486 | 2150 | 2600 | 2150 | 2693 | 2160 | 2693 | 2160 |

¹The gross electricity consumption is national gross electricity production, including own production, plus imports, minus exports.

² Figures for this year represent the result of the Markal simulation that takes as a baseline 2009 figures. Actual GFEC (2010) was slightly higher and equal to 2209 ktoe. The difference is caused by the reason of GFEC drop in 2009.

³ Figures for this year represent the result of the Markal simulation that takes as a baseline 2009 figures. Actual GFEC (2010) was slightly higher and equal to 2237 ktoe. The difference is caused by the reason of GFEC drop in 2009.

⁴ It is the final energy consumption of all energy commodities except electricity for purposes other than transport, plus the consumption of heat for own use at electricity and heat plants and heat losses in networks.

Items '2. Own use by plant and '11. Transmission and distribution losses' of Regulation (EC) No1099/2008 (p 23-24).

⁵ See footnote 1.

⁶ Transport consumption as defined in Art. 3(4) a) of Directive 2009/28/EC. Renewable electricity in road transport for this figure should be multiplied by a factor of 2.5, as indicated by Article 3 (4) (c) of Directive 2009/28/EC.

⁷ As defined in Article (2) (f) of Directive 2009/28/EC. This comprises final energy consumption plus network losses and own use of heat and electricity at electricity and heating plants.

⁸ See footnote 4.

⁹ See footnote 5.

¹⁰ See footnote 6.

¹¹See footnote 7.

3 RENEWABLE ENERGY TARGETS AND TRAJECTORIES

3.1 National overall target

According to Renewable Energy Law No.160-XVI dated 12 July 2007, the national overall target for RES energy consumption in 2020 established at the national level stands at 20%. This level became a basis for the policies on RES promotion in the country. However, the target, as stated in the Decision of the Ministerial Council of the Energy Community adopting the Directive 2009/28/EC, is lower and equal to 17%, as shown in Table 2. The difference between the national target and the one calculated following the methodology of the Energy Community will allow the Republic of Moldova to benefit from statistical transfer of this excess.

Table 2

National overall target for the share of energy from renewable sources in gross final consumption of energy in 2009 and 2020 (figures are transcribed from Decision of the Ministerial Council of the Energy Community D/2012/04/MC-EnC, article 4, adapting Annex I, Part A to Directive 2009/28/EC)

| | |
|---|-------|
| A. Share of energy from renewable sources in gross final consumption of energy in 2009 (S_{2009}) (%) | 11.9 |
| B. Target of energy from renewable sources in gross final consumption of energy in 2020 (S_{2020}) (%) | 17 |
| C. Expected total adjusted energy consumption in 2020 (from Table 1 last cell) (ktoe) | 2160 |
| D. Expected amount of energy from renewable sources corresponding to the 2020 target (calculated as B x C) (ktoe) | 367.2 |

3.2 Sectoral targets and trajectories

According to the in force national legislation, the following sectoral targets have been set:

- 10% RES in electricity by 2020;
- 10% RES in transport by 2020.

In this context, the share of RES-H&C has to be 27% by 2020, in order to comply with the national RES objective of 20% by 2020.

In the power sector, the current (2009) level of renewable electricity is 2%, being generated by small-scale hydro power plants. Until 2020 the largest RES-E increase will be mainly focused on wind energy. According to the estimations, the wind energy generation will start to become significant from 2016, being complemented by the development of the electricity generation technologies operating on biogas envisaged to start in 2015. Considering the contribution from all the mentioned sources, the Republic of Moldova will reach the 10% RES electricity target in 2020 without having to turn to statistical transfer from other contracting parties or third countries.

According to 2009's base year information, the transport sector in the Republic of Moldova does not consume any renewable energy resources. Import of biofuels and domestic production of electricity from renewable energy sources will be the main sources to reach the targeted 10% of RES.

RES share in the heating and cooling sector will be at least of 27% to guarantee achievement of the share of 20% RES as required by the national legislation. The correspondent share of the latter in the base year (2009) was 20% and will be increased with 7 percentage points by

2020. Such an increase will come from agricultural waste, wood and wood waste, and solar thermal energy.

Table 3

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

| Years | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| RES-H&C (%) ¹² | 19.36 | 19.51 | 19.89 | 20.84 | 21.93 | 23.02 | 24.21 | 25.33 | 24.90 | 25.83 | 26.38 | 27.19 |
| RES-E (%) ¹³ | 1.75 | 2.22 | 2.19 | 2.07 | 2.05 | 1.99 | 2.02 | 2.64 | 4.63 | 6.49 | 8.31 | 10 |
| RES-T (%) ¹⁴ | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.12 | 2.55 | 4.56 | 6.27 | 8.10 | 10.00 |
| Overall RES share (%) ¹⁵ | 11.7 | 11.9 | 12.2 | 12.6 | 13.0 | 13.5 | 14.3 | 15.2 | 16.5 | 17.7 | 18.8 | 20.0 |
| of which from cooperation mechanism (%) ¹⁶ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Surplus for cooperation mechanism (%) ¹⁷ | 0 | 0 | 0 | 0 | 0 | 0.06 | 0.07 | 1.01 | 1.23 | 2.45 | 2.69 | 3.00 |

| As Part B of Annex I to the Directive and Decision of the Ministerial Council of the Energy Community D/2012/04/MC-EnC | 2011-2012 | 2013-2014 | 2015-2016 | 2017-2018 | 2020 |
|--|--|--|--|---|------------|
| | $S_{2009} + 20\%$ ($S_{2020} - S_{2009}$) | $S_{2009} + 30\%$ ($S_{2020} - S_{2009}$) | $S_{2009} + 45\%$ ($S_{2020} - S_{2009}$) | $S_{2009} + 65\%$ ($S_{2020} - S_{2009}$) | S_{2020} |
| RES minimum trajectory ¹⁸ (%) | 12.9 | 13.4 | 14.2 | 15.2 | 17.0 |
| RES minimum trajectory (ktoe) | 277.8 | 288.7 | 305.2 | 327.1 | 367.2 |

¹² Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Directive 2009/28/EC) divided by gross final consumption of energy for heating and cooling.

¹³ Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Directive 2009/28/EC) divided by total gross final consumption of electricity.

¹⁴ Share of renewable energy in transport: final energy from renewable sources consumed in transport (as defined in Directive 2009/28/EC) divided by final gross energy consumption in transport.

¹⁵ Share of renewable energy in gross final energy consumption.

¹⁶ In percentage point of overall RES share.

¹⁷ See footnote 14.

¹⁸ As defined in Annex I.B to Directive 2009/28/EC. For the Republic of Moldova Decision D/2012/04/MC-EnC on the implementation of Directive 2009/28/EC shall be considered. Therefore the reference figures for calculations are compliant with Article 4 of this Decision.

Table 4a

Calculation table for renewable energy contribution of each sector to final energy consumption

| (ktoe) | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| (A) Expected gross final consumption of RES for heating and cooling | 237.0 | 245.8 | 254.6 | 263.5 | 273.3 | 283.1 | 292.9 | 302.7 | 312.6 | 322.4 | 332.2 | 342.0 |
| (B) Expected gross final consumption of electricity from RES | 5.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.4 | 9.9 | 17.8 | 25.8 | 33.7 | 41.7 |
| (C) Expected final consumption of energy from RES in transport | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 13.6 | 20.9 | 28.1 | 35.3 | 42.5 |
| (D) Expected total RES consumption ¹⁹ | 242 | 253 | 262 | 271 | 280 | 290 | 307 | 327 | 354 | 380 | 406 | 432 |
| (E) Expected transfer of RES to other Contracting Parties | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.5 | 22.2 | 26.5 | 52.7 | 58.1 | 64.8 |
| (F) Expected transfer of RES from other Member States and 3rd countries | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (G) Expected RES consumption adjusted for target (D) - (E) + (F) | 242 | 253 | 278 | 278 | 289 | 289 | 305 | 305 | 327 | 327 | 348 | 367 |

Table 4b

Calculation table for the renewable energy in transport share

| (ktoe) | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|
| (C) Expected RES consumption in transport ²⁰ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 13.6 | 20.9 | 28.1 | 35.3 | 42.5 |
| (H) Expected RES electricity in road transport ²¹ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.6 | 2.4 | 3.2 | 4.0 |

¹⁹ According to Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

Row D figures "Expected total RES consumption" will NOT necessarily coincide each year with the sum of the three preceding rows because, as explained above, part of the electricity produced from RES could be listed in row "B" or in row "C" because it is also consumed for transport. Therefore, in order to avoid double accounting, it should be subtracted once only from the total (row "D")

²⁰ Containing all RES used in transport including electricity, hydrogen and gas from renewable energy sources, and excluding biofuels that do not comply with the sustainability criteria. Specify here actual values without using the multiplication factors.

²¹ Specify here actual values without using the multiplication factors.

| | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| (I) Expected consumption of biofuels from wastes, residues, non- food cellulosic and lingo-cellulosic material in transport ²² | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (J) Expected RES contribution to transport for the RES-T share: $(C)+(2,5-1)\times(H)+(2-1)\times(I)$ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.42 | 14.8 | 23.3 | 31.7 | 40.1 | 48.5 |

²² See footnote 19.

4 MEASURES FOR ACHIEVING THE TARGETS

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

Table 5

Overview of all policies and measures

| | 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 |
|---|---|------------------|--|---|---------------------|------------------------------------|
| Targets: setting and follow-up | | | | | | |
| 1. | Overall national renewable energy target | Regulatory | Increase renewable energy generation in order to meet the overall national target | Generators of renewable electricity, biofuel producers/importers/suppliers | Existing | 2013-2020 |
| 2 | Monitoring of the overall national renewable energy target fulfilment | Regulatory | Target achievement/corrective interventions | Relevant operators and National Bureau of Statistics | Planned | 2013-2020 |
| Laws, strategies, plans and programs | | | | | | |
| 3 | Law No. 124 of 23.12.2009 on Electricity | Regulatory | Establish framework for RES promotion. Principle of priority dispatch and purchase obligation of RES-E. | RES producers, Transmission network and System Operator (TSO), Distribution network Operators (DSOs), electricity suppliers | Existing | 2013-2020 |
| 4 | Law no.160 of 12.07.2007 on Renewable Energy | Regulatory | Establish framework for RES development. Principle of priority dispatch and purchase obligation of RES-E | RES producers, TSO, DSOs, electricity/heat/biofuel suppliers | Existing | 2013-2020 |
| 5 | Draft Heat Law | Regulatory | Establish framework for RES-H&C development Principle of priority dispatch and obligatory procurement of RES-H&C. | RES-H&C producers, TSO, DSOs, heat suppliers | Planned | 2013-2014 |

| | | | | | | |
|----|---|------------|---|--|--------------------------------------|-----------|
| 6 | Draft Law on promotion of the use of energy from renewable sources | Regulatory | Establish framework for RES development towards national target achievement | RES producers, TSO, DSOs, electricity/heat/fuel suppliers | Planned | 2013-2014 |
| 7 | Energy Strategy of the Republic of Moldova up to 2030 approved by Government Decision No. 102 of 05.02.2013 | Regulatory | Establish framework and provide certainty for RES development | All energy sector's stakeholders | Existing | 2013-2020 |
| 8 | National Energy Efficiency Program 2011-2020 approved by Government Decision No. 833 of 10.11.2011 | Regulatory | Setting principles of RES priority, using RES for houses heating, inform the public | Investors, enterprises, consumers, ANRE, EEA, TSO, DSOs | Existing | 2013-2020 |
| 9 | National Energy Efficiency Action Plan 2013-2015 approved by Government Decision No.113 of 07.02.2013 | Regulatory | Planning the activities in the sector of energy efficiency and promotion of development of the electricity, heating and cooling based on RES | Investors, enterprises, customers, EEA | Existing | 2013-2020 |
| 10 | Monitoring system for 2013-2020 NREAP implementation, including individual measures and instruments (Annual/monthly reporting by EEA) | Technical | Following-up the implementation of 2013-2020 NREAP | EEA | Planned | 2014-2020 |
| 11 | Local Energy Efficiency Programs (Energy Efficiency Law No. 142 of 02.07.2010, RM Government Decision No. 833 of 10.11.2011 on National Energy Efficiency Program 2011-2020) | Regulatory | Program to promote energy efficiency and renewable development at the local level. | Local Public Administration Authorities, RES producers, energy managers, EEA | Planned, for a period of three years | 2013-2020 |
| 12 | Local Energy Efficiency Action Plans (Energy Efficiency Law No. 142 of 02.07.2010, Government Decision No. 833 of 10.11.2011 on National Energy Efficiency Program 2011-2020) | Regulatory | Measures and actions to be undertaken during the following period, with established budget. | Local Public Administration Authorities, RES producers, energy managers, EEA | Planned, yearly | 2013-2020 |
| 13 | Draft Law on Energy Performance of Buildings | Regulatory | Framework for improvement of energy performance of buildings, including promotion of decentralised energy (electricity, heating & cooling) supply systems based on renewable energy sources (particularly solar-based | Ministry of Regional Development and Construction, EEA, consumers, LPAA, building owners | Planned | 2013-2014 |

| | | | | | | |
|----------------------------------|--|---------------------------|--|--|------------------|-----------|
| | | | generation) | | | |
| 14 | Secondary legislation on minimum energy performance requirements for buildings | Regulatory | Framework for improvement of energy performance of buildings, including promotion of decentralised energy (electricity, heating & cooling) supply systems based on renewable energy sources (particularly solar-based generation), establishment of the RES share minimum requirements for newly constructed buildings and the ones under renovation | Ministry of Regional Development and Construction, EEA, consumers, LPAA, building owners | Planned | 2014 |
| 15 | LPAA – signatories to the Covenant of Mayors | Regulatory | Sustainable Energy Action Plan with introduction of financial, fiscal, etc. incentives to promote RES at the local/regional level | LPAA, RES investors, consumers | Existing/Planned | 2013-2020 |
| Administrative procedures | | | | | | |
| 16 | Introducing indicative timetable for determining planning and building applications | Administrative regulation | Clear timeline for managing planning and building applications | RES producers, TSO, DSOs, LPAAs | Planned | 2014 |
| 17 | Introducing fiscal & customs facilities. | Fiscal regulation | Stimulation of the attractiveness of the Republic of Moldova as a platform and location for the production of energy from renewable sources. Ensure the openness of Moldovan authorities towards investors | Investors in generation from RES | Planned | 2014 |
| 18 | Introducing clear rules on changing the destination of agricultural lands. (amendment to the Land Code No.828-XII dated 25 December 1991) | Administrative regulation | Regulating the procedure for changing the destination of agricultural land. | Investors in generation from RES | Planned | 2014 |
| 19 | Introducing administrative procedures (authorisation, certification and licensing) for plants that produce energy for heating and cooling purposes, as well as for the | Administrative regulation | Framework for construction and operation of the RES heating/cooling facilities | RES producers, TSO, DSOs, LPAA | Planned | 2014 |

| | | | | | | |
|-------------------------------|---|---------------------------|--|---|------------------------------------|-----------|
| | associated transmission and distribution infrastructure | | | | | |
| 20 | The overall framework of authorisation to be reviewed in order to simplify and coordinate with administrative and planning procedures, thus facilitating access to the grid for the electricity and heat produced from RES sources. | Administrative regulation | Framework for construction and operation of the RES heating/cooling facilities | RES generators, TSO, DSOs, LPAA | Planned | 2014 |
| 21 | Introducing the administrative procedures (authorisation, certification) to be applied for the process of transformation of biomass into biofuel or other energy products | Administrative regulation | Framework for construction and operation of facilities that transform biomass into biofuel or other energy products | Biofuel producers, TSO, DSOs, LPAAs | Planned | 2014 |
| 22 | Simplify administrative procedures for RES-E generation in terms of authorisation, certification and licensing, small scale generation based RES included, to speed these processes | Administrative regulation | Removing the barriers against RES-E investment | RES-E Generators, DSOs, TSO, LPAAs | Planned | 2014-2020 |
| 23 | Introducing certification/qualification schemes for installers of small-scale biomass boilers and stoves, solar PV and solar thermal systems, shallow geothermal systems and heat pumps. | Administrative regulation | Clear requirements for renewable energy producers in terms of equipment | RES electricity/heat producers, LPAAs, natural/legal persons, investors in RES, consumers, equipment producers, EEA | Planned | 2014 |
| Information provisions | | | | | | |
| 24 | Develop and publish guidelines for authorisation, certification and licensing procedures for RES investors | Administrative regulation | Clear and transparent guidelines for authorisation, certification and licensing for RES investors | RES producers, TSO, DSOs, LPAAs, ANRE, central public administration body in the energy sector | Planned | 2014 |
| 25 | Develop and introduce Communication Plan for EEA | Soft | Efficient instruments applied for information dissemination to different target groups; Message tailored for each particular target | RES electricity/heat producers, biofuel producers, LPAAs, natural/legal persons, investors in RES, consumers | Existing and planned ²³ | 2013-2020 |

²³ Currently the Communicational Plan for 2013 is in place. It will be reviewed and updated on an annual basis.

| | | | group; Budget foreseen for proposed measures. | | | |
|----|--|------|---|---|----------------------|-----------|
| 26 | Launch the “Green” Line to be managed by EEA | Soft | Information dissemination on the tariffs, standards, competitive technologies in the RES field. | RES electricity/heat producers, biofuel producers and importers, LPAAs, natural/legal persons, investors in RES, consumers | Existing | 2013 |
| 27 | Permanent update of the EEA website | Soft | Information dissemination to the public | RES electricity/heat producers, biofuel producers and importers, LPAAs, natural/legal persons, investors in RES, consumers | Existing | 2013-2020 |
| 28 | Organising events/conferences/seminars | Soft | Information dissemination to the public and specific target groups | RES electricity/heat producers, biofuel producers and importers, LPAAs, natural/legal persons, investors in RES, consumers | Existing and planned | 2013-2020 |
| 29 | Dissemination of promotional materials about the development/promotion of RES by AEE | Soft | Informing the target groups | RES electricity/heat producers, biofuel producers and importers, LPAAs, natural/legal persons, investors in RES, consumers | Planned | 2013-2020 |
| 30 | Develop guidance on high-efficiency technologies, equipment and systems for the use of electricity, H&C from RES | Soft | Transparent framework for RES investors | RES electricity/heat producers, local public authorities, natural/legal persons, investors in RES, consumers, equipment producers | Planned | 2014-2020 |
| 31 | Publication of the list of authorised/qualified installers. | Soft | The investors' access the list of authorised/qualified installers. | RES electricity/heat producers, LPAAs, natural/legal persons, investors in RES, consumers, equipment producers, EEA | Planned | 2014-2020 |
| 32 | Media coverage of events in RES sector | Soft | Articles in press, TV and radio spots, information on web | RES electricity/heat producers, biofuel producers, LPAAs, natural/legal persons, investors in RES, consumers | Planned | 2014-2020 |
| 33 | Training for LPAAs, regional development agencies and energy managers | Soft | Institutional capacity building | LPAAs, natural/legal persons, regional development agencies, energy managers | Planned | 2014-2020 |

| Electricity and heat - Connection to the grid | | | | | | |
|---|--|---------------|---|--|---|-----------|
| 34 | Develop and publish technical requirements for intermittent renewable energy generation | Technical | Clear and transparent requirements for intermittent generation | Electricity producers from intermittent sources | Existing – on the web page of the TSO Planned - secondary legislation to be approved | 2014 |
| 35 | Develop and introduce comprehensive principles for the grid connection cost calculation methodology | Regulatory | Facilitate transparent and non-discriminatory access to the grid for RES generation | RES producers, TSO, DSOs | Planned | 2014 |
| Priority dispatch for renewable generation | | | | | | |
| 36 | Complete the framework for RES-E priority dispatch. Develop clear rules within the secondary legislation concerning the delimitation of dispatching priorities, define the circumstances when use of RES-E may be limited | Regulatory | Establish the framework for the promotion of RES-E facilities, entirely in line with UE directives | RES-E producers, TSO | Planned | 2014 |
| Marketing | | | | | | |
| 37 | The introduction of mandatory rules for priority purchasing of renewable electricity from the local electricity suppliers | Regulatory | Priority purchase obligation of all generated electricity from renewable sources by local suppliers | Electricity producers/suppliers; renewable electricity producers | Existing | 2013-2020 |
| | | | | | | |
| 38 | Introduce dispatch priorities among different renewable technologies and conventional technologies, as well as within different renewable technologies | Regulatory | Minimum generation losses for renewable generation in the case of curtailment | RES producers, TSO | Planned | 2014 |
| 39 | Appointment of the central electricity | Institutional | The central electricity supplier will operate | Market participants (producers, | Planned | 2014 |

| | | | | | | |
|--|---|------------|--|---|---------|-----------|
| | supplier | regulation | as a single body and assume the responsibility for the differences between the forecasted volumes and the actual volumes of RES-E intermittent generation in order to allow RES-E producers to comply with their obligation in front of the electricity suppliers. | suppliers), TSO, DSOs, ANRE, Central electricity supplier (to be appointed) | | |
| 40 | Introduce forecasting and balancing responsibility for the Central Electricity Supplier in regards of intermittent RES-E generation | Regulatory | Decrease the risk of RES-E producers in fulfilling the obligations coming from the contract with electricity suppliers. | RES-E producers, TSO, DSOs, ANRE, Central Electricity Supplier | Planned | 2014 |
| 41 | Develop Electronic Registry for Guarantees of Origin | Technical | Facilitation of Guarantees of Origin system operation by managing the electronic documents instead of using hard-copies; | RES producers, TSO | Planned | 2014 |
| 42 | Make amendments and addenda to the Guarantees of Origin Regulation | Regulatory | Facilitation of Guarantees of Origin system operation, introducing eventual auditing instead of audits to be performed on the monthly basis Introduce provisions for RES H&C | RES producers, TSO | Planned | 2014 |
| Support mechanisms for RES-E, RES-H&C and RES-T promotion | | | | | | |
| 43 | Tender regulation for electricity generation from RES | Regulatory | Incentivise generation of electricity from renewable sources | Investors/Producers | Planned | 2014 |
| 44 | Introduce volume cap for two periods: 2013-2015 and 2016-2020 in RES electricity generation sector | Technical | Taking into consideration the transmission network constraints; Planned and foreseen economic impact on the final consumer | RES-E producers, ANRE, consumers | Planned | 2014 |
| 45 | Develop legislative and regulatory framework to promote RES-H&C | Regulatory | Encourage heat generation based on RES | Heat producers from RES, ANRE, consumers | Planned | 2014 |
| 46 | Implement fiscal incentives, such as tax | Financial | Incentives for investing in small-scale RES | RES electricity producers, consumers | Planned | 2014-2020 |

| | | | | | | |
|---|--|----------------------|---|---|----------|---------------|
| | exemptions, soft loans, etc. for small-scale RES generation facilities | regulation | generation | | | |
| 47 | Develop legislative and regulatory frameworks for RES-T promotion. Voluntary schemes. | Regulatory | Setting national biofuels blending quotas; Imposing RES - T obligations on importers/ suppliers; Imposing penalties on importers/ suppliers that do not comply with the obligation mentioned above; Regulating the sustainability criteria | Fuel suppliers/producers/importers | Planned | 2014 |
| 48 | Monitoring the compliance with the introduced RES-T requirements | Regulatory | Measures for achievement of the overall national RES-T target; undertake countermeasures | Ministry of Transport and Road Infrastructure | Planned | 2014-2020 |
| 49 | Undertake horizontal measures in terms of urban and public road transportation efficiency | Administrative | Improve the transport efficiency | LPAAs | Planned | 2014-2020 |
| Biogas | | | | | | |
| 50 | Develop and introduce technical rules and tariffs for connection to the grid of the biogas facilities | Regulatory | Introduce regulatory framework for the development of the biogas component; | Biogas producers, TSO/DSO of gas network | Planned | 2017 |
| 51 | Establishment of conditions for licensing and purchase of biogas produced from renewables to be injected into grid | Regulatory | Provide conditions and requirements for licensing and purchase of biogas produced from renewables | Biogas producers, natural gas suppliers | Planned | 2014 |
| Projects and studies in the RES sector | | | | | | |
| 52 | EBRD – MoSEFF II credit line | Financial regulation | MoSEFF provides a credit line of 22 million Euros combined with a 5-20% grant component for on lending to Moldovan companies through EBRD's partner banks in order to support energy efficiency and RE investments in Moldova. | Investors, enterprises, customers | Existing | 2012– ongoing |

| | | | | | | |
|----|---|----------------------|---|--|----------|---------------|
| 53 | EBRD – MoREFF credit line | Financial regulation | MoREFF provides a credit line of 35 million Euros combined with 20%, 30%, 35% grant components for on lending to Moldovan companies through EBRD’s partner banks in order to support energy efficiency and RE investments in the residential sector of Moldova. | Investors, consumers | Existing | 2012– ongoing |
| 54 | UNDP – “Moldova Energy and Biomass Project” | Financial regulation | The total project budget is EURO 14.56 million, allocated by the European Commission (EURO 14 million) and UNDP Moldova (EURO 560,000). Secure a sustainable energy supply system in rural communities, with a high potential for replication and up-scaling. Public awareness campaign in rural areas, increased motivation for efficient biomass use. | Entrepreneurs, private sector, LPAAAs, civil servants, teachers, straw-fired boiler operators, fuel suppliers, school children | Existing | 2011 – 2014 |
| 55 | Energy Efficiency Fund | Financial regulation | Finance EE and RE eligible projects; Offer guarantees for loans allocated by financing and crediting institutions for projects aimed at increasing EE and use of RES in Moldova Finance technical assistance, if necessary for the implementation of eligible projects | RES and biofuel producers, especially small-scale. LPAAAs, other interested organizations. | Existing | 2013-2020 |
| 56 | Develop an assessment on the need to scale up the gas network infrastructure in order to connect biogas producers | Research | Facilitate integration of gas from RES into the grid | Biogas producers, TSO/DSO of gas network | Planned | 2016 |
| 57 | Develop a pre-feasibility study for RES-E and H&C projects in chosen regions of the country | Research | Finance from the EEF to be used to develop pre-feasibility study on identified RES-E and H&C projects | Energy Institute of the Academy of Science of the RM, Technical University of Moldova, local and foreign consultants, EEA | Planned | 2014-2018 |
| 58 | Elaborate a study regarding the wind and solar potential | Research | Atlas of wind potential Atlas of solar potential | Energy Institute of the Academy of Science of the RM, Technical University of Moldova, EEA, local | Planned | 2014 |

| | | | | and foreign consultants | | |
|----|---|----------|--|--|---------|-----------|
| 59 | Adjust the Atlas of wind potential and the Atlas of solar potential | Research | Substantiated decisions. Increase interest from RES investors' side | Energy Institute of the Academy of Science of the RM, Technical University of Moldova, EEA, local and foreign consultants | Planned | 2014-2020 |
| 60 | Develop feasibility study on suitable land areas and crop types for Moldova | Research | Substantiated decisions for investors in biomass | Ministry of Agriculture and Food Industry, Energy Institute of the Academy of Science of the RM, Technical University of Moldova, EEA, local and foreign consultants | Planned | 2014-2018 |
| 61 | Develop feasibility study for conversion of coal CHPs to biomass CHPs | Research | Prepare technical and financial background on the optimisation of the combustion process. Ensure transparency for investors in biomass CHPs | Energy Institute of the Academy of Science of the RM, Technical University of Moldova, EEA, local and foreign consultants | Planned | 2016 |
| 62 | Develop feasibility study on biomass energy use in other sectors | Research | Efficient use of biomass Ensure transparency for investors in biomass, energy and other sectors | Ministry of Agriculture and Food Industry, Energy Institute of the Academy of Science of the RM, Technical University of Moldova, EEA, local and foreign consultants | Planned | 2016 |

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

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

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

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

Legislation on urban planning, constructions, spatial planning:

Law No. 163 dated 9 July 2010 on authorization of construction works;
Law No. 835 dated 17 May 1996 on principles of urbanism and territorial planning;
Law No. 438 dated 28 December 2006 on regional development of the Republic of Moldova;
Law No. 721 dated 2 February 1996 on quality of constructions;
Government Decision No. 361 dated 25 June 1996 on ensuring the quality of constructions;
Government Decision No. 306 dated 30 March 2000 on approval of the Regulation on authorization of functioning and change of destination of constructions and arrangements.

Legislation on environment and impact on environment

General:

Law No. 1515 dated 16 June 1993 on protection of the environment;
Law No. 851 dated 29 May 1996 on ecological expertise and environmental impact assessment.

Protected Areas:

Law No.1538 dated 25 February 1998 on the Fund of natural areas protected by the state, (Law No.229 dated 13.10.2005 and Law No.23 dated 03.02.2009);
Government Decision No.414 dated 2 May 2000 on approval of the Regulation of the Cadastre of objects and complexes of the fund of natural areas protected by the state.

Forestry real estate

Forestry Code of the Republic of Moldova No.887-XIII dated 21 June 1996;
Government Decision No.1451 dated 24 December 2007 on approval of the Regulation on allocation, change of destination and swap of land.

Legislation on agricultural land

Land Code of the Republic of Moldova No. 828-XII dated 25 December 1991;
Law No. 108 dated 11.05.2012 on amending the Land Code of the Republic of Moldova No. 828-XII dated 25 December 1991;
Law No. 157 dated 28.06.2013 on making addenda to the Land Code of the Republic of Moldova No. 828-XII dated 25 December 1991;
Government Decision No. 1451 dated 24 December 2007 on approval of the Regulation on allocation, change of destination and swap of lands.

Legislation on energy. Licenses, permits and authorisations

Law No. 1525 dated 19 February 1998 on energy;

Law No. 107 dated 17.12.2009 on making amendments and addenda to some legal acts;

Law No. 124 dated 23 December 2009 on electricity;

Law No. 160 dated 12 July 2007 on renewable energy;

Law No. 451 dated 30 July 2001 on regulation of entrepreneurship through licensing, with subsequent amendments and addenda;

Law No. 235 dated 20 July 2006 on basic principles regulating entrepreneurship;

Law No. 160 dated 22 July 2011 on regulation of entrepreneurship through authorization;

Law No. 116 dated 18 May 2012 on industrial security of industrial hazardous objects;

Government Decision No. 833 dated 10 November 2011 on the National Programme for Energy Efficiency for 2011-2020;

Government Decision No. 436 dated 26 April 2004 on approval of the Regulation on construction/reconstruction of power plants;

Government Decision No. 514 dated 23 April 2002 on approval of the Regulation for protection of the electric network;

Decision of ANRE No. 393 dated 15 December 2010 on approval of the Regulation on supply and use of electricity;

Decision of ANRE No. 266 dated 20 November 2007 on approval of the technical norms for electricity transmission networks;

Decision of ANRE No. 75 dated 12 December 2002 on approval of the Rules of the electricity market;

Decision of ANRE No. 320 dated 16 January 2009 on approval of amendments and addenda to the power market rules;

Decision of ANRE No. 330 dated 3 April 2009 on guarantees of origin for electricity produced from renewable energy sources;

Order of the Minister of Economy No. 8 dated 19 January 2010 on the procedure of issuance of technical authorizations in the field of industrial security.

The main piece of legislation that regulates the renewable energy sector in Republic of Moldova is the Renewable Energy Law No. 160 dated 12.07.2007.

Article 25(5) of the Renewable Energy Law sets forth the requirements for domestic electricity suppliers and importers of petroleum products to purchase volumes of energy and fuels from renewable sources in accordance with the specific share set by ANRE that is related to their share of the market for electricity and petroleum products.

The power market rules (ANRE Decision No.75 dated 12.12.2002 amended by ANRE Decision No.320 dated 16.01.2009) introduce the requirement for suppliers and independent consumers to have a certain share of their mix from RES (this share is adjusted annually based on the existent RES facilities set in place in Moldova and is approved by a separate decision issued by ANRE).

Electricity Law No. 124-XVIII of 23.12.2009 sets forth the principle for priority status of electricity produced from renewable energy sources (Article 43 (1)), respectively the priority in acquisition and dispatch (Articles 18 (1) c), with specific indication of priority in dispatch (Article 35 (3)).

Draft Law on promotion of the use of energy from renewable sources lays down the priority access for renewable energy sources as one of the state policy principles. Meanwhile, it implements the provisions of Directive 2009/28/EC in respect of priority access.

Currently there are no administrative procedures or spatial planning that provides additional incentives for RES investors and developers.

A list of the main authorisations/permits/licenses/certificates required for the development of RES generation capacities in the Republic of Moldova is presented below:

- Government approval for construction of power plants from renewable sources with the capacity higher than 20 MW;
- Town-planning certificate;
- Construction permit;
- Exploitation permit;
- Permit to work in industrial safety performance;
- Expertise in industrial safety;
- Renewable energy source generation license;
- Certificate of compliance – the requirement applied only to RES producers (Law on renewable energy No.160-XVI of 12.07.2007);
- Guarantee of origin;
- Technical permit (notification) to connect to the grid;
- Opinion of the State Ecological Expertise.

Approval of construction of renewable power plants with a capacity over 20 MW

According to Article 33 of Law No. 124 of 23.12.2009 on electricity, the Government approves the construction of power plants, including those using renewable sources with an output exceeding 20 MW.

The procedure and grounds for approving the construction of power plants with a capacity greater than 20 MW must be transparent, publicly available and set in a regulation approved by the Government. When the procedure and the grounds are set, the following has to be taken into account:

- a) the safety and security of the power system, facilities and associated equipment;
- b) health protection and public security;
- c) environmental protection;
- d) land use and locations;
- e) use of public domain assets;
- f) energy efficiency;
- g) the nature of the primary sources;
- h) the specific characteristics of the applicant, i.e. technical, economic and financial capability;
- i) policies on small producers and/or distributed generation.

The procedure and criteria for approval of power plant construction with a capacity greater than 20 MW are made public. Approval for construction of power plants with a capacity greater than 20 MW may be denied to the applicant only for objective, non-discriminatory and justified arguments. Reasons for refusal will be mandatorily exposed to the applicant. In accordance with the Law on administrative contentious, the applicant may appeal to administrative contentious court for such refusal to approve construction of power plants with a capacity greater than 20 MW or the increase of capacity of an existing district heating power plant, where additional capacity is greater than 20 MW.

Under Article 34 of Law No. 124-XVIII of 23.12.2009 on electricity, if the constructed generation capacity is insufficient to ensure security of supply, a tender procedure shall be launched. The tender procedure is organized and conducted by the Government of the Republic of Moldova. Currently, the entire approval procedure is described in Government Decision No. 436 dated from 26.04.2004 on approval of the Regulation regarding the construction/reconstruction of power plants, which, with the approval of the draft Law on promotion of the use of energy from renewable sources, will be amended.

Town planning certificate

The first step to obtain a construction permit is asking for and obtaining a town-planning certificate. All the necessary documentation and detailed procedures are described in Law No.163 of 09.07.2010 on authorization of construction works.

Construction permit.

Local authorities shall grant, upon request, permits for construction of the electric system facilities, including power plants, in accordance with the law. Permits for construction of direct power lines are issued, upon request, by local public administration authorities based on objective and non-discriminatory criteria set by law.

Issuance of a construction permit for direct power lines may be subject to denial of access to electricity transmission or distribution or consideration by ANRE on network access dispute.

Local authorities may refuse to issue a construction permit for direct power lines if the authorization would obstruct the provisions of law to ensure the execution of public service obligations and universal service guarantees. Refusal has to be properly motivated and justified. As mentioned above, in accordance with article 33 of Law No. 124-XVIII of 23.12.2009 on electricity, the power plant construction (or upgrading of existing power plants by increasing their capacity), where installed capacity is greater than 20MW, has to be approved by the Government. If capacity is less than 20 MW, the decision may be taken by the local authority.

Work in industrial safety domain

Activity in industrial safety domain is legislated by Article 8 of Law No. 116 of 18.05.2012 on the industrial safety of dangerous industrial facilities. Equipment and/or technical and technology equipment placed on the market to be used with hazardous industrial facilities must comply with the applicable technical regulations. Industrial safety activities are subject to state control and technical supervision.

Expert's opinion on dangerous industrial facilities is legislated by Article 9 of Law No. 116 of 18.05.2012 on the industrial safety of hazardous industrial objects.

The following are subject to expert's opinion in industrial safety:

- a) project documentation for construction, manufacturing, enhancement, reconstruction, technical re-equipment, conservation and liquidation of hazardous industrial facilities;
- b) buildings and constructions of hazardous industrial facilities;
- c) technical equipment and technological systems used in hazardous industrial facilities.

Energy Generation

Generation license

According to Law No.124-XVIII of 23.12.2009 on electricity, each electricity generation facility, including that using renewable sources, in order to operate in the Republic of Moldova, should apply for an electricity generation license, issued only for a power plant with an installed capacity of:

- 5 MW or higher, if the capacity is used for public consumption;
- 20 MW or higher, if the capacity is intended for internal use.

If the planned installed capacity is less than 5 MW for public consumption and less than 20 MW for internal use, the producer shall communicate to ANRE the commissioning date and shall collaborate with other power market participants, in compliance with Article 28 of Law No. 124-XVIII of 23.12.2009 on electricity.

The detailed procedure to obtain the generation license and the corresponding requirements are specified in Law No. 124-XVIII of 23.12.2009 on electricity.

In the case of renewable electricity generation, additional permits should be issued:

Certificate of Compliance truthfully demonstrates the compliancy of renewable fuel to a certain standard (Renewable Energy Law No.160-XVI of 12.07.2007);

Electricity and fuel generation from renewable energy sources is subject of licensing in compliance with in force legislation (Article 21 of Renewable Energy Law No.160-XVI of 12.07.2007).

Furthermore, the Renewable Energy Law sets requirements for operation of technical equipment and devices on renewable fuel, the compliance of which shall be confirmed (, as well as requirements for exploitation of the equipment and devices in the field of renewable energy and biofuels, by establishing conditions for their marketing).

During the exploitation of the facility generating electricity from renewable sources, the producer should apply for the Guarantee of Origin (ANRE Decision on Guarantees of Origin no.330 dated 3 April 2009) on a monthly basis. According to the regulation, Guarantees of Origin are issued by the network operator (transmission or distribution, depending on the voltage level of the grid the producer gets connected to). The system of Guarantees of Origin in the Republic of Moldova is not based on electronic registry; it is a physical process: the network operator issues three hard-copies of the guarantee (one for the producer, one for ANRE, and the third one stays with the network operator) after performing the inspection to the facility upon the facility owner's request. The use of the Guarantees of Origin is regulated by the selling contract of electricity from renewable sources, which stipulates that the guarantee of origin for the volume of renewable electricity sold ought to be transferred to the supplier; the latter shall reflect it in the bill for supplied power.

Connection to the grid

According to the ANRE Decision No. 266 of 20.11.2007 on Technical Norms for Transmission Electricity Networks, IS Moldelectrica shall analyse and approve the technical conditions on connection of new generation facilities (those which have already obtained a production license or are about to get one) to the grid. As a result, Moldelectrica issues the Technical Notification for Connection. When the analysis demonstrates that the optimal solution is connection to the distribution network, all the documentation is transmitted to the distribution network operator that shall further issue the notification for connection.

Technical Norms for Transmission Electricity Networks introduce technical requirements to generation units, as well as particular requirements to the facilities for telecommunications. This Decision does not provide any specific requirements for RES units. However, the specific guidelines introducing the technical requirements for RES generation have been recently published on IS Moldelectrica's website (<http://www.moldelectrica.md/files/cerinte-tehnice-fata-de-cen-tralele-electrice-regenerabile.pdf>).

According to the ANRE Decision No.393 of 15.12.2010 on approval of the Electricity Supply and Use Regulation, the notification for connection shall be issued before the design process of the power facility and has a validity of at least one calendar year (the system operator should take into consideration the expected duration of the design and construction of the facility).

The State Ecological Expertise opinion

According to Law No. 851-XIII of 29.05.1996 on Ecological Expertise and Environmental Impact Assessment, state ecological expertise is needed for the generation and associated network development process. The State Environmental Inspectorate shall perform such expertise and issue the final opinion.

Heat: local and national permits

There are no particular requirements for heat generation facilities. In the case of co-generation, the investor shall obtain the same permits as those for electricity generation facility; this is specified in the Draft Heating Law.

No provisions have been identified addressing the heat network connection.

Spatial Planning - Electricity transmission/distribution network planning

According to the ANRE Decision No. 266 of 20.11.2007 on Technical Norms for transmission electricity networks, IS Moldelectrica, considering the expected increase of consumption and the new generation capacity planned, carries out the prospective network planning.

Government Decision No. 436 of 26.04.2004 approving the Regulation for Construction/Reconstruction of Power Plants introduces the framework for choosing the location of new power plants, making reference to the Concept for Development and the Allocation Scheme of Electric Power Stations on the Territory of the Republic of Moldova up to 2010. This Decision would be amended referring to the new allocation scheme for power stations. These plans will be developed by the central body of public administration in the energy sector and approved by the Government.

Presently, this is done on a case-by-case basis: each time the investor approaches Moldelectrica requesting connection, an opinion on the feasibility of the connection in the chosen location will be given, considering the existent network/possible reinforcements.

(b) Responsible Ministry (/ies) / authority(/ies) and their competences in the field:

Government,

according to the Draft Law on promotion of the use of energy from renewable sources, has competences on setting up priority directions in the RES field, mechanisms, support schemes and incentives to achieve the objectives in the field. Meanwhile, the Government approves the NREAP, measures and regulations related to its provisions' implementation.

In the specific field of Spatial Planning the competences of the Government are:

- develops and approves spatial planning plans (applicable at state level);
- decides on temporary or final withdrawal of lands (subject to withdrawal) from the agricultural fund of the country;
- decides on withdrawal of land from the forestry fund;
- decides on change of destination of certain types of agricultural, forestry and special destination plots of land;
- approves the construction of power plants with a capacity exceeding 20 MW and the increase of the capacity of the existing CHPs in case should exceed 20 MW (The construction of power plants with a capacity not exceeding 20 MW is to be approved on a preliminary basis by a governmental commission) and the types of fuels to be used at plants with a capacity exceeding 20 MW.

Ministry of Economy,

according to the Draft Law on promotion of the use of energy from renewable sources, acting as central body of public administration in the energy sector, develops the NREAP and, in coordination with local authorities and the donor community, develop support schemes and other development measures, including development of a district heating infrastructure, monitors state, sectoral and local programs.

Also according to the existent legislation the Ministry of Economy:

- proposes the rules of authorization, control and technical supervision in the field of industrial security;
- issues technical authorizations for works in the field of industrial security;
- issues security certificates in the field of industrial security;

carries out the registration of hazardous industrial facilities; also keeps the State Register of Hazardous Industrial Facilities.

Ministry of Transport and Road Infrastructure,

according to the Draft Law on promotion of the use of energy from renewable sources, acting as central body of public administration in transport sector, calculates the final energy consumption from renewable sources in transport.

Ministry of Environment:

ensures performance of ecological expertise of projects, plans, programmes, concepts, development strategies;
coordinates the process of evaluation of the environmental impact of certain types of objects and economic activities.

Ministry of Regional Development and Construction:

ensures the quality of constructions in terms of security against all types of risk factors - natural, technogenic and anthropogenic, as well as in terms of economic and technological efficiency (low consumption of materials, energy, labour to achieve and exploit objectives);
ensures development, maintenance, monitoring, fulfilment and update of the National Plan of Spatial Planning;
ensures development, monitoring and implementation of the National Regional Development Strategy;
issues planning certificates and construction permits for works/constructions of national interest public utility.

Central and local public administration authorities,

according to the draft law on the promotion and use of energy from renewable energy sources, have competences in the area of building and construction regulations, in the area of heating and cooling as well as in the area of evaluation of the gas network infrastructure.

In the specific field of spatial planning, the local LPAA competences are:

issue planning certificates and construction permits;
develop and approve regional and local territorial and urban plans.

National Agency for Energy Regulation: according to the Draft Law on promotion of the use of energy from renewable sources issues licenses to produce electricity and heat from renewable sources, for biogas production to be delivered within the networks of gas and for the production of liquid biofuels.

Energy Efficiency Agency (EEA), according to the Draft Law on promotion of the use of energy from renewable sources provides information to the public, to the stakeholders interested in the RES sector development and develops the framework required by the certification schemes authorisation.

Transmission and distribution network operators, according to the Draft Law on promotion of the use of energy from renewable sources, provide the required information on connection, including costs estimation, ensures the priority access of the energy from renewable sources to the transmission networks.

Under existing legislation, **the State Owned Enterprise "Moldelectrica":**

coordinates the process of connection to the existing grid of new generation facilities;
analyses and confirms fulfilment of the technical conditions for connection to the grid;
approves the connection to the grid;

issues the guarantees of origin for electricity produced from RES and performs the inspection of the RES facility.

(c) Revision foreseen with the aim of taking the appropriate steps as described in Article 13(1) of Directive 2009/28/EC by: 31 December 2014.

The following revision measures will be undertaken:

Introduce administrative procedures (authorisation, certification and licensing) for plants that produce energy for heating and cooling purposes, as well as for the associated transmission and distribution infrastructure. It can be reflected in the Draft Heating Law, currently under development;

Introduce administrative procedures (authorisation, certification and licensing) to be applied for the process of transformation of biomass into biofuel or other energy products;

Introduce clear timetables for determining planning and building applications;

Develop and publish instructions/guidelines for authorisation, certification and licensing procedures for RES investors;

Develop and introduce cost calculation methodology to ensure transparent and non-discriminatory access to the grid of electricity generation from renewable sources;

Facilitate access to the grid for the electricity and heat produced from renewable sources;

Simplify/expedite procedures in a transparent manner by integrating and improving the existent regulations;

Strengthen the EEA's role as a single information centre for investors in energy generation from renewable sources.

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

Considering the obligations of the Republic of Moldova under the Energy Community Treaty, Directive 2009/28/EC shall be fully transposed. The Government of Moldova is working on the draft Law on promotion of the use of energy from renewable sources. Planned measures at regional/local level will become a substantial component of the LEEP (local energy efficiency program). The program and the plans are to be developed at regional level on an annual basis.

(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 of transformation of biomass into biofuels or other energy products? If so, what are they?

The Government of Moldova considers the following aspects to be substantial obstacles for the authorisation, licensing and development of RES generation capacities, as well as for the development of associated transmission and distribution infrastructure:

Unclear methodology to allocate the connection cost between the network operator/owner and the investor in generation of energy from renewable sources;

Increasing uncertainty for grid-connected biomass CHPs or solar thermal collectors in the absence of any regulation on heating systems;

No facilitation in the authorisation/certification/licensing and grid connection procedure for energy generation from renewable sources;

No transparent guideline for planning activities towards building new capacities to produce energy from renewable sources;

No legislation on authorisation, certification and licensing for plants that produce energy for the purposes of heating and cooling, as well as for the associated transmission and distribution infrastructure;

No legislation on authorisation, certification and licensing to be applied for the process of transformation of biomass into biofuel or other energy products;

No guidelines for authorisation, certification and licensing procedures for RES investors.

- (f) What level of administration (local, regional and national) is responsible for authorising, certifying and licensing renewable energy facilities and for spatial planning? (If it depends on the type of facility, please specify.) 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?**

The List of the main duties of the Moldovan authorities is displayed under section (b) above.

There is no coordination between different authorities and their duties in terms of RES projects.

Nevertheless, based on the existing legislation, allocation of responsibilities is as follows:

Central public administration authorities:

The Government:

approves the construction of power plants with a capacity exceeding 20 MW, as well as capacity increase of the existing plants if such capacity exceeds 20 MW;

organise tenders in compliance with the law;

Ministry of Economy:

develops technical authorisations in the field of industrial security and certification of equipment security to be used at the hazardous industrial facilities;

National Agency for Energy Regulation:

In compliance with the provision of Law No. 124-XVIII of 23.12.2009, issues licences for the following types of activities: generation of electricity, transmission of electricity; distribution of electricity, supply of electricity at regulated or non-regulated tariffs;

Ministry of Environment:

performs the state ecological expertise and environmental impact assessment;

Ministry of Regional Development and Constructions:

issues planning certificates and construction authorizations for works / constructions of public utilities of national interest;

State owned Enterprise "Moldelectrica":

issues authorisation for exploitation, approval for connection to the grid and guarantees of origin for electricity produced from renewable energy sources;

Local public administration authorities:

issues planning certificates and construction authorisations.

There is no overlapping between the responsibilities of central and local public authorities.

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

The single information centre for investors in renewable energy and energy efficiency was created in 2013 within the Energy Efficiency Agency, by Government Decision No.103 of 06.02.13. This centre is designed to provide information support to investors, create and develop a network of cooperation between investors and central and local public authorities, or institutions responsible for regulation and control.

Some information can be found on the websites of the respective authorities (e.g. ANRE, Ministry of Environment, local public administration authorities²⁴ – within the limits of competence of one or another authority), or received by phone, fax, emails, and official letters of such authorities (only certain local public authorities provide for the procedures to be met and lists of documents to be submitted in order to obtain the required permits, e.g. planning certificates, construction authorizations, etc.).

The relevant and up-to-date legislation on licensing, authorizations, certification and similar, can be found on the legislative database of the Republic of Moldova, as made available by the Ministry of Justice of the Republic of Moldova (<http://lex.justice.md/>). Any Internet user can access the database free of charge. All legal acts containing rules concerning authorization, certification, licensing, etc. are generally published in the Official Gazette of the Republic of Moldova.

The Energy Efficiency Agency will act as the single information centre for investors in renewable energy production.

- (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 for the application?**

At present, the horizontal coordination between different administrative bodies is not facilitated for the investors in RES-E generation. All the permits described in Section 4.2.1 (a) have to be managed by the investor. The main steps are described in the Section 4.2.1 (a). The procedure and timetables for issuing each license/permit are established by law. No inconsistencies or inter-conditionings that could lead to bottlenecks in the preparation and implementation of investment projects have been identified.

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

No, in terms of procedures, the current legislation does not take into account the specificities of different existent types of renewable energy technologies (electricity, biofuels, heat).

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

²⁴Note:

notification procedures planned in the future? If so, for which types of facility/system? (Is net metering possible?)

There are no specific procedures; it is partially implemented for all producers (including traditional and renewable ones), which according to Article 15 of Law No.124 of 23.12.2009 on electricity, if the planned installed capacity is less than 5 MW for public consumption and less than 20 MW for internal use, the producer shall communicate to the ANRE the commissioning date and collaborate with other power sector's participants following Article 28 of Law No. 124-XVIII of 23.12.2009 on electricity, when applicable.

The provisions of Law No. 124-XVIII of 23.12.2009 on electricity shall be reinforced providing particular simplification of requirements for authorisation/certification/licensing in the case of renewable generation.

Simplified conditions for small-scale CHP facilities that produce energy from RES have been also included in the Draft Heating Law.

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

Production of electricity and biofuel licensing fees are the amount of money to be paid for issuing license, as established in Law No. 452-XV of 30.07.2001 on Regulating Entrepreneurial Activity through Licensing. There are no plans of revising the fees in the near future.

(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 be addressed?

No, there is no official guidance available. It will be implicitly introduced through LEEAPs (local energy efficiency action plans), where measures and guidelines for energy efficiency and for renewable promotion will be introduced at regional level.

(m) Are there specific trainings for case handlers of authorisation, certification and licensing procedures of renewable energy facilities?

There is no specific training for case handlers of licensing procedures for renewable energy facilities.

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

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

Under Renewable Energy Law No. 160-XVI dated 12 July 2007, the quality of renewable energy and biofuel has to be ensured by complying with a range of quality and technical indicators related to the generation technology, distribution and consumption. The law provides for the following general requirements for exploitation of technical equipment and devices in the domain of renewable energy:

compliance with the standards and other normative acts;

compliance with the technological requirements on production and of norms on storage, transmission and consumption of renewable energy and fuel;

supervision by the state of the exploitation and functioning of technical equipments and devices;

ensuring compliance of technical-economic indicators of the technical equipment and devices with the requirements of the national and international normative acts.

Up to date, the central public administration authorities in Republic of Moldova did not adopt any special technical or normative acts with regard to requirements that would be applicable only to the renewable energy technologies. Accordingly, general norms on standardization, certification and metrology will apply to the renewable energy domain.

A list of the general legislation applicable to the renewable energy technologies and constructions is hereby presented:

Law No. 835-XIII dated 17 May 1996 concerning urban and spatial planning principles;

Law No. 721-XIII dated 02 February 1996 on construction quality;

Law No. 163 dated 9 July 2010 on authorization of construction works;

Law No. 1525-XIII dated 19 February 1998 on energy;

Law No. 124-XVIII dated 23 December 2009 on electricity;

Law No. 160-XVI dated 12 July 2007 on renewable energy;

Law No. 116 dated 18 May 2012 on industrial security of the industrial hazardous facilities;

Law No. 590-XIII dated 22 September 1995 on standardization;

Government Decision No. 436 dated 26 April 2004 on approval of the Regulation on construction/reconstruction of power plants;

Government Decision No. 514 dated 23 April 2002 on approval of the Regulation for protection of power grids;

Government Decision No. 393 dated 15 December 2010 on approval of the Regulation on supply and use of electricity;

Government Decision No. 361 dated 25 June 1996 on ensuring the quality of constructions;

Decision of the National Agency for Energy Regulation No. 393 dated 15 December 2010 on approval of the Regulation on power supply and use;

Decision of the National Agency for Energy Regulation No. 266 dated 20 November 2007 on approval of technical norms for electricity transmission networks;

Decision of the National Agency for Energy Regulation No. 267 dated 20 November 2007 on approval of technical norms for electricity distribution networks;

Decision of the National Agency for Energy Regulation No. 75 dated 12 December 2002 on approval of power market rules;

Decision of the National Agency for Energy Regulation No. 330 dated 3 April 2009 on guarantees of origin for electricity produced from renewable energy sources.

Draft Law on promotion of the use of energy from renewable sources lays down the adjustment of the national legislative framework in order to comply with the European Union standards as one of the principles of the state policy.

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

- (a) **Reference to existing national and regional legislation (if any) and summary of local legislation concerning the increase of the share of energy from renewable sources in the building sector:**

The Ministry of Regional Development and Construction has drafted the law on the energy performance of buildings, which transposes the provisions of Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings, as well as the secondary legislation. Pursuant to Government Decision No.113 of 07.02.2013 on approval of the National Energy Efficiency Action Plan for 2013-2015" the pertinent law and the secondary legislation shall be approved in 2013, while the technical norms are to be approved in 2014.

In this context, the existing national legislation aiming to increase the share of energy from renewable sources in the building sector includes the following general acts:

Law No. 160-XVI dated 12 July 2007 on renewable energy;

Law No. 142 dated 2 July 2010 on energy efficiency;

Government Decision No. 113 dated 7 February 2013 on approval of the National Energy Efficiency Action Plan for 2013-2015;

Government Decision No. 102 dated 2 February 2013 on the Energy Strategy of Republic of Moldova up to 2030;

Government Decision No. 833 dated 10 November 2011 on the National Energy Efficiency Program for 2011-2020

(b) Responsible Ministry(/ies)/authority(/ies):

- The Government;
- The Ministry of Regional Development and Constructions;
- The Energy Efficiency Agency.
- The local public administration authorities.

(c) Revision of rules, if any, planned by: 31 December 2014

The draft law on the energy performance of buildings and the secondary legislation arising from the law will be approved in 2013, while the technical norms are to be approved in 2014.

Adoption of the law on the energy performance of buildings will require certain amendments and addenda in other pieces of legislation in the construction domain: Law No. 721-XIII, dated 2 February, 1996 on quality in constructions, Law No.163 dated 9 July, 2010 on authorization of the construction works and Law No.142 dated 2 July 2010 on energy efficiency, which are likely to be adopted concurrently with the adoption of the law on the energy performance of buildings.

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

Specific objectives set by the Government Action Plan for 2012-2015 approved by Government Decision No. 289 of 7.05.2012 and further cited in Government Decision No.113 of 07.02.2013 on National Energy Efficiency Action Plan for 2013-2015 are the following:

1. Energy conservation promotion:

Conducting ten energy audits of public buildings;

Rehabilitation of 300 dwelling houses during QIV 2014;

Adopting European and international standards in the area of energy performance of buildings in 2013;

2. Establishment of the necessary infrastructure in the area of energy performance of buildings by QIV 2014, including:

Developing software to compute the energy performance of buildings;

Developing electronic system to register in a centralized manner the certificates of energy performance of buildings;

Developing a web-page in the area of energy performance of buildings to record and disseminate public information.

3. Development of legislation on energy labelling of energy-related products in 2013 and conducting the related public awareness campaign;

4. Ensuring viability and possibility for the district heating sector development through its economic, institutional and technical restructuring:

Complete the Study on short-term and long-term investment needs of the district heating system in Chisinau Municipality;

Develop and approve the draft Heating Law;

Amend the Regulation on heat supply and use, approved by Government Decision No. 434 dated 09 April 1998.

5. Enhancing energy efficiency in all national economy sectors:

Develop informational basis in the area of energy efficiency and renewable energy sources;

Develop a system for energy efficiency monitoring and evaluation.

6. Designing the Construction Sector Development Strategy.

7. Supporting the production of construction materials in accordance with the European standards, including the establishment and fitting of test labs for conformity evaluation of construction materials by the end of 2015.

8. Facilitating the implementation of innovations and new technologies in the area of construction through the reforming of the system for technical regulation of constructions and implementing performance standards in constructions:

Devise the reforming programme of the system of normative documents in the area of constructions by 2013;

Adopt and implement Euro-codes by 2014 (100% of Euro-codes adopted);

Adopt international standards in the area of constructions during 2014 (approximately 50% of the relevant standards adopted).

Pursuant to Government Decision No. 113 of 07.02.2013 on approval of the National Energy Efficiency Action Plan for 2013-2015, the Energy Efficiency Agency, together with the Ministry of Regional Development and Constructions and the local public administration authorities, shall ensure:

initiation of certain programmes with regard to rehabilitation of the buildings owned by the state or those of social implication;

providing support in construction of passive buildings, buildings with low energy demand or nearly-zero energy buildings;

improvement of the drinking water treatment and supply systems;

use of renewable energy sources for heating of social implication facilities, etc.

The National Energy Efficiency Action Plan for 2013-2015 envisages the implementation by the public authorities of the following activities:

- launch of the Credit Line of EUR 35 million for energy efficiency projects that are to be implemented in the residential sector;
- performing the plan for adoption of the EU standards in the domain of energy performance of the buildings;
- training and authorization of specialists for energy certification of the buildings;
- training and authorization of 50 specialists for performance of periodical inspection of the heating and cooling systems;
- issuance of 500 certificates of energy performance;
- inspection of 100 heating and cooling systems (heating systems with a power exceeding 20 kW and cooling systems with a power exceeding 12 kW).

Current measures foresee the targeted actions aimed at RES utilisation in the building sector. The draft Law on promotion of the use of energy from renewable sources defines these measures in a consistent and well-elaborated way.

- (e) Are there minimum levels for the use of renewable energy in building regulations and codes? In which geographical areas and what are these requirements? (Please summarise.) In particular, what measures have been built into these codes to ensure the share of renewable energy used in the building sector will increase? What are the future plans related to these requirements/measures?**

There are no minimum levels for the use of renewable energy in the current regulations. However, the draft law on the energy performance of buildings indicates that after June 30, 2019, the new public buildings will have to be nearly-zero energy buildings, while after 30 June 2021 all the buildings will have to be nearly-zero energy buildings. The draft law provides for the obligation of the Government of the Republic of Moldova to develop and approve the National plan for increasing the number of nearly-zero energy buildings.

The draft Law on promotion of the use of energy from renewable sources foresees the following:

Central and local public administration authorities will introduce into building codes and regulations specific measures to promote the increase of share for all types of renewable energy in the construction sector;

By December 31, 2014, central and local public administration authorities shall establish by means of specific provisions in the building codes and regulations or by any other measure with similar effect the minimum obligatory level for renewable energy share for the new buildings and the existent ones under significant renovation.

- (f) What is the projected increase of renewable energy use in buildings until 2020? (If possible differentiating between residential — ‘single-unit’ and ‘multiple unit’, commercial, public and industrial.) (To answer this question you may use a table as Table 6 below. Data could be given yearly, or for selected years. Both heating and cooling and electricity consumption from renewable energy sources should be included.)**

Currently the Republic of Moldova does not dispose of the necessary information to complete the Table. It will be performed in the context of the follow-up on the National Renewable Energy Action Plan.

- (g) Have obligations for minimum levels of renewable energy in new and newly refurbished buildings been considered in national policy? If so, what are these levels? If not, how will the appropriateness of this policy option be explored by 2015?**

By now, the existing national policies in the domain of energy efficiency of buildings do not contain clear minimum levels of renewable energy in the new or newly refurbished buildings.

The draft Law on the energy performance of buildings, however, indicates certain milestones (30 June, 2019 and 30 June, 2021) with regards to the obligation to construct nearly-zero energy buildings.

(h) Please describe plans for ensuring the exemplary role of public buildings at national, regional and local level by using renewable energy facilities or becoming zero energy buildings from 2012 onwards? (Please take into account the requirements under the EPBD).

The Draft Law on promotion of the use of energy from renewable sources requires the central, regional and local public administrative authorities to introduce measures that would ensure the new buildings (or those after major renovation) to perform an exemplary role demonstrating the successful implementation of the state policy in the renewable energy sector. Media will become one of the strongest information dissemination instruments in this respect.

Also an important role in ensuring the exemplary role of public buildings will be assigned to the Energy Efficiency Fund, which is established to finance energy efficiency projects and use of renewable energy, particularly in the public sector. Each year the Fund will have an investment program to finance such projects, ensuring by default stronger promotion of energy efficiency and renewable energy measures in the public sector.

(i) How are energy efficient renewable energy technologies in buildings promoted? (Such measures may concern biomass boilers, heat pumps and solar thermal equipment fulfilling eco-label requirements or other standards developed at national or Community level).

The draft law on the energy performance of buildings provides for the obligation of the Government to develop and implement national programs and action plans with regard to improvement of the energy performance of the buildings. The authorities will ensure the development and implementation of financial incentives aiming to promote improvement of the energy performance of the buildings.

The Draft Law sets the general frame for the certification of buildings' energy performance. More particularly, this draft law contains the general conditions on certification (types of buildings, the process of evaluation of the energy performance, the process of issuance of certificates, dissemination of the information on certificates obtained, etc.).

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

a) Reference to existing national and/or regional legislation (if any) concerning information requirements according to Article 14 of Directive 2009/28/EC.

Legal acts of the Republic of Moldova contain references to the dissemination of information in the field of renewable energy:

1. Law No. 160-XVI of 12.07.2007 on renewable energy stipulates that the dissemination of information with regard to the activities in the domain of renewable energy is performed by:

training;

introduction of teaching programmes on the employment of renewable energy sources;

ensuring the transparency of the activities, including by advertising, information on performances, demonstration of high efficiency facilities and equipment;

creation of a database aiming to disseminate the information on exploitation of renewable energy sources.

2. Law No. 142 of 02.07.2010 on energy efficiency provides the obligation of the Energy Efficiency Agency to support the activities in the domain of energy efficiency from the scientific and information point of view. On a yearly basis, by March 31, the Energy Efficiency Agency, together with the specialised institutions and organizations, presents proposals on the topics of the experimental works and scientific researches in the field of energy efficiency that would be focused on:

development of national, local or branch programmes, as well as projects on energy efficiency;

implementation of the scientific and innovative achievements in the field of energy efficiency;

creation of new materials, methods and technologies in the field of energy efficiency;

reduction of the expenses in the process of use of energy sources.

The Law establishes that distribution network operators, transmission network and system operators, as well as energy suppliers, are required to inform the consumers' associations, public authorities and other stakeholders on measures of energy efficiency energy services quality improvement, on technical specifications of the energy equipment.

3. Government Decision No. 113 of 07.02.2013 on approval of the National Energy Efficiency Action Plan for 2013-2015 contains norms regarding the obligations for training and providing of information to the players of the energy services market. The Energy Efficiency Agency ensures training and education of the energy services suppliers, consultants and beneficiaries by:

Ensuring operation of single information centre;

Devising a guide for public authorities;

Training of energy managers;

Providing information and training to the private sector;

Training on instruments relating to energy managing systems;

Preparing the guidelines on the energy performance certificates;

Publication of the list of energy services suppliers on the EEA website;

Dissemination of the information on the financial mechanisms available for the energy services;

4. Government Decision No. 113 of 07.02.2013 on approval of the National Energy Efficiency Plan for 2013-2015 provides for the obligation of the Ministry of Economy to supply information to all stakeholders on the institutional, legal and financial frames;
5. Government Decision No. 833 of 10.11.2011 on the National Energy Efficiency Program contains the National Strategy on communication in the domain of

efficiency. The Strategy pursues the main goal to consolidate the efforts and establish institutional cooperation with regard to promotion of the efficient energy consumption and use of renewable energy sources;

6. General requirements with regard to the dissemination of information are also contained in Government Decision No. 102 of 02.02.2013 on the Energy Strategy of the Republic of Moldova up to 2030;
7. The Draft law on the energy performance of buildings contains a list of elements comprised by the national information system in the domain of the energy efficiency of buildings (the electronic system on calculation of the energy efficiency of buildings; the electronic system on issuance of certificates of building energy performance; the electronic system on preparing the reports on inspection of heating systems; the electronic system on preparing the reports on inspection of the cooling systems; the electronic register of energy evaluators, etc.).

b) Responsible body/(ies) for dissemination of information at national/regional/local levels:

The main national bodies responsible for information dissemination in the area of renewable energy/energy efficiency are:

Ministry of Economy (Energy Efficiency Agency);
 Ministry of Regional Development and Constructions;
 Ministry of Transport and Road Infrastructure;
 Ministry of Environment;
 Ministry of Education;
 Science Academy of the Republic of Moldova.

According to the Law No. 142 of 02.07.2010 on energy efficiency, the EEA:

- develops pilot-projects in the RES field;
- assists national and local public authorities in preparation of RE promotion programs;
- provides information and consulting assistance to the energy companies, legal/natural persons in the RES area;
- collects information related to RES and provides such information to the stakeholders;
- distributes information related to the measures, such as legal background and financial support, chosen for RES promotion in the Republic of Moldova;
- monitors renewable energy promotion, organises conferences, seminars, exhibitions, etc.;
- develops annual reports with detailed description of the EEA activity, and makes them publicly available.

The main regional bodies responsible for information dissemination in the area of renewable energy/energy efficiency are:

the territorial agencies for regional development Centre, South and North;
 energy suppliers.

According to Government Decision No. 833 of 10.11.2011 on National Energy Efficiency Programme 2011-2020 (Chapter 7, Section 8, sub-point 2), electricity suppliers shall specify in the invoice issued for payment or in an annex thereto the following:

information on the share of each energy source in the overall structure of the fuel for the previous year;

reference sources containing information on the impact on the environment.

The main local bodies that are responsible for dissemination of the information in the domain of renewable energy/energy efficiency are the local public administration authorities.

According to the provisions of the National Energy Efficiency Programme 2011-2020, the local public authorities shall inform the owners or users of the buildings in regards of:

certificates of the energy performance and inspections reports, including their goal and objectives;

efficient modalities to improve building energy performance;

possibilities for energy renewable sources utilisation;

financial instruments available to support building energy performance improvement.

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

Government Decision No. 833 of 10.11.2011 on the National Energy Efficiency Programme for 2011-2020 introduced the first approach for the Communication Strategy in the area of energy efficiency and renewables.

Government Decision No. 113 of 07.02.2013 on approval of the National Energy Efficiency Action Plan for 2013-2015 provides the list of activities on dissemination of the information on energy efficiency planned for the period 2013-2015:

Organizing the annual contest "Moldova ECO-ENERGETICA";

Introduction of the "Green Hour" into the school curriculum;

Organization of the exhibition "Mold-Energy";

Trainings for employees of the Energy Efficiency Agency, the Ministry of Economy and the Ministry of Regional Development and Constructions;

Printing of articles and brochures on energy services;

Organizing training courses for energy managers;

Organizing training courses on the energy management system - EN ISO 50001;

Organizing training courses on the system of optimization of steam in the industrial sector;

Organizing training courses for the suppliers of steam system equipment;

Organizing training courses for the energy auditors;

Organizing training courses for energy inspectors;

Organizing training courses for energy evaluators;

Publication of articles on the classes of energy efficiency for energy-related products;

Publication of the brochure on energy labelling of products;

Publication of articles on certificates of energy performance of buildings;

Publication of articles on periodical inspection of heating and cooling systems;

Printing of brochures on building energy performance certificates for end users;

Organization of seminars for the entities management on implementation of the energy management system in the industrial sector;

Organizing training courses for entities personnel on the EN ISO 50001 energy management system;

Organizing training courses for the personnel of heat production entities on optimization of the steam system and related facilities.

d) Please indicate how information is made available on supporting measures for using renewable energy sources in electricity, heating and cooling and in transport to all relevant actors (consumers, builders, installers, architects, suppliers of relevant equipment and vehicles). Who is responsible for the adequacy and the publishing of this information? Are there specific information resources for the different target groups, such as end users, builders, property managers, realtors, installers, architects, suppliers of equipment using renewable energy sources, public authorities? Are there information campaigns or permanent information centres in place, or planned to be unrolled/set in the future?

The information is made available through:

- publishing legislation/decisions/methodologies, regulations, etc. in publicly available sources;

- permanent updating of the EEA website;

- events/conferences/seminars dedicated to the promotion of energy from renewable sources in the country;

- targeted product dissemination (printing materials, brochures, school textbooks);

- media coverage;

- TV and radio spots;

- publishing by suppliers of the information about the delivered electricity mix in the electricity bill issued to the end user.

The EEA is responsible for the information reliability and its publication. In the case of dissemination of the information on the delivered electricity mix, the electricity suppliers are responsible for their data/actions.

Communication takes place through the following channels and using the following products:

- events (seminars, roundtables, conferences), which can be regular at specific dates throughout the year or occasionally;

- targeted products (brochures or manuals, presentation and interpretation of legal/regulatory framework);

- permanent updating of the EEA website and notification by e-mail to all relevant stakeholders after each update relevant to them;

- general public communication is mass communication (as opposed to targeted stakeholder communication as described above). It takes place through the following channels and is using the following products:

- printed materials amenable to large scale dissemination, which describe the country interest for renewable energy promotion and the existing measures planned or carried out – issues that could be of interest to the general public, or posters with

the same message on the premises where there is a large public turn over (utility bills cashiers, public health premises, transportation hubs, etc.);
 radio and TV spots;
 press releases, press conferences and interviews for EEA and MoE senior managers who communicate on RES promotion measures of public interest.

All the measures are summarised in the EEA Communicational Plan that is reviewed and adjusted on an annual basis.

- e) **Who is responsible for publishing information on the net benefits, costs and energy efficiency of equipment and systems using renewable energy sources for heating, cooling and electricity? (Supplier of the equipment or system, public body or someone else?)**

The Energy Efficiency Agency is required to provide publicly the information on the high efficiency facilities and equipment.

- f) **How is guidance for planners and architects provided to help them properly consider the optimal combination of renewable energy sources, high efficiency technologies and district heating and cooling when planning, designing, building and renovating industrial or residential areas? Who is responsible for that?**

The draft Law on the energy performance of buildings introduces rules applicable to this context. Same information will become available through the LEEAP (Local Energy Efficiency Action Plan), which will include energy efficiency as well as renewable energy promotion aspects. The Energy Efficiency Agency and Local Public Administration Authorities are responsible for such guidance.

- g) **Please describe the existing and planned information, awareness raising and training programmes for citizens on the benefits and practicalities of developing and using energy from renewable sources. What is the role of regional and local actors in designing and managing these programmes?**

Under the framework of Government Decision No. 833 of 10.11.2011 on the National Energy Efficiency Programme for 2011-2020, the guidelines for the Communication Plan were determined. The Communication Plan 2013 for EEA is currently in place. The Plan includes the specific instruments to be used and the operational plan for raising awareness in Moldova in relation to RES. The main applicable instruments are:

Permanently update the EEA webpage, as well as publications in other available sources (newspapers, web pages of other authorities, etc.).

Organisation and implementation of awareness campaign targeted at promotion of RES and EE in Moldova – that includes but is not restricted to press conferences, public events, press releases, etc;

Publication and distribution of printed (leaflets, flyers, etc.) and video materials on the related topics;

Organisation of workshops for investors in the Energy Efficiency and Renewable Energy sectors;

Organisation and holding of conferences dedicated to the International Day of Energy Efficiency;

Organisation of “Moldova Eco-Energetica” Contest, etc.

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

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

The National Energy Efficiency Program 2011-2020 (Government Decision No. 833 dated November 10, 2011) stipulates that installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems will be certified by the Technical Centre for Industrial Security and Authorisation, based on a regulation for installers' certification.

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

The installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems will be certified by the Technical Centre for Industrial Security and Authorisation.

- (c) Are such certification schemes/qualifications already in place? If so, please, describe.**

Currently there is no such scheme in place.

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

Currently there is no such scheme in place; therefore, no relevant information is published. The lists of certified/qualified installers are not published.

- (e) Summary of existing and planned measures at regional/local levels (where relevant).**

In 2013 the certification/qualification schemes for installers of small-scale biomass boilers and stoves, solar PV and solar thermal systems, shallow geothermal systems and heat pumps will be introduced, respectively the list of certified/qualified installers will be published.

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

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

General provisions regarding electricity networks are stipulated in Law No. 124-XVIII of 23.12.2009 on electricity.

Article 35 and Article 37 of this Law define the obligations of transmission network and system operator, as well as the obligations of distribution network operators related to the use and extension of electricity networks. Technical norms of electricity transmission and distribution grids are provided in Article 36 and Article 38 of Law No. 124-XVIII of 23.12.2009 on electricity. Technical requirements imposed to the users in terms of dispatchable groups, telecommunication equipments, data and remote metering, as part of conditions for connection to the transmission grid are described in technical norms of electricity grids, approved by ANRE Decisions No. 266 and No. 267 of 20.11.2007 (Chapter V).

The legislation of the Republic of Moldova does not provide any specific treatment or indications regarding renewable generation facilities. However, the transmission network and system operator publishes on its website the technical requirements for renewable-based power plants, including specific information for wind power plants.

- 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?**

Tasks and responsibilities of the transmission network and system operator and distribution network operators regarding the extension, reinforcement and development of the electricity transmission and distribution network are provided in the Law No. 124-XVIII of 23.12.2009 on electricity.

General principles for electricity network extension are provided in Article 40 of the Law No. 124-XVIII of 23.12.2009 on electricity. The Regulation on the extension of the distribution network approved by ANRE Decision No. 439 of 23.11.2011 (Section 2, Article 6) addresses only the demand side as two individual cases:

- increasing consumption;
- new demand.

General conditions for third party access to the electricity network are provided in Article 39 of the Law No. 124-XVIII of 23.12.2009 on electricity. According to it, the transmission network and system operator and distribution network operators shall ensure non-discriminatory access to transmission and distribution networks to all system users and third parties, having supposedly to include renewable electricity generators but without specific indication of it.

The transmission network and system operator and distribution network operators may refuse access to their networks only due to lack of capacity, the refusal being properly motivated and justified. Also, the operators shall inform ANRE on each case of refusal as well as on congestions and solutions to remove them. The operators shall also provide the stakeholders with specific information regarding terms and measures to be taken for the extension of the electricity transmission and distribution networks, here including coordination in choosing the most beneficial connection solution.

The transmission network and system operator and distribution network operators are directly responsible for the extension of the electricity transmission and distribution network in order to accommodate all electricity flows (electricity demand) across that network. The extension procedures are provided in the Technical norms of the electricity transmission network and Technical norms of the Electric distribution network (ANRE Decision No. 266 and No. 267 of 20.11.2007)), while the Regulation on extension of the electric distribution network, developed and approved by the ANRE, only considers consumption purposes.

The indications for TSO and DSOs are stated in Directive 2009/28/EC:

- 1) to develop transmission and distribution networks with a view to integrating the targeted amount of renewable electricity while maintaining secure operation of the electricity system; and
- 2) the requirement to integrate more RES into the networks included in the transmission and distribution operators' periodical network planning

shall be part of the Draft Law provisions on promotion of the use of energy from renewable sources.

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

The legislation does not provide specific measures for the implementation of smart grids. In the terms that appear in Article 16.1 of the Directive, which addresses the development of renewable energy related to the grid's infrastructure, there is no specific approach for interconnections, storage facilities and system development.

The electricity generation from renewable sources is supposed to be included in the overall approach of the interconnection aspects which does exist.

Government Decision No.102 of 05.02.2013 on Energy Strategy of the Republic of Moldova up to 2030 envisages the smart grid introduction in a later stage.

Regarding metering, in 2010 ANRE approved the Regulation on electricity metering for commercial purposes (ANRE Decision No. 382 of 02.07.2010), which sets up the new requirements for metering equipment installed in different points of the grid.

The regulation establishes 5 metering points' categories:

Category A: measurement points where electricity is delivered into the transmission or distribution network by power plants;

Category B: points where the quantity of imported, exported and transited electricity is measured, measurement points situated on interconnections with other power systems and measurement points where electricity is transmitted into the distribution network from the transmission network;

Category C: points where the quantity of electricity supplied to customers connected at the transmission network is measured;

Category D: points where the quantity of electricity supplied to customers connected to the distribution network at the voltage level of 6 kV and above is measured;

Category E: points where the quantity of electricity supplied to customers connected to the distribution network is measured, except for Category D points.

The following specific requirements on data storage and meter type are provided for metering equipment installed under different categories of measurement points:

Electricity producer must install only electronic meters able to record both energy and power on an hourly basis. It needs to have data storage capability for at least one year and the possibility to connect the meter to the automated electricity metering system and establish remote data reading. It also needs to detect the time when the meter has become defective, regardless of the power plant's installed capacity;

For category A and B points, only advanced electronic meters that can record quantities of active power, as well as reactive power in all four quadrants shall be installed;

In category C points, only electronic meters that are able to record both energy and active power on an hourly basis, as well as energy and reactive power in all four quadrants, with the possibility to connect the meter to the automated electricity metering system and establish remote data reading shall be used; finally, they also need to detect the time when the meter has become defective;

In category D points, only electronic meters that are able to record energy and active power, as well as energy and reactive power, shall be used.

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

The existing interconnection between the Republic of Moldova's electricity network and other systems is considered to be insufficient not only for balancing of intermittent generation reasons, but also for stability of the system in case of synchronous connection to ENTSO-E system.

Several new interconnection lines with Romania and Ukraine are planned to be built:

Table 1

Interconnection lines with Romania and Ukraine

| | Name | Length | Capacity | Deadline |
|----|--|--------------|-------------|----------|
| 1. | 110kV Falciu-Gotești, | 28 km | 50-60 MW | 2012 |
| 2. | 330 kV (2nd line) Novodnestrovsk- Balti (expansion of Balti station) | About 123 km | 500-1000 MW | * |
| 3. | 400 kV Balti-Suceava | About 135 km | 500-1000 MW | 2019 ** |
| 4. | 330/400 kV Straseni-Ungheni-Iasi | 120 km | 500-1000 MW | * |

* depending on ENTSO-E connection feasibility study.

** according to the Memorandum of Understanding signed by IS Moldelectrica and CNTEE Transelectrica.

e) How is the acceleration of grid infrastructure authorisation procedures addressed? What is the current state and average time for getting approval? How will it be improved? (Please refer to current status and legislation, bottlenecks detected and plans to streamline the procedure with timeframe of implementation and expected results.)

For power lines with rated voltage of 330 kV and above, and for thermal power plants with an overall capacity above 300 MW, the approval procedures are subject to the environmental impact assessment, provided by Law No. 851-XIII of 29.05.96 on ecological expertise and environmental impact assessment.

According to the existent legislation, there is currently no provision referring to the acceleration of grid infrastructure procedures in the Republic of Moldova. However, according to Law No. 124-XVIII of 23.12.2009 on electricity, the network operator is required to send feedback to the new application within 15 calendar days from its submission. The connection timetable is set in the contract with the investor.

The network operator shall publish on its website a clear timetable for processing applications for connection. The connection contract template will be of public access on the website of the network operator.

f) How is coordination between grid infrastructure approval and other administrative planning procedures ensured?

Annual plans for the development of electricity transmission networks are approved by IS "Moldelectrica" with subsequent approval by ANRE. These plans are not published on the website of the transmission network and system operator. Currently IS "Moldelectrica" is in the process of drafting the development plan of the transmission network on medium term, which includes administrative procedures for coordination with MoE and ANRE.

Government Decision No. 436 of 26.04.2004 on approval of the Regulation for construction/reconstruction of power plants introduces the framework for selection of the location for new power plants. This Decision will be amended to refer to the new planning scheme for power stations.

Currently, a case-by-case scheme is applied: each time the investor approaches Moldelectrica asking for connection, it receives indications on the feasibility of the connection in the chosen location considering the existent network/possible reinforcements.

g) Are priority connection rights or reserved connection capacities provided for new facilities producing electricity from renewable energy sources?

Law No. 124-XVIII of 23.12.2009 on electricity provides that the transmission network and system operator and distribution network operators shall ensure non-discriminatory access to transmission and distribution networks to all system users and third parties, including electricity producers from renewable sources.

There are no provisions regarding priority connection rights or need for capacity reservation in the case of new RES-E facilities.

However, according to the Technical norms of the electric transmission network and Technical norms of the electric distribution network (ANRE Decisions No. 266 and 267 of 20.11.2007), the transmission network and system operator and distribution network operators have the obligation to draw up 10-year prospective plans (in the case of TSO) and 3-year prospective plans (in the case of DSOs), as well as to carry out the grids development and extension taking into consideration the development of generation capacities (including the RES-E production development).

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

No, there are not.

i) Are the rules on cost sharing and bearing of network technical adaptations set up and published by transmission and distribution system operators? If so, where? How is it ensured that these rules are based on objective, transparent and non-discriminatory criteria? Are there special rules for producers located in peripheral regions and regions with low population density? (Cost bearing rules define which part of the costs is covered by the producer wishing to be connected and which part by the transmission or distribution system operator. Cost sharing rules define how the necessary costs should be distributed between subsequently connected producers that all benefit from the same reinforcements or new lines.)

There are no special requirements for transmission network, system operator and distribution networks operators to publish rules on cost sharing and bearing of technical adaptations for electricity producers. There are neither specific rules for producers located in peripheral regions or regions with a lower population density, nor regarding connected producers, the practice being that connection assets remain private property of developers, who entirely pay for it.

However, Law No. 124-XVIII of 23.12.2009 on electricity indicates in Article 8s) the obligation of ANRE to set up "deadlines, conditions and payment for power plants connection to the grid" to guarantee those are objective, transparent and non-discriminatory and focused on renewable based generation.

Meanwhile, Article 26 1) of Law No. 160-XVI of 12.07.2007 on renewable energy requires the transmission system operator to issue "free of charge" technical grid connection conditions. The Law on renewable energy does not provide additional requirements but only indicates that connection to the central grid will be provided on a contractual basis (Article 26 (3)).

j) Please describe how the costs of connection and technical adaptation are attributed to producers and/or transmission and/or distribution system

operators? How are transmission and distribution system operators able to recover these investment costs? Is any modification of these costs bearing rules planned in the future? What changes do you envisage and what results are expected? (There are several options for distributing grid connection costs. Contracting Parties are likely to choose one or a combination of these. According to the "deep" connection cost charging the developer of the installation generating electricity from renewable energy sources bears several grid infrastructure related costs (grid connection, grid reinforcement, and extension). Another approach is the "shallow" connection cost charging, meaning that the developer bears only the grid connection cost, but not the costs of reinforcement and extension (this is built into the grid tariffs and paid by the customers). Another option is when all connection costs are "socialised" and covered by the grid tariffs.)

Law No. 124-XVIII of 23.12.2009 on electricity states a shallow connection charging when decides that transmission network and system operator/distribution network operators shall bear the network extension costs (Article 40(2) for the transmission system operator and (3) for distribution system operators).

According to the provisions of Law No. 124-XVIII of 23.12.2009 on electricity and of ANRE Decision No. 266 of 20.11.2007 on approval of Technical norms for electric transmission networks (Chapter IV), the transmission network and system operator is responsible for the extension and development of the electricity transmission network. The transmission network and system operator must develop prospective plans for power transmission network, taking into consideration the current and future demand and production of electricity. According to this plan, the transmission network and system operator must ensure the development (extension, capacity strengthening) of the transmission network in order to be able to transport all the electricity that was imported, exported or locally produced.

All expenses related to network extension should be fully covered by the transmission network and system operator. These expenses will be taken into account when establishing tariffs for transmission of electricity if made in compliance with license conditions, tariff methodologies and other regulations developed and approved by ANRE (Article 40 of Law No. 124-XVIII of 23.12.2009 on electricity).

The procedures for the development of the distribution network in terms of connection and planning are described in the Technical norms for electric distribution networks, approved by ANRE Decision No. 267 of 20.11.2007 and are similar to the network development procedure for transmission networks. The development plan for the distribution network, developed by the distribution network operator, must be strongly linked to the plans developed by transmission network and system operator. All expenses related to network extension should be fully covered by the distribution network operator. These expenses will be taken into account when establishing tariffs for distribution of electricity if made in compliance with license conditions, tariff methodologies and other regulations developed and approved by ANRE.

k) Are there rules for sharing the costs between initially and subsequently connected producers? If not, how are the benefits for subsequently connected producers taken into account?

Existing costs are not differentiated in terms of sharing among initially and subsequently connected producers. This can be explained by the fact that after construction and connection to the grid the connection line will remain of private property.

l) How will it be ensured that transmission and distribution system operators provide new producers wishing to be connected with the necessary information

on costs, a precise timetable for processing their requests and an indicative timetable for their grid connection?

Law No.124-XVIII of 23.12.2009 on electricity indicates in Article 8 s) the obligation of ANRE to set up "deadlines, conditions and payment for power plants connection to the grid" to guarantee those are objective, transparent and non-discriminatory, and focused on renewable based generation.

Also, Article 39(2), requires from the grid operators to offer appropriate information regarding needed extension measures, as well as specific deadlines to perform this extension. Paragraph (5) of the same article requires from network operators to inform, within 15 days of the submission, on the technical and economic conditions for connection to the network and to cooperate in order to identify the best solution for connection.

Meanwhile, Article 261) of Law No.160-XVI of 12.07.2007 on renewable energy requires from the transmission system operator to issue, free of charge, technical grid connection conditions. The Law on renewable energy does not provide additional requirements but only indicates that connection to the central grid will be provided on a contractual basis (Article 26(3)).

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

a) How is the transmission and distribution of electricity from renewable energy sources guaranteed by transmission and distribution system operators? Is priority or guaranteed access ensured?

According to Article 18 of Law No. 124-XVIII of 23.12.2009 on electricity, licensees must not admit discrimination of the power market participants when granting access to the network and must respect the principle of priority to purchase and dispatch electricity produced by power plants from renewable energy sources. At the same time, the transmission network and system operator and distribution network operators may refuse access to their networks only if they experience lack of capacity. The refusal shall be motivated and justified in an adequate manner (Article 39 of the Law on electricity).

Law No. 160-XVI of 12.07.2007 on renewable energy guarantees the purchase of renewable electricity by suppliers. The Law imposes the principle of purchasing and dispatching priority of electricity generated by power plants using renewable energy sources, and that generated by combined heat and power plants. It shall grant priority to electricity generated by power plants from renewable energy sources to be sold on the internal power market.

The draft Law on promotion of the use of energy from renewable sources lays down the priority access of energy from renewable sources as one of the principles of the state policy.

b) How is it ensured that transmission system operators, when dispatching electricity generating facilities give priority to those using renewable energy sources?

According to Article 35 of Law No. 124-XVIII of 23.12.2009 on electricity, when dispatching electricity, the transmission network and system operator must give priority to power plants that generate electricity from renewable energy sources. At the level of the secondary legislation, the priority for energy from renewables in the dispatching process as well as prioritisation of different renewable based technologies in case of curtailment is missing. Measures to minimize the curtailment of electricity produced from renewable energy sources are not indicated. Further updates of the applicable primary legislation and market rules will set up clear principles and, accordingly, required rules to ensure the minimum generation losses for renewables in case of curtailment, by stating those plants

generation priority over other technologies, as well as priorities inside renewable technologies groups. The draft Law on promotion of the use of energy from renewable sources enlarges the provisions regarding the priority dispatch of energy from renewable sources.

- c) **How are grid- and market-related operational measures taken in order to minimise the curtailment of electricity from renewable energy sources? What kinds of measures are planned and when is implementation expected? (Market and grid design that enable the integration of variable resources could cover measures such as trading closer to real time (changing from day-ahead to intra-day forecasting and rescheduling of producers), aggregation of market areas, ensuring sufficient cross border interconnection capacity and trade, improved cooperation of adjacent system operators, the use of improved communication and control tools, demand-side management and active demand-side participation in markets (through two-way communication systems — smart metering), increased distributed production and domestic storage (e.g. electric cars) with active management of distribution networks (smart grids).)**

For a long-time period it will be difficult, if not impossible, for the Republic of Moldova to develop day-ahead and intra-day markets with the required liquidity. RES-E integration will benefit from coupling the local market with the Romanian one, but this coupling depends on connection to the ENTSO-E system, either synchronously or asynchronously (back-to-back facilities).

Also, the participation of consumption to the system balancing does not seem to be feasible on medium term. The transmission network and system operator will benefit from an enhanced regulation, which would describe emergency situations when the TSO is allowed to shed the renewable based generation.

In this regards, the draft Law on promotion of the use of energy from renewable sources implements the provisions of Directive 2009/28/EC regarding minimisation of the curtailment of electricity generated from renewable energy sources.

- d) **Is the energy regulatory authority informed about these measures? Does it have the competence to monitor and enforce implementation of these measures?**

Licence holders (transmission network and system operator, distribution network operators) must submit annual reports to ANRE, providing information related to their activity on the power market, as well as any other necessary information required by the Agency to enable the fulfilment of its tasks.

ANRE has the right to obtain from licensees copies, excerpts from documents (related to their activities, including documents containing information classified as state secret, commercial secret, or other confidential information), as well as any other additional information (Article 9 of Law No. 124-XVIII of 23.12.2009 on electricity).

- e) **Are plants generating electricity from renewable energy sources integrated in the electricity market? Could you please describe how? What are their obligations regarding participation in the electricity market?**

The existing primary and secondary legislation allows further electricity integration of generation from renewable energy sources just in the existing regulated electricity market. They must follow and comply with Law No. 124-XVIII of 23.12.2009 on electricity and with the Electricity market rules, approved by ANRE Decision No. 75 of 12.12.2002. These rules apply to all market participants.

On the other hand, the obligation for local electricity suppliers to sign contracts with producers of electricity from renewable energy sources and purchase all the generated

electricity ensures the integration of local producers in the regulated electricity market. No provisions for integration in a competitive market do exist as there is no functional competitive market.

The central electricity supplier introduced by Energy Strategy up to 2013 and by the draft Law on promotion of the use of energy from renewable sources will operate as a single body and will assume the responsibility for the differences between the forecast and the actual RES-E intermittent generation in order to allow RES-E producers to comply with their obligation towards electricity suppliers.

f) What are the rules for charging transmission and distribution tariffs to producers of electricity from renewable energy sources?

In the Republic of Moldova the injection of electricity in the network is not charged. Transmission and distribution tariff is paid ultimately by household and non-household users.

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

a) How is it ensured that the charging of transmission and distribution tariffs does not discriminate against gas originating from renewable energy sources?

In the legislation of the Republic of Moldova provisions on non-discrimination access of energy from renewable sources to the transmission network do exist. Law No. 160-XVI of 12.07.2007 on renewable energy introduces the principle of non-discriminatory access to the grid for the renewable energy sources. Law No. 124-XVIII of 23.12.2009 on electricity further develops this idea and establishes that it is the duty of the National Agency for Energy Regulation to set the terms, conditions and tariffs for access to the grid, based on objective, transparent and non-discriminatory criteria, particularly considering the costs and benefits of various technologies for the generation energy from RES.

However, the legislation to cover the integration of biogas into the natural gas networks is not developed so far.

b) Has any assessment been carried out on the need to extend the gas network infrastructure to facilitate the integration of gas from renewable sources? What is the result? If not, will there be such an assessment?

To date, no such assessment has been carried out.

The Ministry of Economy and EEA consider that the current strategy should focus on using biogas for power generation rather than on developing a framework to allow for biogas injection into the gas grid. Nevertheless, though not a priority, over the implementation period of this National Action Plan, the Government of Moldova will develop such assessment in cooperation with all relevant stakeholders.

c) Are technical rules on network connection and connection tariffs for biogas published? Where are these rules published?

Connection to the grid of biogas producers facilities to be brought in line with the natural gas parameters and injection of biogas into the natural gas grid is carried out pursuant to the provisions of the technical norms for natural gas transportation grids approved by ANRE Decision No. 375 of 13.05.2010, the provisions of the technical norms for natural gas distribution grids approved by ANRE Decision No. 324 of 27.02.2009. Concurrently, as per the provisions of Article 39 of the Law on natural gas, access to natural gas transportation and distribution grids is granted depending on the published tariffs applied to all system users based on objective and non-discriminatory principles.

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

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

In line with the Concept on corporative restructuring of district heat supply of Chisinau Municipality, the restructuring of the district heat supply in Chisinau is planned via refurbishment of existing CHPs. The potential of biomass will be continuously used in the regions as following the local traditions. Thermal solar potential will be mainly used in small towns and villages by individual households, but also by public buildings, such as schools and administrative buildings, as well as when construction or renovation is taking place in the industrial or residential areas.

No specific contribution from biomass, solar and geothermal energy sources is expected to come for district heat supply systems. The initiatives launched at local level will become the main driver of the progress. Therefore, no assessment of the need for new district heating and cooling infrastructure using renewable energy sources can be done, while projects regarding utilisation of renewable energy sources in H&C field are missing.

However, the draft Law on promotion of the use of energy from renewable sources states that the Energy Efficiency Agency shall encourage LPAs to include heating & cooling from RES in the planning of local infrastructure. This implies considering specific features of the RES-H&C infrastructure when constructing or renovating them in the industrial/residential area.

The draft Law on promotion of the use of energy from renewable sources requires from LPAs to establish, no later than 31 December 2014, through regulation or by any other means with same effect, minimum RES quota for energy supply in new buildings and renovated buildings.

According to the provisions of the draft Law on promotion of the use of energy from renewable sources, the MoE should review and update the National Renewable Energy Action Plan if for two consecutive years the national achievements in RES share are below the minimum trajectory. In such cases, the input provided by EEA and LPAA shall be analysed. Updated National Renewable Energy Action Plan shall include an assessment of needs for RES-H&C infrastructure development.

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

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

To date, there is no specific legislation on sustainability criteria for biofuels.

Regulation on sustainability criteria will be developed by the Ministry of Transport and Road Infrastructure and approved by the Government.

- (b) How will it be ensured that biofuels and bioliquids that are counted towards the national renewable target, towards national renewable energy obligations and/or are eligible for financial support comply with the sustainability criteria set down**

in Article 17(2) to (5) of Directive 2009/28/EC? (Will there be a national institution / body responsible for monitoring/verifying compliance with the criteria?)

Currently, there is no specific legislation on sustainability criteria for biofuels in the Republic of Moldova. However, ANRE will be the regulatory body in charge of monitoring the fulfilment of sustainability criteria, once implemented.

(c) If a national authority/body shall monitor the fulfilment of the criteria, is such a national authority/body already in place? If so, please specify. If not, when is it envisaged to be established?

Yes, the EEA is an already established institution.

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

The main piece of legislation that currently regulates the legal status of land in the Republic of Moldova is the Land Code of the Republic of Moldova (No. 828-XII dated 25 December 1991).

The Land Code divides the plots of land in the Republic of Moldova into the following categories:

- agricultural land plots;
- built-up area land plots;
- plots of land for industry, transport, telecommunications and other special destinations;
- plots of land designed for protection of nature, protection of health, recreational activities, plots of land of historical and cultural value, the plots of land of the suburban and green zones;
- plots of land of the forestry fund;
- plots of land of the water fund;
- plots of land of the reserve fund.

There are several laws which include special rules on categories of land: the Forestry Code of the Republic of Moldova No. 887-XIII dated 21 June 1996, the Water Code of the Republic of Moldova No. 1532-XII dated 22 June 1993 [as of 26 October 2013 replaced by the Water Law No. 272 dated 23 December 2011], Law No. 1538-XIII dated 25 February 1998 on the fund of natural areas protected by the state, Law No. 591-XIV dated 23 September 1999 on the green areas of the urban and rural localities etc.

Regarding the land registers, the Republic of Moldova has a general real estate register, implemented on the basis of Law No. 1543-XIII of 25.02.1998 on cadastre of immovable assets, and several specialized registers [Cadastre of waters, Cadastre of objects and complexes of the fund of natural areas protected by the state, functional urban cadastre, forestry cadastre].

Information from the general real estate register is available on-line to users/applicants [on the basis of services agreement concluded with the competent authority - State Owned Enterprise "Cadastru"] or can be obtained by submitting a written request to the competent territorial cadastre office for a fee. The information from the specialized registers can be obtained only on the basis of a written request submitted to the competent authority.

The legal status of the natural areas protected by the state is regulated by Law No.1538-XIII dated 25 February 1998 on the fund of natural areas protected by the state. In this context, the law distinguishes the following protected areas:

Pursuant to the classification of the International Union of Conservation of Nature:

- scientific protected area (5);
- national park (0);
- natural monument;
- nature reserve area (63);
- landscape protected area (41);
- resources protected area (13);
- multifunctional management area (32);

Not falling under the classification of the International Union of Conservation of Nature:

- dendrological garden (2);
- monument of landscape architecture (21);
- zoological garden (1);

Established on the basis of international regulations:

- biosphere reserve (UNESCO Program) (0);
- wetland of international importance (RAMSAR Convention) (3).

The cadastre of objects and complexes contained in the fund of the state protected areas is managed by the Ministry of Environment. The cadastre contains data on the legal status, location, protection regime, scientific, cognitive and recreational importance of the objects and complexes contained.

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

Besides general rules and classifications, Law No. 1538-XIII dated 25 February 1998, on the fund of natural areas protected by the state, contains specific information on each protected area in the Republic of Moldova. The tables included as annexes to this Law contain information on the name, size, location and land owner with regard to each protected area.

Three protected areas located in the Republic of Moldova (i.e. Lower Dniester, Lower Prut Lakes and Unguri-Holosnita) were included in the List of Wetlands of International Importance. A project on foundation of a biosphere reserve (Under the UNESCO MAB/Man and the Biosphere Programme) on the basis of the scientific reserve "Codru" is currently in progress.

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

Pursuant to Land Code No. 828-XII of 25.12.1991 (Article 71), the change in destination of an agricultural land plot may occur only with the approval of the Government, at the request of the owner, accompanied by the consent of the relevant local public administration authorities (i.e. either county council or local council) and of the environment protection authorities. In case an agricultural land plot with soil fertility under 40% is switched to a forest status it must be approved by the county council at the request of the owner, accompanied by the consent of the local council.

Agricultural land plots with high soil fertility are excluded from the regime of destination change, under the relevant provisions of the Land Code. However, local practice is familiar with cases where the Moldovan Parliament, by derogation from the norms of the Land Code, approved the destination change of certain agricultural land plots with high soil

fertility (please see the Law of the Republic of Moldova no. 86-XVI dated 29 March 2007 in this respect).

Change in destination of the industrial land plots (including the land plots with special destination) may occur only with the approval of the Government.

Furthermore, change in destination of the land plots within the built-up areas lies under the scope of the local authorities (i.e. local councils), provided that the respective land plots are of local importance. A dossier requesting an approval of destination change of a concrete land plot may vary depending on specific circumstances (e.g.: in certain situations additional consents/approvals may be required).

Under this context, it should be noted that Law No. 1308-XIII dated 1997 on normative price of land and sale – purchase operations with land plots prohibits the acquisition by all means of ownership rights over (i) agricultural plots and (ii) forest by foreign companies or individuals (including stateless persons). Furthermore, such act states that Moldovan companies in which a foreign company or individual holds an interest, may only acquire ownership on agricultural or forest land by (legal or testamentary) inheritance.

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

There is currently no specific legislation on biofuels in the Republic of Moldova. The Republic of Moldova does not have a Law/Code on good agricultural and environmental conditions.

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

The draft Law on promotion of the use of energy from renewable sources includes provisions regarding the establishment of sustainability criteria for biofuels and bioliquids, as well as of the procedure for verifying compliance with sustainability in production of biofuels and bioliquids.

4.3 Support schemes to promote the use of energy from renewable resources in electricity applied by the Contracting Party or a group of Contracting Parties

Regulation

(a) What is the legal basis for this obligation/target?

Law No. 160-XVI dated 12 July 2007 on renewable energy;

Law No. 124-XVIII dated 23 December 2009 on electricity;

Law No. 142 dated 2 July 2010 on energy efficiency;

Government Decision No. 833 dated 10 November 2011 regarding the approval of the National Energy Efficiency Program;

ANRE Decision No. 330 dated 3 April 2009 regarding the approval of the Regulation on guarantees of origin for the electricity generated from renewable sources;

ANRE Decision No. 321 dated 22 January 2009 on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuels.

According to the national legislation, the Republic of Moldova shall reach the target of 20% RES out of final gross energy consumption by 2020 and 10% RES-E by 2020.

The support mechanism for these targets is based on the existent purchase obligation of RES-E on a period of 15 years at tariffs set by ANRE.

Government decision No. 102 of 05.02.2013 on Energy strategy up to 2030 stipulates that organisation of tenders (aiming at prices' optimisation) is the mechanism for selection of the best RES generation capacities projects.

Law No. 160-XVI of 12.07.2007 on renewable energy sets certain general objectives and measures to be implemented by the public authorities with the view to support the RES-E development:

Determine priorities for the renewable energy sources, thereby support during operation;

Guarantee the functioning of economic mechanisms and incentives, thereby investment support and/or support during operation,

Offer fiscal or crediting incentives for natural persons and legal entities involved in the generation of renewable energy, thereby investment support.

The Energy Efficiency Fund aims to finance energy efficiency and RES projects.

The legislative provisions, with a clearly defined purpose to support the development of renewable energy do not include support schemes comparable with other established in Europe, as for example: feed-in tariffs, feed-in premiums (bonuses) or green certificates. However, there is a regulated tariff set in place for electricity generated from renewable sources and for biofuels (the below the Financial support section).

(b) Are there any technology-specific targets?

Technology-wise indicative objectives will be implemented as part of the promotion policy by tendering. Specifically, for wind and solar generation, a capacity target of 360 MW is set for the period under analysis.

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

There are no annual indicative objectives per each RES-E technology. However, the target of 360 MW wind and solar generation capacity will breakdown in a cap of 140 MW on auctioned capacity during 2013-2015 and another cap of 220 MW during 2016-2019.

ANRE Decision No. 75 of 12.12.2002 on approval of the Power Market Rules introduces the obligation for suppliers and independent consumers to annually contract a share from the forecasted total electricity supply from renewable sources. This share is proportional to their share in the overall yearly electricity consumption. Despite the common principles of the purchase obligation of renewable and cogeneration, the rules for distribution of electricity generated from renewable are less developed than those of cogeneration. There is a gap that will be corrected by the updated Power Market Rules. The duration of one year of the bilateral contracting schedule which combines the yearly generation and consumption forecasts is not appropriate for an intermittent generation that envisaged wind parks are supposed to deliver. In connection with provisions regarding non-fulfilment by a producer of contractual obligations (Renewable Energy Law No. 160-XVI of 12.07.2007, Article 23(f)) it induces burdensome business conditions to intermittent generation. The central electricity supplier, acting as a single body with regulated activity under general economic interest service regime like single buyer shall remove the hindrances of the current scheme.

(d) Who has to fulfil the obligation?

The obligation is for suppliers and eligible consumers.

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

The general targets for 2020 and 2015 are not transposed into binding targets per year. The obligation to have regulated contracts between the producers and the suppliers or eligible consumers is to guarantee the undertaking of the renewable based generation at the tariff approved by the regulator. The 2020 objective relies on tariff level and a purchase obligation, not on a mandatory quota set up. The current legislation does not establish any penalties if the suppliers or eligible consumers do not fulfil their obligations to acquire a certain share of the renewable based generation. However, there is a provision related to the non-fulfilment of contractual obligation by the producer, which requires repaying the expenses incurred by the supplier, distributor or operator if the manufacturer fails to honour its obligations. (Law No. 160-XVI of 12.07.2007 on Renewable Energy, Article 23(f)).

(f) Is there any mechanism to supervise fulfilment?

According to the ANRE Decision No. 75 of 12.12.2002 on approval of the Power Market Rules, the transmission network and system operator is required to provide registration and analysis of the actual electricity flows to the distribution operators, eligible consumers, and suppliers. It provides basis for the monitoring by regulator of such contracting obligations as part of the market rules and license conditions (Electricity Law No. 124-XVIII of 23.12.2009, Article 8) to be presented in the yearly public report.

(g) Is there any mechanism to modify obligations/targets?

In order to change the indicative target, the legislation should be amended.

Financial support

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

Law No. 160-XVI of 12.07.2007 on Renewable Energy provides a mix of principles of state policy in the field of renewable energy, which may be grouped as follows:

Regulatory support schemes:

- selection on tender basis and promotion of the most efficient programs;

- guarantee the renewable energy marketing through non-discriminatory connection to the electricity grids and district heating networks, as well as of the renewable fuel through access to the transportation and distribution networks;

- promotion of the generation of electricity from renewable energy sources shall be ensured through obligatory acquisition by the suppliers of a pre-determined share of electricity produced from these sources, as well as some other administrative measures.

Financial support:

- providing economic and financial incentives for the use of renewable energy sources.

Informational-educational measures:

- transparency of all activities and involvement of society and scientific-technical and technologic potential in the process of renewable energy sources employment;

- ensure access of legal entities and natural persons to the information on the use of renewable energy;

- public education in the spirit of use of renewable energy sources and its efficient utilisation;

Under the provisions of Law No. 160-XVI of 12.07.2007 on renewable energy, ANRE is required to approve tariffs for each type of renewable energy technology and biofuels calculated by the producer based on ANRE methodology, which provides recovery of investment in facilities' construction, extension and renovation, as well as the cost for

connection to the transmission/distribution grid, in a period up to 15 years, provided that the rate of return is not higher than twice the double rate of return as for regulated tariffs established for the conventional electricity and fuels.

Based on the Renewable Energy Law, ANRE has issued the Decision on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuels. Based on this methodology, the tariffs are determined individually for each RES-E producer. The same happens with biofuels, where the tariff is determined individually for each producer of biodiesel and bioethanol for each tonne of fuel produced.

The Decision on the approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuels provides detailed calculation formula for tariffs and rate of return, introducing the mechanism for adjusting the tariffs.

Article 17 (3) of Law No. 160-XVI of 12.07.2007 on renewable energy introduces fiscal incentives under the administration of the Energy Efficiency Fund:

financing investment projects of energy efficient utilisation and the use of renewable energy sources in the Republic of Moldova;

offering guarantees for loans allocated by financial and on-lending institutions for investment projects with view of increasing the energy efficiency and the use of renewable energy sources;

covering the Energy Efficiency Fund's own costs provided in the budget approved by the Administration Board of the Fund, including the services rendered by the Fund's administrator and Fund's financial auditors.

technical assistance, if it is considered necessary for the implementation of eligible projects.

(b) Is it a voluntary or binding scheme?

It is a binding scheme.

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

ANRE is the only relevant institution that manages the scheme. The Government has identified the need of a specialised entity appointed as public interest service provider to manage the settlement of payments, the electricity production forecast, the notification and balancing responsibility, etc. This entity, which will benefit from a regulated tariff for acting as single buyer/supplier of RES-E, will be licensed by ANRE as well as monitored in terms of compliance with the specific license conditions, as any other licensee.

(d) What are the measures taken to ensure availability of necessary budget/funding to achieve the national indicative objective?

Law No. 124-XVIII of 23.12.2009 on electricity, Law No. 160-XVI of 12.12.2002 on Renewable Energy and ANRE decision No. 75 of 12.12.2002 on approval of Power Market Rules introduce a purchase obligation for electricity suppliers, who have to purchase the renewable electricity generated in the country. This obligation and the RES-E tariff methodology are the core of the existing support mechanism.

The Energy Efficiency Fund shall be used mainly for investigating the renewable potential.

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

The current support scheme does not address these issues in a quantitative manner. Further tenders are to be performed with a clear cap on installed capacity, due to tight conditions in

the electricity network. The possibilities to benefit from a real balancing market services are conditioned by the connection to ENTSO-E, which is a quite long process.

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

So far the scheme has not been revised. The possibility to revise ANRE Decision No. 75 of 12.12.2002 approving the power market rules does exist and is provided in the regulation. A draft Law on promotion of the use of energy from renewable sources is under preparation and it would pave the way for further adoption of tenders as a mechanism for RES-E promotion.

(g) Does support differ according to technology?

It does not, to date.

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

It is expected that the new mechanism will be enough to reach the RES-E target.

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

The specific efficiency criteria are not provided in the existing regulation, but Law No. 160-XVI of 12.07.2007 on renewable energy indicates:

Selection on the tender basis and promotion of the most efficient programs;

State control regarding the efficient use of the renewable energy sources as one of the principles of the State Policy objectives for renewable energy sources.

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

The existing mechanism is set in ANRE Decision No. 321 of 22.01.2009 on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuels issued in line with the provisions of Law No.160-XVI of 12.07.2007 on Renewable Energy.

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

The mechanism described in (d) is in place.

A new mechanism based on tenders shall be implemented in 2014.

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

The current tariff methodology was launched in January 2009 and is still in force until a new mechanism is adopted.

(m) Are there maximum or minimum sizes of system, which are eligible?

No, as of today.

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

The current legislation does not place a ban on multiple support schemes; however, the policy direction aims at streamlining the supporting schemes to the maximum extent.

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

The provisions of the indicated legislation are in force in the whole territory of the Republic of Moldova.

Specific questions for financial support for investments:

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

Both, the current scheme and the scheme to be implemented in 2014 grant a regulated tariff for the producers selling energy from renewable sources into the market.

- (b) **Who can benefit from this scheme? Is it specified for certain technology (/ies)?**

ANRE approves the regulated tariffs for each type of renewable energy technology and biofuels which are calculated based on the methodology.

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

Applications are continuously received and addressed. There are no periodical calls. A system built on regular tenders is envisaged.

Specific questions for tradable certificates:

There is no tradable certificate scheme in Moldova; there is no intention of developing it in the future.

Specific questions for fixed tariffs:

- (a) **What are the conditions to get a fixed tariff?**

Under the provisions of ANRE Decision No. 321 of 22.01.2009 on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuel, the conditions the applicant has to fulfil to get a fixed tariff are the following:

until the end of November each year the enterprises shall present the tariff calculation for the next year to the National Agency for Energy Regulation;

if well justified, the tariff is approved by ANRE and remains in force for the next year.

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

No, there is not.

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

No, the current tariff scheme does not provide differentiation between technologies but provides recognition of costs, if justified.

- (d) **Are there other criteria differentiating tariffs?**

No, there are not.

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

For 15 years, as stipulated in ANRE Decision No. 321 dated 22 January 2009.

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

Yes, basing on annual calculation.

Specific questions for tendering

The Government shall approve a regulation to promote RES-E by tendering procedure. For the tenders a starting price will be set. Contracts concluded with tender winners shall be valid for 15 years. The prices will be set in local currency and yearly adjusted to inflation/exchange rate.

(a) What is the frequency and size of the tenders?

It is envisaged that the capacity of 400 MW will be tendered up to 2020:

150 MW over 2013-2015;

250 MW over 2016-2019.

Currently, the frequency and design of the tendering process are being considered.

(b) Which technologies are involved?

Tenders are organised for all technologies. The following schedule is envisaged:

| Technologies Period | Wind and Solar | Others | Total |
|------------------------|-------------------|--------|--------|
| 2013-2015 | 140 MW | 10 MW | 150 MW |
| 2016-2019 | 220 MW | 30 MW | 250 MW |

(c) Is it integrated with grid development?

No specific grid development is planned to support renewables, the envisaged volumes being low enough to not distort the network operation.

4.4 Support schemes to promote the use of energy from renewable resources in heating and cooling applied by the Contracting Party or a group of Contracting Parties

Currently there is no support scheme specifically adopted, thereby there is neither obligation established by the regulation in this sense, nor financial support for RES-H&C.

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

Currently, there is no support scheme specifically adopted under Law No. 160-XVI of 12.07.2007 on Renewable Energy to encourage the use of renewable sources in large CHPs. The existing CHP generation of electricity and heat is rewarded by tariffs regulated by ANRE.

Government Decision No. 102 of 05.02.2013 on Energy Strategy up to 2030 and Government Decision No. 833 of 10.11.2011 on the National Energy Efficiency Programme for 2011-2020 set up the main principles and directions.

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

Same as above.

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

There is no support scheme specifically targeting the encouragement of the use of renewable sources in small-scale heating and cooling.

Moldova Energy and Biomass Project, aiming to promote small scale heating and cooling from renewable energy sources is currently under implementation. The relevant expected project outcomes in terms of small scale heating and cooling are the following:

- biomass heating of countryside public buildings and setting fuel supply markets;
- capacity building for growth of biomass markets at regional and local levels;

promotion of renewable energy sources utilisation benefits, especially biomass and visibility of project results.

Small-scale cogeneration and heating projects in small towns and villages is a critical issue on the Government's policy agenda. Priority will be given to the vulnerable groups in poor rural and urban areas to take advantage of sustainable socioeconomic development opportunities through adequate regional and local policies. It is possible the main supporting scheme in this case to be up-front subsidies financed potentially by the Energy Efficiency Fund but the regulation on this specific issue is still to be developed.

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

There is no support scheme specifically targeted to encourage the use of renewable sources in heating and cooling from renewable energy sources in industrial and building applications.

EBRD has established the Moldovan Sustainable Energy Financing Facility (MoSEFF). MoSEFF I is a €20 million credit line to partner banks for on-lending to private enterprises that wish to invest in energy-saving and more environmentally-friendly technology in the private sector. MoSEFF II is a €22 million credit line with the same objective, while MoREFF is a €35 million project for energy efficiency and RES in the residential sector.

Moldova Energy and Biomass Project dedicated to small scale heating & cooling from renewable is being implemented. The expected project outcomes applicable for industry and buildings are having the foundations laid for the establishment of efficient household heating and industrial cogeneration.

Regulations for supporting projects regarding the use of RES for heating will be developed. The Government has already identified this gap and will encourage voluntary actions to capitalise existing RES-H&C potential, to be supported by fiscal incentives at the investment stage fed by the Energy Efficiency Fund as well as other attracted financial resources, low-interest loans or tax exemptions for equipment.

4.5 Support schemes to promote the use of energy from renewable resources in transport applied by the Contracting Party or a group of Contracting Parties

Currently there is no support scheme specifically adopted; thereby there is no obligation in terms of regulation. In terms of financial support, the tariff defined by the provisions of ANRE Decision No. 321 of 22.01.2009 on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuel, those have same characteristics as presented in the Section 4.3 of this National Plan.

(a) What are the concrete obligations/indicative objectives per year (per type of fuel or technology)?

There are no specific annual targets; however, the overall targets are defined.

Government Decision No. 833 of 10.11.2011 on the National Energy Efficiency Programme for 2011-2020 has set up the following target:

Increase the share of biofuels up to at least 10% of total fuels in all types of transport in 2020.

In order to increase the share of renewable fuel used in road transport in the Republic of Moldova the following will be implemented:

- Requirements on renewable transport fuel will be introduced in the primary legislation. It will be applied to importers/suppliers of fuels for road transport;
 - Penalties will be levied on importers/suppliers who fail to meet these minimum blending quotas;
 - Annual national quotas have to be set in line with the annual objective;
 - Specific requirements on information on biofuel utilisation benefits, as well as on fuel mix, including biofuel, will be introduced in the draft Law on promoting the use of energy from renewable sources.
- (b) **Is there differentiation of the support according to fuel types or technologies? Is there any specific support to biofuels, which meet the criteria of Article 21(2) of Directive 2009/28/EC?**

Pursuant to the provisions of Article 12 (a) of Law No. 160-XVI of 12.07.2007 on renewable energy, ANRE approves the regulated tariffs for each type of biofuels based on the tariffs, computed by the producers based on the methodologies approved by ANRE, so as to recover the costs of investment over a period of 15 years, provided that the rate of return is no higher than twice the rate of return for conventional fuels. Based on the Law on renewable energy, ANRE has issued Decision No.321 of 22.01.2009 on approval of the Methodology to determine, approve and apply the tariffs for the electricity generated from renewable energy sources and for biofuels. That methodology is mandatory and is applicable individually to each producer of biofuels intended for marketing on the oil products market. It defines the structure and way of determining the regulated proceeds and costs, the manner of establishing, approving and applying the regulated tariffs, as well as the mechanism for adjusting the approved tariffs.

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

4.6.1 Biomass supply: both domestic and trade

Biomass consumption in Moldova currently comes from wood, agricultural crops (fully exported as biofuels) and agricultural waste.

Table 6–

Biomass supply in 2009

| Sector of origin | 2009 | Amount of domestic resource ²⁵ | Imported | | Exported | Net amount | Primary energy production (ktoe) |
|--|---|---|----------|--------|-----------|------------|----------------------------------|
| | | | EU | Non-EU | EU/Non-EU | | |
| | <i>of which:</i> | | | | | | |
| A) Biomass from forestry ²⁶ : | 1. Direct supply of wood biomass from forests and other wooded land for energy generation | 0 | 0 | 0 | 0 | 0 | 0 |
| | 2. Indirect supply of wood biomass for energy generation | 80 | 0 | 0 | 0 | 80 | 80 |

²⁵ Amount of the resource in m³ (if possible, otherwise in appropriate alternative units) for category A and its subcategories and in tonnes for categories B and C and their subcategories.

²⁶ Biomass from forestry should also include biomass from forest-based industries. Under the category of biomass from forestry processed solid fuels, such as chips, pellets and briquettes should be included in the corresponding subcategories of origin.

| | | | | | | | |
|--|---|-----|---|---|----|-----|-----|
| B) Biomass from agriculture and fisheries: | <i>of which:</i> | | | | | | |
| | 1. Agricultural crops and fishery products directly provided for energy generation | 25 | 0 | 0 | 25 | 25 | 25 |
| | 2. Agricultural by-products / processed residues and fishery by-products for energy generation | 157 | 0 | 0 | 0 | 157 | 157 |
| C) Biomass from waste: | <i>of which:</i> | | | | | | |
| | 1. Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas | 0 | 0 | 0 | 0 | 0 | 0 |
| | 2. Biodegradable fraction of industrial waste (including paper, cardboard, pallets) | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3. Sewage sludge | 0 | 0 | 0 | 0 | 0 | 0 |

Table 8

Estimated biomass domestic supply in 2015 and 2020

| Sector of origin | | 2015 | | 2020 | |
|--|---|--------------------------------------|----------------------------------|--------------------------------------|----------------------------------|
| | | Expected amount of domestic resource | Primary energy production (ktoe) | Expected amount of domestic resource | Primary energy production (ktoe) |
| A) Biomass from forestry: | 1. Direct supply of wood biomass from forests and other wooded land for energy generation | | | | |
| | 2. Indirect supply of wood biomass for energy generation | | 83.27 | | 86.00 |
| B) Biomass from agriculture and fisheries: | 1. Agricultural crops and fishery products directly provided for energy generation | | 25.00 | | 25.00 |
| | 2. Agricultural by-products / processed residues and fishery by-products for energy generation | | 206.64 | | 248.00 |
| C) Biomass from waste: | 1. Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas | | 3.80 | | 6.70 |

| | | | | | |
|--|---|--|--|--|--|
| | 2. Biodegradable fraction of industrial waste (including paper, cardboard, pallets) | | | | |
| | 3. Sewage sludge | | | | |

The numbers in the table above assume the principle of equal effort for all types of biomass until 2020, as follows:

a linear increase of biomass from wood from the level of 80 ktoe in 2009 to 86 ktoe in 2020;

biofuel is currently exported (25 ktoe). This production is assumed to be constant over the period. As mentioned before, biofuel has to be imported in order to satisfy the national target in the transport sector by 2020. This is not included in this table of domestic production.

a linear increase of agricultural by-products from 157 ktoe in 2009 to 248 ktoe in 2020;

biogas generation development from scratch up to 6.7 ktoe in 2020.

The values for baseline (2009) consumption of biomass and its potential in 2020 are based on a research developed by the EEA with the assistance of the university community.

Table 9 below shows current (2009) agricultural land used for production of crops dedicated to energy. The only land currently used is for the production of biofuel exported to Germany and covers approximately 26 thousand hectares.

Table 9

Current agricultural land use for production of crops dedicated to energy in 2009

| Agricultural land use for production of dedicated energy crops | Surface (ha) |
|---|--------------|
| Land used for short rotation trees (willows, poplars) | 0 |
| Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum | 26,000 |

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

Mobilisation of new biomass sources

(a) Please specify how much land is degraded

Agricultural land in the Republic of Moldova represents more than 74 % of the country's territory (as for comparison, 50% average in EU, 71% in Ukraine and 60% in Romania). This is the most important natural resource of the country. About one quarter of the total land area suffers from one or many forms of soil erosion (RIO20 - United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, June 2012, Government of Moldova, National Report for UN CSD 2012 Rio+20). This equals approximately to 850 thousand hectares.

(b) Please specify the area of idle arable land

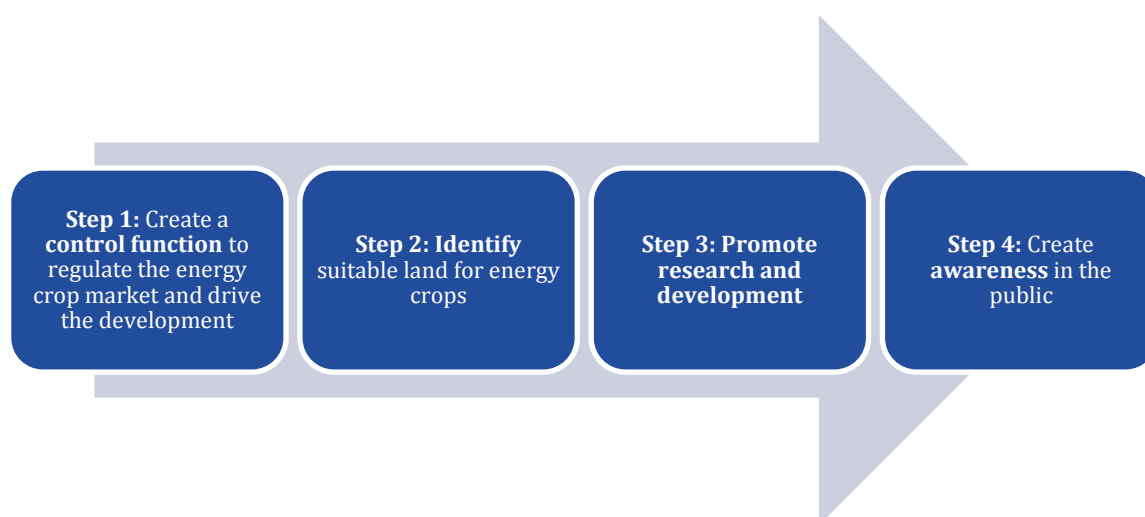
Based on the latest report from the National Bureau of Statistics (National Bureau of Statistics, 2013, General Agricultural Census in 2011 in Moldova), the unused arable land covers the area of about **178,846.75** hectares.

The arable land in the Republic of Moldova represents 73% of the total used agricultural surface (1,940,135.56 ha). The total used agricultural surface is 86.5% of the overall exploited land (2,243,540.02 ha). The remaining 13.5% is shared among unused agricultural surface (11%) and "other surfaces" (2.5%), including forests (0.3%), buildings, yards, roads (1.8%) and other land (0.4%). Out of the total unused agricultural surface (248,398.27 ha), about 72% is "not used arable land", which equals to 178,846.75 ha.

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

Currently, there is no specific legislation on biomass in the Republic of Moldova. However, the Ministry of Economy will shortly develop several normative acts containing technical norms on biomass. These will also include measures to encourage unused arable land, degraded land etc. to be used for energy purposes.

The process that will guide the development process is displayed below:



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

The following two sites have been operational:

| Site | Substrate | Capacity kWel | Reason for not operating |
|----------------|----------------|---------------|------------------------------------|
| Colonita | Cattle manure | 80 | Ownership and electricity disputes |
| Vadul lui Voda | Poultry manure | 800 | Poultry farm in economic problems |

This primary fuel that is already available should be used either at the same sites or at new sites in the future.

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

The policy of the Government is to utilise biogas for power/heat generation rather than developing a framework to allow for biogas injection into the gas grid.

(f) What measures are planned to improve forest management techniques in order to maximise the extraction of biomass from the forest in a sustainable way (Recommendations can be found in the report issued by the Standing Forestry Committee ad

hoc Working Group II in July 2008 on Mobilization and efficient use of wood and wood residues for energy generation. The report can be downloaded at: http://ec.europa.eu/agriculture/fore/public/sfc_wgii_final_report_072008_en.pdf)? **How will forest management be improved in order to increase future growth? What measures are planned to maximise the extraction of existing biomass that can already be put into practice?**

Improve the system to collect, analyse and store data on supply and use of biomass;

Standardise the usage, production and quality of biomass products;

Promote research and technological development in the biomass field;

Promote awareness campaign in the community through media, conferences and educational material;

Utilize international technical assistance for international experience, education and identification of best available technique and equipment;

Develop feasibility studies:

Feasibility studies on suitable land areas and suitable crop types for Moldova;

Feasibility study for conversion of gas-based CHP plants to biomass CHP plants;

Impact of energy use of biomass on other sectors.

Impact on other sectors:

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

The impact of the use of biomass for energy production will first be investigated as part of feasibility studies performed under the coming biomass legislation. The monitoring requirements will be detailed in the legislation both in terms of data collection and data handling.

The continuous monitoring will be carried out through regular monitoring of the production from wood, the production of wood remnants or waste, by monitoring firewood purchase prices (monitoring the purchase of round logs from private forests), monitoring the use of wood biomass in energy facilities and through monitoring foreign trade and employment, as well as the impacts on added value in the wood and furniture industry.

For forest-based biomass, the principles of Sustainable Forest Management safeguarding economic, ecological and social functions of forests must apply for all forest management activities. When extracting more wood and wood waste for energy, site suitability has to be taken into account, comprising impacts on biodiversity, site fertility, soil and watershed protection.

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

Wood and wood waste demand is forecasted to increase in the future, specifically for energy generation. Issues regarding sustainability, competitiveness of forest-based industries, efficiency, economic viability and fragmentation, organisation and motivation of forest owners represent the major challenges for wood mobilisation.

An important development orientation in the wood industry may lie in the optimized use of wood and efficient energy use. The amount of wood residues in the market may also be

significantly reduced in the event of the wood and furniture industry being steered towards green energy generation (power and/or heat).

4.7 Planned use of statistical transfers between Contracting Parties and planned participation in joint projects with other Contracting Parties and third countries

No statistical transfer and no joint project with other Contracting Parties and third parties are planned in order to reach the target as stated in the Decision of the Ministerial Council of the Energy Community adopting Directive 2009/28/EC. Meanwhile, considering the difference between the trajectory to achieve the 17% obligation set by the Energy Community and the trajectory to achieve the national target of 20%, as well as the difference between the targets in 2020, an opportunity to statistically transfer this difference does exist.

4.7.1 Procedural aspects

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

The Republic of Moldova has not yet developed procedures concerning organisation of statistical transfer or joint project. The feasibility has to be carefully appraised to not endanger the achievement of the target set up by the Energy Community. With regard to joint projects, the Government will cooperate with the EU Member States, Contracting Parties and other countries in the common projects in the fields of electricity, heating and cooling based on RES.

The Ministry of Economy will be in charge of negotiating the treaties/Memoranda of Understanding/Agreements with other contracting parties/third countries to develop joint projects or perform statistical transfer. Associated rules concerning joint projects and statistical transfer will be published on the Ministry of Economy's website.

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

The Ministry of Economy will develop these rules. The contact point will be the Energy Efficiency Agency.

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

The joint projects will be identified on the basis of existing potential, performing a permanent assessment of the positioning of the country in regards of the minimum trajectory towards 2020 target fulfilment, without jeopardising the electric system operation and complying with the country primary and secondary legislation.

- (d) **What is going to be the mechanism to involve other interested Contracting Party in a joint project?**

See the response to question (a) above.

- (e) **Are you willing to participate in joint projects in other Contracting Party? How much installed capacity/electricity or heat produced per year are you**

planning to support? How do you plan to provide support schemes for such projects?

For now, there are no such intentions.

4.7.2 Estimated excess production of renewable energy compared to the indicative trajectory which could be transferred to other Contracting Parties

Table 10

Estimated excess and/or deficit production of renewable energy compared to the indicative trajectory which could be transferred to other Contract Party

| Years | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---------------------------------------|------|------|------|-------|-------|-------|------|------|
| Estimated excess in forecast document | | | | | | | | |
| Estimated excess in this NREAP | 0 | 1.35 | 1.51 | 22.21 | 26.48 | 52.68 | 58.1 | 64.8 |

(ktoe)

4.7.3 Estimated potential for joint projects

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

For now, there are no such intentions.

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

For now, there are no such intentions.

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

For now, there are no such intentions.

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

For now, there are no such intentions.

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

For now, there are no such intentions.

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

Not envisaged.

| | | | | | | | | | | | | |
|---------------------------------|--------------|--------------|--------------|---------------|-------------|---------------|---------------|--------------|---------------|---------------|--------------|---------------|
| <i>1MW-10 MW</i> | | | | | | | | | | | | |
| <i>>10MW</i> | 16.00 | 81.00 | 16.00 | 81.00 | 16.00 | 81.00 | 16.00 | 81.00 | 16.00 | 81.00 | 16.00 | 81.00 |
| <i>Of which pumping</i> | | | | | | | | | | | | |
| Geothermal | | | | | | | | | | | | |
| Solar (thermal) | | | | | | | | | | | | |
| <i>Photovoltaic</i> | | | | | | | | | | | | |
| <i>concentrated solar power</i> | | | | | | | | | | | | |
| Tide, wave, ocean | | | | | | | | | | | | |
| Wind: | | | | | | | | | | | | |
| <i>Onshore</i> | | | 9.30 | 23.26 | 44.19 | 110.49 | 79.08 | 197.7 | 113.9 | 284.9 | 148.86 | 372.16 |
| <i>Offshore</i> | | | | | | | | | | | | |
| Biomass: | | | | | | | | | | | | |
| <i>Solid</i> | | | | | | | | | | | | |
| <i>Biogas</i> | 2.00 | 5.00 | 3.00 | 10.00 | 5.00 | 15.00 | 7.00 | 21.00 | 9.00 | 26.00 | 10.00 | 31.00 |
| <i>bioliquids[1]</i> | | | | | | | | | | | | |
| TOTAL | 18.00 | 86.00 | 28.30 | 114.26 | 65.1 | 206.49 | 102.08 | 299.7 | 138.97 | 391.94 | 174.8 | 484.16 |
| <i>of which in CHP</i> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Increase in electricity production from renewable energy sources is expected to come only from small-scale hydropower until 2014. The maximum annual contribution of the hydropower plant is 7 ktoe (81 GWh) and the plant is expected to produce this annual amount of energy until 2020 and beyond, on the average.

In 2015, renewable electricity production is expected to be supplemented by biogas starting with an annual production of 5 GWh in 2015 and reaching 31 GWh in 2020.

Table 13

Estimation of total contribution (final energy consumption) expected from each renewable energy technology in Moldova to meet the binding 2020 and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling 2010-2020.

| Years | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|--------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| Geothermal (excluding low temperature geothermal heat in heat pump application) | | | | | | | | | | | | |
| Solar | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 6.00 | 7.00 | 8.00 |
| Biomass: | | | | | | | | | | | | |
| Solid | 237.00 | 245.8 | 254.6 | 263.5 | 272.3 | 281.1 | 289.9 | 298.7 | 307.57 | 316.4 | 325.2 | 334.0 |
| Biogas | | | | | | | | | | | | |
| Bioliquids ²⁷ | | | | | | | | | | | | |

²⁷Take into account only those complying with the sustainability criteria (cf. Article 5(1) last subparagraph of Directive 2009/28/EC).

| | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Renewable energy from heat pumps: -of which aerothermal - of which geothermal - of which hydrothermal | | | | | | | | | | | | | |
| Total | 237 | 245.8 | 254.6 | 263.5 | 273.3 | 283.1 | 292.9 | 302.7 | 312.6 | 322.4 | 332.2 | 342.0 | |
| Of which DH ²⁸ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Of which biomass in households ²⁹ | 237.0 | 242.0 | 247.0 | 251.0 | 256.0 | 261.0 | 266.0 | 271.0 | 276.0 | 280.0 | 285.0 | 290.0 | |

Renewable energy in heating and cooling will predominantly come from biomass in the form of wood, wood waste, and agricultural waste. Solar thermal energy is another reliable source that is expected to contribute to energy generation from renewable. A slow increase is expected for solar thermal generation, thus reaching 8 ktoe by 2020.

District heating is currently used to a very limited extent and only by municipalities. There is currently no renewable district heating, the CHP plants, CHP-1, CHP-2, and CHP-North are fuelled on natural gas. This situation is not expected to change until 2020 but research into potential new CHP plant or conversion of the old ones after 2020 are areas that will be investigated.

Table 14

Estimation of total contribution expected from each renewable energy technology in Moldova to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector 2010-2020³⁰

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Bioethanol/bio-ETBE | | | | | | | 1.95 | 3.89 | 5.84 | 7.79 | 9.73 | 11.68 |
| <i>Of which Biofuels³¹ Article 21(2)</i> | | | | | | | | | | | | |
| <i>Of which imported³²</i> | | | | | | | 1.95 | 3.89 | 5.84 | 7.79 | 9.73 | 11.68 |
| Biodiesel | | | | | | | 4.47 | 8.94 | 13.41 | 17.88 | 22.35 | 26.82 |
| <i>Of which Biofuels³³ Article 21(2)</i> | | | | | | | | | | | | |
| <i>Of which imported³⁴</i> | | | | | | | 4.47 | 8.94 | 13.41 | 17.88 | 22.35 | 26.82 |
| Hydrogen from renewable | | | | | | | | | | | | |
| Renewable electricity | | | | | | | | 1 | 2 | 2 | 3 | 4 |

²⁸District heating and/or cooling from total renewable heating and cooling consumption (RES-DH).

²⁹From the total renewable heating and cooling consumption.

³⁰For the biofuels take into account only those compliant with the sustainability criteria (cf. Article 5(1)) last subparagraph).

³¹Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

³²From the whole amount of bioethanol/bio-ETBE.

³³See footnote 36

³⁴From the whole amount of biodiesel.

| | | | | | | | | | | | | |
|---|--|--|--|--|--|--|------|-------|-------|-------|-------|------|
| <i>Of which road transport</i> | | | | | | | | 1 | 2 | 2 | 3 | 4 |
| <i>Of which non-road transport</i> | | | | | | | | | | | | |
| <i>Others (as biogas, vegetable oils, etc) – please specify</i> | | | | | | | | | | | | |
| <i>Of which Biofuels³⁵ Article 21(2)</i> | | | | | | | | | | | | |
| <i>Total</i> | | | | | | | 6.42 | 13.83 | 21.25 | 27.67 | 35.08 | 42.5 |

Renewable energy in the transport sector is expected to come from biodiesel, bioethanol and renewable electricity. Part of the biodiesel is already produced in Moldova but currently exported in Germany, so it does not count towards the Moldovan target.

Bioethanol will be imported starting with 2 ktoe in 2015 and growing to 12 ktoe in 2020. Biodiesel is expected to be imported starting with 4 ktoe in 2015 and growing to 27 ktoe in 2020. The electricity from renewables in the transport sector in the form of electrified road transports is expected to reach a total amount of 4 ktoe in 2020.

The cost of the policy for promotion of RES in transport is partly the production of renewable electricity for transport in addition to the extra cost of importing biofuels. Overall cost of the policy is about EUR 35 million for the period.

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

The comparison of gross final energy consumption in additional energy efficiency and reference scenarios (see also Table 1 of this National Plan) unveils that energy efficiency measures will be able to lower the expected gross final consumption of energy at the end of the current decade by 533 ktoe, which accounts for 20 % of the GFCE in the 2020 reference scenario. Combined with various measures to support RES integration, the energy efficiency measures will help the Republic of Moldova to achieve the binding target of 17 % renewable energy in gross final consumption of energy set by the Energy Community, as well as to go beyond with an even higher achievement. Compared with the overall energy consumption in 2009, the gross energy consumption in 2020 will slightly increase from 2071 ktoe to 2160 ktoe, also assuming a redistribution of each sector contribution. H&C will vary from 59.1% to 58.24%, thus consolidating its leadership position; electricity will increase its role from 13.8% to 19.3% while consumption in transport will not only see diminished its contribution (from 27% to 22.4%) but also will fall from 561 ktoe to 485 ktoe.

5.3 Assessment of the impact

The reasoning that has been used to choose appropriate sources for electricity production is presented in Table 15.

Table 15

Characteristics of electricity generation technologies from RES

| Source | Potential in Moldova | Availability – National/Local | Competing with other users |
|---------------|-----------------------------|--------------------------------------|-----------------------------------|
|---------------|-----------------------------|--------------------------------------|-----------------------------------|

³⁵ See footnote 36.

| | | | |
|-----------------------|-----|------------------------|--|
| Wind power | Yes | National | No |
| Hydro power | Yes | National | No |
| Biogas (excl. LFG) | Yes | National | No |
| Solar PV | Yes | National/urban pop | Solar water heaters in case of urban settlements |
| Municipal Waste (LFG) | Yes | Concentrated to cities | Competing with heat production |

The increase in electricity from renewable energy sources will mostly come from wind power, and biogas to some extent. According to estimates, renewable energy will be generated from wind power as from 2016 and from biogas as from 2015. The current (2009) level of renewable electricity is 2% and is coming from small scale hydropower. The Republic of Moldova can reach the 10% RES-E by 2020, which is a planned contribution to the achievement of the overall mandatory energy target (17%) without the need to use statistical transfer.

The reason for biogas being suggested as an option over municipal waste is that biogas has been used in the past in the country and therefore the technical development of the technology is easier.

Table 16

Evaluation of additional costs determined by electricity generation from RS and of benefits

| | Unit | Wind | Waste | Biogas | Solar PV |
|----------------------------------|-----------|-------------------|---------------|------------------|--------------|
| Annual full load production time | hours | 2,500 | 8,000 | 7,500 | 1,300 |
| Efficiency electricity | hours | 2,500 | 3,200 | 3,000 | 1,300 |
| Power per plant | MW | 2.30 | 50.00 | 5.60 | 1.00 |
| Cost per plant | MEUR | 3.33 | 172.50 | 14.00 | 1.80 |
| Cost per MW | MEUR/MW | 1.45 | 3.45 | 2.50 | 1.80 |
| Life span | years | 20.00 | 25.00 | 25.0 | 15 |
| Cost per TOE | EUR/TOE | 1,076 | 1,940 | 1,499 | 2,754 |
| Cost per MWh | €/MWh | 92.52 | 167.00 | 129 | 237 |
| Exp. Generation 2020 | MWh | 372,160 | | 30,000 | |
| Cost 2020 | Euros2012 | 34,433,259 | | 3,867,485 | |
| Avoided cost 2020(1) | Euros2012 | 18,868,512 | | 1,521,000 | |
| Extra Cost 2020 | Euros2012 | 15,564,747 | | 2,346,485 | |
| Extra Cost 2020 | €2012/MWh | 3.69 | | | |
| Avoided CO2 2020(2) | Ton CO2 | 241,296 | | | |

- (1) It is assumed that the new RES-E generation will replace exclusively a share of the electricity imported as to some extent; the electricity produced in cogeneration will remain the same. In the calculations a price of current import at 50€/MWh (50.7 €/MWh for 2012, almost equal to market price in Romania: 50 €/MWh for 2011 and 2012) was used, as well as an exchange rate leu/euro of 16.08 (March2013). Since import cost is lower than current local production and probably lower than the long run marginal cost of local production, this scenario is a conservative one.
- (2) Using an average emission factor of generation mix for 2020 of 0.6 Tonnes CO2/MWh.

Table 17 below provides with an alternative calculation for a simplified case of 400 MW exclusively wind would be installed in 2020.

Table 17

Generation costs related to the integration of 400 MW additional electricity generations from wind source

| | Unit | Wind | Waste | Biogas | Solar PV |
|-------------------------------|------------------|------------|-------|-----------|----------|
| Cost 2020 (400 MW wind) | <i>Euros2012</i> | 91,936,802 | | 3,867,485 | |
| Avoided cost 2020(1) | <i>Euros2012</i> | 50,378,927 | | 1,521,000 | |
| Extra Cost 2020 (400 MW wind) | <i>Euros2012</i> | 41,557,875 | | 2,346,485 | |
| Extra Cost 2020 (400 MW wind) | <i>€2012/MWh</i> | 9.05 | | | |

Note:

There are the following consequences if the target is fulfilled:

there is an indirect positive effect on GDP and employment since a minimum of 250 million Euros of investment will be carried out. The investment cost is required to get approximately 10% RES-E. In case of 400 MW development, this investment will go up to more than 600 million Euros.

there is approximately a saving of about 242 kTonnes CO₂ in 2020.

In terms of extra costs within the power sector, three different effects may be envisaged:

Grid extension/reinforcement cost: According to estimations developed by ECA, up to 400 MW of RES-E can be connected without major investment, so for 2020, this potential extra cost is negligible;

Generation cost: The extra cost for end-user is estimated at about 3.69 €/MWh in 2020, as shown in Table 16. This stands for an increase of less than 5% in an average end consumer tariff. In case of 400 MW RES generation installed, it will have an impact of 9.05 €/MWh increase (Table 17) expected to be transferred in less than 10% increase in end consumer tariff.

Balancing cost is very difficult to estimate for the Republic of Moldova. Indicative/benchmarking values of balancing cost in EU should hardly be employed as a reference as it essentially depends on concrete situation (the conditions and detailed rules for system balancing, gate closure for day ahead and intra-day markets) and the market structure (existent competition among players on the markets contributing to the balancing). Thus, for RES-E penetration up to 10%, typical ranges are about 2-6 €/MWh in western European countries (UK, Spain, Germany, Italy). These figures may become relevant for Moldova only in the presence of success in implementing the strategic objective of the connection (synchronous / asynchronous) to the ENTSO-E system which provides access to the means of competitive procurement of the balancing from the EU internal market.

RES in Transport

The transport sector in Moldova has no consumption of renewable energy sources (as of the data related to the base year, 2009). There is however production of biofuel in Moldova, which is currently exported to Germany. Renewable energy in transport shall come from import of biofuels and domestic production of renewable electricity.

It is assumed that the market share of marketed diesel and gasoline stays the same as in 2009, about 70% for diesel and 30% for gasoline. The total energy consumption in 2009 was 561 ktoe.

It is further assumed that biodiesel and bioethanol will be imported with the same ratio as diesel and gasoline as today. The projected import can be seen in the Table 18 below; the first line shows the required biofuel amount needed in order to reach a 10% share of

renewable energy sources in the transport sector. The same blending level for both diesel and gasoline (10%) in the period is assumed.

Table 18

Projected fuel import

| Import | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Biofuel (ktoe) | 0 | 0 | 0 | 0 | 0 | 0 | 6.4 | 12.8 | 19.3 | 25.7 | 32.1 | 38.5 |
| Bioethanol (ktoe) | 0 | 0 | 0 | 0 | 0 | 0 | 1.9 | 3.9 | 5.8 | 7.8 | 9.7 | 11.7 |
| Biodiesel (ktoe) | 0 | 0 | 0 | 0 | 0 | 0 | 4.5 | 8.9 | 13.4 | 17.9 | 22.4 | 26.8 |
| Biodiesel (Million L) | 0 | 0 | 0 | 0 | 0 | 0 | 5.7 | 11.3 | 17.0 | 22.7 | 28.4 | 34.0 |
| Bioethanol (Million L) | 0 | 0 | 0 | 0 | 0 | 0 | 3.5 | 7.0 | 10.4 | 13.9 | 17.4 | 20.9 |

The cost of the policy for RES in transport is partly the production of renewable electricity for transport that stands for about 4.5 million Euros in the period, in addition to the extra costs of importing biofuels, as analysed in Table 19 below.

Table 19

Costs associated with RES-T policy

| Import | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|--------------------------------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|
| Biodiesel (Million L) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 11.3 | 17.0 | 22.7 | 28.4 | 34.0 |
| Bioethanol (Million L) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 7.0 | 10.4 | 13.9 | 17.4 | 20.9 |
| Cost bioethanol (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 3.4 | 5.1 | 7.5 | 9.4 | 10.9 |
| Cost biodiesel (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 12.2 | 18.0 | 24.4 | 30.9 | 37.9 |
| Total cost (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.8 | 15.6 | 23.2 | 31.9 | 40.3 | 48.8 |
| Cost ethanol USD/100 L | 43.0 | 57.0 | 65.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 64.0 | 70.0 | 70.0 | 68.0 |
| Cost biodiesel USD/100 L | 110.0 | 118.0 | 125.0 | 140.0 | 140.0 | 140.0 | 140.0 | 140.0 | 138.0 | 140.0 | 142.0 | 145.0 |
| Cost ethanol EUR/100 L | 33.0 | 43.8 | 49.9 | 49.2 | 49.2 | 49.2 | 49.2 | 49.2 | 49.2 | 53.8 | 53.8 | 52.2 |
| Cost biodiesel EUR/100 L | 84.5 | 90.7 | 96.0 | 107.6 | 107.6 | 107.6 | 107.6 | 107.6 | 106.0 | 107.6 | 109.1 | 111.4 |
| Avoided petrol import (Million L) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 5.2 | 7.9 | 10.5 | 13.1 | 15.7 |
| Cost of avoided petrol import (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 2.6 | 3.9 | 5.6 | 7.0 | 8.2 |
| Avoided diesel import (Million L) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 10.1 | 15.2 | 20.3 | 25.3 | 30.4 |
| Cost of avoided diesel import (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 10.9 | 16.1 | 21.8 | 27.6 | 33.8 |
| Total net cost (MEUR) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 2.2 | 3.2 | 4.5 | 5.6 | 6.8 |

The import cost of ethanol and biodiesel is approximately the same as for petrol and normal diesel per litre. However, the calorific value of ethanol and biodiesel is lower than common diesel and petrol. This means that more litres of renewable fuel have to be

imported in order to give the same energy output. Table 20 below shows the difference in density and calorific value of the different fuels:

Table 20

Calorific Value, Density and Energy Content for different types of fuel

| | Calorific Value (MJ/kg) | Density (kg/L) | Energy content per volume (MJ/L) |
|-----------|-------------------------|----------------|----------------------------------|
| Petrol | 47.3 | 0.66 | 31.2 |
| Ethanol | 29.7 | 0.79 | 23.5 |
| Diesel | 44.8 | 0.82 | 36.7 |
| Biodiesel | 37.3 | 0.88 | 32.8 |

This implies that the cost of the policy is about 30 million Euros for end-consumers.

RES in Heat

As mentioned above, RES share in the heating and cooling sector has to be high enough to guarantee a total RES share of 20%; this means 27% renewable energy consumption for heating and cooling. The share in 2009 was 20%, which means that the required increase is 7 percentage points.

As previously mentioned, renewable heat production is currently produced from wood and agricultural waste and the lowest cost option is to increase that production. For diversity and increased availability, solar thermal is also introduced in the heating mix for Moldova. Therefore, extra cost for end-users is assumed to be negligible.

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

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

Local public authorities, as well as three Agencies for Regional Development (operating in Centre, South and North of Moldova under the Ministry of Regional Development and Construction) were involved at the stage of preparation and discussion of the NREAP document. The representatives of the organisations mentioned were actively participating in the working group meetings organised under the aegis of the Ministry of Economy, with the participation of the Energy Efficiency Agency.

Among other stakeholders, the following organizations were invited at the stage of NREAP preparation: ANRE, IS Moldelectrica, Ministry of Regional Construction and Development, Technical University of Moldova, Ministry of Environment, the Agency for Consumers' Protection, National Bureau of Statistics, Distribution network Operators (Union Fenosa, Red Nord, Red Nord-Vest), Civil Society, etc. The development of the NREAP was fully supported by the team of consultants from AF Consult, in the framework of the project financed by the Swedish Embassy.

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

This document represents the first National Renewable Energy Action Plan developed by the Republic of Moldova and submitted to the Energy Community Secretariat.

According to Law No. 142 of 02.07.2010 on Energy Efficiency (Art.18), the LPAs shall develop, coordinate and approve their own Local Energy Efficiency Programs (LEEP) that include the renewable component as well, for every three years period. The energy efficiency local programs set up policies to improve energy efficiency to the end consumers in the jurisdiction of that local administration.

According to Chapter VII, Section 2 of the National Energy Efficiency Program for 2011-2020 (Government Decision No. 833 of 10.11.2011) "Energy managers, with the support of the Energy Efficiency Agency, will develop local programs to improve energy efficiency every three years and annual action plans for the implementation of energy efficiency measures."

Based on the LEEP, the LEEAP (Local Energy Efficiency Action Plan – that will include the renewable component as well) will be prepared by energy managers on an annual basis, including specific actions aiming at reaching the targets defined by the LEEP; consequently, this will ensure compliance with the objectives determined in the NREAP. Actions included by the LEEAP will be financed either by existing/planned projects (involving Donors' assistance) or by the local/national budget.

The second NREAP to be developed for Moldova will consider the LEEP prepared for the reference period.

The commitment of LPAs of Moldova to the increase in use of renewable energy on their territories is not only based on the obligatory nature, with the framework established by the NREAP/LEEP, but is done also on a voluntary basis. At the time of development of the NREAP, ten cities of Moldova had signed the Covenant of Mayors, the EU initiative that makes the signatories meet and exceed European Union's 20% CO₂ reduction objective by 2020. Therefore, within the year following their signature, a Sustainable Energy Action Plan (SEAP) outlining the key actions that the local authorities plan to undertake should be submitted to the European Commission.

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

MoE and EEA established a working group with the participation of the main stakeholders from the Moldovan Energy Sector.

This working group developed the first draft, discussed it during two working group meetings and agreed on the final version. As per the agreement, MoE and EEA shared the document with the stakeholders.

Based on the comments from the stakeholders and general public, NREAP was correspondingly corrected and submitted subsequently to the Government.

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

According to Article 26 of Law No.142 of 02.07.2010 on energy efficiency, the national authority responsible for preparation and follow-up is the EEA, operating under the Ministry of Economy. MoE ensures coordination and assistance for this development.

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

The monitoring system of the NREAP is currently under development. It will be managed by the EEA and the system will be able to document and track each renewable energy source introduced in the sector. The costs are of particular importance to the Government,

including the construction costs for the introduction and development of renewables (e.g. boiler or wind turbines, solar panels, etc.). The monitoring system will allow them to analyse consumer prices for renewable energy (also considering their construction and development) and the governmental costs for its introduction (e.g. costs of subsidies, tax relief costs, information costs, etc.).

The system will offer the possibility to see the influence of the measures stated in the NEEAP and NREAP (e.g. a requirement of the share of bio fuels in imported fuel) on consumer prices.