

National Renewable Energy Action Plan (NREAP) Georgia

Unofficial Translation

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List of abbreviations

BAU	-	Business As Usual
CHP	-	Combined Heat and Power
CoM	-	Covenant of Mayors
DCFTA	-	Deep and Comprehensive Free Trade Area
DSOs	-	Distribution System Operators
EE	-	Energy Efficiency
EED	-	Energy Efficiency Directive
EPBD	-	Energy Performance in Buildings Directive
EU	-	European Union
GAC	-	Georgian Accreditation Centre
GHG	-	greenhouse gas
GNERC	-	Georgian National Energy and Water Supply Regulatory Commission
GSE	-	Georgian State Electrosystem
GOG	-	Government of Georgia
HPP	-	hydropower plant
INDC	-	Intended Nationally Determined Contribution
LEDS	-	Low Emissions Development Strategy
MEPA	-	Ministry of Environment Protection and Agriculture
MoESD	-	Ministry of Economy and Sustainable Development
MoU	-	Memorandum of Understanding
NEAP	-	National Environmental Action Programme
NEEAP	-	National Energy Efficiency Action Plan
NREAP	-	National Renewable Energy Action Plan
PPA	-	Power Purchase Agreement
RES	-	Renewable Energy Sources
SEAP	-	Sustainable Energy Action Plan
TPES	-	total primary energy supply
TSO	-	Transmission System Operator
TYNDP	-	Ten-Year Network Development Plan

Units of energy and conversions

kV	kilovolt	
kWh	kilowatt-hour	
MWh	megawatt-hour	= 1,000 kWh
GWh	gigawatt-hour	= 1,000,000 kWh
TWh	terawatt-hour	= 1,000,000,000 kWh
ktoe	kilotonne of oil equivalent	
W	watt	
kW	kilowatt	= 1,000 W
MW	megawatt	= 1,000,000 W
Kg	kilogram	
t	tonne	= 1,000 kg
Kt	kiloton	= 1,000,000 kg
Mt	Megaton	= 1,000,000,000 kg
km	kilometer	
tkm	tonne-kilometer	
pkm	passenger-kilometer	

TOE per MWh: 0.085984523

TOE per GJ: 0.02388459

MWh per GJ: 0.277777778

Gcal per MWh: 0.859845228

(as per IEA official unit conversions: see <https://www.iea.org/statistics/resources/unitconverter/>)

GEL per EUR: 2.9204

USD per EUR: 1.1749

Official exchange rates on 19/10/2017:

<https://www.nbg.gov.ge/index.php?m=582&lng=eng> (GEL per EUR)

<https://www.ecb.europa.eu/stats/exchange/eurofxref/html/eurofxref-graph-usd.en.html> (USD per EUR)

1. Summary of National Renewable Energy Policy

1.1. Rationale for National Renewable Energy Action Plan (NREAP)

In June 2014, the EU and Georgia signed an Association Agreement¹, which entered into force on July 1 2016. This, along with the Deep and Comprehensive Free Trade Area (DCFTA) Agreement, builds a foundation for far-reaching Georgian political and economic integration with the EU. On October 14, 2016 Georgia has signed the protocol on the 'Accession of Georgia to the Treaty Establishing the Energy Community'. Georgia's accession to Energy Community implies legal commitment and legislative harmonization. In particular, Georgia has to reflect all of the directives and regulations of EU Energy field in the domestic legislation, set out in the annex XXV to the Association Agreement. An expected energy market transformation is foreseen under the Energy Community Treaty implementation, which will have a strong direct and indirect impact on the development of renewable energy.

According to Article 2 of the Protocol of the Council of Ministers of 14 October 2016, it was decided to implement Directive 2009/28 / EC of 23 April 2009 on the Promotion of the Use of Energy from Renewable Energy Sources in Georgian legislation obliging the Contracting Parties to the Energy Community to develop and adopt National Renewable Energy Action Plan (NREAP) for the domestic legislation.

This document has the following objectives:

1. Outline the current state of affairs as relates to the legislative and institutional framework for renewable energy as per the requirements of the Renewable Energy Directive.
2. Propose a number of policy and investment measures to be undertaken to meet the target of 30% of energy consumed coming from renewable energy for 2020 and implement the Renewable Energy Directive - including likely costs associated with their implementation.

Georgia's energy system is in a state of active development and reforms are particularly influenced by the Association Agreement signed with the European Union and its Energy Community membership. Under the Association Agreement, Georgia took an obligation of implementing the EU directives in energy sector and will have to comply with the requirements of the third energy package.²The priority of these reforms has been to enhance the legal and regulatory framework for doing business, along with deregulation, which has helped to trigger strong economic growth.

A new Energy Policy came into force in Georgia in June 2015, the aim of which is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources.

The Georgian Government has therefore been working towards the improvement of self-sufficiency via the utilization of local renewable energy resources geared towards the reduction of dependency on imports. The key priority of the energy policy was a full satisfaction of customer demand for electricity with the maximum possible utilization of local hydropower resources, initially alongside imports, and, eventually, by substituting imports with local thermal generation. Additionally, the utilization of the country's local indigenous renewable energy sources became one of the major areas of Georgia's energy sector development.

¹https://eeas.europa.eu/delegations/georgia/9740/eugeorgia-association-agreement_en

²European Union (30 August 2014) Association Agreement between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Georgia, of the other part. Official Journal of the European Union L261/4 Available at http://eeas.europa.eu/georgia/pdf/eu-ge_aa-dcfta_en.pdf

Georgia's first energy balance which was officially developed according to international standards in 2014 - so this is used as the base year for calculating targets for this NREAP. According to the 2014 Energy Balance of Georgia³ renewable energy accounted for 87% of the Georgian energy production - wherein 27% of total primary energy supply (TPES) was made up of hydro - 16%, biofuels (mainly wood) and waste - 10% and geothermal, solar, etc. - 0.4%. These levels were similar in 2013 and 2015. It is worth noting that biomass, mostly the firewood, has a major share in primary energy consumption and is increasingly causing forest degradation. Additionally, wind energy production began in late 2016.

Georgia has an immense untapped potential of wind, solar, geothermal, and especially hydro resources.

- For hydropower, it is estimated that a total potential capacity of 15,000 MW exists with a total production potential of 50 TWh per year of which approximately 22% is currently utilised in terms of capacity and 17% in terms of production (expected in 2018).
- The average annual electricity generation potential of wind in Georgia is estimated to be 4 TWh with an installed capacity of 1,500 MW.
- According to recent hydro-geological studies, the Georgian geothermal water reserves reach 250 million m³ per year.
- At present there are more than 250 natural and artificial water channels, where the average temperature of geothermal waters ranges from 30 to 110°C, while the total potential amount to be withdrawn is 160,000 m³ per 24 hours.
- Due to the geographical location of Georgia, solar radiation is rather high. In most regions of the country there are 250 - 280 sunny days annually with approximately 6,000 - 6,780 hours of sunlight per year. The annual solar radiation varies depending on the region from 1,250-1,800 kWh/m².

The effective utilization of renewable energy sources could result in the production of an additional 20 TWh in the near future, which would save about 7 million tonnes of conventional fuels. At a regional scale, the exploitation of renewable energy resources outlined above would allow the country to reduce the utilization of fossil fuels and reduce the greenhouse gas emissions in the atmosphere: by 9 million tonnes of CO₂; 5,000 tonnes of CO; and 44,000 tonnes of NO₂. The full utilization of Georgia's renewable energy resources could significantly contribute to climate change mitigation in the country.

1.2. Legislative Framework for Renewable Energy

The Law on Electricity and Natural Gas is the key part of legislation regulating the country's energy sector since 1997.

The purpose of the Law is:

- Encourage domestic and foreign investments in order to rehabilitate and develop the electricity, natural gas and water supply sectors;
- support predominant use of local hydropower and other renewable, alternative and natural gas resources;
- define small power plants as those with an installed capacity of less than 13 MW; and

Since 2006 the Law has been amended several times and currently incorporates some EU principles.

The key priority of the first energy policy was a full satisfaction of customer demand for electricity with the maximum possible utilization of local hydropower resources.

Georgia is also developing a new Law on Energy which is expected to be approved in the near future. This law will become a key part of legislation regulating the energy sector.

³Geostat (2015) Energy Balance of Georgia, 2014. Available at http://geostat.ge/?action=page&&p_id=2084&lang=eng

In addition, Georgia is developing a separate law on 'Promotion of the Use of Energy from Renewable Energy Sources', which aims to establish the basis for promotion and utilization of energy from renewable sources.

After adopting the first energy policy document - "Main Directions of the State Energy Policy of Georgia" in 2006, the utilization of the country's local indigenous renewable energy sources became one of the major factors of Georgia's energy sector development. Additionally, there is the aim of developing alternative energy sources such as wind, solar and geothermal.

"The Main Directions of the State Energy Policy of Georgia" has been amended by a new Energy Policy, adopted on June 2015. The key policy directions have not changed significantly. The aim of the updated Energy Policy is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources.

In 2015, the Ministry of Energy approved and adopted the strategic document, which was prepared by the Transmission System Operator (GSE), a "Ten-year network development plan of Georgia for 2015-2025" and has since been updated for the period 2018 - 2028. This is the time-bound program designed for reinforcement of national transmission system infrastructure, addressing the existing problems, responding to the future challenges and implementing the opportunities. One of the core subjects identified in the document is an integration of renewable energy sources into the network, which still remains a major challenge for the wind and solar based electricity generation.

According to the state energy policy, the Ministry's priorities include the preferential utilization of renewable and alternative resources and the attraction of foreign investments in the energy sector. In this regard, the State Programme - "Renewable Energy 2008" was adopted in 2008, which has been successfully implemented since then. In accordance with the Law in force, the following power plants are deregulated: Those built after 1 August 2008 which are not sources of guaranteed capacity, and power plants built before 1 August 2008 with the installed capacity of up to 40 MW which do not constitute a source of guaranteed capacity. These plants are free to choose the buyer and set a price for produced electricity.

For the purpose of supporting the construction of new generation units the Government of Georgia has adopted state programs and several sub-laws, in particular:

- **Resolution No.107 on the Approval of the National Program "Renewable Energy 2008"**⁴ which defines the procedure for initiating and implementing renewable energy projects in Georgia. This resolution does not contain renewable energy targets or a national action plan in the sector. **Resolution No. 214 on the "Approval of Rules for Expressing Interest in Conducting Technical and Economic Feasibility Studies for the Construction, Ownership and Operation of Power Plants in Georgia"**⁵ which effectively replaced resolution No.107. As a result of the ongoing reforms, Resolution N214 has been amended by Resolution N515 of the Government of Georgia and regulates the manner of implementation of all types of power plant project which is not a private or public cooperation project. The issues related to the Memorandums of Understanding with the Government of Georgia are regulated in accordance with the same Resolution.
- **"State program" Renewable Energy 2008 "- in Georgia for construction of new renewable energy sources approval of the rules" of the April 18, 2008 №107 compliance with the resolution and / or on the basis of memorandum of understanding signed with the**

⁴ Georgian Government (18 April 2008) Decree #107: About the Approval of the Rule to Enable the Construction of Renewable Energy Sources in Georgia. Available at http://www.esco.ge/files/decree_107_final.pdf

⁵ Government of Georgia (21 August 2013) Decree #214: About the Approval of the Rule of Expressing Interest in Technical and Economical Study of the Construction, Construction, Ownership, and Operation of Power Plants in Georgia. Available at: http://www.esco.ge/files/decree_214.pdf

government on issues related are regulated to the same regulation respectively.

- Decree No. 40 of the Minister of Energy of Georgia regulates the rules for construction, ownership and operation of wind power plants and other renewable energy resources. As a result of the ongoing reforms, the aforementioned order was amended by Resolution N515 of the Government of Georgia on 'Approval of the Rules and Conditions for Submitting and Discussing Proposals for the Technical-Economic Study, Construction, Ownership and Operation of the Power Plants to the Ministry of Economy and Sustainable Development of Georgia, which do not constitute a public-private partnership project' and regulate the manner of implementation of any type of power plant project that is not a public-private partnership project.
- The Law of Georgia on Public and Private Partnership, which was adopted on July 1, 2018, establishes the legal bases for public and private cooperation, including rules and procedures related to the development and implementation of a public and private partnership project, principles of public and private cooperation, and sets relevant institutional system, also regulates all other issues related to public private partnership.
- Resolution N426 of the Government of Georgia "On Approval of the Procedure for Developing and Implementing a Public-Private Partnership Project", which came into force on 17 August 2018, was developed in accordance with the Law on Public and Private Partnership and aims at defining the procedure for developing and implementing a public-private partnership project, This regulation in the energy sector regulates projects that provide for guaranteed electricity purchase agreements and constitutes a concession pursuant to Article 2 (j) of the Law.

The Government of Georgia plans to strengthen its institutional capacity to ensure the successful and rapid implementation of the Energy Efficiency Program and to encourage investment.

In line with EU commitments and the implementation of the Energy Efficiency Directive (EED-2012/27 / EU), the Government of Georgia has started work on a draft Energy Efficiency Law. The process is scheduled to be completed by 2020, the draft law has already been endorsed by the government of Georgian, the law is currently being prepared for consideration fall session of the Parliament, the Law on Energy Efficiency will help meet the obligations of the Energy Community Agreement and the EU Association Agreement and the implementation of targets set in the NEEAP.

Ministry of Energy Medium-term Action Plan's (2017-2020)⁶ main goals include, inter alia:

- Development of Action Plans for searching, utilization and elaboration of electricity from renewable and alternative energy sources.
- Creation of legislation for Energy Efficiency and support to the realization of Energy Efficient Measures.

The National Environmental Action Programme (NEAP) of Georgia 2012-16⁷ assumes that Georgia is on a fast track for economic development. Economic growth is the basis for the country's welfare which may bring considerable pressure on natural resources and the environment. Therefore, sustainable economic development is important for the country from the perspective of environmental protection and rational use of natural resources. The NEAP sets long term (20-year) goals and short term (5-year) targets in 11 thematic environmental areas including climate change. Climate change mitigation is among the short term targets - Target 3: the creation of favourable conditions for the reduction of GHG

⁶ - Since adoption, the Ministry of Energy has merged with the Ministry of Economy and Sustainable Development.

⁷ http://www.preventionweb.net/files/28719_neap2_eng.pdf

emissions.. The measures proposed in this regard are in line with the National Energy Efficiency Action Plan and support for the development of renewable energy.

Draft State Strategy for the Development of Solid Biofuels in Georgia has been elaborated and is subject of the government approval and adoption in the near future.

The major goal of the strategy is the facilitation of the utilization of solid biomass residues in Georgia, through the encouragement of the production and utilization of the modern solid biofuels. The main directions of the strategy include:

- Sustainable management and provision of supply of solid biomass residues from forest, agriculture, industry and other sources;
- Support of the advancement of the new technologies and business processes for the production of the solid biofuels;
- Encouragement of the sustainable production and demand for the energy received from biomass residues.

Georgia has also developed Georgia’s Intended Nationally Determined Contribution (INDC) which was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) at the COP21 in Paris at the end of 2015. Georgia plans to unconditionally reduce its greenhouse gas (GHG) emissions by 15% below the Business As Usual scenario (BAU) for the year 2030. The 15% reduction target can be increased up to 25% in a conditional manner, subject to a global agreement addressing the importance of technical cooperation, access to low-cost financial resources and technology transfer. The 25% reduction below BAU scenario would also ensure that Georgian GHG emissions by 2030 will stay at 40% below the 1990 levels.

Georgia also submitted a forest related annex as part of the INDC document describing that the Georgian Government prioritizes three options for climate change mitigation activities in the forestry sector: (a) establishing Sustainable Forest Management (SFM) practices; (b) conducting afforestation / reforestation and assist natural regeneration; and (c) expanding the protected area.

2. Expected Final Energy Consumption 2014-2020

This section presents projected gross final energy consumption of all types of energy (from both renewable and conventional sources), overall and for each sector, in the period up to 2020. These estimates take into account the expected effects of energy efficiency and saving measures to be introduced during the period.

Table 1: Expected gross final energy consumption of Georgia in heating and cooling, electricity and transport up to 2020 taking into account the effects of energy efficiency and energy saving measures 2014-2020 (ktoe)

	2014		2015		2016		2017		2018		2019		2020	
	Base year	Ref	w/ EE	Ref	w/ EE	Ref	w/ EE	Ref	w/ EE	Ref	w/ EE	Ref	w/ EE	
1 Heating and cooling (1)	1,854	2,094	N/A	1,931	N/A	1,907	1,874	1,968	1,883	2,054	1,958	2,139	2,031	
2 Electricity (2)	893	852	N/A	902	N/A	891	881	928	909	963	934	998	959	
3 Transport as in Article 3(4)a (3)	1,426	1,424	N/A	1,498	N/A	1,499	1,461	1,580	1,492	1,663	1,521	1,756	1,557	
4 Gross final energy consumption (4)	4,173	4,369	N/A	4,330	N/A	4,297	4,216	4,476	4,285	4,679	4,414	4,893	4,547	

(1) This 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) No 1099/2008 (p. 23-24).

- (2) The gross electricity consumption is national gross electricity production, including auto production, plus imports, minus exports.
- (3) Transport consumption as defined in Article 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.
- (4) 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 (NB: this does not include consumption of electricity for pumped hydro storage or for transformation in electrical boilers or heat pumps at district heating plants).

3. Measures

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

The Government of Georgia (GOG) has set forth legislative frameworks supporting facilitate the utilization of the renewable energy potential. Currently, there is not yet a dedicated renewable energy law in Georgia, but measures supporting the development of renewable energy are include in number of associated policies. Table 5 summarises the existing regulatory framework supporting the development of renewable energy in Georgia. At the end of Table 5, the key ongoing and additional support mechanisms for renewable energy are described.

It is important to note that according to the protocol concerning the accession of Georgia to the European Energy Community Treaty, Georgia has assumed an obligation to comply with the EU Directive on the promotion of the use of energy from renewable sources (2009/28/EC) by 31 December 2018 and reflect the latter in the National legislation.

Currently the work on the development of RE law is underway. In accordance with the protocol signed by Georgia, Georgia has been granted additional 12 month period for implementation of this Directive. A draft law has been prepared and it is foreseen to be adopted by the end of 2019.

It is also worth noting that the United States Agency for International Development (USAID) is isimplementing three-year energy programme in Georgia to support the development of energy market in the country. The USD 7.5 million programme aims:

- to contribute to the development of commercial electricity opportunities in Georgia;
- to optimise energy-related investments;
- to help the country integrate with the renewable energy network; and
- to provide strategic consultation assistance to the Government of Georgia in terms of increasing energy security.

Table 2: Overview of all policies and measures

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
National Laws					
Law on electricity	Regulatory	The last amendments of the law	Investors, end users	Existing	1999 -

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
and natural Gas of Georgia		stipulate encouragement of purchase and construction of micro (up to 100 kW) electrical plants. The customers will have possibility to generate electricity, use it and provide and sell to the grid the surplus electricity at the cost established by the Georgian National Energy and Water Regulatory Commission			ongoing with modifications - including for micro-power from 2016
Law on Energy Efficiency	Regulatory	Implement the EU's Energy Efficiency Directive (EED - 2012/27/EU), help Georgia to meet its commitments under the Energy Community Treaty and the EU Association Agreement, and achieve the goals set out in the National Energy Efficiency Action Plan (NEEAP).	Energy efficiency	Planned	Expected end of 2019
Law on Environmental Protection ⁸	Regulatory	Use of natural resources with consideration of environmental principles and sustainable development	Environment	Existing	10 Dec 1996
The Forest code of Georgia ⁹	Regulatory	Rules for conducting tending, protection, restoration, and the use of the Georgian Forest Fund's resources. The Draft forest code is expected to limit access to wider population to the forests. This may influence biomass production, both positively and negatively.	<i>Biomass production</i>	Existing	22 June 1999 A Draft of new code is published
Law - Waste Management Code ¹⁰	Regulatory	facilitate waste prevention and its increased re-use as well as environmentally safe treatment of waste	<i>Biomass and biofuel production</i>	Existing	26 Dec 2014
Law of Georgia on Licenses and Permits ¹¹	Regulatory	Governs issuance of construction and environmental impact permit	<i>RE project development</i>	Existing	24 June 2005
Law of Georgia on Environmental Impact Permits ¹²	Regulatory	Facilitates protection of the environment and natural resources from irreversible quantitative and qualitative changes, and their rational use	<i>RE project development</i>	Existing	14 Dec 2007
Law on 'Promotion of the Use of Energy from Renewable Energy Sources' ¹³	Regulatory	To define open issues and approximate the Renewable Energy Directive	<i>RE project development</i>	Planned	First draft due by August 2018

⁸ http://www.vertic.org/media/National%20Legislation/Georgia/GE_Environmental_Protection.pdf

⁹ http://biomass.ge/sites/default/files/annex_1_acc200835_georgianforestcode.pdf

¹⁰ http://environment.cenn.org/app/uploads/2016/06/Waste-Management-Code_FINAL_2015.pdf

¹¹ http://www.economy.ge/uploads/kanonmdebloba/sagareo_vachroba/Licenses_and_Permits_Legislation_ENG.pdf

¹² <http://environment.cenn.org/app/uploads/2016/10/The-Law-of-Georgia-on-Environmental-Impact-Permit.pdf>

¹³ http://hydropower.ge/user_upload/6.HIPP_Report_on_RES_Law.pdf

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
Law on Energy Performance of Buildings	Regulatory	To approximate the Energy Performance in Building Directive	<i>Building RE production</i>	Planned	30 June 2019
Strategies and plans					
Main Directions of the State Energy Policy of Georgia	Regulatory	The aim is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources	Administration, planners	Existing	2015 - ongoing
Ten-year network development plan of Georgia for 2018-2028 ¹⁴	Regulatory	Reinforcement of national transmission system infrastructure, addressing the existing problems, responding to the future challenges and implementing the opportunities, including the Integration of renewable energy sources into the network	Administration, planners	Existing	2018-2028
Social-economic Development Strategy of Georgia 2020 ¹⁵	Regulatory	Use of natural resources, ensuring environmental safety and sustainability and avoiding natural disasters during the process of economic development	Administration, planners	Existing	2014 - 2020
Main Directions of the State Energy Policy of Georgia	Regulatory	The aim of the updated Energy Policy is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources.	Administration, planners	Existing	2006- 1st version, 2015 updated version
National Energy Efficient Action Plan (NEEAP) of Georgia	Regulatory	Includes Georgia's indicative national energy efficiency targets for 2020, 2025, and 2030	Public administration, planners	Planned	2019-2021
Ministry of Energy Medium-term Action Plan	Regulatory	Development of Action Plans for the utilization of electricity from renewable and alternative energy sources and the creation of the legislation to support energy efficiency measures	Public administration, planners	Existing	2017-2020
The National Environmental Action Programme (NEAP) of Georgia ¹⁶ 3rd National Environmental	Regulatory	The elaboration of Low Emission Development Strategy (LEDS) (ongoing) and the Promotion of EE in the Transport and Building sectors	Climate change mitigation, energy efficiency	Existing	2017 - 2021

¹⁴ http://www.gse.com.ge/sw/static/file/TYNDP_GE-2018-2028_GEO.PDF

¹⁵ http://www.mrdi.gov.ge/sites/default/files/social-economic_development_strategy_of_georgia_georgia_2020.pdf

¹⁶ http://moe.gov.ge/res/images/file-manager/wliuri-angarisshi/DonorsCoordinationMeeting_MENRP_8_12_16.pdf

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
Action Program of Georgia 2017-2021 (NEAP 3)					
State Strategy for the Development of Solid Biofuels in Georgia	Regulatory	Sustainable management and provision of supply of solid biomass residues from forest, agriculture, industry and other sources; Support of the advancement of the new technologies and business processes for the production of the solid biofuels; Encouragement of the sustainable production and demand for the energy received from biomass residues	Biofuels and biomass production	Planned	Draft prepared in 2017. Currently is under review
Law on the System of Protected Territories ¹⁷	Regulatory	Encourages the activities aimed at preserving those areas, which are valuable for agricultural, industrial, transportation, energy purposes, as well as natural resources	Land use	Existing	March 1996
Strategy for Agricultural development in Georgia 2015-2020	Regulatory	Fostering the competitiveness of agriculture; ensuring the sustainable management of natural resources, and climate action; and achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment	Biomass and biofuel production	Existing	2015-2020
Rural Development Strategy of Georgia 2017-2020	Regulatory	The improvement of the management of water, forest and other resources and the promotion of sustainable systems of waste management in rural areas.	Biomass and biofuel production	Existing	2017-2020
Administrative procedures					
Resolution No.107 on the Approval of the National Program "Renewable Energy 2008" ¹⁸	Regulatory	Defines the procedure for initiating and implementing renewable energy projects in Georgia	RE Investors	Existing	18 April 2008
Decree No. 40 of the Minister of Energy of Georgia ¹⁹	Regulatory	Regulates the rules for construction, ownership and operation of Hydro Power Plants and Wind Power Plants and other renewable energy resources, which are not included in the List of Potential Power Plants in Georgia and will be identified by the investors	RE Investors	Existing	10 April 2014
Law on Public-	Regulatory		RE Investors	Existing	Fromm July 2018

¹⁷ <http://www.elaw.org/content/georgia-law-system-protected-territories-english>

¹⁸ <https://policy.asiapacificenergy.org/sites/default/files/State%20Program%20%E2%80%9CRenewable%20Energy%202008%E2%80%9D%20about%20Approval%20of%20the%20Rule%20to%20Enable%20the%20Construction%20of%20Renewable%20Energy%20Sources%20in%20Georgia.pdf>

¹⁹ <http://www.energy.gov.ge/projects/pdf/pages/Order%2040%2010042014%20On%20Approval%20of%20the%20terms%20and%20conditions%20648%20eng.pdf>

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
Private Partnership,					
the Ordinance on elaboration and execution of Public-Private Partnership Project and 515 Ordinance	Regulatory		RE Investors	Existing	From 17 th of August 2018
Rule on the Security of supply	Regulatory			Planned	
Institutional					
Capacity development of existing institutions	Regulatory	Initial activities will focus on project / investment identification, donor coordination, facilitation of grant-making, and facilitation of technical assistance.	Private actors including industries and power sector companies, municipalities and central-government ministries/agencies , general public	Planned	2019
Information provisions					
Consumer information programmes and training	Soft	The measure will promote RES policy by engaging in outreach and awareness-raising events and will equip participants with improved knowledge on RES	End-users in residential sector, public, commercial/businesses, media	Planned	
Certification and standards					
Bio fuel quality assurance standards	Regulatory	<ul style="list-style-type: none"> National Standard for solid biofuel stoves; National standard for solid biofuels-Quality Assurance-Part 1; National Standard for solid biofuels-Quality Assurance Part 2; wood briquettes for non-industrial use; National Standard--Quality Assurance-Part 3; Fuel Wood for non-industrial use 	Biofuel producers	Planned	The standards have been drafted, not yet approved
Transposition and enforcement of the Energy Performance in Buildings Directive (2010/31/EU)	Regulatory	It will establish the building energy performance requirements through building codes and certification	New buildings, significant reconstruction of existing buildings (including appliances and systems for lighting, heating, cooling), and existing buildings being rented, sold, or public	Planned	2019
Designing and operating the	Regulatory	This measure involves the setting up of officially approved certification and/or	Energy managers and installers of	Planned	30 June 2019

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
organisational model for the energy certification system and Development and adoption of Regulations for an independent control system		accreditation schemes, including suitable training facility and programmes as relates to buildings. It will increase the number and capacity of providers of energy services, energy audits, energy managers and installers of energy-related building elements	energy-related building elements		
Training, examination and certification of experts and Establishment of Independent Control System and Registry	Regulatory	It will increase the number and capacity of providers of energy services, energy audits, energy managers and installers of energy-related building elements; The Control system should provide information enabling evaluation of the effectiveness of the Certification Scheme	Energy managers and installers of energy-related building elements	Planned	2019
Environmental Assessment Code	Regulatory	Environmental assessment code will envisage the requirements of the convention "on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters" (Aarhus Convention) in the environmental protection issues and will ensure public participation in the decision-making process in relation with effects on the environment, particularly to bring potential negative impact of high risk activities on the condition of the natural environment, as well as on human life and health under the environment assessment regulation, in compliance with the requirements of EU directive 2011/92/EC "on the assessment of the effects of certain public and private projects on environment"		Planned	Draft law was published 21 June 2017
Additional measures as part of this REAP					
Promotion of solar hot water heaters	Investment	This measure is also included in the NEEAP and will involve the active promotion of solar hot water heaters as a replacement for natural gas and other forms of water heaters	Households and businesses	Planned	2018 - 2020
Promotion of electric vehicles	Investment	This measure will involve the establishment of infrastructure for electric vehicles, the purchase of electric vehicles for public transport, and incentivising the private sector and population to adopt electric vehicles	Public sector, households, and businesses	Planned	2018 - 2020
Ongoing support for hydropower production	Regulatory / investment	This measure involves the continued support for new hydropower production via agreements with power producers	Private sector	Ongoing	2018 - 2020
Ongoing support for wind production	Regulatory / investment	This measure involves the continued support for new wind production via agreements with power producers	Private sector	Ongoing	2018 - 2020
Ongoing support for solar power production	Regulatory / investment	This measure involves the continued support for new solar power production via agreements with power producers	Private sector	Ongoing	2018 - 2020

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
Support for micro-generation (less than 100 kW) from renewable sources	Regulatory / investment	This measure involves the continued support for new micr-generation of renewable energy power production via agreements with owners	Private sector	Ongoing	2018 - 2020
Ongoing support for geothermal heat production	Regulatory / investment	This measure involves the continued support for expansion of the use of existing geothermal production - including feasibility studies (cost-benefit analyses, resource assessments) and investments.	Private sector	Ongoing	2018 - 2020
Improved management of solid biomass resources - Development of a new Forest Code, inventory of Forests, and support for the use of residues	Regulatory / investment	This measure involves the development of improved forestry management practices and potentially support for the use of biomass residues for heating, hybrid electricity production, etc.	Private sector / national forestry agency	Planned	2018 - 2020
District heating and cooling infrastructure development	Investment	This measure involves the development of feasibility studies and potentially investment in renewable energy based district heating and cooling - currently underway in Borjomi / Akhaltsikhe	Private Sector	Existing / Planned	2018 - 2020
Communications and capacity building of technical experts	Capacity building	This measure involves capacity building of technical experts and continued communications activities with the general public about renewable energy	General public / technical experts	Planned	2018 - 2020

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

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

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

The legislative framework defining administrative procedures and spatial planning issues for plants and associated transmission and distribution network falls under a number of policy areas governing authorization, certification and licensing within energy field, construction and environmental protection.

The legislative framework regulating authorization, certification and licensing procedures in the energy field are regulated by a number of laws including:

- Law on Electricity and Natural Gas
- Law on Licensees and Permits
- Law on State Support for Investment Promotion
- The Main Directions of the State Energy Policy of Georgia
- GNERC (Georgian National Energy and Water Supply Regulatory Commission) resolution №14 of 30 July, 2014 on approval of electricity tariff methodologies
- Law on License and Permit Fees
- Government Decree N2840 on Ten Year Network Development plan of Georgia
- Resolution of Government of Georgia №434 of 31 December, 2013 on approval of rules of exploitation of power plants and networks
- GNERC resolution №10 of 17 April, 2014 on Georgian Grid Codes adoption (transmission and distribution)
- GNERC resolution №20 of 18 September, 2008 on electricity (capacity) supply and consumption rules
- Government resolution №107 on approval of the national program “*Renewable Energy 2008*” - On Approval of the Rule on Providing Construction of New Renewable Energy Plants in Georgia
- Government resolution №214 on approval of rules for expressing interest in conducting technical and Economic Feasibility Studies for the construction, ownership and operation of power plants in Georgia
- Decree №77 of 30 August, 2006 of Minister of Energy on electricity (capacity) market rules
- Government resolution №193 of 15 July, 2010 on guaranteed capacity and determination of guaranteed capacity sources in Georgian energy system

The legislative framework regulating authorization, certification and licensing procedures in the field of spatial planning and construction covers:

- Decree №1-1/251 of February 18, 2011 of Minister of Economy and Sustainable Development of Georgia on application of the norms, rules and other technical regulatory acts for the technical supervision and construction in the territory of Georgia
- Spatial Planning, Architectural and Construction Code
- Government resolution №57 of 24 March, 2009 on approval of rule of issuing construction permits and permit conditions
- Resolution №52 of the Government of Georgia of January 14, 2014 on recognition and enacting of technical standards in the territory of Georgia
- Resolution №41 of January 28, 2016 of the Government of Georgia on approval of the “Technical Rules of Buildings and Construction Security”
- Resolution № 366 of the Government of Georgia of December 24, 2013 on determining rule of protection of linear constructions of electrical networks and their protection zones

The legislative framework regulating authorization, certification and licensing procedures in the field of the environmental protection covers:

- Law of Georgia on Water
- Law of Georgia on Environmental Protection

Further legislation of relevance to authorization, certification and licensing procedures includes:

- Law on the Rule of Expropriation of Property for the Necessary Public Need
- Law on State Property
- Law on Agricultural Land Ownership
- General Administrative Code of Georgia
- Civil Code of Georgia

Besides international standards are in the process of being adopted as relates to appliances which utilise renewable energy (e.g. biomass heaters, hybrid biomass heaters, heat pumps, etc.).

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

The following administrative bodies are involved in the process of authorization, permitting, certification, commissioning and licencing: Ministry of Economy and Sustainable Development (MoESD), Ministry of Environment Protection and Agriculture of Georgia ((MEPA), GNERC and local municipalities. Their respective roles are outlined in more detail below. There is no centralized institution or unified rule (one stop-shop, streamlined procedures or other.), therefore it is required to cooperate with various administrative bodies in order to meet requirements of the various normative acts for authorization, permitting, commissioning and licencing of renewable energy sources (except micro power plants). Different administrative and regulatory requirements will be exposed to individual project developer based on the type and capacity of the renewable energy source.

Ministry of Economy and Sustainable Development of Georgia (MoESD)

By the end of 2017 previously the Ministry of Energy was merged into the MoESD. Therefore, the MoESD is now responsible for the Procedures for awarding authorization for renewable energy projects (announcing expression of interest, including certain project in the potential RES list, accepting and reviewing prefeasibility and feasibility studies and agreeing of draft MoUs with the project promoters). The procedure is usually completed after signing of the MoU by the MoESD, the power plant developer, the Market Operator, and (in most cases) transmission licensees.

The MoESD is also the entity that issues construction permits, manages state property and land, and conducts technical and constructions supervision - including construction projects with higher risks - and granting a commissioning certificate via the technical and construction supervision agency.

Among others, the main responsibilities of the Ministry, within the competence of the legislation are:

- Analysis of economic situation of the country and development of economic policy;
- Developing the necessary measures for sustainable development of the country, encouraging types of resource-saving production; encourage and coordinate energy efficiency measures in construction, transport and service; Implementing measures to encourage the green economy;
- Developing policies and programs for promoting investments and innovations;
- Elaboration policy for standardization, metrology, accreditation and certification
- State and technical supervision of spatial planning, architectural and construction-engineering activities, supervision of preparation of project documents;
- Development of construction and design norms and rules;
- Approval of the electricity and natural gas balance forecast;
- Approval of the TYNDP.

LEPL Technical and Construction Supervision Agency: The Technical and Construction Supervision Agency is the legal entity of public law under the MoESD. The agency carries out the control and supervision of facilities with an increased technical risk, of special importance (including hydroelectric power plants). The agency is responsible for issuing construction permits and commissioning certificate after inspecting the quality and compliance of the construction. The agency is also responsible for the elaboration of standards and technical regulation and compliance checking of the constructions of special importance.

Ministry of Environment Protection and Agriculture of Georgia (MEPA): The responsibility of MEPA is to carry out state environmental policy, state management of usage of natural resources, environmental pollution monitoring and carry out ecological analysis, evaluation of river basins and reservoirs for existing and expected hydro-meteorological and environmental conditions. MEPA is an administrative body issuing permits for environmental impact. Of particular importance, the MEPA is responsible for the expert evaluation and approval of environment impact assessments and for granting an environment impact permit (part of second phase of the construction permit) with any generating facility with installed capacity more than 2 MW. The following departments are involved in the process:

- Licenses and Permits Department receives applications for the permits, carries out consultations with developers and communicates with other departments for the final decision on environmental impact permit.
- Environmental Inspectorate undertakes state control of the environment.

The Georgian National Energy and Water Supply Regulatory Commission (GNERC): GNERC is nominated by the law as the independent regulator of the sector. Commission members are selected by the Georgian Parliament. The Commission approves its own budget and is financed through a fee imposed on licensees, the Electricity Market Operator, small hydro plants, exporters, importers, and suppliers of natural gas. According to the Law, GNERC may issue licences in the Georgian electricity and natural gas sectors, regulate activities of licensees, importers, exporters, the market operator, and suppliers of natural gas, resolve disputes between licensees and customers, as well as monitor the energy market.

GNERC also adopts tariff calculation methodologies and approves tariffs to be applied by licensees, importers, the market operator, and suppliers, including the fee payable by customers for their connection to the electricity transmission and distribution networks.

GNERC is responsible for approving Georgian Grid Codes, 5 year distribution network development plans and 3 year transmission investment plans.

The Market Operator - ESCO is responsible for concluding Power Purchase Agreements (via signed Memoranda of Understanding - MoU) along with the MoESD and RES developers entitled to an agreed upon fixed off-taker power purchase price for certain period (at least 8 months) over the course of a year and correspondingly purchasing the power at the agreed upon price.

Local Government Authorities are responsible for the issuance of RES construction permits that belongs to the II-IV construction class in the case that such construction does not involve high risks (i.e. do not involve instance dams, derivation tunnels and etc.). There is no overlap between the responsibilities of central and local public authorities.

Transmission System Operator (TSO): The duties and responsibilities of the TSO are conducted by **Georgian State Electrosystem (GSE)**, which is the dispatch licensee (GSE holds the only dispatch license) as well as the transmission licensee. At the end of 2014, the dispatch licensee was nominated as a transmission system operator²⁰ which signed agreements with other transmission licensees to transfer operation and development planning competences to the TSO. GSE is the Transmission System Operator, with all the duties and responsibilities foreseen by the third energy package. GSE has signed operation agreements with the other two transmission licensees (Sakrusenergo and Energotrans) and is also taking into consideration the definition of Transmission System Operator provided by Law.

²⁰ Dispatch licensee is not certified as Transmission System Operator per the 3rd energy package of EU.

The TSO manages SCADA/Energy Management System (EMS) and uses automated metering, power control and recording systems.

Responsibilities and duties of TSO are to:

- Ensure the reliable operation of the electricity system, meet the requirements of all relevant licensees, importers, exporters and direct consumers in accordance with the approved balances and the relevant normative acts, having in mind electricity system security and minimum value principle
- Install and operate all the technical requirements that are necessary for the normal operation of the system
- Fulfil requirements and parameters set out in the approved energy balances, export/import schedules and bilateral contracts among market participants
- Elaborate and submit to the Commission (GNERC) and to stakeholders an investment program
- Set up and manage unified registry of bilateral contract
- Communicate and share data with the Market Operator
- Prepare a Ten-Year Network Development Plan (TYNDP)

Distribution System Operators (DSOs): Distribution licenses²¹ operate and serve both their networks and also networks owned by third parties. The Distribution licensees provide two services at once for the retail consumers - network service and energy supply.²²

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

Currently there are no concrete timeline and/or directions revisions foreseen in existing legislation related to Article 13(1) but Georgia has undertaken commitments to implement energy *acquis* of Energy Community for electricity and renewable energy by the end of 2018. Most efforts are directed to approve market design and finalize new draft law on energy.

New draft regulations are in the process of preparation in compliance with the new draft law on energy in the following fields:

- Rules on universal supply and supply of last resort
- Switching rules of retail customers
- Security of supply rules in electricity
- Cross border capacity allocation rules

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

23 Georgian cities are signatories of the Covenant of Mayors²³ and are participating in the programme. Eleven cities have developed Sustainable Energy Action Plans (SEAPs) defining various energy efficiency and renewable energy measures for the priority sectors: transport, infrastructure, building, street lighting, land-use changes, and waste management. According to their SEAPs, support for renewable energy utilization at a local level in buildings in terms of renewable energy generation and developing heating & cooling of public buildings based on RES, development of electric public transport, introduction of solar PVs for street lighting are major measures of the plans for decreasing CO₂ emission by the 2020. Implementation of the measures should be carried out within the framework of SEAP's target and should be based on the following actions by the municipality:

²¹There are two distribution licensees for electricity - JSC Energo-pro Georgia and JSC Telasi

²²The DSOs are not unbundled as per the 3rd energy package of EU.

²³http://www.covenantofmayors.eu/actions/sustainable-energy-action-plans_en.html?city=Search+for+an+Action+Plan...&country_seap=ge&commitments=&date_of_approval=&accepted=

- creating an enabling environment
- providing opportunities
- setting up examples
- generating citizen support
- directly engaging citizens in the actions
- generating support and engaging various parties into SEAP activities

Despite the declared goal, actual utilization of renewable energy sources is not carried out on a big scale and each CoM city has implemented RE pilot projects jointly with the support of international donors. The implemented projects include solar thermal systems for municipal kindergartens, solar PV systems for municipal buildings and street lighting, modernization of heating system with the utilization of RES. Currently no support is foreseen at the local level for supporting consumers which would produce renewable energy.

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?

Currently there are no unnecessary obstacles or non-proportionate requirements that have been identified. There are generally favourable conditions as describe in Section 4.2.1.i below.

f) What level of administration (local, regional and national) is responsible for authorising, certifying and licensing renewable energy installations and for spatial planning? (If it depends on the type of installation, 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?

Most of the procedures for authorization, certification and licensing of renewable energy installations are under the competence of state level authorities, i.e. the MoESD, MENRP, Energy Regulatory Agency (GNERC), Market Operator and System Operators (TSO/DSO). These responsibilities are described in Section 4.2.1.b above.

Local Government Authorities are responsible for the issuance of RES construction permits that belongs to the II-IV construction class in case such construction doesn't contain high risks (For instance dams, derivation tunnels and etc.). There is no overlapping between the responsibilities of central and local public authorities.

Categorization of RES is done according to the following principles in line with the installed capacity:

- **Micro power plant** -In this situation the electricity generating facility is owned by a final customer, uses renewable energy sources, is connected to the electricity distribution network at the consumption point of a final customer, and the designed capacity does not exceed 100 kW. Micro power plants are entitled to take advantage of the net-metering policy and are not required to obtain a construction permit, commissioning certificate, or licensee. Access to the network is ensured through a simplified procedure (one stop shop);
- **Small power plant** -This is an electricity generating facility with the designed capacity that does not exceed 13 MW. It does not require a license. However, standard authorization procedures apply to the small power plants. Power plants with installed capacity less the 2 MW are free from the requirement of an environmental impact assessment.
- **Power plant with installed capacity exceeding 13 MW** - Licensing is necessary for these plants, as well as all the other authorisation procedures (feasibility study, construction permit, environmental impact assessment, and commissioning certificate).

g) How is it ensured that comprehensive information on the processing of authorisation, certification and licensing applications and on assistance to applicants made available? What

information and assistance is available to potential applicants for new renewable energy installations on their applications?

Comprehensive information on authorization, certification and licensing applications and associated information is available from the relevant Government websites.

The website of the Regulatory Energy Agency (www.gnerc.org) provides information regarding licensing and grid access regime.

The website of the TSO (www.gse.com.ge) provides information about grid connection rules and TYNDP that contains certain information about RES development, potential and restrictions.

The United States Agency for International Development (USAID) has also supported hydro energy development in Georgia through several projects and developed a map with the list of potential projects and all necessary information useful for RES developers (www.hydropower.ge). The website and database was finally integrated on the MoESD (previously Ministry of Energy) website.

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

At present, there is no one-stop shop for coordinating all steps. The main counterparty for facilitation between different state authorities is the MoESD. However, all the permits and licensees (if needed) have to be managed by the investor. The timetables for processing applications are defined by laws and sub-laws, and mostly they are communicated in advance.

Authorization of RES projects largely depends on the type and size of the generating facility. Construction that belongs to Class I does not require any permits or licenses and developer is free to build it without any procedures. There is also no commissioning obligation. After finishing construction, the owner of such plant applies to the DSO which is obliged to connect it within 20-40 days.

For the larger RES projects, the average time for obtaining an approval (signing a Memorandum of Understanding - MoU) with ministry is very much dependent on the individual project and the seriousness of each investor undertaking a feasibility study. The timetable for such studies is defined in MoUs signed with the Government of Georgia and the investor is obliged to follow this MoU very strictly otherwise financial penalties might be imposed.

Large hydro projects must undergo a construction process in three phases which can take time, in part due to the involvement of the local population and other authorities.

As per the rule for issuance of conclusion of exploitation (if it is relevant under the commissioning certificate) the power plant must be additionally checked based on the Government of Georgia's Resolution № 57 on construction permits.

The permit issuing entity is authorized to increase administrative proceedings for up to 3 months for the different stages of construction permit consideration. Taking all these factors into account, an average estimated timeframe for issuance of construction permits is a minimum of a few months up to one year.

According to the electricity (capacity) market rules of Georgia, a power plant is authorized to operate without a license in testing mode for a maximum of 3 months. Within this period power the plant must undergo compliance testing from TSO and receive a commissioning certificate from the MoESD.

The organisation responsible for issuing a license for projects with an installed capacity larger than 13 MW is GNERC at the final stage, when the investor already has all documents obtained (including the commissioning certificate), within 1 month of the application.

i) renewable energy technologies Authorization procedures

The Law makes no distinction in the authorization procedure for the construction and use of production plants regarding specificities of the different renewable energy technologies, but there is some differences in terms of construction permit granting procedures regarding the type of RES and its scale, as described earlier.

According to the Government of Georgia Resolution №57 on construction permits:

- Hydropower plants up to 50 kW, solar panels, and biogas installations belong to the construction Class I which do not require a construction permit.
- Wind power plants belong to Class III of construction that is the subject of permission from local authorities.
- Larger hydropower, solar and etc. plant construction permits are mostly approved by the central authorities as mostly they are construction projects with high risks due to the derivation pipes, penstocks, dams and underground tunnels.

Related to geothermal energy, the usage of the geothermal water is regulated by the Resolution No 136 of the Government of Georgia On Approval of the Regulations on the Rules and Conditions of Granting Mineral License dated 11 August 2005²⁴, according to which the study of the minerals (including geothermal water) and/or usage of minerals is allowed only on the basis of the license; the license is issued by an auction organized by the National Environment Agency under the MENRP.

According to the Resolution No. 271 of the Government of Georgia of 4 April 2014 the licensees have to annually submit Statistical Observation Forms No.1-02: Data on the state exploration of underground water and non-fossil gases' deposits and No.1-03: Data on groundwater and fossil gases' hydrogeological observations²⁵, extraction and taxes paid.

There is a difference between ownership statuses of power plant whether it is state owned or private owned in terms of defining construction permit and commissioning certificate issuing authority. In case RES development is carried out by state owned entity (state funds) construction permit and commissioning certificate is issued by central authority.

j) Simplified notification procedures for small-scale, decentralised installations (such as solar panels on buildings or biomass boilers in buildings)

The Georgian Law on Electricity and Natural Gas provides only a short and limited definition of RES. However, the law contains provisions that exclude micro producers of energy, with installed capacity up to 100 KW, from the obligation to obtain construction permits or a production license and are excluded from the entrepreneur activity and any tax obligations. The procedures for these small-scale decentralized installations such as micro power plants are simplified since they are not tied with certain permit requirements (all type of micro generators, hydro power plants up to 50 kw), such as land rights, construction permits, etc. Micro generators are only required to apply directly for connection to distribution network without submitting any permission, certificate or any other additional document to DSO. The application's standard form is approved by GNERC and in case the application form is filled out properly by applicant, the DSO is not authorized to reject such an application based on the request of

²⁴ <http://www.energy.gov.ge/projects/pdf/pages/Sakartvelos%20Kanoni%20Litsenziebisa%20Da%20Nebartvebis%20Shesakheb%20464%20geo.pdf> (in Georgian)

²⁵ Daily discharge, temperature, underground water level

additional information or documents. If small-scale installations are used for own-consumption then there is also no need for a distribution network connection procedure.

Small power plants with installed capacity up to 13 MW are exempted from the production license and they are deregulated in that they do not require to have an approved production tariff by GNERC.

The Georgian Law on Electricity and Natural Gas also provides a net-metering policy framework. According to the Law, a micro generator may be included in the net-metering policy only in the case that production takes place at the point of consumption. There is no additional procedure to apply for participation in net-metering policy. All consumers with connected micro generators can automatically benefit from net-metering.

GNERC's regulation on "Electricity (Capacity) Supply and Consumption Rules" defines net-metering policy, micro generation connection procedures, and compensation mechanisms in detail. According to the GNERC regulation, connection of micro power plants to the distribution network are carried out on a simplified procedure (based on one stop shop principle). Customer submits the application and forgets. DSO takes over the application and does all related works without customer involvement. Procedure are as simple as possible, there is not envisaged to make it even simpler. The timeframe of micro generator connection after application is strictly defined from 20 up to 40 days depending on the capacity and connection voltage level. The rules are published and available for customer on the GNERC's website.²⁶

A consumer with micro generation can benefit from net metering within a month. With regards to balancing out excess energy, it is done on monthly basis. The net excess energy provided onto the grid by the micro generator is carried over to next month's bill as kWh credits that can be consumed by the consumer in that particular month. In case there is still surplus generation at the end of the year the consumer has the right to claim financial remuneration that equals the opportunity cost (weighted average purchasing price for electricity set by GNERC of a supplier (i.e. DSO).

k)

Official guidance document, available to local governments in industrial and residential areas of planning, designing, building and renovation of the electricity, heating / cooling systems, including district heating and cooling systems working in renewable energy equipment and systems installations. There is no 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. This issue shall be coordinated and discussed among relevant entities in the country in order to develop an official guidance.

GNERC on their web site already has published guidance for obtaining the license and also for guidance regarding inclusion of net-metering policy.

The absence of RES development guidance at a local and regional level could be addressed in several possible ways:

- Such guidance could be introduced through Sustainable Energy Action Plans (SEAPs) of Covenant of Mayors, where according to the plans, measures and guidelines for energy efficiency and for renewable promotion must be introduced at regional level;
- MoESD and other relevant organizations could prepare guidelines for local and regional administrative bodies in which the focus would be on further development measures that encompass the development of RES and contributions to energy efficiency such as installations

²⁶ <http://gnerc.org/files/dadgenilebebi%20da%20gadawyvetilebebi/dadgenileba2008/20%20new.pdf>

that have production at the site of consumption (micro-generation, photovoltaic, heat collectors) and on the development of smart networks;

- MoESD is currently implementing a project in many Georgian municipalities for their spatial development planning. RES issues are not currently included within this project, though the addition of addressing RES planning along with spatial planning could be valuable.
- A new Law on Renewable Energy is currently being drafted which could address this issue - perhaps with the following key points:
 - Obliging local and regional governments to develop local energy plans in accordance with the SEAP (where applicable), NEEAP and NREAP. Local energy plans could outline expected demand and method of energy supply, as well as measures for energy efficiency, use of renewable energy sources and cogeneration for a period of 10 years. These plans would include measures on heating and cooling from renewable energy sources in the planning of city and local municipality infrastructure, as well as plans for district heating and cooling in industrial or residential areas, where appropriate;
 - Development of a standardized template for such local energy plans.

I) Specific trainings for case handlers of authorisation, certification and licensing procedures of renewable energy installations

At present, there are no specific trainings for case handlers of authorization, certification and licensing procedures of renewable energy installations but GNERC carries out continuous capacity building through workshops and other avenues for NGOs, the media and other interested organization representatives regarding various topics such as operation of Georgian energy market, licensing, reporting, market monitoring, demand side participation, net-metering, micro-generation grid access, etc.

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

a) The need of meeting certain quality standards for renewable energy technologies to benefit from support schemes

There are no restrictions in support schemes regarding the use of renewable energy technologies in technical terms, such as specific standards or additional specification of equipment beyond the usual market standards. There are existing network codes, market rules, safety and exploitation rules as referred in section 4.2.1.a section. The applied equipment must meet the requirements of the Law on Electricity and Natural Gas and Transmission and Distribution Grid Code and the resolution of the Government of Georgia on approval of rules of exploitation of power plants and networks.

The Law on Electricity and Natural Gas stipulates that micro-generators that want to be included in net-metering scheme must meet the following criteria:

- must be based on RES
- must be below 100 KW installed capacity and
- must be located at the place of consumption place.

The law also states that power plants less than 13 MW are deregulated and they don't need to acquire production license.

The transmission and distribution grid code stipulate that electricity producer has to maintain quality parameters at the connection point of the transmission and distribution network. Further in the text, acceptable ranges of values for quality parameters are specified. Namely, this has to do with the quality of voltage (voltage level, harmonics, flicker and voltage waveform) and power factor. In order to get connected and to start delivering electricity, producers using RES have to comply with /accept these common quality standards but there are no defined separate quality standards or technical requirements for RES except special parameters for hydro aggregates. Namely Article 23 of the transmission grid code defines the nominal power factor requirement for hydro power aggregates in the range of 0.8 to 0.85 and sets out categorization and requirements for ancillary service in the following way:

Category	Capacity ranges (MW)	Voltage regulation capability	Stability requirements	Reserves			Black start capability
				Primary	Secondary	Tertiary	
A	<1.5	-	-	-	-		-
B	1.5÷<10	+	+	-	-		Upon agreement
C	10÷<30	+	+	+	Upon agreement	Upon agreement	+
D	≥30	+	+	+	+	Upon agreement	+

Georgia is currently developing a law on renewable energy and thus not yet defined technology based quality standards, requirements, and categories in order to benefit from the support schemes. In addition, the transmission and distribution grid codes do not define quality and technical requirements according to the specific source of energy / type of technology. However, there are two ongoing projects that aim to make amendments in the grid codes and define more specific technical requirements in terms of connection and operation for different type of RES (such are wind, solar, bio-installations, hydro, etc.):

- Danish International Development Agency (DANIDA) assistance project to the government of Georgia that, among other activities, aims at establishing specific technical requirements, procedures and standards for the project development, connection, commissioning, compliance testing, and operation of RES such as solar, wind and biomass. The major outcome of the project result will be relevant amendments in the grid code.
- The Georgian TSO aims to carry out a comprehensive study under international consultancy for wind energy integration into the grid. Based on the study, the wind and solar grid connection capability has been set for each connection point by 2020, 2025 and 2030.

3.2.3. 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:

There is currently no national, regional, or local legislation concerning the increase of the share of energy from renewable sources in the building sector.

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

The responsible Ministry for this sector is the MoESD.

c) Revision of rules, if any, planned by:

The adoption of the Energy Performance in Buildings Directive (2010/31/EU - EPBD) is expected in Georgia by the June 2019 and to be implemented over the next few years. It is expected that it will contain plans for increasing the share of energy from renewable sources in the building sector. However, given the early stages of the implementation process, there is not yet an intermediate target for nearly zero buildings. Plans for considering this target will be developed during the coming 3-year period.²⁷

Aspects of the transposition and enforcement of the EPBD include the following:

- Adoption of a methodology for calculating the energy performance of buildings
- Calculation of cost-optimal levels of minimum energy performance requirements and setting these levels for new and existing buildings
- For new buildings, ensuring that before construction starts, the technical, environmental and economic feasibility of high-efficiency alternative systems if available is considered and taken into account
- For existing buildings, ensuring that when buildings undergo major renovation, the energy performance of the building or the renovated part is upgraded to meet minimum energy performance requirements
- For the purpose of optimising the energy use of technical building systems, setting system requirements in respect of the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems
- Ensuring that a target date is set and implemented for all new buildings to be nearly zero energy buildings - as well as some level of refurbished buildings;
- Where considered appropriate, development financial incentives to address market barriers
- Development and implementation of a system for energy performance certification for new and existing buildings
- Implementation of necessary actions to establish regular inspection of the accessible parts of systems used for heating buildings and air conditioning systems
- Development of a building stock inventory
- Development of reference buildings

Additionally, currently a Law on Energy Efficiency is being developed which is expected to require feasibility studies for the use of waste heat from thermal plants which are constructed with over 20 MW of thermal input. The Law is expected to be adopted by the end of 2019.

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

As previously mentioned, 23 Georgian cities are signatories of the Covenant of Mayors²⁸. According to their Sustainable Energy Action Plans (SEAP), support for renewable energy utilization at a local level in buildings in terms of renewable energy generation and developing heating & cooling of public buildings based on RES are major measures of the plans for decreasing CO₂ emission by the 2020. Implementation of the measures should be carried out within the framework of SEAP's target and should be based on the following actions by the municipality:

- creating an enabling environment
- providing opportunities
- setting up examples
- generating citizen support
- directly engaging citizens in the actions
- generating support and engaging various parties into SEAP activities

²⁷ Note that for the EU members, this target for new buildings is 100% by 2020

²⁸ http://www.covenantofmayors.eu/actions/sustainable-energy-action-plans_en.html?city=Search+for+an+Action+Plan...&country_seap=ge&commitments=&date_of_approval=&accepted=

Despite the declared goal, actual utilization of renewable energy sources (and the pilot projects) is negligible for buildings except for some pre-existing geothermal installations.

e) 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 3 below. Data could be given yearly, or for selected years. Both heating and cooling and electricity consumption from renewable energy sources should be included.)

Table 3 Estimated share of renewable energy in the building sector (2014, 2015, and 2020)

	2014	2015	2020
Residential	53%	47%	43%
Commercial / services	45%	48%	40%
Total	51%	47%	42%

f) Minimum levels of renewable energy in new and newly refurbished buildings considered in national policy

In the coming period (by the end of 2018), Georgia is expected to adopt legislation approximating the Energy Performance in Buildings Directive (2010/31/EU) which is expected to encourage the increase of the share of energy from renewable sources in the building sector. It is not yet decided whether minimum levels will be required.

g) Plans for ensuring the exemplary role of public buildings at national, regional and local level by using renewable energy installations or becoming zero energy buildings from 2015 onwards

As mentioned, the adoption and implementation of the EPBD is expected in Georgia within the next few years. It is expected that it will contain plans for ensuring the exemplary role of public buildings for using renewable energy installations / becoming zero energy buildings. However, given the early stages of the implementation process, there is not yet an intermediate target for nearly zero buildings. Plans for considering this target will be developed during the coming 3-year period.²⁹

h) Encouraging energy efficient and renewable technologies in buildings (such activities may include biomass boilers, heat pumps and solar thermal equipment that meet environmental labeling requirements, or other standards at national or community level.

A number of donor-funded initiatives have been undertaken for the promotion of energy efficient renewable energy technologies in buildings such as efficient biomass space heaters, solar hot water heaters, etc. Most of these initiatives have taken place at a pilot scale, but there are plans for scaling them up.

There is currently also a technical assistance programme assisting in the approximation of the EU Energy Labelling Directive (2010/30/EU) and discussions are underway regarding the implementation of the EU Ecodesign Directive (2009/125/EC) which would also impact some renewable energy technologies in buildings – such as biomass boilers, heat pumps, etc.

²⁹ Note that for the EU members, this target for new buildings is 100% by 2020

3.2.4. 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:

There is currently no national or regional legislation concerning information requirements according to Article 14 of Directive 2009/28/EC.

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

Responsible bodies for dissemination of information about RES in general include:

- MoESD
- MEPA
- GNERC
- GSE
- Municipalities - many of which are signatories to the Covenant of Mayors

Additionally, numerous NGOs and international donors are involved in activities to promote information about renewable energy, its benefits, etc.

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

A Law on Renewable Energy is currently being developed (expected to be adopted in 2018) which is expected to provide guidance on the provision of information regarding Article 14.

At the municipal level 23 cities are signatories to the Covenant of Mayors and have committed to promoting renewable energy within their cities. The focus has mostly been on promoting solar hot water heaters.

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 consumers, builders, property managers, property agents, installers, architects, farmers, suppliers of equipment using renewable energy sources, public administration? Are there information campaigns or permanent information centres in the present, or planned in the future?

Information is made available on RES sources and potential support schemes via the websites of the various public entities involved (MoESD, GNERC, etc.)

Additionally, various NGOs and international donor-led activities publish information on RES, carry out public events, etc.

e) Responsible party 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?)

Such information is published by the producers and suppliers of equipment.

f) Guidance for planners and architects provided to help them to 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

Currently, planners and architects gain most of their information and guidance through professional associations, social activities, and involvement in international donor-sponsored projects. Guidelines should be developed.

g) Existing and planned information, awareness raising and training programmes for citizens on the benefits and practicalities of developing and using energy from renewable sources

A number of donor-sponsored programmes are expected to be implemented in the coming years - in particular related to promoting efficient wood stoves and solar hot-water heaters.

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

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

Existing national legislation is as follows:

- Decree №1-1/251 of 18 February 2011 of the Minister of Economy and Sustainable Development of Georgia on the application of the norms, rules and other technical regulatory acts for the technical supervision and construction in the territory of Georgia
- Resolution №41 of 28 January 2016 of the Government of Georgia on the approval of the "Technical Rules of Buildings and Construction Security"
- Rules and Procedures for Accreditation of Personnel Certification Bodies on Conformity with SST ISO/IEC 17024:2012/20 (Article 6).
- Resolution of the Government of Georgia №340 of 17 December 2013 on the approval of technical safety rules of electrical installations.

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:

Georgia has not yet nominated directly such an entity. Georgia does have a national accreditation body and allows private certification entities to conduct the certification process. The responsible body for accreditation of certification bodies which in their turn are responsible for issuing certificates of personnel qualification, is the Georgian Accreditation Centre (GAC). Founded in 2006, the GAC is the nationally recognised accreditation body of Georgia appointed by the MoESD. It acts under the law "Code on safety and free movement of products" from 2012. Its mission is to deliver the best accreditation services to the Georgian economy. Accreditation services include:

- Granting accreditation
- Surveillance of accredited bodies

The GAC operates in full compliance with the internationally applied standard ISO/IEC 17011 and European practices which describe the basic codex of its behaviour and in detail how an accreditation body has to be run. At present, the GAC can grant accreditations for personnel certification bodies according to ISO/IEC 17024.

c) Certification schemes/qualifications

Georgian legislation has not yet nominated a responsible body who will be in charge of certifying installers or anyhow regulate procedures / schemes of installer certifications. In addition to abovementioned, no responsible body has been accredited by GAC who is in charge of certifying RES installers. Georgian legislation does not yet instruct what body will be in charge of the elaboration of the technical norms for the certification of energy auditors.

d) publicly available Information(lists of certified or qualified installers) on these schemes

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)

Georgian legislation would require that the GAC is responsible for setting the certification and accreditation scheme, as a result of approval of relevant Ministry/ies (likely the MoESD). The recommendation for the elaboration of these accreditation processes is to follow international standards (ISO 17000 "Conformity Assessment" or EN 45010 "General requirements for assessment and accreditation of certification systems").

In most European countries there exists an official entity or body in charge of publishing technical norms and standards. In Georgia, the Georgian National Agency for Standards and Metrology (GeoSTM) is the official body appointed by the MoESD to organize the national standardization and metrology activities and to elaborate the correspondent normative technical regulations. However, the MoESD will decide if GeoSTM is designated as the body elaborating the technical standard for the certification of installers, or if GAC will be the one in charge of setting the minimal requirements for the installers.

It is expected that in the coming period a system will be set up in which the GAC authorizes private companies to certify installers. A potential scheme for accreditation / certification for Georgia is laid down in the figure bellow.

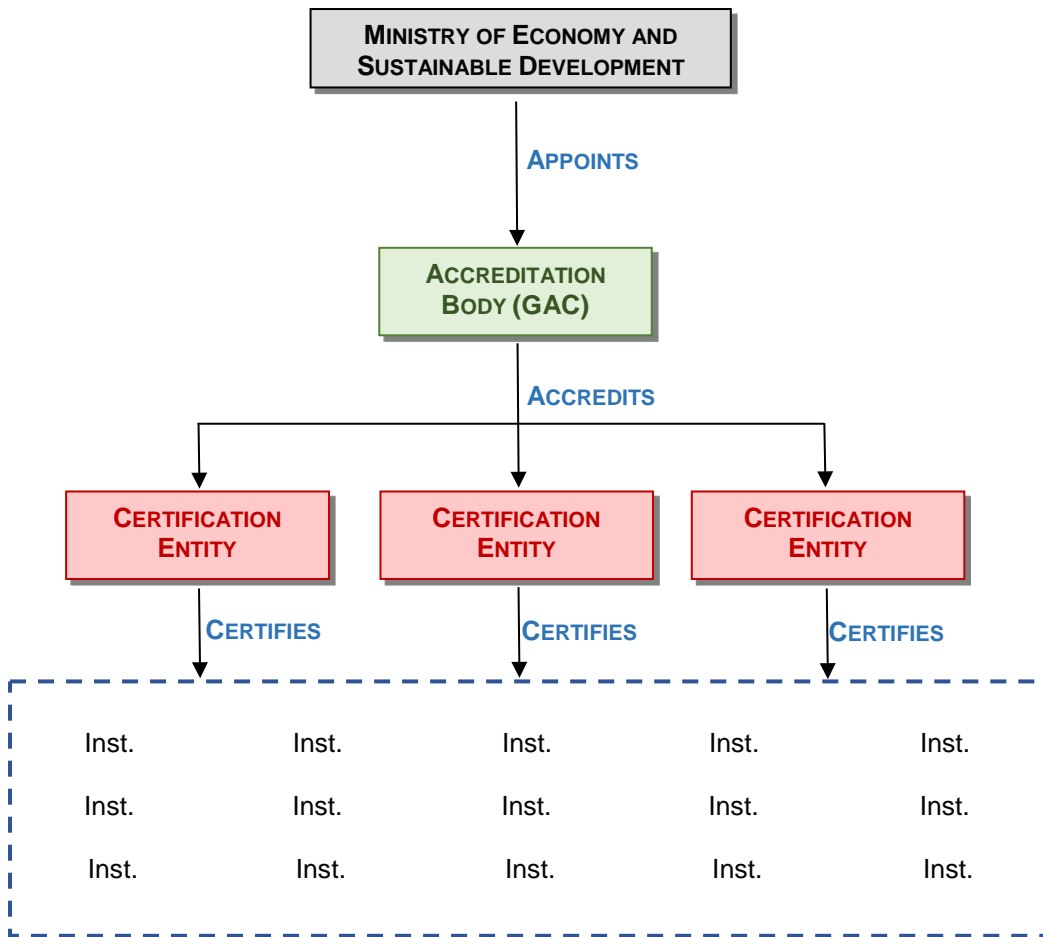


Figure 1: Potential scheme for certification of installers

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

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

General provisions regarding electricity networks are stipulated in Law on Electricity and Natural Gas. Article 32, Article 35 and Article 36 of the Law define the obligations of transmission licensee and dispatch licensee (transmission system operator), as well as the obligations of distribution licensees related to the use and extension of electricity networks. Technical requirements imposed on the grid operators and users in terms of energy grid operation, connection and planning are described in the Georgian Grid Codes approved by GNERC resolution #10 of 17 April 2014.

In addition to the Law on Electricity and Natural Gas, the electric power grid, or transmission and distribution system, is regulated by the following regulations:

- Resolution of Government of Georgia №434 of 31 December 2013 on approval of rules of exploitation of power plants and networks
- GNERC resolution №10 of 17 April 2014 on Georgian Grid Codes (transmission and distribution)
- GNERC resolution №20 of 18 September 2008 on electricity (capacity) supply and consumption rules
- Decree №77 of 30 August 2006 of Minister of Energy on electricity (capacity) market rules

b) Development of transmission and distribution networks and integration of a defined amount of electricity from renewable sources, reliability of the electricity system and the planning process of the transmission and distribution system operators.

Strengthening Georgian electric network in order to utilize RES potential and become green energy trading regional hub is one of the goals established by the **Main Directions of the State Energy Policy of Georgia** approved by the Parliament of Georgia.

Tasks and responsibilities of the transmission, dispatch and distribution licensees regarding extension, reinforcement and development of electricity transmission and distribution network are provided in the Law on Electricity and Natural Gas and Georgian Grid Codes. According to the Law (Article 32), the Transmission System Operator draws up a Ten-Year Network Development Plan (TYNDP) and submits it for approval to the appropriate Ministry (the MoESD).

According to the Georgian Grid Code, the TYNDP shall indicate those nodes of transmission network where connection of new power stations and/or other users is optimal to support competition on the electricity market and the development of the transmission network in a transparent and non-discriminatory way. The TYNDP should contain information, which among other things will include development of transmission network based on the construction plans of new power plants.

According to current TYNDP (for 2018 - 2028), for 2028 the projected total installed capacity of the regulated hydropower plants in 2028 is 4,209 MW, and the power plants at the power stations - 2,207 MW. It is worth noting that in addition to the 1156.6 MW wind and 505 MW solar stations in the same plan, the possibility of a 3 MW biogas power station is also discussed with the following assumptions:

- Construction of "Jvari-Tskaltubo-Akhaltzikhe" 500 kv line parallel to the "Imereti" line
- Construction of second 500 KV cross-border line with Russian border
- Construction of Khudoni, Namakhvani, Nenskra and Tskhenitskali HPPs
- Equal distribution of 400 MW (total existing capacity for wind power that can be integrated in the electricity system) implying maximum 45 MW for each zone
- Implementation of high accuracy for forecasting of wind power generation and integrate it with SCADA system.

According to the Law on Electricity and Natural Gas, based on the approved TYNDP transmission licensees prepare 3-year investment plans and submit them to GNERC for its approval. The 3-year investment plans should take into account all necessary investment cost necessary for the realization of the projects envisaged by the TYNDP.

The Georgian Grid Code sets out the obligations, requirements, and procedures for distribution licensees in order to plan the distribution system development according to the pre-defined criteria. In order to address these obligations, DSOs prepare 5-year network development plans and submit them to the TSO for comment and to GNERC for approval. GNERC has right to decline development plans and return it back to DSO with remarks and give 1 month for correction.

The 5-year Distribution Network Plan is to include detailed data and information for the first three years of the plan which address specific project investments. The final two years of the 5-year Distribution Network Plan include less detailed information to be used for indicative purposes only.

According to Article 96 of the Grid Code, the distribution licensee is obliged to conduct periodic network studies, that among other things should comprise estimates of potential impacts of new power plants and other electrical equipment/installation connections to the distribution network on short-circuit current levels shall be reported. During such investigations, areas of the network should be identified where there exists the possibility of short-circuit current levels which would pose a danger to electrical equipment/installations and risk of damage (including to the Distribution Users, as well as to the Distribution Licensee). Research related to the short-circuit current should be conducted on the basis of alternative scenarios, including minimum and maximum loads. Mitigation measures must be planned on the basis of the results of the research and be reflected into the distribution network plans.

It is also worth noting that the integration of renewable power from micro-generation could in theory impact the grid by both reducing losses and requiring additional oversight over production and consumption - especially due to rules on net metering. It is possible that the combined scale of micro-generation could impact the total investments required in the transmission and distribution network. At

the same time, if micro-generation achieves wide spread adoption, this could also potentially cause challenges to the business model of energy distribution - if net consumption goes down significantly.

In terms of net-metering or renewable power plants with installed capacity of maximum 100 kW, they have full support from DSOs and GNERC to connect to the distribution grid. According to the existing net-metering policy, the maximum capacity that can be connected to the distribution network is only 2% of last years' peak load of distribution company. This is the cap that guarantees the proper functioning of the network. Based on previous years' experience the maximum overall connection capacity of micro generators is about 30MW. However only 278 kw was installed by the end of 2017. Therefore it is unlikely that micro power plants will largely impact the grid.

c) Intelligent networks, information technology tools and storage facilities? How will their development be ensured?

Georgian legislation does not currently provide specific measures for the implementation of storage systems or smart grids, interconnections, storage facilities, and system development for renewable energy. Development of the storage system is also not envisaged by the TYNDP.

d) Reinforcement of the interconnection capacity with neighbouring countries planned

Information about development of bordering networks is one of the important inputs for TYNDP. Information about cross-border projects provided in the TYNDP is based on agreements between neighbouring governments and the TSOs. Georgia has trans-boundary infrastructure with all four neighbouring countries (Turkey, Russia, Armenia, and Azerbaijan). Currently possibility of power transfer to neighbouring countries is as follows:

- Azerbaijan - 950 MW
- Russia - 700 MW
- Armenia - 150 MW
- Turkey - 700 MW

This is quite sufficient to satisfy current cross-border electricity trade. However, reinforcement and the increase in reliability of Georgia's cross-border network are planned with neighbouring countries in order to address future challenges of increasing regional trade. According to GSE's TYNDP of 2019-2029 it is planned by 2029 to reinforce the cross-border network with neighbouring countries to have the following total capacities:

- Azerbaijan - 1000 MW
- Russia - 1600 MW
- Armenia - 700 MW
- Turkey - 1400 MW.

Related to this, **cross-border projects** are planned with the purpose of increasing power exchange and using the energy trade opportunities with neighbouring countries. Implementation timing of these projects are less dependent on the dynamics of the national generation / demand, but instead are mainly linked to special bilateral arrangements supporting cross-border electricity trade. These projects include:

- **400 kV OHL Akhaltsikhe-Tortum and 350 MW HVDC back-to-back link at SS Akhaltsikhe:** intended for increasing power exchange potential between Georgia and Turkey, providing redundancy for 400 kV OHL Meskheti and upgrading security of the power export to Turkey. Construction completion is expected in 2025.
- **500 kV OHL Ksani-Stepantsminda-Mozdok and 500/110 kV SS Stepantsminda:** designed for increasing potential and security of power exchange between Russia and Georgia (along with Armenia and Iran), and integration of Tergi River HPPs into the network. Construction completion is expected in 2023.

- **500 kV OHL Marneuli-Airum, 500 kV switchyard with linkage to 220 kV switchyard in SS Marneuli, and connection of existing 500 kV OHL Asureti (Mukhrani) to SS Marneuli:** This project aims at increasing power transfer potential between Georgia and Armenia (as well as Russia and Iran), and improving reliability of Tbilisi power supply (provided by resulting new 500 kV link between SS Ksani and SS Marneuli and backing up 500/220 kV AT at Gardabani). All of the elements are already commissioned except 500 kV OHL Marneuli-Airum. Construction completion is expected to be in 2025.
- **154 kV OHL Batumi-Muratli and 350 MW HVDC back-to-back link at SS Batumi:** intended for partly evacuating generation of new Shuakhevi and Koromkheti HPPs and increasing power exchange potential between Georgia and Turkey. Construction completion is expected in 2025.

e) Acceleration of network infrastructure authorization procedures, current status, average timeframe for approval and improvement measures

According to the existing legislation, there are currently no provisions referring to the acceleration of grid connection procedures. Transmission and distribution grid connections are subject to the procedures, timeframes, and fees set by the Georgian grid code, as well as connection schemes. Transmission connection approval is carried out in two stages: 1) grid studies 2) connection construction.

For power lines with rated voltage of 35 kV and above, approval procedures are subject to the environmental impact assessment, provided by Law on Environmental Impact Permits and the Government resolution №57 on approval of rule on issuing construction permits and permit conditions. The project promoter (RES developer or grid operator) must fulfill the requirements set out in Georgian legislation on construction permits and authorization. According to Article 37 of the Government resolution №57, there are common rules for issuing a construction permit that consist of three stages:

- 1) Approval of the terms for the using land plot for construction
- 2) Agreement on architectural-construction project, construction and/or technological scheme and Environmental Impact Assessment
- 3) Issuance of construction permits

However, the project promoter is eligible to choose simplified permitting procedures that consist of two stages (i.e. the second and third stages are united in the simplified procedure):

- 1) Approval of the terms for the using land plot for construction
- 2) Issuance of construction permits

Furthermore, government resolution №57 envisages certain condition for the V class construction that is under state (public) interest, namely article 53 paragraph 5 states that if (1) a V class construction project relates to the processing of large volumes of documents and the time frame to carry out large-scale works and (2) the project is subject to state and/or social interests and cannot complete requirements of the relevant legislation, the permit issuing authority may issue a construction permit in case of duly substantiated request of the permit applicant. In this case, the terms of submission of the documents that were not submitted are determined in the permit conditions.

In addition, paragraph 53 states that in case of construction of power lines, substations and power plants, if appropriate state authority that carries out state policy in the sector recognizes the project as being of state importance, despite its construction class, the permit issuing authority is authorized to issue a conditional construction permit in case project promoter submits only geographical coordinates of the land plot of construction with the conditions that all the necessary documents will be submitted later.

The general timeframes for the grid construction approval in case of common and simplified procedures are described in the table below.

Terms and Fees for First Stage Connection to Transmission Network

Voltage Level, kV	Period (working days) to ensure first stage connection	Period (working days) to ensure the review of a first stage connection application by Transmission Licensee	Period (working days) to ensure review of a first stage connection application by Dispatch Licensee	First stage connection fee, GEL (including VAT)
6-10 and 35	35	15	15	2500
110	45	15	25	3000
220 and above	65	15	45	4000

The following connection schemes are allowed:

- **Connection to transmission substation:** In this case the extension is constructed by project promoter and transmission licensee constructs connection point in its substation. The project promoter covers costs connected to the construction of the cell in substation.
- **In-Out:** In this case the transmission network is extended to the project promoter's installation. The transmission licensee constructs the connection point to the project promoter's substation and the extension line to the transmission network. The project promoter pays a fee to the transmission licensee that is associated with the above costs.

The terms and fees for the second stage connection to the transmission network are laid out in the tables below.

[Terms and fees for second stage connection to the transmission network if the connection point is set up at the substation of the transmission licensee](#)

Voltage Level	Period-term to ensure second stage connection	Sec Second stage connection fee, GEL (including VAT)
35 - when connected to open transmission switchgear	Within term of validity of connection agreement	218,000
35 - when connected to closed transmission switchgear		300,000
110		560,000
220		819,000

[Terms and Fees for Second Stage Connection to Transmission Network In Case of In-Out connection scheme](#)

Voltage Level	Period to ensure second stage connection	Connection fee for 1 km single circuit overhead electricity transmission line (GEL including VAT)	Connection fee for 1 km double circuit overhead electricity transmission line (GEL including VAT)	Connection fee for 1 km electricity transmission cable line (GEL including VAT)
35	Within term of validity of connection agreement	178,000	260,000	199,000
110		352,000	517,000	-
220		428,000	677,000	-

Regarding connection approval to the distribution network, it is defined only in one stage and no connection fees are determined. Connections are based on the real cost principle and the applicant for connection bears the construction costs for the connection cell and extension and reimburses justified costs to the distribution licensee caused from the connection process. The application connection is to be processed within 60 days after which distribution licensee must send a connection offer to the applicant. In addition, distribution and transmission licensees are not authorized to reject power plant connection applications due to lack of capacities and/or possible congestions.

f) Ensured coordination between grid infrastructure approval and other administrative planning procedures

TYNDP and distribution companies' 5-year network development plans provide the basis for coordination between grid development planning and RES construction. The TYNDP grid infrastructure timeframe and characteristics are coordinated with the MoESD potential power plant list and with ongoing construction of RES. The Grid Code contains special provisions and procedures regarding cooperation of DSOs and TSO and their development plans. Connection approval of big consumers and generators to the distribution grid are conducted in agreement with the TSO. However, the rules on construction permits do not specifically define the relationship and coordination between the electricity system operators and other institutions in charge of issuing construction permits and approval.

g) Priority connection rights or reserved connection capacities provided for new installations producing electricity from renewable energy sources

Law on Electricity and Natural Gas, as well as Georgian Transmission and Distribution Grid Code provide that the transmission and distribution licensees shall ensure non-discriminatory access to transmission and distribution networks of 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 facilities. However, according to the relevant chapters of the Georgian Grid Code, transmission and distribution licensees have obligation to draw up a TYNDP and 5-year distribution network development plan, as well as to carry out the grids development and extension works taking into consideration the development of generation capacities (including the RES project development).

Moreover, as mentioned in 4.2.6 (e), according to the Georgian Transmission and Distribution Grid Code, network operators are not entitled to reject a connection application of power plants on the grounds of possible future limitations to available network capacities and/or additional costs linked with the capacity increase (consistent with article 23 of 2009/72/EC - the Directive of the European Parliament and of the Council concerning common rules for the internal market in electricity).

h) RE power station that is not connected to it due to the network's limited capacity and steps that need to be taken to address this issue.

i)

There are no such situations where renewable installations are ready to come online but not granted connection right due to the capacity limits, as the connection agreement is signed with the applicant at the early stage of project development based on the technical conditions issued by a network operator that is part of connection offer.

However, the TYNDP comprises certain restrictions on wind power connection according to different locations of the grid due to the instability of that particular source of energy and due to the fact that the Georgian electrical system is a not strong system in terms of reserve capacities during the autumn-winter seasons. To deal with such restrictions, TSO envisages certain measures within TYNDP to strengthen the power grid, such as improving operation and forecasting procedures, increase interconnections with neighbouring systems, as well as envisages increasing installed generating capacity in the grid and rehabilitation of voltage and frequency automatic regulation facilities of existing generators.

j)

Rules for sharing and covering technical adaptation costs provided by transmission and

distribution system operators and special rules for producers representing peripheral and low density regions (costing rules determine which part of the costs should be covered by the manufacturer, Who wants to connect to the network and which part of the transmission or distribution system operator. Cost sharing rules determine how the necessary costs are to be distributed among consistently connected manufacturers so that everyone can benefit from the same equipment or new lines equally)

k)

Rules regarding cost sharing and bearing of network adaptations are set out in the Georgian Grid Codes, which is published and publicly available. Transmission connection cost sharing and bearing principles are described in section "e".

The TYNDP ensures that all power plants that fall in the list of potential power plants have the possibility to obtain grid access and sell energy on the market. The transmission network connection applicant is only obliged to pay the connection fee that is associated with the transmission licence cost to construct connection point in the substation and the extension to power plant location (in case of In-Out connection scheme, transmission licence constructs also extension). Fees are set by GNERC and are fixed amounts.

Cost sharing and bearing principle is not as clearly defined in the case of distribution network connections. The connection cost is defined on a case-by-case basis according to the technical conditions of distribution licence. The connection applicant bears all the costs necessary for arranging the connection point, extension, and in certain cases justified costs for the grid reinforcement (if necessary). In this case, the Distribution licensee is obliged to present the technical conditions of the network, and the adaptations necessary to the connection applicant in advance (before the official application).

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

Costs for connection to transmission and distribution network are paid by the system users. The Law on Electricity and Natural Gas guarantees third party access to the grid but does not stipulate whether the connection charge regime is shallow or deep, neither sets specific connection support schemes for the RES. In accordance with the Grid Code, the connection regime is mostly similar to shallow connection.

According to the provisions of the Grid Code, the transmission licensee is responsible for the extension and development of the electricity transmission network. For the connection to the transmission network, the connection applicant pays the connection fee set by the Georgian Grid Code and described in the sections above. Transmission licensees prepare 3-year investment plans that are linked to the TYNDP and all the cost associated with the transmission reinforcement and/or new constructions are accounted for by GNERC within transmission tariffs which ensure the full recovery of development and reinforcement expansions by the transmission licensees.

The procedures for the development of the distribution network in terms of planning are described in the Grid Code and are similar to the network development procedure for transmission networks. The development plan for the distribution network, prepared by the distribution licensee and approved by GNERC, must be strongly linked to the development plans of transmission network and other strategic

documents. Investment costs incurred by distribution licensees are envisaged in the distribution tariffs that ensures full recovery of development and reinforcement expanses. However, unlike with the transmission connection, the Grid Code does not set connection fees and does not define clearly cost sharing principles of reinforcement/technical adaptations of the distribution network. As a result, the distribution licensee is more flexible in assigning the adaptation cost to the connection applicant according to its decision, through technical conditions (connection offer) issued by the distribution licensee.

GNERC plans to update distribution connection framework and bring it to equivalence with the principles enacted at transmission level.

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

The existing regulation and procedures for connection to the transmission and distribution system do not provide for the attribution of costs between producers. Each power plant with related connection costs is considered individually.

n) Disclosure of the information to the 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 by transmission and distribution system operators

The Law on Electricity and Natural Gas indicates the obligation of GNERC to approve Georgian Grid Codes that set up conditions of transmission and distribution grid connection and use. Chapter 2 on transmission network connection rules of the Grid Code provides technical specifications, requirements, procedures for processing request, timetable and costs (connections first stage and second stage fees). Furthermore, timetable and connection costs of the transmission network are defined strictly by those provisions and transmission licensee is not entitled to diverge from these standards. The project developer seeking the transmission connection is able to see an exact timeframe of connection processing and costs associated with the connection according to a connection scheme and voltage level.

The first stage connection fee is associated with the grid studies and preparation of connections offer. The second stage connection fee is associated with the connection construction works that are defined according to the connection scheme and voltage level of connection point.

Chapter 10 of the distribution network connection rules provides technical specifications, requirements, procedures for processing request and timetable. At distribution level, connection fees are not set precisely and connection costs are calculated case-by-case based on the technical conditions (connection offer) issued by the distribution licensee. However, paragraph 13 of article 77 obliges distribution license to provide connection applicant information about technical conditions of the network in the area of planned connection and information related to indicative (assumed) costs of connection. The distribution licensee provides the connection offer and information related to the connection costs for no charge.

Information on the connection of producers to the transmission and distribution systems that are regulated by the Georgian Grid Codes is available in the legislative gazette of Georgia (www.matsne.gov.ge) and on the web sites of the following institutions:

- GNERC (Regulator) - www.gnerc.org
- GSE (TSO) - www.gse.com.ge
- Energo-pro Georgia - www.energo-pro.ge

Telasi's web-site also provides information on connection procedures and rules for new customers. However this information is based on GNERCs resolution N20 on electricity (capacity) supply and consumption rules. Information on connections based on the grid code is not available on their website.

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

a) Guaranteed transmission and distribution of electricity from renewable energy sources by transmission and distribution system operators?

There is no direct provision in the Law or sub-laws regarding guaranteed or priority dispatch of RES. Article 35 paragraph 3 of the Law on Electricity and Natural Gas provides basic operational criteria of the power system by dispatch licensee, according which the dispatch licensee (TSO who is responsible for operation of whole transmissions system) must ensure reliable operation of the electricity system, satisfy demands of all relevant licensees, importers, exporters, and direct customers under safety and least-cost principles of electricity system, according to approved balances and the requirements of relevant normative acts. Hence, electricity dispatch principles are based on least-cost and safety criteria, which does not necessarily involve RES generation.

According to the article 22¹ of the Law on Electricity and Natural Gas, wholesale purchase and sale of electricity shall be carried out on the basis of a direct contract or through the market operator under standard terms of a direct contract that is approved by GNERC. Parties to a direct electricity purchase contract shall register the contract with a dispatch licensee. The direct contract becomes valid only after its registration with the dispatch licensee. The dispatch licensee must ensure execution of registered contracts and give dispatching priority to power plants that have such contracts. The dispatch licensee may refuse to register a direct contract only if it does not comply with the time frames, terms, and procedures laid down by the Electricity (Capacity) Market Rules. The dispatch licensee is entitled to refuse to register direct contact if it is impossible to dispatch electricity (capacity) foreseen by the Direct Agreement and/or executing of the direct agreement may impede the operational dispatch management of the system.

The legislation does not prohibit the dispatch licensee from rejecting the registration and execution of direct agreements of renewable energy producers in case the dispatch licensee deems the electricity non-dispatchable due to safety, operational or capacity restrictions. In such a case, despite least-cost operation principle, the dispatch licensee may give priority to the non-RES power plant.

According to the existing market model, Georgia is a bilateral market model involving a certain type of balancing market that does not act as a classical balancing market rather but rather as a residual energy market with a monthly settlement period. All the energy produced/consumed that is not directly contracted by parties is sorted as balancing energy that is traded through the market operator. The market operator purchases the balancing electricity from the electricity generation licensee, small power plant (up to 13 MW installed capacity), or importers. The balancing electricity is then to be purchased from the market operator by distribution licensees, direct customers, and exporters.

The balancing electricity price is determined by the Electricity (Capacity) Market Rules and has large seasonal changes which are mostly influenced by the low and high hydrological characteristics of the seasons of a year. Small power plants are entitled to sell electricity to the wholesale market (to the market operator) or to the retail consumer. In case a small power plant sells electricity to a retail consumer, the distribution licensee is obliged by the law and sub-laws to allow a path-through of that energy to that consumer. DSOs are also obliged to pass energy through their network which was bought by retail consumers from small power plants. DSOs are also obliged to connect micro generators (RES below 100KW installed capacity) to their network and include them in the net-metering policy.

Chapter IV¹ of the Law on Electricity and Natural Gas deals with micro power plants (power plants that are RES and under 100 kW). Article 23⁵ on the delivery of electricity by a retail consumer to a distribution network ensures guaranteed delivery, netting and purchase of excess energy generated by a retail consumer by its micro power plant.

b) Ensured priority dispatching by transmission system operators, when dispatching electricity generating installations give priority to those using renewable energy sources

There is not yet a separate law on renewable energy in Georgia and there is no direct provision in other laws or sub-laws in relation to guaranteed or priority dispatch of RES by the transmission system operator or by the distribution licensees.

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 generators), aggregation of market areas, ensuring sufficient cross border interconnection capacity and trade, improved cooperation of adjacent system operators, the use of improved communication and control tools, demand-side management and active demand-side participation in markets (through two-way communication systems – smart metering), increased distributed production and domestic storage (e.g. electric cars) with active management of distribution networks (smart grids).)

The current electricity generation mix of Georgia is mostly based on RES generation (80% is from renewable energy - mostly hydro power) and therefore market design does not necessarily envisage priority / guaranteed grid access and/or priority RES dispatch due to the fact that RES access and dispatch are granted as a matter of course.

The dispatch licensee is responsible for the safe and least cost operation of electricity system, as well as execution of registered contracts (market share of contracts in terms of traded electricity amounts 85%). Residual electricity that was instructed by dispatch licensee to be produced is traded through the market operator based on regulated prices. According to the Electricity (Capacity) Market Rules and Grid Code, producers send to dispatch licensee monthly and daily schedules, as well as day ahead power readiness applications. The dispatch licensee prepares production schedules for the following day and at the same time in case of overloads in the transmission system producers have the obligation to adjust the production level as instructed by the dispatch licensee.

The Georgian power system is based on a simple market model (as described above, bilateral market model accompanied with a residual energy market) and lacks certain modern market features and responsibilities of market participants. The imbalance settlement period is 1 month which creates quite a lot of room for imbalance deviations by market participants. Furthermore electricity producers are not responsible for contractual deviations and do not bear financial responsibility for the imbalances.

In addition, there is no functional day ahead, intra-day or balancing market and system balancing and automatic frequency regulation is obtained by the TSO (dispatch licensee) for free. This creates certain inequality and discrimination among electricity producers as private owners of power plants tend to have stable commercial schedules and not react on system needs for load frequency regulation and real time balancing.

According to the protocol concerning accession of Georgia to the treaty establishing the Energy Community signed in 14 October 2016, having regard to the Decision of the Ministerial Council of the Energy Community of 14 October 2016 approving the accession of Georgia to the Energy Community (Decision 2016/18/MC-EnC) and commitments taken by Georgia by signing the protocol, Georgia must implement the energy *acquis communautaire* and ensure proper market opening, efficient and non-discriminatory electricity trading mechanisms by the years 2019-2020. As part of this, Georgia plans to adopt of law on renewable energy which may include RES support schemes, establishing proper marketplaces and introduction market based balancing & ancillary service mechanisms that must enable variable RES producers to trade near real time at the same time bearing responsibility for imbalances, improving scheduling and operational control tools of TSO that must ensure proper balancing and less RES curtailments, etc.

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

The Energy Regulatory Agency (GNERC) has as one of its main tasks the control over activities related to transmission and distribution - including electricity networks access and operations. GNERC approves regulations related to system operation, connection, grid infrastructure development, investment plans, etc. GNERC is responsible for issuing licenses and undertake licensing activity control.

Instruments which GNERC uses to apply technical requirements, procedures, and price regulation for use of the transmission and distribution system are a set of methodologies and resolutions which regulate the method of determining eligible costs, fees and tariffs. With each decision, methodology and rule, GNERC must take into account the impact on the price for use of transmission and distribution systems and thus the price of energy and quality of supply to customers.

Despite the fact that GNERC does not approve market rules, a major instrument to enforce measures of market and infrastructure development is to approve development plans and investment programs. GNERC approves plans which provide investment in systems to:

- Enable covering of increased consumption and connection of new customers to the system
- Improve connectivity with neighbouring systems with additional capacities that would provide an increase of cross-border energy exchange and thus increase the functioning of markets
- Allow for the connection of new generating capacities that use new technologies, especially facilities that produce energy from RES and high efficiency cogeneration

GNERC is authorized to control license conditions and monitor transmission, dispatch and distribution licensees in terms of obeying requirements of primary and secondary legal acts, conditions, procedures, timeframes and prices to grant connection approval. In the case of violating licensee conditions, GNERC is empowered to enforce its decision through sanctions envisaged by the law.

GNERC receives annual and quarterly reports from licensees and market participants (including RES producers) on current and planned activities in quarterly and annual basis.

GNERC has implemented a special IT solution for real time surveillance of distribution licensees in terms of planned and unplanned outages, disconnections, new connections and subscribed capacity increase requests, timely addressing customer complaints regarding voltage quality, disconnection, service commercial quality, new connection, capacity increase, micro power plant connection requests, etc.

In accordance with the draft new law, GNERC will be equipped with all the competences related to monitoring that are envisaged by the 3rd Energy Package.

e) Integration of RES plants in electricity market and their obligations

The Georgian Law on Electricity and Natural Gas divides power plants in 3 types in terms of installed capacity:

- Micro power plants up to 100 KW
- Small power plants up to 13 MW and
- Power plants with installed capacity greater than 13 MW.

For the first and second category, there are no licenses needed in order to start operation. Micro power plants can be installed at the retail customer's place of consumption. Its grid access is guaranteed based on simple notification procedures prescribed in GNERC's Resolution N°20 on Electricity (Capacity) Supply and Consumption Rules. Small power plants are requested to register at market operator and become qualified enterprise - a wholesale market participant and trade either through bilateral agreements or through market operator.

For the third category power plants, GNERC licensing and registration as a market operator is required in order to become wholesale market participant and start electricity commercial production. Wholesale purchase and sale of electricity is carried out on the basis of a direct contract or through the market operator under standard terms of a direct contract. Parties to a direct electricity purchase contract register the contract with a dispatch licensee.

In all the three categories, generated electricity is integrated in the electricity market having in mind that micro power plants are not wholesale market participants and excess electricity generated is subject of mandatory purchase by the distribution licensee.

The legislation also distinguishes power plants in terms of regulated and deregulated power plants. According to article 2 subparagraph z of the Law on Electricity and Natural Gas, deregulation means

granting to a generation licensee the right to operate without setting a tariff, or granting to a small power plant the right to operate without a license and without setting a tariff. Thus, small power plants and power plants built after 2008 are deemed as deregulated provided that they are not the sources of guaranteed capacity. In practice this means that GNERC does not set tariffs for them. Deregulated power plants are free to sell electricity through bilateral agreements at whatever price they wish or sell to market operator as “balancing energy”.

For the power plants that have signed a Power Purchase Agreement (PPA) with The Market Operator and Government of Georgia, the off-taker price is equal to the fixed price as indicated in the long term PPA.³⁰ Article 14 of Electricity (Capacity) Market Rules defines the principles of formation of the price of balance electricity purchased and sold by the Market Operator. The Market Operator carries out settlements with the balance electricity suppliers as follows:

- In case of power plant having fixed tariff - at the generation tariff set by GNERC;
- In case of power plant having adjustable upper marginal tariff:
 - From September 1 till May 1 of each calendar year - commensurate with the electricity generation upper marginal tariff set by GNERC;
 - From May 1 till September 1 the tariff should be commensurate with the fixed tariff of the regulating power plant that has the lowest generation tariff set by GNERC.

According to the current regulation, over the first 10 years of their life all newly built HPPs are required to sell their generation in Georgia for the eight winter months (September through April). Investors who wish to apply for PPAs from the list published by the Ministry of Energy may only sell electricity to the Market Operator (for the eight winter months) and must provide a financial model in support of the requested tariff and expected IRR³¹. There are currently PPAs in place with different options for electricity purchase by the Market Operator.³²

f) Rules for charging transmission and distribution tariffs to generators of electricity from renewable energy sources

According to the Law on Electricity and Gas (Article 23) and Electricity (Capacity) Market Rules (Article 28), power plants do not pay transmission, dispatch and distribution service tariffs, except when the power plant is consuming electricity during standby. According to the existing tariff framework, transmission, dispatch and distribution tariffs are paid by consumers.

Furthermore, delivery of electricity to an electricity distribution licensee by a retail consumer owning a micro power plant through a micro power plant connected to an electricity distribution network are not considered as an electricity generation activity. Delivery of electricity to an electricity distribution licensee by a retail consumer owning a micro power plant are not subject to dispatching control, and hence the dispatching service fee for the electricity received in a distribution network from a micro power plant are not imposed to a distribution licensee.

³⁰ The fixed purchase price is fixed in the MoU signed between the power plant developer, the Market Operator, transmission licensees (in most cases) and Government of Georgia.

³¹ After construction, the investor must provide an audit report evaluating the capital expenditures incurred. The report might result in the lowering of the tariff if the capital expenditure is lower than the one set out in the model.

³² EU Directive 2009/72/EC includes no specific conditions or arrangements regarding a market operator. However, activities currently undertaken by the Georgian electricity Market Operator, such as the provision of energy needed in order to “balance” contracts among market participants, and the participation in wholesale trading of electricity as either a seller or buyer, seem to contradict the role of a market operator, which should rather ensure that market participants are able to trade freely, competitively, transparently, under common non-preferential rules. Overall, it appears that, along with the specific market concept to be adopted for the competitive electricity market the role of the Market Operator will need to be clearly defined, and the rules for its operation and intervention (if any) in the electricity market determined by primary legislation. Similarly, the establishment of day-ahead trading arrangements, scheduling, balancing, and overall settlement rules, will need to be specified, and the specific allocation of responsibility between the Market and System Operators in each clearly identified and described.

3.2.8. 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 from renewable energy sources?

The legal framework on 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?

N/A

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

There are no technical rules for network connection and connection tariffs.

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

a) What are the needs for new district heating and cooling infrastructure using renewable energy sources and contributing to the 2030 target? 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?

Feasibility studies are necessary to assess the applicability of new district heating and cooling infrastructure using renewable energy sources and contributing to the 2030 target. As part of the REAP development, some preliminary estimates were made regarding the potential use of waste heat from planned natural gas-fired combined cycle plants but these estimates will need to be confirmed.

There are no current concrete plans in place for the use of new large biomass, solar, or geothermal facilities in district heating and cooling systems though there is significant technical potential for geothermal facilities in certain parts of Georgia.

It should be noted however that in the regions of Borjomi and Akhaltsikhe, the "Lithuania Biomass Association", the company "Ernestena" (Lithuania) and the company New Technologies Center of Georgia (Georgia) are employed by private investors to develop a feasibility study for a district heating system. The system would involve hybrid energy including biomass, solar, geothermal, and heat pump sources, amongst others. The investment package is expected to be USD 45-50 million.

3.2.10. 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?)

The Directive on the promotion of the use of biofuels or other renewable fuels for transport (2003/30/EC), as well as part of the Directive on the promotion of the use of energy from renewable energy sources (2009/28/EC) have not been transposed into the legal system of Georgia yet.

The Law on Renewable Energy currently being drafted may also include transposition of both of these directives.

For implementing sustainability criteria for biofuels and bioliquids at the national level, it is necessary to:

- Design a state program for the provision of heat resources to detail short-term and medium-term plans for crisis management. The draft version of State Strategy for Development of Biofuel in Georgia has been prepared and after the review procedure will be considered for adoption
- Establish a strategy for biomass use in Georgia, which will become a part of the Country's energy strategy
- Introduce requirements to stimulate businesses that utilize sustainable biomass energy and technologies as one of its priorities by the existing business support programs (Produce in Georgia, StartUP Georgia, other programs and grants that support innovation)
- Fully take into the account that firewood is the second most important energy resource in Georgia in the Ministry of Energy's Energy Strategy elaboration process
- Ensure firewood gathering is an organized process and stricter control illegal provision of firewood by the Ministry of Environment and Natural Resources and the National Forest Agency. An effective implementation mechanism could be to take responsibility for the sustainable provision of firewood resources, its farming and distribution
- Encourage the production of heating biomass from leftover firewood biomass in the woods and agricultural residues
- Facilitate the adoption and implementation of the policies that support sustainable use of forests and forests preservation. Such policies include the State programme for the provision of wood resources for public institutions and population³³ and the new Forest code.

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?)

There are no current plans to include biofuels and bioliquids as part of the national renewable energy target. In the event that they are included in the future, the MEPA will be responsible for establishing the specific body for monitoring / verifying compliance with the criteria.

c) National authority/body monitoring the fulfilment of the sustainability criteria

Such a body does not currently exist and is not currently envisioned for establishment.

d) 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 to 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 which currently regulates the legal status of land is the Law of Georgia on Agricultural Land Ownership.³⁴ The purpose of the Law is to:

- a) provide a legal framework for farming organised on rational land use, and improve agrarian structures;
- b) avoid fragmentation and inappropriate use of land.

³³<https://prezi.com/jv3tfu6f55z6/presentation/>

³⁴ Law of Georgia No 389 of 14 June 2000 - LHG I, No 23, 23.6.2000, Art. 64

This Law defines:

- a) procedures for purchasing and alienating agricultural land parcels
- b) the State's involvement in the regulation of relations related to agricultural land parcels.

In Georgia, land is under state, private, municipal, and church ownership. A large portion of the land is still under state ownership. The land privatisation process has been ongoing since 1992.

According to the Law of Georgia on Public Registry (Article 2.e), agricultural land (of which 767,300 ha are privatised and 2,258,500 ha are state owned) in Georgia is divided into several categories:

- Arable lands (with perennial plants, orchards, vegetable gardens)
- Hayfields
- Pasture land
- Personal plot

Arable lands can be used for the production of perennial as well as annual cultures.

Hayfields are used mainly for hay production and are not used for arable purposes.

Pasture lands are used as pasture for animals and cannot be used for arable or hay production purposes.

Personal plots are used for household purposes - buildings or auxiliary production.

According to the existing law, agricultural lands categorized as pastures cannot be privatized. However, if an application for the privatization or/and investments can be justified, the category of such land can be changed to 'arable land' or 'hayfield'.³⁵

The following legislation regulates the ownership rights, land ownership, use and the transfer of fixed assets:

- Constitution of Georgia (24 August 1995)
- Law of Georgia on Ownership of Agricultural Lands (22 March 1996)
- Civil Code of Georgia (26 June 1997)
- Law of Georgia Using Alternative Land and Reimbursement of Damage in Case of Allocation of Agricultural Land for Non-Agricultural Purposes (2 October 1997)
- Law of Georgia on Local Self-Governance (16 December 2005).
- Law of Georgia on Recognising Property Rights Under the Possession (Ownership) of Physical and Private Legal Entities (11 July 2007)
- Tax Code of Georgia (17 September 2010)
- Law of Georgia on Public Registry (19 December 2008)
- Law of Georgia on State Assets (21 July 2010)
- Law on the System of Protected Areas (March, 1996)

e) Classification of protected areas under national, European or international protection regime

Specific information on each protected area in Georgia is contained in the Law on the System of Protected Territories dated June 1996 - establishing natural areas protected by the state.

The categories of protected areas are classified in accordance with the Law on the System of Protected Territories as following:

- state reserve
- national park
- natural monument

³⁵Land Ownership and the Development of the Land Market in Georgia. A Report Commissioned by Alliances KK and Undertaken by a Private Consultant Alexander Gvaramia, 2013

- prohibited
- protected landscape
- territory of multi-purpose use.

The breakdown of total protected land types is provided in the table below.

Protected Areas of Georgia by Categories (2015)	
	Hectare
Protected Areas, total	318,634
Strict Nature Reserves	122,992
National Parks	150,689
Managed Nature Reserves	35,503
Protected Landscapes	4,049

Source: http://www.geostat.ge/index.php?action=page&p_id=431&lang=eng

All relationships arising from the use of land, forests, waters, natural resources available in the protected territories, and monuments of history and culture, are governed by appropriate legislation.

f) Procedure for changing the status of land

Under current legislation³⁶, it is possible to change agricultural land to non-agricultural land (but not vice versa). Changing the status of land is carried out by the National Agency of Public Registry, a legal entity, which operates under the Ministry of Justice of Georgia or the relevant territorial office.

Documents to be submitted for registration include:

- Application (electronic application to be filled in by front desk operator);
- Proof of identity document;
- Application of an interested person on the change of category of the tract of agricultural land, indicating the relevant category;
- A service fee payment confirmation document (payment might be done on the spot);³⁷
- Terms of service and service fee (described in the table below).

Terms of Service	Service Fee
Within 4 business days	50 GEL
Within 1 business day	150 GEL
On the day of application	200 GEL

g) Agro-environmental practices and other cross-compliance requirements (required by Article 17(6) of Directive 2009/28/EC) ensured and verified at national level

Georgia does not have a regulation or a policy outlining good agricultural and environmental practices. Georgia intends to prepare standards for solid biofuels. For the time being, International (ISO) and European standards as well as old Soviet and Russian GOSTs are acceptable.

³⁶ See <https://napr.gov.ge/source/sakanonmdeblo%20aqtebi/ivlisi2017/sasof.anazg.pdf>

³⁷ <http://psh.gov.ge/main/page/3/111/112/227>

h) Development of voluntary 'certification' scheme(s) for biofuel and bioliquid sustainability as described in the second subparagraph of Article 18(4) of Directive 2009/28/EC? If so, how?

Georgia does not have plans for a voluntary certification scheme for biofuels or bioliquid sustainability.

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

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

Regulation

- *What is the legal basis for this obligation/target? (b) Are there any technology-specific targets? (c) What are the concrete obligations/targets per year (per technology)?*
- *Who has to fulfil the obligation?*
- *What is the consequence of non-fulfilment?*
- *Is there any mechanism to supervise fulfilment?*
- *(Is there any mechanism to modify obligations/targets?)*

Not currently applicable in Georgia

Financial support

- *What is the name and a short description of the scheme?*
- *Is it a voluntary or obligatory scheme?*
- *Who manages the scheme? (Implementing body, monitoring authority)*
- *What are the measures taken to ensure availability of necessary budget/funding to achieve the national target?*
- *How is long-term security and reliability addressed by the scheme?*
- *Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?*
- *Does support differ according to technology?*
- *What are the expected impacts in terms of energy production?*
- *Is support conditional on meeting energy efficiency criteria?*
- *Is it an existing measure? Could you please indicate national legislation regulating it?*
- *Is this a planned scheme? When would it be operational?*
- *What start and end dates (duration) are set for the whole scheme?*
- *Are there maximum or minimum sizes of system which are eligible?*
- *Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulated?*
- *Are there regional/local schemes? If so, please detail using the same criteria.*

Not currently applicable in Georgia

Specific questions for financial support for investment:

- *What is granted by the scheme? (subsidies, capital grants, low interest loans, tax exemption or reduction, tax refunds)*
- *Who can benefit from this scheme? Is it specified for certain technology(/ies)?*
- *Are applications continuously received and granted or are there periodical calls? If periodical, could*

you please describe the frequency and conditions?

Georgia is currently planning the implementation of the following 3 measures for support of specific RES beyond that which is already noted elsewhere. These measures include:

1. **Promotion of solar hot water heaters:** This programme is expected to be implemented via a capital grant scheme for households to purchase solar hot water heaters as well as capacity building activities for producers. A required subsidy for market stimulation of 150 EUR per solar hot water heater through 2020, with potential for continuation afterwards. The likely beneficiaries would be poorer households in rural / semi-rural areas
2. **Promotion of electric vehicles:** This programme will involve investment in the infrastructure for charging stations (estimated at EUR 4,000 per charging station and an expected requirement of 850 - 900 charging stations required through 2020). Already there are **custom's tax** exemptions for the import of electric vehicles.
3. **Ongoing support for geothermal heat production:** This programme will involve the implementation of feasibility studies for the increase of the utilisation of geothermal resources. It is estimated that it will cost EUR 300,000 for the studies to be carried out.

Specific questions for tradable certificates:

- *Is there an obliged share of electricity produced from renewable sources in the total supply?*
- *Who has the obligation?*
- *Which technologies are covered by the scheme?*
- *Is international trade in certificates allowed? What are the conditions?*
- *Is there a floor bottom price?*
- *Is there a penalty for non-fulfilment?*
- *What is the average price for certificates? Is it made public? Where?*
- *What is the trading scheme for certificates?*
- *How long can a plant participate in the scheme?*

Not currently applicable in Georgia

Specific questions for feed-in fixed tariffs:

- *What are the conditions to get the fixed tariff?*
- *Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the tariff?*
- *Is it a technology specific scheme? What are the tariff levels for each?*
- *Are there other criteria differentiating tariffs?*
- *For how long is the fixed tariff guaranteed?*
- *Is there any tariff adjustment foreseen in the scheme?*

Not currently applicable in Georgia

Specific questions for feed-in premiums:

- *What are the conditions to get the premium?*
- *Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the premium?*
- *Is it an alternative to fixed tariff?*
- *Is it a technology-specific scheme? What are the premium levels for each?*
- *Is there a floor and/or a cap for the premium? Please specify.*

- *For how long is the premium price guaranteed?*
- *Is any tariff adjustment foreseen in the scheme?*

Not currently applicable in Georgia

Specific questions for tendering:

- *What is the frequency and size of the tenders?*
- *Which technologies are specified?*
- *Is it integrated with grid development?*

Not currently applicable in Georgia

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

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

Not currently applicable in Georgia. It is expected that some CHP will be provided from biogas which will have its feedstock based on waste flows. However, the support scheme is not currently in place.

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

Not currently applicable in Georgia. There are plans to require feasibility studies of district heating using waste heat from natural-gas fired power plants which may result in a support scheme for district heating using renewable energy sources, but nothing is currently in place.

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

Not currently applicable in Georgia. There are donor-initiated plans for developing large-scale support for efficient biomass stoves and solar hot-water heaters but they are not yet in place.

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

Not currently applicable in Georgia.

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

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

Not currently applicable in Georgia.

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 the Directive?

Not currently applicable in Georgia.

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

The section assesses domestic potential and increased mobilisation of domestic and imported biomass resources and impact on and the interaction with other non-energy sectors (as the food and feed industry, pulp and paper industry, construction industry, furniture industry etc.).

3.6.1. Biomass supply: both domestic and trade

Georgia faces an imminent crisis in supplying its regions with heating energy. The fuel wood that constitutes about 12% of country's total energy balance, and about 35% of domestic primary energy, is utilized in a highly unsustainable way. The Forestry Agency of the Ministry of Environment estimates the annually available renewable wood resource at 600,000 m³, while the total consumption was estimated at 2.5 million m³ in 2014.

According to RES Directive 2009/28/EC which is valid until 2020, sustainability criteria is imposed only to biofuels and bioliquids, not on biomass. For this reason, the existing biomass consumption used for heating is the value included in calculation of the RES share on annual basis in the past and to 2020 for Georgia. The sustainability criteria for biomass will be captured only in the new recast of the RES Directive (2020 to 2030) that is currently in Parliamentary procedure in EU Parliament. Only upon the adoption in the Energy Community, will the new directive have to be implemented in the legal framework of every Contracting Party.

It is noteworthy that in the time period between 2014 (the baseline year) and 2016 (the last year for which the energy balance was available, fuel wood production and consumption dropped by 911 GWh (approximately 17%) or approximately 400,000 m³ to 2.1 million m³.

There are significant volumes of solid woody biomass residues currently not utilized which can be used for heating through production of upgraded solid biofuels (briquettes, pellets and chips) to satisfy heating needs - particularly outside the capital. This includes agricultural (theoretical potential 7-8 PJ equivalent annually) and forestry waste as well as waste from tree trimming in the cities, and from other underutilized sources. These sources can be summarised as follows:

Biomass residues: The theoretical potential is approximately 1 million m³ of biomass residues. There is approximately 3.02 million ha of agriculture land. Nearly 0.8 million ha of this is arable land and 0.33 million ha is used for perennial crops. Pasturelands (1.8 million ha), and meadows (0.14 million ha) make up the remainder of the agricultural lands.³⁸

Residential waste: Approximately 900,000 tonnes of waste per year accumulate in the Tbilisi and Kutaisi waste disposal sites according to municipal data. An estimated 90 million m³ biogas could be obtained by re-treating these residues; this would equal 64 million m³ of natural gas. Approximately 160 million m³ of biogas can be annually obtained from the sewage water cleaning station of Tbilisi (serving 1.2 million). The resulting biogas energy is estimated to be 1,000 GWh/year equalling 100 million m³ of natural gas.

Therefore, the technical potential of the major biomass sources in Georgia amounts to 12.5 TWh/year. The achievable potential is estimated at 3-4 TWh/year. This estimate does not incorporate the potential of farming energy crops. For comparison, one can note that total annual electricity generation in Georgia is in the range of 8,000 GWh.

Apart from firewood, which is used for cooking and heating, and a few donor supported biogas initiatives, the biomass potential remains untapped.

³⁸ Current land policy issues in Georgia - J. Ebanoidze, Association for the Protection of Landowners' Rights, Tbilisi, Georgia

Table 4 Biomass supply in 2014

Sector of origin		Amount of domestic resource (1)	Imported		Exported	Net amount	Primary energy production (ktoe)
			EU	Non-EU	EU / non EU		
(A) Biomass from forestry (2)	Of which (1000 m ³):	2,474.80	0	0	0	2,474.80	461.05
	(1) direct supply of wood biomass from forests and other wooded land for energy generation	2,474.80	0	0	0	2,474.80	461.05
	(2) indirect supply of wood biomass for energy generation	0	0	0	0	0	0
(B) Biomass from agriculture and fisheries	Of which (tonnes):	9,800	0	0	0	9,800	3.99
	(1) agricultural crops and fishery products directly provided for energy generation (tonnes):	8,900	0	0	0	8,900	3.81
	(2) Agricultural by-products / processed residues and fishery by-products for energy generation	900	0	0	0	900	0.17
(C) Biomass from waste	Of which:	0	0	0	0	0	-
	(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	-
	(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

(1) 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.

(2) 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.

Source for 2014: Geostat (2015) Energy Balance of Georgia 2015 (for the year 2014) http://geostat.ge/?action=page&p_id=2084&lang=eng

Table 5 Estimated biomass domestic supply in 2016 and 2020

	Expected amount of domestic resource	Primary energy production (ktoe)	Expected amount of domestic resource	Primary energy production (ktoe)

(A) Biomass from forestry (2)	Of which:	2045.2	395.17	2147.46	414.93
	(1) direct supply of wood biomass from forests and other wooded land for energy generation (1000 m3)	2045.2	395.17	2147.46	414.93
	(2) indirect supply of wood biomass for energy generation (1000 t)	0.5	0.19	0.53	0.20
(B) Biomass from agriculture and fisheries	Of which: (1000 t)	28.1	2.84	29.51	2.98
	(1) agricultural crops and fishery products directly provided for energy generation (1000 t)	28.1	2.84	29.51	2.98
	(2) Agricultural by-products/processed residues and fishery by-products for energy generation	0	0	0	0
(C) Biomass from waste	Of which:	0	0	0	0
	(1) Biodegradable fraction of municipal solid waste including bio-waste (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
	(2) Biodegradable fraction of industrial waste (including paper, cardboard, pallets)	0	0	0	0
	(3) Sewage sludge	0	0	0	0

Source for 2016: Geostat (2017) Energy Balance of Georgia 2017 (for the year 2016)
http://geostat.ge/cms/site_images/files/english/Energy/Energy%20balance%20publication_2016_ENG.pdf.

Assumption is that for 2020, the supply will be similar

Assumptions:

0.186 toe / m3 of direct supply of wood biomass from forests and other wooded land for energy generation

0.429 toe / tonne of agricultural crops and fishery products directly provided for energy generation

0.194 toe / tonne of Agricultural by-products / processed residues and fishery by-products for energy generation

For 2016 to 2020 - assumes 5% growth in supply.

Note that due to new Forest Codes being put into place, supply (and subsequently demand) of wood may decrease.

Table 6 Current agricultural land use for production of crops dedicated to energy in 2016

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	0

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

a) Please specify how much land is degraded

About 59,560 ha of agricultural land in Georgia is salinized soil.³⁹ Other information on the degradation of land is not available.

b) Please specify how much unused arable land there is

According to operational data of 2016⁴⁰, out of a total of 795,300 ha of arable land in Georgia more than 420,000 hectares have been cultivated with 375,000 ha which have not been used due to the following reasons:

- These are rocky plots of land where technology cannot operate and
- Plots have a high degree of slope where agricultural machinery does not work

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

No measures are currently planned for encouraging unused arable land, degraded land, etc. to be used for energy purposes.

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

Manure and other non-hazardous materials produced in farming and forestry operations are not included in the sphere of the National Waste Management Code. There is currently no plan to utilise these materials as primary material for energy production.

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

³⁹ Second National Action Program to Combat Desertification, 2014 - 2022

⁴⁰ Information was provided by chief specialist from agriculture & food department, Branch Development Division of Ministry of Agriculture.

There is not any specific policy promoting the production and use of biogas.

Currently, with support of donors, 337 small biogas digesters are functioning in the country. These small bio-digesters' main characteristics are the following:

- The small-scale mesophilic bioreactor has a 6 m³ volume and requires the equivalent of waste material generated from 4 cows. The temperature of the reactor is 25-40°C. Modern mesophilic bioreactors can produce 0.2-0.4 m³ per m³ of installation.
- A small-scale thermophilic bioreactor has a 6 m³ volume and requires the equivalent of waste material generated from 5 cows or more. The temperature of the reactor is 50-55°C. Modern thermophilic bioreactors can produce 2-6 m³ per m³ of installation.

f) Planned measures to improve forest management techniques in order to maximise the extraction of biomass from the forest in a sustainable way ⁽⁴⁾:

In 2016, on the initiative of the MENRP and with support of the World Bank, the process of development of a new Forest Code began within the framework of ENPI FLEG II program. Development of the new Forest Code gave a start to fulfilment of sector-related international as well as national strategies-based obligations.⁴¹

The purpose of the Code is to create legal basis for sustainable management of forests, which should ensure protection of Georgian forest's biological diversity as well as maintain and improve the quantitative and qualitative characteristics of forest properties and resources for implementing its ecological, social and economic functions. The basic principles of forest management and legal tools stipulated in the Forest Code should provide a basis for sustainable forest management.

The Forest Code will become a foundation for restoration of forestry in the country, providing sectoral sustainability and rational use of forest resources in accordance with forest's ecological, social and economic values. Restoration of forestry is expected to facilitate employment of local population in forestry sector as well as increase the number of qualified personnel for sustainable forest management.

To achieve the stated goals, the new Forest Code changes the substantive approaches and introduces new concepts including the following:

According to the new Code, the forest concept of Georgia includes the state-owned, namely - forests and their resources owned by local self-government units. The draft law rejected the notion of a forest fund, replacing it with the notion of forest, which also includes forest land or areas which constitute an integral part of the forest ecosystem. The above definition includes a number of criteria that will simplify the specification of forest borders. The definition of the forest concept is derived from the definition introduced by the United Nations Food and Agriculture Organization (FAO). According to the draft law, the forest is a land plot with minimum 10 meters of width and at least 0.5 ha of land area covered by one or more timber species⁴², where tree crown density accounts for at least 20% of the land area.⁴³In the period 2017-2020, forest inventory activities will be conducted and management plans developed for 1.491 million hectares (in 39 municipalities) under the management of the Agency. The

⁴¹ Paragraph N299 "Preparation of new Forest Code; Review and Bringing in compliance with the Relevant Legislative and Subordinate Normative Acts" of National Action Plan for 2015 on "Implementation of the Association Agreement between Georgia, on the one hand and the European Union and the European Atomic Energy Community and their Member States, on the other hand and the Association Agenda Between Georgia and the European Union" adopted by Resolution N 59 of the Government of Georgia of 2015.

Objective C.3-o2.1 "Revise the Forest Code in a participatory manner" of the National Biodiversity Strategy and Action Plan of Georgia adopted by the Decree N343 of the Government of Georgia of 8 May 2015; also Chapter 7.1 and Goal N1 of Chapter 7.6 of "National Environmental Action Program of Georgia" adopted by the Resolution N127 of the Government of Georgia of 24 January 2012.

⁴² The Code also states that the forest-forming species are trees and other woody plants included in the list of forest-forming woody species list approved by the Minister of Environment and Natural Resources Protection of Georgia.

⁴³ Forest Sector Overview, Natia Iordanishvili, March 2017

Projected amount of financial resource required for forest inventory activities is GEL 14,921,000 (EUR 5.48 million).

g) Monitoring the impact of energy use of biomass on other sectors based on agriculture and forestry

Currently there is no legal and regulatory framework to regulate the use of biomass as an energy source. There is no common energy or renewable energy law that would consider biomass energy and assign the responsibility for its use and development. The fuel wood that constitutes about 35% of domestic primary energy in Georgia does not fall under responsibility of the Ministry of Energy and is not considered in the energy policy of Georgia.

There is intensive work on a strategy for Forestry reform, in the MENRP, aiming at reforming current unsustainable management practices and to move to more sustainable use. The overarching goal of the forestry reform strategy for 2017-2020 is to support the implementation of Georgia's Forestry Concept and to create a system of sustainable forest management in Georgia. The main ideas of the reform include:

- The Forestry Agency will directly engage in economic activity and become an operator of the forests with the goal of economic use of forests, or will appoint the forest management body for commercial forestry management.
- New forestry licenses will not be issued.
- Social wood logging will be suspended and replaced with a more efficient model
- The Forestry Agency will conduct or oversee forest management and harvesting to provide fuel wood to the population and organizations in rural areas.

h) 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 improve efficiency/productivity increase or decrease the amount of by- products available for energy use?)

It is assumed that within the period of three initial years of UBF Action Plan the following parallel developments will take place:

- It is assumed that the forestry agency will acquire the oversight and regulatory role for the forest management, while actual forestry operations will be transferred to another public agency or private companies. As a result of this transformation there will be a residual biomass available from forestry operations at transparent equitable and competitive conditions.
- The forest inventory and plan for regular for forest underbrush removal, tending, and thinning will help to identify the amount of biomass residue that can be obtained annually.
- A Cost Benefit Analysis will be conducted on the non-sustainable use of forests for fuel wood - with the account of main externalities that will define the societal costs of wood harvested non-sustainably.
- The recently established Biomass Association will support business development and lobbying the policies in support of UBFs.
- Efficient wood stove NAMA will be implemented to improve the efficiency of wood stoves used in Georgia.

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

3.7.1. 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).

Not established

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

Not established

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

Not established

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

Not planned

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

Not relevant.

3.7.3. Estimated potential for joint projects

Not relevant.

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

Not relevant.

4. Assessments

4.1. Assessment of the impacts

The following estimates for cost represent only the expected investment cost for infrastructure development, and not the total systems costs. Specifically the following are important to note for specific support measures:

1. **Promotion of solar hot water heaters:** The expected cost represents the expected required subsidy for market stimulation of 150 EUR per solar hot water heater through 2020, with potential

for continuation afterwards. The expected GHG reductions are estimated based on reductions of non-sustainable wood and / or natural gas usage.

2. **Promotion of electric vehicles:** The expected cost represents estimated infrastructure costs for charging stations at EUR 4,000 per charging station and an expected requirement of 850 - 900 charging stations required through 2020. The costs do not represent the system costs in terms of electricity costs, capital costs / subsidies / tax breaks for electric vehicle purchases, or other ongoing maintenance costs of infrastructure.

For the following three measures, the expected costs represent the expected investments in power production facilities, and not the entire system costs (off-taker costs and connection fees).

3. Ongoing support for hydropower production
4. Ongoing support for wind production
5. Ongoing support for solar power production

No estimate was possible for the costs of supporting geothermal heat production.

Table 7 Estimated costs and benefits of the renewable energy policy support measures

Measure	Expected renewable energy use (ktoe) (2018 - 2020)	Expected cost (in EUR) (2018 - 2020)	Time frame	Expected GHG reduction by gas (tonnes/yr)	Expected job creation
1. Promotion of solar hot water heaters	5.2	€ 2,328,000	2018 - 2020 (and beyond)	7,118	Not calculated
2. Promotion of electric vehicles	7.3	€ 2,584,000	2018 - 2020 (and beyond)	18,985	Not calculated
3. Ongoing support for hydropower production	553.6	€ 984,782,000	2018 - 2020 (and beyond)	Not calculated	Not calculated
4. Ongoing support for wind production	25.2	€ 70,500,000	2018 - 2020 (and beyond)	Not calculated	Not calculated
5. Ongoing support for solar power production	0.7	€ 4,903,000	2018 - 2020 (and beyond)	Not calculated	Not calculated
6. Support for micro-generation (less than 100 kW) from renewable sources	2.2	€ 24,517,000	2018 - 2020 (and beyond)	Not calculated	Not calculated
7. Ongoing support for geothermal heat production	38.0	Not calculated, feasibility studies of approximately EUR 300,000 envisaged as necessary.	2018 - 2020 (and beyond)	Not calculated	Not calculated
8. Improved management of solid biomass resources - Development of a new Forest Code, inventory of Forests, and support for the use of residues	N/A	€ 5,480,000	2018 - 2020	Not calculated	Not calculated
9. District heating and cooling infrastructure development	N/A	Estimated to be USD 45 - 50 million	2018 - 2020	Not calculated	Not calculated
10. Communications and	N/A	Estimated to be	2018 - 2020	Not	Not calculated

capacity building of technical experts		EUR 50 - 100,000 per year	(and beyond)	calculated	
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4.2. Preparation of the National Renewable Energy Action Plan and the follow-up of its implementation

a) Regional and/or local authorities and/or cities involvement in the preparation of this Action Plan

The key ministry which was involved in the elaboration and discussion of the NREAP is the Ministry of Economy and Sustainable Development. The representatives of the MoESD were actively participating in the working group meetings organised under the aegis of the Ministry. Local public authorities were not directly involved in the NREAP development, though the NREAP team had access to ten Sustainable Energy Action Plans and one Sustainable Energy & Climate Action Plan development by the major Georgian cities and municipalities.

Among other stakeholders, the following organizations were requested to send their representatives to participate in NREAP development through involvement in working group activities: Ministry of Agriculture, Ministry of Finance, Georgian National Energy and Water Regulatory Commission, Georgian State Electrosystem, Electricity Distribution Companies, Geostat, Ilia State University.

The development of the NREAP was fully supported by the team of international and local consultants from Energy Efficiency Centre Georgia, in the framework of the project financed the United Nations Development Programme (UNDP).

b) Plans to develop regional/local renewable energy strategies

At the time of development of the NREAP, 23 cities of Georgia had signed the Covenant of Mayors (CoM), 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. From 23 CoM signatories only 10 have developed Sustainable Energy Action Plans, cities which have joined CoM recently committed themselves to adopting an integrated approach to climate change mitigation and adaptation. They are required to develop within two years of adherence, a Sustainable Energy and Climate Action Plan with the aims of cutting CO₂ emissions by at least 30% by 2030 and increasing resilience to climate change.

c) Public consultation carried out for the preparation of this Action Plan.

The action plan was drawn up in cooperation with energy sector experts, who were engaged in the work on NREAP development based on their expertise in 3 working groups.

The NREAP framework was discussed with the major stakeholders at the inception workshop, the working group members met the members of Biomass Association of Georgia to discuss biomass and biofuels related issues, NREAP Framework was discussed at the training workshop for stakeholders' network and the conference to present NREAP to key stakeholders and reach broad audience, including public and private sector organizations, academic institutions and civil society organizations working in the field of renewable energy and low carbon energy.

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

d) Contact point/the national authority or body responsible for the follow-up of the Renewable Energy Action Plan

The national authority responsible for the preparation, the establishment of the legal framework and the implementation of the Action Plan is the Ministry of Economy and Sustainable Development

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

Currently there is no such monitoring system. As part of implementation of this action plan, a Monitoring, Reporting, and Verification system is proposed (see Annex 2).