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RECOMMENDATIONS ON RENEWABLE ENERGY SUPPORT SCHEMES

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5 April 2019

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USAID ENERGY PROGRAM

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DATA

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ACRONYMS

CfD	Contract for Difference
CPPA	Corporate Power Purchase Agreement
DSO	Distribution System Operator
EnCT	Energy Community Treaty
EU	European Union
EV	Electric Vehicle
FIP	Feed in Premium
FiT	Feed in Tariff
FYDNDP	Five-Year Distribution Network Development Plan
GHG	Greenhouse Gas
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GoG	Government of Georgia
GPPA	Government Power Purchase Agreement
GSE	Georgian State Electrosystem
IFI	International Financial Institution
IPP	Independent Power Producer
kW	Kilowatt
MoESD	Ministry of Economy and Sustainable Development
MW	Megawatt
MWh	Megawatt Hours
NBG	National Bank of Georgia
NREAP	National Renewable Energy Action Plan
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PSO	Public Service Obligations
PV	Photovoltaic
REC	Renewable Energy Certificate
RES	Renewable Energy Sources
ROC	Renewable Obligation Certificate
SME	Small and Medium Size Enterprises
TYNDP	Ten-Year Network Development Plan
USAID	United States Agency for International Development
USD	United States Dollar
VAT	Value Added Tax
VRE	Variable Renewable Energy

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INTRODUCTION

In October 2016, Georgia signed the Energy Community Treaty (EnCT) signaling the country's commitment to direct future energy planning and market development towards approximation with the European Union (EU). This step commits Georgia to enhancing the security of energy supply by promoting the development of relevant infrastructure, increasing market integration and gradual regulatory approximation towards key elements of the EnCT, and promoting the use of renewable energy sources. In order for Georgia to meeting its strategic commitments in the energy sector, the United States Agency for International Development (USAID) is providing technical assistance and policy advice on legal, regulatory and institutional reform issues, including facilitating investment and deal structuring, engineering and environmental analyses, financial planning, and outreach, and other consulting. This technical assistance, ("USAID Energy Program") is being rendered by Deloitte Consulting LLP, under a USAID contract, AID-OAA-I-13-00018.

The objective of USAID Energy Program is to support Georgia's efforts to facilitate increased investment in power generation capacity as a means to increase national energy security, facilitate economic growth, and enhance national security. The project will have a significant impact on energy market reform efforts of the Government of Georgia (GoG) to comply with the country's obligations under the EnCT. The investment objective will be achieved through the provision of technical assistance to a variety of stakeholders in the energy sector.

The purpose of USAID Energy Program is to: (1) support Georgia in energy market development per Georgia's obligations under the EnCT, (2) build the capacity of the GoG and relevant institution(s) to evaluate the fiscal and long-term impacts of regulatory changes, (3) promote energy investments, primarily in variable renewable energy development, (4) to support integration of non-hydro renewable energy into the power system, and (5) provide strategic advisory services to the GoG to increase Georgia's energy security.

The ultimate goal of this Program is to enhance Georgia's energy security through improved legal and regulatory framework and increased investments in the energy sector. The ultimate expected outcome of this Program is an energy market legal and regulatory framework that complies with European requirements and encourages competitive energy trade and private sector investments.

Under the contract, AID-OAA-I-13-00018, USAID Energy Program assists the Ministry of Economy and Sustainable Development of Georgia (MoESD) in the development of a support scheme for encouraging investment in electricity generation infrastructure in order to promote the development of energy generation from a diversified source of native resources.

Therefore, considering the developments in the energy sector of Georgia, and the tight timelines for the implementation of undertaken obligations, USAID Energy Program actively supports the GoG by continuously providing recommendations in the reform making process.

Accordingly, USAID Energy Program is providing full justification for each proposed recommendation on Renewable Energy Support Mechanisms.

EXECUTIVE SUMMARY

USAID Energy Program supports the MoESD in the identification of transition countries with relevant experience related to the implementation of Renewable Energy. Hence, the respective team prepared a proposal for renewable energy support mechanism for the Government of Georgia. USAID Energy Program supports the MoESD and / or other public entities to implement the selected support mechanism, assists the counterparts in developing an enabling environment and promotes the new schemes upon identification. The Program is providing a detailed description of various renewable energy supporting mechanisms and full justification for each recommendation.

With the aim to assist the MoESD and / or other public entities to implement the selected support mechanism, support counterparts in developing an enabling environment and promote the new scheme upon identification, USAID Energy Program conducted several meetings with various stakeholders and discussed the possible Renewable Energy incentive mechanisms. Accordingly, the Program provides full justification for each recommendation.

The report incorporates the analysis and recommendations on 17 Support Mechanisms, including financial, fiscal, economical, technical, regulatory issues, as well as legal aspects and tax incentives.

#	Type of Support Mechanisms	USAID Energy Program Recommendation
1	Tax exemptions (VAT, Import duties for Renewable Energy)	Highly Recommended
2	Net Metering Improvement	Highly Recommended
3	Network Connection	Highly Recommended
4	Soft Loan	Recommended
5	Loan guarantees	Recommended
6	Feed in Tariffs (FiTs)	Recommended
7	Feed-in Premiums (FIP)	Recommended
8	Power Purchase Agreements (PPAs)	Recommended
9	Public Private Partnership (PPP)	Recommended
10	Reverse Auction and tender system	Recommended
11	Contract for Difference (CfD)	Recommended
12	Renewable "Energy Quota" Obligations and 'Must Take' requirements	Recommended
13	Green Certificate	Recommended
14	Priority dispatching to the grid for Renewable Energy	Recommended
15	Land Purchase Price and Exclusive land rights	Recommended
16	Property tax financing	Not Recommended
17	Green Fee (The Renewable Energy Charge)	Not Recommended

USAID Energy Program recommendations on support scheme consist of the three recommended renewable energy support mechanisms for Georgia:

Tax Exemptions – Tax exemption generally refers to a legal exception to a general rule rather than the mere absence of taxation in particular circumstances, otherwise known as an exclusion. Tax exemption also refers to removal of a particular item from taxation rather than a deduction. e.g. 10-years tax exemption for non-hydro investments will enhance the project's survival. Exclusions from Value-Added Tax (VAT) (goods: battery storage, Photovoltaic (PV) panels, inventors... for rehabilitation energy sector); Exclusions from property tax (Transmission lines); Tax code amendments. Tax incentives can offset capital costs or profits or reduce specific taxes such as VAT or import duties.

- **Technical Issues** - Target for battery storages, Electric Vehicle (EV) high voltage charging infrastructure and other new technologies;
- **Legal and Regulatory Issues** - Fairly easy. Success in EV and Hydro equipment;
- **Fiscal / Financial / Economic Issues** - Government of Georgia (GoG) revenue loss problem if not defined narrowly;
- **Implementation Matters** - Relatively easy; EV infrastructure has to be developed;
- **Social and Environmental Aspects** - Improved air pollution impact for EV; Job creation.

✓ **Highly Recommended**

Net Metering Regulation – Also referred to as “behind the meter” pricing, net metering allows a customer sell electricity back to the grid, typically at the same rate as a utility tariff, and pay only for the net amount of grid power consumed. The improvement of Net Metering Regulation can bring the

following benefits: save on expensive and polluting conventional power and imports, save on investment in transmission and distribution infrastructure; reduce electricity losses; support the involvement of Small and Medium-sized Enterprises (SME); create jobs; improve environment.

- **Technical Issues** - Distribution grid flexibility; Reduction of electricity losses and improvement of voltage quality;
- **Legal and Regulatory Issues** - Complex, depends on target market penetration; Georgian National Energy and Water Supply Regulatory Commission (GNERC) to approve 5-year distribution network development plan;
- **Fiscal / Financial / Economic Issues** - VAT loss. Could be financed as soft loan. Distribution System Operator (DSO) revenue loss for network services;
- **Implementation Matters** - Hard to manage and prioritize; Distribution companies are against cap increase;
- **Social and Environmental Aspects** – Supports SME in construction; reduction of electricity bills; job creation and SME involvement.

✓ **Highly Recommended**

Network Connection - grid connection is one of the basic conditions for project development. The grid availability is the percentage of time that the network is able to accept power from the Variable Renewable Energy (VRE) plants. This may have adverse effects on the economics of the project. The substation and transmission line capacity need to be aligned with the capacity of the plant being developed. Requirements for grid connection and the supporting infrastructure should be clearly specified so that renewable energy developers can identify their associated costs and contractual documents should include provisions for situations beyond the responsibility of the developer.

- **Technical Issues** - Grid capacity to absorb VRE, distance to the existing grid. Shallow (low) connection charge for all types of renewable energy.
- **Legal and Regulatory Issues** - Clear Grid Code (Network connection code) operational rules for connection to the network; connection fee methodologies; Ten-Year Network Development Plan (TYNDP) and Five-Year Distribution Network Development Plan (FYDNDP).
- **Fiscal / Financial / Economic Issues** - Higher grid costs need to be socialized (all rate payers pay).
- **Implementation Matters** - Requires grid study, economic study, tariff study. Allows the best competitive procurement.
- **Social and Environmental Aspects** – Land issues; local community engagement.

✓ **Highly Recommended**

ANALYSIS OF THE SUPPORT MECHANISM

Most of the renewable energy technologies are not competing with the traditional non-renewable energy technologies as earlier technical development had a non-renewable focus. Therefore, due to insufficient past experience, renewables fall behind labelled as less efficient and costly. Support for renewable energy in the electricity sector of Georgia has been provided through a number of means, such as Power Purchase Agreements (PPA) and net metering schemes. Often, the selection of a support scheme is dependent on the level of renewable energy development in the country and on the structure of the electricity market. International practice envisages the most common schemes such as the state aid to certain sectors or companies in the form of grants or exemptions from taxes and charges, the imposition of Public Service Obligations (PSOs), and regulation through general measures. While such measures are necessary to correct the market failures and achieve the desired level of progress in the investments in renewables, the GoG interventions need to be well designed and proportionate to avoid additional market distortions. With the growing renewables shares, poor design and public intervention have led to unnecessary distortions with regards to energy production, trade and investment in renewables. This raises the cost of renewables' promotion and creates impediment both for further growth of renewables and for the advancement of Georgian electricity market.

This report presents supporting schemes mostly applied in the international practice. These are as follows:

1. TAX EXEMPTIONS (VAT, IMPORT DUTIES FOR RENEWABLE ENERGY)

Tax exemption generally refers to a legal exception to a general rule, rather than the mere absence of taxation in particular circumstances, otherwise known as an exclusion. Tax exemption also refers to removal from taxation of a particular item rather than a deduction. e.g. 10-year tax exemption for non-hydro investments will allow projects survive better.

2. PROPERTY TAX FINANCING

All resident organizations pay tax on assets recorded as the principal means on its balance, uninstalled equipment, uncompleted construction, as well as leased property. Non-resident enterprise, on the property being on the territory of Georgia, pay a tax on assets recorded as the principal means on its balance, uninstalled equipment, uncompleted construction, as well as leased property.

3. SOFT LOAN

Loan with a below-market rate of interest. This is also known as soft financing. Sometimes soft loans provide other concessions to borrowers, such as long repayment periods or interest holidays. Soft loans are usually provided by governments to worthwhile projects. E.g. if a state debt instrument is offered for 15 years plus with an interest rate below 5 % this will encourage local investments and allow investors invest.

4. LOAN GUARANTEES

Loan guarantees are examples of a public instrument, they offer protection to financiers against risks and make it possible to mobilize commercial financing for the necessary terms and at acceptable costs. If Georgia offers Loan Guarantees to local players, this will enable local developers to explore smaller projects along with the larger units. Globally this has been very effective in kick starting small scale solar rooftop schemes, small scale bio gas and bio mass schemes.

5. FEED IN TARIFFS (FITS)

Feed-in tariffs for renewable energy capacity are policy instruments that have shown their ability to attract renewable energy investment relatively rapidly. Feed in Tariffs is a type of price-based policy instrument whereby eligible renewable energy generators are paid a fixed price at a guaranteed level (irrespective of the wholesale price) for the Renewable Energy Sources (RES) electricity produced and fed into the grid. This tool is used in EU member states: Austria, Croatia, Czech Republic,

Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Portugal, and United Kingdom.

6. FEED-IN PREMIUMS (FIP)

Feed-in-premium is a type of price-based policy instrument whereby eligible renewable energy generators are paid a premium price, which is a payment in addition to the wholesale price. This premium can be fixed or floating; a floating premium would be calculated as a difference between an average wholesale price and a previously defined guaranteed price. Feed in Premium systems are an evolved version of feed in tariff system with varying degrees of market exposure for producers. The premium systems have several advantages compared to other instruments: they oblige renewable energy producers to find a seller for their production on the market and make sure that market signals reach the renewable energy operators through varying degrees of market exposure. A well-designed premium scheme will also limit costs and drive innovation by granting support based on a competitive allocation process or including automatic and predictable adjustments on cost calculations, giving investors market signals coupled with foresight and the necessary confidence to invest. This tool is used in EU member states Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Malta, Netherlands, Poland, United Kingdom.

7. POWER PURCHASE AGREEMENTS (PPAS)

Corporate and / or Government PPAs are contracts that contain the commercial terms of the purchase of renewable energy, such as the contract period, point of delivery, delivery date/times, volume, price and product. Corporate Power Purchase Agreements (CPPAs) generally referred to the private sector chain, which is very effective tool to promote investments. Government Power Purchase Agreements (GPPAs) are regulated within the conditions of the Law of Georgia on PPP.

8. PUBLIC PRIVATE PARTNERSHIP (PPP)

PPP model is a profitable agreement between a public sector and a private party, in which the private party assumes substantial financial, technical and operational risk in design, financing, building and operation of a project.

9. REVERSE AUCTION AND TENDER SYSTEM

Reverse auctions for renewable energy capacity are policy instruments that have shown their ability to attract renewable energy investment relatively rapidly. Reverse auctions for Independent Power Producers (IPPs) involve the competitive procurement of energy, whether at a specific site or without specifying where a new plant must be built.

10. GREEN FEE (THE RENEWABLE ENERGY CHARGE)

A fee paid by electricity consumers to finance the subsidy paid to renewable energy producers. E.g. the Renewable Energy Charge will be paid by all consumers in proportion to their consumption, and / or all tourist to pay 1 USD per day per person.

11. IMPROVED NET METERING REGULATION

Also referred as “behind the meter” pricing, net metering allows the customer sell electricity back to the grid, typically at the same rate as a utility tariff, and pay only for the net amount of grid power consumed. Net metering has been introduced in 2016– in Georgia to encourage project owners who cover their own electricity consumption with micro, renewable-based generation units of up to 100 kW capacity. The GoG should increase the amount of determined capacity to connect the distribution network and adopt virtual metering system.

12. CONTRACT FOR DIFFERENCE (CFD)

CfD - is a long-term contract between an electricity generator and customer, when the market price for electricity generated by a CfD Generator is below the Strike Price, set out in the contract, payments are made by customer to the CfD Generator to make up the difference. However, when the reference price is above the Strike Price, the CfD Generator pays customer the difference.

13. RENEWABLE "ENERGY QUOTA" OBLIGATIONS AND 'MUST TAKE' REQUIREMENTS

A widely used "must take" requirements and / or renewable "energy quota" obligations – because wind and solar provide power only when the resources are available, they are frequently contracted as "must-take" generators, where their output is always used when it is available.

14. GREEN CERTIFICATE

Green certificate scheme is a tool, most commonly applied by governmentally defined tasks and commitments for consumers and suppliers of energy. The green certificate itself is a document confirming the production of a certain amount of energy from Renewable Energy Sources. Those certificates are bought and sold separately from the energy market and two parallel markets are created. This means two potential income sources for energy producers. Price of the certificate is set by supply and demand. At the same time the demand is dependent on governmentally defined tasks and obligations. This scheme is used in Norway and EU member states: Belgium, Ireland, Romania, Sweden, United Kingdom.

15. PRIORITY DISPATCHING TO THE GRID FOR RENEWABLE ENERGY

Renewable energy should have priority dispatching for the renewable producers insofar as the secure operation of the national electricity system permits. The curtailment of electricity produced from renewable energy sources should be based on transparent and non-discriminatory criteria amongst the energy producers.

16. NETWORK CONNECTION

The grid availability is an essential condition for project implementation. If the network is unable to accept power from the VRE plants, it may have adverse impact on the project economics. Requirements for grid connection and supporting infrastructure should be clearly specified so that renewable energy developers can identify associated costs and contractual documents should include provisions for situations beyond the responsibility of the developer. The substation and transmission line capacity need to be aligned with the capacity of the plant being developed. Facilitate integration of Renewable Energy into the grid. The capacity limits should be increased for non-hydro renewables to Integrate into the grid.

17. LAND PURCHASE PRICE AND EXCLUSIVE LAND RIGHTS

To promote the Renewable Energy projects, the support mechanism is to provide the state land for free or at a symbolic price on the agreed period. This will be regulated under the Law of Georg on PPP.

RENEWABLE ENERGY SUPPORT SCHEME AND IT'S CAPABILITY TO GEORGIA

#	Type of Incentives	Description	Technical	Legal and Regulatory	Fiscal / Financial / Economic	Implementation	Social and Environmental	USAID Energy Program Recommendation
Tax Incentives								
1	Tax exemptions (VAT, Import duties for Renewable Energy)	Tax exemption generally refers to a legal exception to a general rule rather than the mere absence of taxation in particular circumstances, otherwise known as an exclusion. Tax exemption also refers to removal from taxation of a particular item rather than a deduction. e.g. 10-year tax exemption for non-hydro investments will allow projects to survive better	Target for battery storages, EV high voltage charging infrastructure and other new technologies	Fairly easy. Success in EV and Hydro equipment	Government of Georgia (GoG) revenue loss problem if not defined narrowly	Relatively easy; EV infrastructure has to be developed	Improved air pollution impact for EV; Job creation	Highly recommended
2	Property tax financing	All resident organizations pay a tax on assets recorded as the principal means on its balance, uninstalled equipment, uncompleted construction, as well as leased property. Non-resident enterprise on the property being in the territory of Georgia pay a tax on assets recorded as the principal means on its balance, uninstalled equipment, uncompleted construction, as well as leased property	Support specific various new technologies and for storages	Not easy, needs changes in Tax code, complex administration, zoning requirements		Difficult	Can accommodate rental properties	Not recommended
Financial incentives								
3	Soft Loan	Loan with a below-market rate of interest. This is also known as soft financing. Sometimes soft loans provide other concessions to borrowers, such as long repayment periods or interest holidays. Soft loans are usually provided by governments to projects they think are worthwhile. E.g. if offered a state debt instrument for 15 years plus with an interest rate below 5 % this will allow the investors invest and encourage local investments	Target for battery storages, EV high voltage charging infrastructure and other new technologies	Easy	Increases GoG debt	Long time period	Job creation	Recommended
4	Loan guarantees	Loan guarantees are examples of a public instrument, they offer protection to financiers against risks and make it possible to mobilize commercial financing for the necessary terms and at acceptable costs. If Georgia offers Loan Guarantees to local players, this will enable local developers to explore smaller projects along with larger units. Globally this has been very effective in kick starting small scale solar rooftop schemes, small scale bio gas and bio mass schemes	Support specific various new technologies and for storages	Subject to competitive application process	Increases GoG debt	Long time period	Job creation	Recommended
Contractual & Regulatory Frameworks								
5	Feed in Tariffs (FiTs)	A FiT is a predetermined price for every unit of electricity generated by a Renewable Energy power plant, paid through a long-term contract. Typically, projects must meet certain eligibility criteria and receive authorization from a government body to receive the FIT (and usually preferential grid access as well)	Good for new technologies to access to the market	Complex	Hard to calibrate motivation versus over supply. Likely not big tariff impact	Better for small projects	Job creation and emission reduction.	Recommended
6	Feed-in premiums (FIP)	Producers (above a certain installed capacity) will be required to sell their renewable electricity directly on the energy market and will receive a certain premium over the market price	Good for new technologies to access to the market	Complex, maybe better comply with new draft Energy Law	Hard to calibrate motivation versus over supply. Likely not big tariff impact	How to define market price? Better for small projects	Job creation and emission reduction	Recommended
7	Power Purchase Agreements (PPAs)	Corporate and / or Government PPAs are contracts that contain the commercial terms of the purchase of renewable energy, such as the contract period, point of delivery, delivery date/times, volume, price and product. Corporate Power Purchase Agreements (CPPAs) generally referred to the private sector chain, this is very effective tool to promote investments. Government Power Purchase Agreements (GPPAs) are regulated within the conditions of the Law of Georgia on PPP	Good for new technologies to access to the market	Well experienced in Georgia	Need competitive and transparent framework; fixed tariff impact; multilateral International Financial Institution (IFI) opposition	Balance technical, economic and planning. for large projects if transparent competitive selection	Largest Greenhouse Gas (GHG) impact because of largest projects	Recommended
8	Public Private Partnership (PPP)	PPP model is a profitable agreement between a public sector and a private party, in which the private party assumes substantial financial, technical and operational risk in design, financing, building and operation of a project	Good for new technologies to access to the market	Complex, no precedents but PPP Law anticipates	need competitive and transparent framework; big tariff impact	No precedent	Largest GHG impact because of largest projects	Recommended
9	Reverse Auction and tender system	Reverse auctions for renewable energy capacity are policy instruments that have shown their ability to attract renewable energy investment relatively rapidly. Reverse auctions for Independent Power Producers (IPPs) involve the competitive procurement of energy, whether at a specific site or without specifying where a new plant must be built	Answers to Georgian State Electrosystem (GSE) request for interconnection	Grid code need to change. Not applicable for Georgian Market for energy		Maybe hard to get many bidders. For wholesale public supplier		Recommended
10	Green Fee (The Renewable Energy Charge)	A fee paid by electricity consumers to finance the subsidy paid to renewable energy producers. E.g. the Renewable Energy Charge will be paid by all consumers in proportion to their consumption, and / or all tourist to pay 1 USD per day per person	Tourism fee refers to peak to shift in Summer	Legal framework is complex to administer	Green fee may reduce tax revenue	Voluntary or obligatory; difficult to manage	Rise of electricity price	Not recommended

#	Type of Incentives	Description	Technical	Legal and Regulatory	Fiscal / Financial / Economic	Implementation	Social and Environmental	USAID Energy Program Recommendation
11	Net Metering	Also referred as “behind the meter” pricing, net metering allows the customer to sell electricity back to the grid, typically at the same rate as a utility tariff, and pay only for the net amount of grid power consumed. The GoG should increase amount of the determined capacity to connect the distribution network and adopt virtual metering system	Distribution grid flexibility; Reduction of electricity losses and improving of voltage quality	Complex, depends on target market penetration; GNERC to approve 5-year distribution network development plan, and to improve the Net Metering regulation	VAT loss. Could be financed as soft loan. DSO revenue loss for network services	Hard to manage prioritize; Distribution companies are against of increase if the cap	Supports SME in construction; reduction of electricity bills; job creation and SME involvement.	Highly recommended
12	Contract for Difference (CfD)	Is a long-term contract between an electricity generator and customer, when the market price for electricity generated by a CfD Generator is below the Strike Price set out in the contract, payments are made by customer to the CfD Generator to make up the difference. However, when the reference price is above the Strike Price, the CfD Generator pays customer the difference	Good for new technologies to access to the market, to be properly compensate for the difference on the market price	Complex, depends on market rules	Ex-post for differences between the agreed/ expected revenues	Complex, implement later after market liberalization for replacement of PPAs and FiTs		Recommended
Operational incentives								
13	Renewable "Energy Quota" Obligations and 'Must Take' requirements	A widely used “must take” requirements and/ or renewable “energy quota” obligations – because wind and solar provide power only when the resources are available, they are frequently contracted as “must-take” generators, where their output is always used when it is available	Energy security, reliability and safety. Better manage for system stability and reliability. Diversify indigenous of supply.	Need change of grid code and market rules. Consistent with Renewable Energy law		National Renewable Energy Action Plan (NREAP)	Overall of RE is 27%, electricity is 80% currently	Recommended
14	Green Certificate	A green certificate is a tradable asset which proves that electricity has been generated by a renewable (green) energy source. It is also referred to as Renewable Energy Certificate (REC) or Renewable Obligation Certificate (ROC). Renewable Energy power plants will be awarded RECs based on its generated energy or installed capacity		Consistent to Renewable Energy Law, Complex approach, administrate the procedures by GoG	EU Access maybe economical for developers	Complex, set up the market. Flexible monetization		Recommended
Land and Network Connection								
15	Priority dispatching to the grid for Renewable Energy	Renewable energy should have priority dispatching for the renewable producers insofar as the secure operation of the national electricity system permits. The curtailment of the electricity produced from renewable energy sources should be based on transparent and non-discriminatory criteria amongst the energy producers.	Grid stability. It helps new technologies to enter in the market dominated by centralized large producers	Simple	Compensation for the cold reserve capacity	Implementation of capacity market		Recommended
16	Network Connection	The grid availability is the essential condition for project implementation. If the network is not able to accept power from the VRE plants, may have adverse effects on the economics of the project. Requirements for grid connection and the supporting infrastructure should be clearly specified so that renewable energy developers can identify their associated costs and contractual documents should include provisions for situations beyond the responsibility of the developer. The substation and transmission line capacity need to be aligned with the capacity of the plant being developed. Facilitate integration of Renewable Energy into the grid. The capacity limits should be increased for non-hydro renewables to Integrate into the grid.	Grid capacity to absorb VRE, distance to the existing grid. Shallow (low) connection charge for all types of renewable energy	Clear: Grid code (Network connection code) operational rules for connection to the network; connection fee methodologies; TYNDP and FYDNDP	Higher grid costs need to be socialized (all rate payers pay)	Requires grid study, economic study, tariff study. Allows best competitive procurement	Land issues; local community engagement	Highly Recommended
17	Land Purchase Price and Exclusive land rights	To promote the Renewable Energy projects, the support mechanism is to provide state land for free or symbolic price on the agreed period. Will be regulated under the Law of Georg on PPP.	VRE Resource may not be optimal.	Experienced	Compensation for land owners	Manageable	Land issues; local community engagement	Recommended

RECOMMENDATIONS ON RENEWABLE ENERGY SUPPORT SCHEMES

The aim of the incentives is to promote the development of non-hydro renewable projects and respond to challenges of a new energy market.

It is vital to improve investment climate through creation of a stable, clear and non-discriminatory legal basis. The significant issue is the formation of incentives that create the necessary enabling environment for scaling of cost-effective renewable energy generation. Smart incentive mechanism encompasses different ways to encourage clean energy. They set a predictable background that improves the competitiveness of renewable energy and supports transparent expectations for future profitability, which is critical for attracting financing.

- Well-designed incentive shall consider periodic review and evolve to meet changing market conditions;
- Well-designed support mechanism can reduce costs for renewable energy by 10-30%¹;
- Incentives are generally offered at the national level;
- It is important to take international practice into account when designing a national support instrument for the first time;
- Renewable energy can drive economic growth and development;
- Incentive mechanism attracts investments and supports national transitions to clean energy future;
- Well-designed support mechanism enables a diversity of energy base and increases energy security.

Often, support mechanism plays a large role in the economics of renewable energy projects, especially compared to traditional power generating technologies. Support mechanisms for different types of renewables can take many forms, including direct subsidies, tax or investment credits, or favorable FITs. Many countries set strict criteria for new renewable projects to qualify for financial support.

Smart incentives are bundled to achieve optimal impacts in terms of cost, attraction of investment and operational integration, and constantly evolving to adapt market conditions. That is a really important point to consider that, if these incentives don't constantly evolve, they won't drive the market as intended.

In most cases, direct or indirect financial incentives are still required to increase the commercial attractiveness of VRE projects so that there is sufficient investment in new projects to meet national goals for renewable energy production. Incentives are generally offered at the national level.

To a certain level, specific framework conditions for renewable energy sources are not only necessary because of the higher costs per unit but also because of the different investment structure. For gas or coal fired power plants, most of the financial resources will cover the provision of fuel for the lifetime of the power plant. However, in the case of renewable energy technologies, almost all financial resources are need at the start of the project in order to purchase the equipment. Due to this high initial capital cost, long-term security and predictable returns on investment are essential for renewable electricity producers. Support mechanisms, as described in the report, often manage to create such conditions by significantly reducing investment risks.

Considering the international experience, revealed survey results from developers and stakeholders, the overview and analysis of existing Georgian energy market, USAID Energy Program identified top three incentives – **Tax exemptions**; **Improvement of Net Metering Regulation**; and **Network Connection**. The annex 1 describes statistics, possible impacts and procedures for each renewable energy incentive mechanism.

Annex 1: Presentation on Recommendations on Renewable Energy Incentive Schemes

¹ Source: Towards triple-A policies: More renewable energy at lower cost 2009

ANNEX 1: PRESENTATION ON RECOMMENDATIONS ON RENEWABLE ENERGY INCENTIVE SCHEMES



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RECOMNEDATIONS ON RENEWABLE ENERGY INCENTIVE SCHEMES

13 February 2019



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SUPPORT SCHEMES CONSIDERED

Tax Incentives	1	Tax exemptions (VAT, Import duties)
	2	Property tax financing
Financial Incentives	3	Soft Loan
	4	Loan guarantees
Contractual & Regulatory Frameworks	5	Feed in Tariffs (FiTs)
	6	Feed-in premiums
	7	Power Purchase Agreements (PPAs)
	8	Public Private Partnership (PPP)
	9	Reverse Auction and tender system
	10	Green Fee (The Renewable Energy Charge)
	11	Improved net metering regulation
	12	Contract for Difference (CFD)
Operational Incentives	13	Renewable "Energy Quota" Obligations and 'Must Take'
	14	Green Certificate
Land and Network Connection	16	Priority dispatching to the grid for Renewable Energy
	17	Network Connection
	18	Land Purchase Price and Exclusive land rights

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SURVEY RESULTS

Investor Advisory Group Members Scored Proposed Support Mechanisms

Identified Top Incentives:



- Improved Net Metering Regulation – **8 Scores**
- Network Connection – **8 Scores**
- Tax Exemptions - **7 Scores**
- Feed in Tariffs (FiT) – **7 Scores**

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SURVEY RESULTS

TYPE OF INCENTIVES	TOP SCORE
Improved net metering regulation	0 0 3 2 2 8
Network Connection	1 0 2 1 4 8
Tax exemptions (Value Added Tax (VAT), Import duties for Renewable Energy)	3 3 1 1 1 7
Feed in Tariffs (FiTs)	3 1 0 0 5 7
Soft Loan	3 2 1 2 2 6
Corporate Power Purchase Agreements (CPPAs)	0 0 5 2 3 6
Government Power Purchase Agreements (GPPAs)	1 1 1 5 2 6
Public Private Partnership (PPP)	0 2 1 4 2 6
Priority dispatching to the grid for Renewable Energy	2 0 1 2 5 6
Land Purchase Price and Exclusive land rights	1 1 3 1 3 6

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USAID ENERGY PROGRAM RECOMMENDATIONS

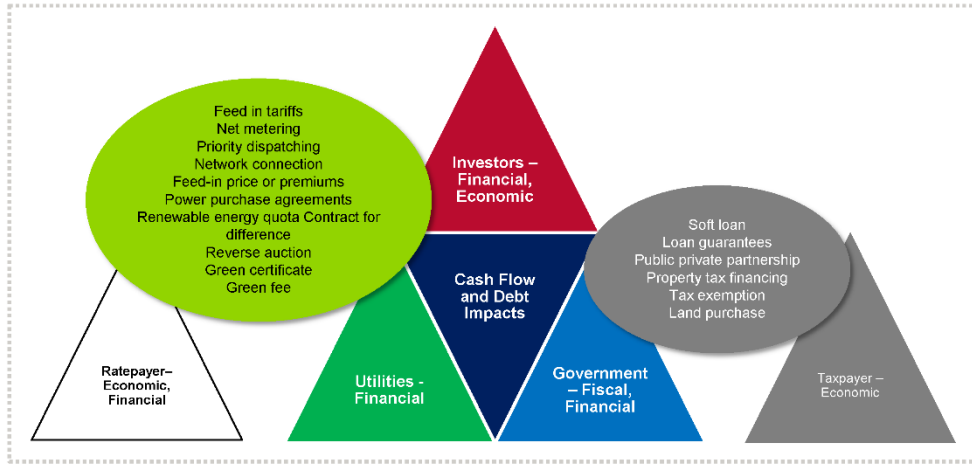
Type of Incentives	Technical	Legal and Regulatory	Fiscal / Financial / Economic	Implementation	Social and Environmental	USAID Energy Program Recommendation
Tax Incentives						
Tax exemptions (VAT, Import duties for Renewable Energy)	Target for battery storages, EV high voltage charging infrastructure and other new technologies	Fairly easy. Success in EV and Hydro equipment	GoG revenue loss problem if not defined narrowly	Relatively easy; EV infrastructure has to be developed	Improved air pollution impact for EV; job creation	Highly Recommended
Contractual & Regulatory Frameworks						
Improved net metering regulation	Distribution grid flexibility; Reduction of electricity losses and improving of voltage quality	Complex, depends on target market penetration; GNERC to approve 5 year distribution network development plan	VAT loss. Could be financed as soft loan. DSO revenue loss for network services	Hard to manage prioritize; Distribution companies are against of increase if the cap	Supports SME in construction; reduction of electricity bills; job creation and SME involvement.	Highly Recommended
Operational incentives						
Network Connection	Grid capacity to absorb VRE. distance to the existing grid. Shallow (low) connection charge for all types of renewable energy	Clear: Grid code (Network connection code) operational rules for connection to the network; connection fee methodologies; TYNDP and FYDNDP	Higher grid costs need to be socialized (all rate payers pay)	Requires grid study, economic study, tariff study. Allows best competitive procurement	Land issues; local community engagement	Highly Recommended



FISCAL, FINANCIAL, ECONOMIC IMPACT



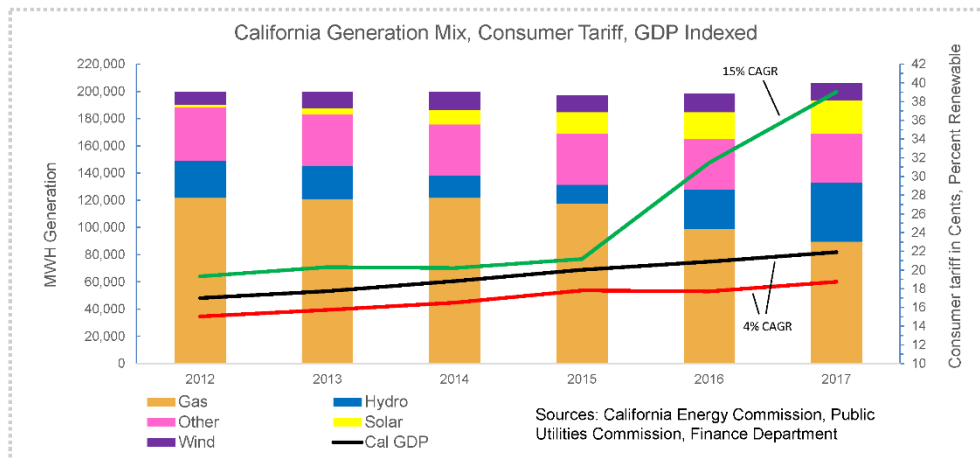
SUPPORT SCHEMES IMPACT



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CALIFORNIA: GLOBAL LEADER IN SUPPORT SCHEMES



- Doubled renewables
- Healthy economy
- Medium tariff impact
- Economic efficiency

8



ADDING 300 MW WIND AND 100 MW SOLAR TO POWER SUPPLY IN GEORGIA

Customer Pays Support Scheme

		Current Situation		With Incentive Scheme 300 MW wind, 100 MW solar		Impact
2017 GDP Geostat Nominal						
Lari million		37,846.6				
Generation	Tetri Price	GWH	Cost	GWH	Cost	
Thermal - Variable	9.5	2,233	211.1	2,233	211.1	
Thermal Fixed	6.6		146.3		146.3	
Hydro	3.7	9,210	340.8	9,210	340.8	
Import	13.0	1,497	194.6	402	52.3	
Wind	17.5	87.8	15.3	1,051	183.6	
Solar	14.0	-	-	131	18.4	
Exports	10.0	(686)	(68.6)	(686)	(68.6)	
Total	GWH	12,343	839.6	12,343		0%
Avg Wholesale Price	tetri	9.4			884.0	5%
Surcharge	Lari million				(839.6)	
					Surcharge needed	44.4

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CUSTOMER IMPACT

		Current Situation		With Incentive Scheme		Impact
Revenue						
Telasi	Lari million		433.1		433.1	
Energo-Pro	Lari million		640.7		640.7	
Direct	Lari million	1,427	171.3		171.3	
VRE Surcharge	Lari million		-		44.4	
Total			1,245.0		1,289.4	4%
Billable Consumption	GWH	9,024		9,024.1		
Customer Tariff paid	tetri/kWh		13.80		14.29	4%

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GOVERNMENT FINANCING (SOFT LOAN / GUARANTEE)

	Current Situation	With Incentive Scheme	Impact
Electricity % GDP	3.3%	3.4%	4%
Investment		550.0	
USD million		1,402.5	
Lari million			
Government Financing Support Schemes			
Government Debt % of GDP	44%		
Amount Outstanding Lari million	16,652.5		
If Soft Loan Financed Scheme		1,402.5	
New Debt Outstanding		18,055.0	
% of GDP		48%	

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WHERE SUPPORT SCHEMES AFFECT GOVERNMENT

IMF 2018 Article IV Consultation, Second Review

	2015	2016	2017	2017
	Actual	Actual	CR 17/361 ^{1/}	PreL.
Private Investment in Projects				
National accounts and prices				
Real GDP	2.9	2.8	4.3	5.0
Nominal GDP (in billion of laris)	31.8	34.0	37.3	38.0
Nominal GDP (in billion of U.S. dollars)	14.0	14.4	15.0	15.2
GDP per capita (in thousand of U.S. dollars)	3.8	3.9	4.1	4.1
GDP deflator, period average	5.9	4.2	5.4	6.5
CPI Period average	4.0	2.1	5.8	6.0
CPI End-of-period	4.9	1.8	5.6	6.7
Investment and saving				
(in percent of GDP)				
Gross national saving	19.5	19.9	20.6	23.2
Investment	31.5	32.7	31.0	31.9
Public	5.6	5.0	5.8	6.1
Private	25.9	27.7	25.2	25.8
Public & Private Investment				
Consolidated government operations				
(in percent of GDP)				
Revenue and grants	28.1	28.3	28.9	29.0
o.w. Tax revenue	25.1	25.7	25.9	26.0
Expenditures	32.0	32.5	33.0	32.7
Current expenditures	25.0	26.0	24.7	24.2
Capital spending and budget lending	7.0	6.5	8.3	8.5
Net Lending/Borrowing (GFSM 2001)	-1.3	-1.6	-1.1	-0.5
Augmented Net lending / borrowing				
(Program definition) ^{2/}	-2.7	-3.0	-3.6	-2.9
Public debt	41.4	44.4	42.3	44.9
o.w. NBG debt to the IMF	0.5	0.6
o.w. Foreign-currency denominated	32.5	35.1	33.1	35.6
Loans, guarantees				

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RECOMMENDATIONS ON SUPPORT SCHEMES WITH RESPECT TO FISCAL, FINANCIAL, ECONOMIC

- Wind and solar already are cheaper than thermal in Georgia
- Hydro can bank wind and solar production, forecasting will help
- Tariff impact is not dramatic
- Wind and solar economics and development timeframe favorable
- Use soft loans for frontier technologies and grid strengthening
- Connect with neighbors to share reserves
- Consider also jobs impact, regional development, green tourism

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TAX INCENTIVES

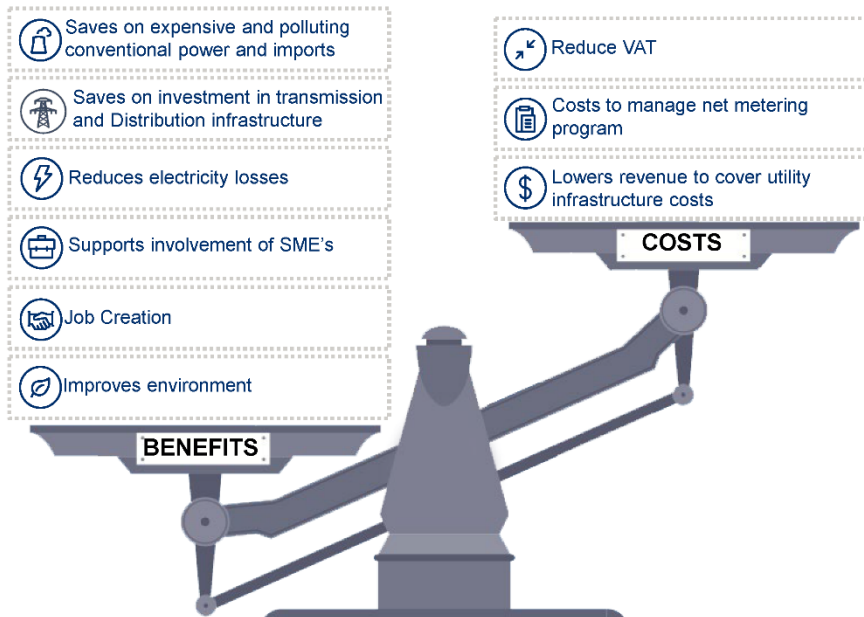
Tax exemptions (VAT, Import duties for Renewable Energy)

- Exclusions from VAT (goods: battery storage, PV panels, inventors... for rehabilitation energy sector);
- Exclusions from property tax (Transmission lines);
- Tax code amendments

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IMPROVED NET METERING



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TECHNICAL ISSUES

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PRIORITY DISPATCH

- **Issue:**
 - Grid Stability
- **Leading EU Practice:**
 - The application of market rules (gate closure, balancing obligations...) which do not discriminate against VRE power producers but enable their full participation in the market.
 - The creation of competitive balancing and ancillary services markets
 - Equal allocation of balancing responsibilities for all producers in line with technical capabilities (once well-functioning and liquid balancing markets are in place)
- **Recommendation for Georgia:**
 - Creation of competitive balancing and ancillary services market
 - Update of the market rules to allow non discriminatory access to the grid of renewable energy

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NETWORK CONNECTION

- **Issue:**
 - Grid capacity to absorb VRE
 - Distance to the existing grid
- **Leading EU practice:**
 - Transparent and non-discriminatory cost allocation rules for all power producers
 - Common grid rules (balancing, tariffs, gate closure etc.) for coupled markets
 - Shallow network connection regimes (enabling system wide optimization and cost sharing)
- **Recommendation for Georgia**
 - Shallow network connection for all types of renewable energy
 - Update of the network code for integration of renewable energy
 - Non discriminatory cost allocation

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RECOMMENDATIONS FOR COST ALLOCATION

- **Cost base calculation**
 - Equipment cost – turbines, panels, control systems
 - Other investment and planning costs – construction costs, foundations, buildings
 - Land costs – access to land, purchase, lease
 - Capital costs – debt, equity
 - Operation and Management costs
 - Decommissioning costs
 - Fuel costs (if relevant)
 - Costs for network connection / network reinforcement
 - Network related costs – access costs
 - Costs for market integration – subscription, balancing costs
- **Expected revenues**
 - Calculated in advance (ex ante)
 - Adjustments - ex-post
 - Technology specific load factors

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THANK YOU!

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