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ENERGY STRATEGY FOR ALBANIA

Enhancing Capacity for Low Emission Development Strategies (EC-LEDS)

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ENERGY STRATEGY FOR ALBANIA (2017-2030)

VISION for 2030

Development of domestic energy sources, leading to a regional integrated and diversified energy system based on market principles, able to meet demand for energy and for sustainable development of the economy, ensuring security and quality of supply, safety, environmental protection and climate action, and increased welfare at minimum social cost.

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ACRONYMS

AKBN	National Agency for Natural Resources
ALBGAZ	Public owned company on gas transmission and distribution activities (combine operator);
Albpetrol	Public owned company on petroleum exploration and production activities
ALKOGAP	Albanian Kosovo Gas Pipeline
CESEC	Central and South Eastern Europe Connectivity
DCM	Decision of the Council of Ministers
EBRD	European Bank for Reconstruction and Development
ECT	Energy Community Treaty
E&E	Europe and Eurasia
EE	Energy Efficiency
EE Agency	Energy Efficiency Agency
EED	Energy Efficiency Directive (2012/27/EU)
EE Fund	Energy Efficiency Fund
ECS	Energy Community Secretariat;
ENTSO-e	European Network of Transmission System Operators-electricity
ENTSO-g	European Network of Transmission System Operators-gas;
GMP	Gas Master Plan
IAP	Ionian Adriatic Pipeline
IEA	International Energy Agency
KESH	Public Power Generation Company;
KPTHN	Heavy Oil Refining Plant
OSHEE	Public Electricity Distribution System Operator
OST	Transmission System Operation (electricity)
EPB	Energy Performance of Buildings
ERE	Energy Regulatory Authority
EU	European Union
GDP	Gross Domestic Product
GWh	Gigawatt-hours
IMF	International Monetary Fund
INDC	Intended Nationally Determined Contribution
INSTAT	Albanian Institute of Statistics
IPP	Independent Power Producer
IPS	Integrated Planning System
ISHTI:	Technical & Industrial State Inspectorate
LEAP	Long-range Energy Alternatives Planning System
LEDS	Low Emission Development Strategies

LRS	Last Resort Supplier
MIE	Ministry of Infrastructure and Energy
MV	Medium voltage
NEEAP	National Energy Efficiency Action Plan
NREAP	National Renewable Energy Action Plan
NSDI-II	Second National Strategy for Development and Integration
OSHEE	Distribution System Operator
OST	Albanian Transmission System Operation
PECI	Project of Energy Community Interest
PMI	Project of Mutual Interest
PEEREA	Protocol on Energy Efficiency and Related Environmental Aspects
PPP	Public Private Partnership
PSO	Public Service Obligation
RES	Renewable energy sources
TAP	Trans-Adriatic Pipeline
TDP	Transmission Development Plan
TPES	Total Primary Energy Supply
TSO	Transmission System Operation
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United Stated Agency for International Development

1. CONTEXT AND CURRENT CONDITIONS

1.1 INTRODUCTION

Formulation of the Strategy for the Energy Sector 2017–2030 has taken place during a period of dynamic developments in Albania's energy sector. During this period, a number of framework laws and regulations were drafted and adopted, the electricity sector was going under important structural, legal, tariff reforms, and the oil and gas sector was subject to important developments. Also, during this period, Albania has continued to implement its obligations and commitments towards regional integration through the Energy Community and it has taken on new international commitments and initiatives, including in relation to climate action. All of these activities have served as a foundation for development of this National Energy Strategy.

The Strategy represents a synthesis of detailed energy sector analysis, and other sectoral and cross-sectoral strategic and planning documents, much of which was incorporated into an analytical review of future development pathways for Albania's energy sector. Many of the key documents referenced in this Strategy were still under review during this period, and the strategy represents the most current information on these documents as of early 2017, and an analytical review of future development pathways for Albania's energy sector.

As a complex and multidimensional process, this Energy Sector Strategy has been guided by the political leadership of the Ministry of Energy and Industry, supported by a Working Group, established with participation of the Ministry's key Departments, ERE, AKBN, power utilities (KESH, OST and OSHEE) and oil and gas companies like ALBPETROL, ARMO, ALBGAS. This Working Group coordinated the process for drafting the National Strategy for the Energy Sector and was closely supported by USAID with technical expertise[1] from USAID's strategic team, composed of leading experts in the fields of electricity, oil and gas, renewables, energy efficiency and strategic energy planning.

As announced at the Energy Community Ministerial Council meeting on 14 December 2017, the Republic of Albania will engage, in cooperation with the Secretariat of the Energy Community, in elaborating and adopting an Integrated Energy and Climate Plan in the course of 2018. This Plan will complement the present Strategy.

The Plan will address the five mutually reinforcing and interrelated dimensions[2], adapted in the context of Albania, to bring greater energy security, sustainability and competitiveness. The five mutually supportive dimensions are:

1. Energy security, based on energy sources diversification, solidarity and trust;

[1] The USAID's technical assistance was provided in the framework of the regional program "Enhancing Capacity for Low Emissions Development Strategies (EC-LEDS)

[2] Five dimensions of the Energy Union set out in the European Commission's Communication of 25 February 2015

2. Fully integration into the regional and subsequently European market;
3. Energy efficiency contributing to moderation of demand;
4. Decarbonizing the economy;
5. Research, innovation and competitiveness;

1.2 METHOD FOR DEVELOPING THE STRATEGY

The principles guiding the development of this strategy are fully in line with the principles of the Second National Strategy for Development and Integration, and their goals are to:

- Increase the security of energy supply while ensuring sustainable development and providing affordable energy costs for Albanian citizens and the economy;
- Further diversification of supply sources and interconnection with the regional and European electricity and gas networks
- Establish a competitive and organized market that provides correct signals for production and consumption of electricity and natural gas, considering the specific influence of climate changes on the domestic power production;
- Couple the electricity market in line with the commitments made under the so-called Berlin process[3];
- Ensure that the climate change targets are met, including the renewable energy resource (RES) and energy efficiency targets

The analysis of the Albanian Energy Sector was performed using the Albania-LEAP[4] model, a proven tool used previously by the Albanian Government and commonly used by other countries in the region and globally. The analytical results provided quantitative metrics for assessing the likely outcomes of possible energy scenarios against the strategic goals of this strategy.

The assessment of the institutional reform priorities was developed in consultation with a large variety of stakeholders inside and out of the government aiming to discuss the key policy and legislative instruments driving energy sector reform in Albania and identify actions to meet the legal requirements and political commitments. For the Power Sector, the discussions included the Electricity Market Model, creating an Agency for Energy Efficiency, developing an Energy Efficiency Fund in accordance with the Energy Efficiency Law, and other priorities such as the development of secondary legislation for implementing the Power Sector, Oil & Natural Gas, RES and EPB Laws. Discussions regarding the oil

[3] The Berlin Process is a diplomatic initiative linked to the future enlargement of the European Union. The Berlin Process is an intergovernmental cooperation initiative aimed at revitalizing the multilateral ties between the Western Balkans and selected EU member states, and at improving regional cooperation in the Western Balkans on the issues of infrastructural and economic development.

[4] Long-range Energy Alternatives Planning System (LEAP)

and gas sector included the role of key institutions and reforms needed to modernize the sector and prepare the proper institutions and entities for a potential gasification of the economy. Particular attention was given to the need for capacity building and restructuring of Albanian energy institutions and energy public companies.

The need for continuation of the electricity tariff reform was assessed, including the importance that such a reform has on the creating the right incentives for electricity market participants. The chapters on incentives for energy efficiency investment and introducing Contract for Difference (as support scheme) for RES electricity generation were based on a comparative assessment of best practices in the old and new EU Member States.

Analysis of how well Albanian legislation aligns with the EU energy acquis was based on independent assessments of Albania's status, e.g. by the Energy Community Secretariat, and through discussions with sector experts in Albania. The assessment of the potential for integration into the regional/EU energy market was based on research into regional market plans and discussions with local experts regarding the Albania's competitive position in these markets.

1.3 ALIGNMENT WITH OTHER KEY DOCUMENTS

Albania's Energy Sector Strategy is harmonized in terms of goals, energy sector details and timeline with a number of other strategic and legal documents that are in force, adopted or drafted in the same time frame as this document. Building on and complementing these documents has led to synergies in the prioritization of policies and programs and in the development of strategic recommendations.

The National Strategy for the Energy Sector (2017-2030) is aligned with the following key documents:

- Obligations under the Energy Community;
- National Strategy for Development and Integration – 2015-2020 (Albanian Council of Ministers, 2017);
- National Programs for Economic Reforms (NPER) 2015-2017 and 2016-2018 Albanian Council of Ministers, 2017);
- Albanian Renewable Energy Source Action Plan (NREAP adopted by the Governmental Decree no.27, dated 20.01.2016);
- 1 st National Energy Efficiency Action Plan 2011-2018 (Government Decree no. 619, date 7.09.2011)
- 2nd and 3rd Albanian Energy Efficiency Action Plan 2017-2020 (Government Decree no.709, date 1.12.2017);
- National Determined Contribution (NDC approved by the Albanian Government on September 2015);
- The Decision of the Council of Ministers (DCM) no. 519, dated 13.07.2016 "On the approval of the Market Model of the Power Sector";
- The DCM no. 125, dated 11.02.2015 "On the approval of the financial recovery plan in the power electricity sector";
- Albanian National Gas Master Plan (November 2016);

- Transport Sector Strategy in Albania – Final Strategy & Action Plan (DCM No. 811, dated 16.11.2016);
- Albanian Sustainable Transport Plan (Draft Jane 2016);
- Law on Biofuels No 9876 (2008)
- Law on Power Sector No. 43/2015, dated 30.04.2015;
- Law on Renewable Energy Sources No. 7/February 2017;
- Law on Hydrocarbons No. 6/February 2017;
- Law on Natural Gas No.102/2015, dated 23.09.2015;
- Law on Energy Efficiency No. 124/2015, dated 12.11.2015;
- Law on Energy Performance in Buildings No. 116/2016, dated 10.11.2016;
- Draft Law on Climate Change (Under development and expected to be adopted by mid-2018)
- Official Albanian Energy Balance prepared from AKBN for years 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016;
- Official ERE Annual reports related to Power Sector Electricity Balance prepared from ERE for years 2012, 2013, 2014, 2015 and 2016;
- CENSUS 2011 – Albanian Household Registration (INSTAT website);
- GDP sectorial development 2012-2016 – (National Bank of Albania and the World Bank websites)
- General National Territorial Plan (DCM No. 881, dated 14.12.2016) based on the Law on Territorial Planning (No. 107/2014, dated 31.07.2014);
- First National Communication of Albania to the UNFCCC (FNC – 2002);
- Albania's Second National Communication to the Conference of Parties under the United Nations Framework Convention on Climate Change (SNC – 2009);
- Albania's Third National Communication to the Conference of Parties under the United Nations Framework Convention on Climate Change (TNC – 2016);
- Annual Implementation Report (Energy Community Secretariat, November, 2017);
- The Energy Community Gas 2020 Action;
- The Summit conclusions and memoranda signed by Albania under the Western Balkan 6 initiative;
- Memorandum of understanding on a Joint approach to address the natural gas diversification and security of supply challenges as part of the Central and South-Eastern European Gas Connectivity (CESEC) initiative, signed in Dubrovnik, Croatia, on 10 July 2015.
- The Memorandum of Understanding complementing the Central and South-Eastern European Connectivity (CESEC) initiative with a joint approach on electricity market, energy efficiency and renewable development (September 2017) and any activities processed there under;

- Many other reports prepared from the Donor Community (USAID, Energy Secretariat, UNDP, WB, IFC, EU, EBRD, KfW, UNIDO, GIZ, SECO, ADA) related to development of the Albanian energy sector have checked for specific data and reviewed for their analysis.
- Draft Energy Community Recommendation on preparing for the development of integrated national energy and climate plans.
- The "The International Energy Charter" signed by Albania on 20.05. 2015,
- Albania's commitment to the Paris Accords for Climate Change, ratified by law no.75/2016, dated 14.07.2016, "On the ratification of the Paris Accord, within the United Nations Framework Convention on Climate Change," Official Journal No. 146/2016,
- DCM no. 594, dated 10.9.2014, "On approval of the national strategy regarding the environmental quality of air"

1.4 CURRENT ENERGY SUPPLY AND CONSUMPTION

In 2014, 2015, 2016, Albania's total primary energy production was respectively 2,014 ktoe, 2117 ktoe, 2013 ktoe. The respective gross inland consumption in 2014, 2015, 2016 was 2,342 ktoe, 2219 ktoe, 2309 ktoe while net imports were 1888 ktoe, 1508 ktoe 1358 ktoe. Albania's primary energy supply is dominated by oil, hydropower, and imported electricity as shown in Figure 1, which shows that imports of oil by products, electricity and a small amount of coal comprise over 56% of all primary energy consumption. Figure 2 shows that the transport sector consumes the most final energy, followed by households and industry, and the three dominant final energy fuels are oil products, electricity and wood. The figures illustrate the following characteristics of the Albanian energy sectors:

- The heavy dependence on oil imports
- The importance of hydro power
- The large transport sector share of energy consumption
- The absence of a natural gas sources.

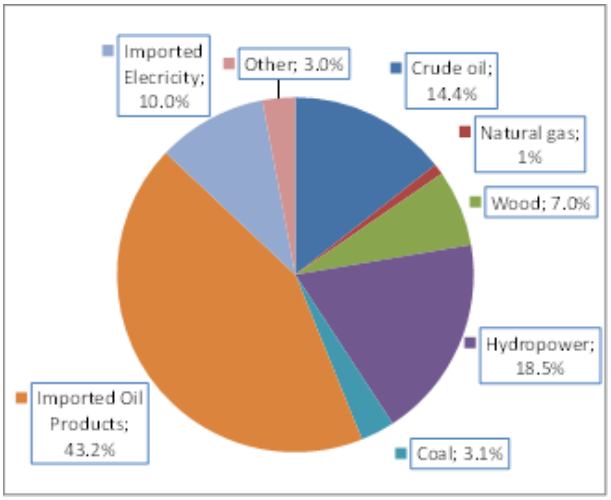


Figure 1: Primary Energy Supply and Imports – 2014

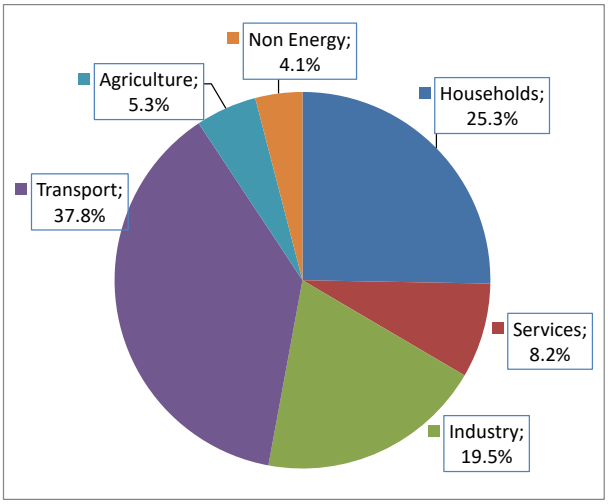


Figure 2: Final Energy Consumption by Sector – 2014

Electricity generation has been historically met almost exclusively by hydropower plants, with a total installed power capacity of 2,011 MW at the end of 2016. The country has exploited approximately

50% of its hydropower potential, and future expansion of hydropower capacity is possible mainly along the Drini, Mati, Vjosa, Devolli, and Bistrica rivers. Given that one of the most important natural renewable energy resources for electricity generation in our country is the hydro it is very important that Water Secretariat Responsible for Water Resources Administration should be monitoring all new licenses issued for hydro power plant. Monitoring of water resources should guarantee the protection and preservation of water resources in the country, in accordance with the policies integrated in the field of water resource management.

The only thermal power plant, Vlora TPP, is not yet operational, and its conversion to natural gas is foreseen following construction of the Trans Adriatic Pipeline (TAP). Albania imports electricity from neighboring countries, although imports have progressively dropped in the last ten years following the increase in domestic power generation and the reduction ~~in~~ of (technical and non-technical) electricity losses in the distribution system, which have been reduced from 45% in 2013 to 28% by the end of 2016[5] with a clear investment and management plan to reduce them further to 17% by the end of 2020.

Albania's electricity market is under transition from a centrally planned to a market-based system. The wholesale power market is dominated by the state-owned, regulated generation company KESh, which supplies to OshEE the electricity needed for captive customers under regulated "full supply" condition. The competitive wholesale environment consists of independent producers and a small number of large customers supplied through bilateral contracts.

1.5 LEGAL AND INSTITUTIONAL REFORMS IN THE ENERGY SECTOR

The Ministry of Energy and Industry, together with all other energy stakeholders, are working to fulfill their commitments to implement the Third Energy Package. In addition, Albania had the first gas transmission system operator, TAP AG, certified under Third Energy Package procedures, which has laid the groundwork for development of a gas market via the Trans Adriatic Pipeline. ERE also certified the second gas transmission system operator, Albgaz, on 8 Nov 2017

The new Power Sector Law transposing the Third Energy Package in the electricity sector was adopted in April 2015 and entered into force on 13 June 2015. A draft Law on some amendments of the Power Sector Law is currently in the process of being approved in the Parliament, which will create the legal basis for the establishment of the Albanian Power Exchange and market coupling with Kosovo.

Following the obligations stipulated therein, the Energy Regulatory Entity (ERE) and the Ministry of Energy and Industry started the process of harmonizing the secondary legislation required for the reforms and liberalization of the electricity market. In March 2017, ERE approved the final certification of the ownership unbundling of the electricity system operator, OST.

The electricity market reforms will go beyond the implementation of the Third Energy Package inside the country. Albania is a member of the Berlin process or Western Balkans Six (WB6) initiative and has

[5] Implementation of the project "Recovery of the Power Sector" and the recent revamping work carried out on the transmission-distribution networks during the years 2014-2016.

committed to regional electricity market integration as an intermediary step toward a European electricity target model. Further, as a part of WB6 initiative Albania has committed to climate action.

In July 2016, the Council of Ministers adopted a new market model for the regulation of Albania's electricity market. The Council also adopted a plan to phase-out price regulation and to enable all market participants to freely trade on the market. An action plan for setting up a power exchange, which envisages an organized day-ahead market in the second half of 2017, was also part of this package. The market model envisages the coupling of the Albanian market with the Kosovo market and other neighboring countries.

By commissioning the new 400 kV interconnection line with Kosovo in June 2016, Albania took a further step towards its regional electricity market integration. The two system operators have already developed and tested a mechanism for procurement of capacity for secondary reserve. The Power Sector Law of 2015 is in line with the Third Energy Package and transposes Directive 2009/72/EC and Regulation (EC) 714/2009. However, the secondary legislation is yet to be adopted, thus delaying the implementation of the Third Energy Package.

Over the years, Albpetrol has transformed itself from a fully operational oil company towards the role of an agency with no active involvement in upstream oil and gas operations, while retaining huge number of the employees on its payroll. At present Albpetrol's primary source of revenue is the overriding royalties or share of profit it obtains from private oil and gas companies. These are functions that should be performed by a government agency, rather than Albpetrol. Hence, Albania today has, in effect, two government agencies overseeing the oil and gas sector, with the more appropriate agency for this role (AKBN) having been substantially weakened. The other players in Albania's upstream market are private companies that have obtained rights over existing oil and gas fields as well as new exploration and production. Albania's ad-hoc licensing approach has resulted in a predominance of small companies operating in Albania. Rather than focusing on company size, the criteria the Albanian government should use for assessing potential investors should be the qualifications and experience of companies in the oil and gas industry, supplemented by a competitive process for license access. The time would appear to be right for Albania to shift course and invite investors to bid for licenses on a competitive basis.

1.6 STATUS OF ENERGY SECTOR ALIGNMENT WITH EU ACQUIS

In line with its obligations under the Energy Community and as part of Albania's strategic objective to accede to the EU, the Government has worked to align its legislation with the legal framework of the EU, and aims to establish clear and transparent responsibilities for the implementation of EU Acquis. The relevant primary legislation includes the Power Sector Law No. 43/2015, the Natural Gas Sector Law No. 102/2015, the Energy Efficiency Law No. 124/2015, the Renewable Energy Sources Law No. 8/2017, the Law No. 68/2012 "On Information of the Consumption of Energy and Other Resources by Energy-Related Products", and the Law on Energy Performance of Buildings No. 116/2016.

In line with the EU legislation and the EC Treaty, the Albanian Government has developed and adopted the respective National Action Plans for Energy Efficiency and RES. Also, the national energy regulatory authority (ERE) already issued a significant set of secondary regulatory acts. However, important regulations and secondary legislation, which are necessary for the full application of these laws, have yet to be developed, and the Government and ERE should continue to develop and implement regulations and secondary legislation for energy efficiency and renewable energy sources; improve strategic planning for physical capacities, financial requirements and budgetary implications of the energy sector; ensure

that the goals of loss reduction and full bill collection are completed by OShEE; ensure unbundling of OShEE and speed up the implementation of the energy acquis considering that faster implementation will facilitate much needed investments and influence the local market towards sustainable energy objectives.

Near-term priorities for the future include developing secondary legislation and regulations for implementing the Law on Energy Performance of Buildings, the Law on Energy Efficiency, amending the Power Sector Law and adoption of the secondary legislation for establishing and functioning of the Albanian Power Exchange. and the electricity market coupling with Kosovo and other neighboring countries, developing and adoption of the secondary legislation for implementation of the RES law, and developing and approving a specific regulation transposing the EU Regulation no.347/2013 on guidelines for Trans-European Energy Infrastructure

A special attention will be devoted to the implementation of the obligations established under the Council Directive 2009/119/EC of 14.09.2009 on maintaining minimum stocks of crude oil and/or petroleum products and the law no.8450, dated 24.02.1999 "On refining, transportation and trading of oil and its byproducts" as amended.

Considering that the energy sector is one of the key sectors with a large impact on the climate change, the Albanian Government is planning to finalize soon a new draft Law on Climate Change, which will serve as a legal basis for setting a more detailed framework for climate actions and clear competences and responsibilities for Ministry and other subordinated agencies responsible for energy sector and Ministry of Tourism and Environment.

The draft Law on Climate Change, which will sets the framework for climate actions, is under development and is expected to be adopted by middle of2018.

1.7 ENERGY SECTOR CHALLENGES

Since 1992, the Albanian economy has experienced a transformation from a centralized to a market economy. The GDP per capita value has increased in the last two decades due to a number of factors, including an ambitious program for the economic development, development support offered by donors, and a favorable geographic position as a bridge that connects the Balkans with Western Europe. The challenges currently facing the Albanian energy sector include:

- Meeting the economic developments in different sectors and the growing level of energy consumption per capita;
- Improving the trend of energy intensity reduction;
- Enhancing security of energy supply by improving energy efficiency, increasing the share of renewables and other indigenous energy sources, and increasing regional cooperation and integration.

Historically, Albania's energy consumption per capita is very low, which indicates low levels of economic activity as well as modest levels of comfort in the household and service sectors. On the other hand, energy intensity, which is the ratio of primary energy supply in a given year and GDP produced in the same year, has been very high. The reasons are the same as for the other Central and Eastern European countries: Albanian industry had been orientated towards energy intensive industries such as mining and metallurgy, and energy prices were kept at relatively low levels. Thus, one of Albania's most crucial challenges is how to increase the low per capita energy consumption while at the same time reducing

the high level of energy intensity in order to have an efficient economy that will compete in the domestic and foreign markets.

The challenges related to energy security include meeting the country's demand for crude oil with domestic production in decline. The total primary energy demand cannot be met with domestic energy sources. They have continuously declined during the period 2001-2016, with the self-sufficiency of primary energy sources declining from 97% in 1990 to approximately 41.2% in 2016. Thus, it is clear that meeting the country's energy demand requires further development of domestic resources as well as liberalization and integration in the regional market

In addition to the challenges above, three future challenges for the Albanian energy system are to reach the RES target in 2020 and beyond, the EE target for reduction in final energy use, and the NDC target for GHG emission reductions. These energy sector challenges are compounded by the uncertainty in energy and economic indicators, the lack of an appropriate and effective infrastructure to collect data, and the lack of development strategies in some sectors.

The final challenge is management of the transition to the new market model, including the protection of vulnerable customers.

2. STRATEGIC VISION, POLICIES AND OBJECTIVES

This National Energy Sector Strategy contains the following Vision for 2030:

Development of domestic energy sources, leading to a regional integrated and diversified energy system based on market principles, able to meet demand for energy and for sustainable development of the economy, ensuring security and quality of supply, safety, environmental protection and climate action, and increased welfare.

2.1 STRATEGIC CONTEXT

The Energy Strategy for Albania 2017-2030 is the core strategic document for the country's energy sector. It is consistent with the national efforts to sustain economic development, and meet commitments to the Energy Community, EU integration and other international agreements, while increasing the security of energy supply and minimizing environmental impacts with affordable costs for Albanian citizens and the economy.

The Energy Sector Strategy is developed in accordance with the National Strategy for Development and Integration II (NSDI - II), and it is the sector strategy that will guide the policy-making at high levels of the public institutions, as well as the private sector.

The Energy Sector Strategy is part of the Integrated Planning System (IPS) and is intended to be an important reference document that will enable development partners to align their development and cooperation strategies and programs with Albania's priorities and framework for development and EU integration.

The Energy Sector Strategy was prepared in compliance with the requirements of Article 4(2) of Power Sector Law (Law no.43/2015, date 30.04.2015) and with the support of the USAID Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) program, which is part of worldwide efforts to address climate change and promote transitions to low-carbon economies. The national energy-sector strategy is designed to meet the development needs of the country and provide its citizens/consumers with a stable, reliable and affordable energy supply based on the regional integration and diversification of the energy sector.

2.2 GUIDING PRINCIPLES

The principles guiding the development of this energy strategy are consistent with the goals of the NSDI – II, specifically to:

- Increase the security of energy supply with affordable costs for Albanian citizens and the economy;
- Further development of domestic energy sources, and diversification of supply sources and interconnection with the regional Energy Community and European electricity and gas networks
- Establish a competitive market that provides correct signals for production and consumption of electricity and gas;

- Provide incentives for implementing the necessary climate action policies, such as reaching renewable energy resource (RES) and energy efficiency targets and for decreasing adverse environmental impacts.

The following long-term strategic objectives were identified to actualize the Guiding Principles and the current commitments that have been undertaken by the Albanian government.

- Improving the reliability and security of energy supply;
- Developing the domestic primary energy sources in a sustainable and competitive manner
- Improving the cost-effectiveness of energy supply systems;
- Achieving the targets for renewable energy sources and energy efficiency established in the second National Energy Efficiency Action Plans and the National Renewable Energy Action Plan;
- Developing least-cost and sustainable policy for residential heating and cooling
- Integrating the Albanian power and natural gas markets with regional Energy Community and European markets; and
- Achieving the Nationally Determined Contribution (NDC) targets for greenhouse gas (GHG) emission reductions.

2.3 POLICY SCENARIOS AND STRATEGIC METRICS

The key policies impacting the Energy Sector and related climate actions in Albania include policies needed to:

- Meet the current commitments to the Energy Community for energy efficiency and renewable energy implementation, and the country's GHG reduction commitment under the Paris Accords and other climate actions policies as part of WB6 commitments,
- Prepare for a possible natural gas market within Albania, and
- Better integrate with the EU and regional markets, with a specific focus on efforts for coupling the Albanian and Kosovo electricity markets as a first step toward regional market coupling.

To understand the costs and benefits of these possible policies, the following six scenarios were developed and analyzed using the Albania-LEAP[6] model.

- **Baseline Scenario:** This represents the most likely evolution of the Albanian energy sector with no any further policy interventions. This scenario is the base for comparison of the following scenarios below.

- **Energy Efficiency (EE)**: This scenario assumes that Albania meets its Energy Community Treaty commitments by implementing the second National Energy Efficiency Action Plan and

[6] Long-range Energy Alternatives Planning System (LEAP)

enforces the Law on Energy Efficiency (together with improvement of the Law to transpose EED requirements) and the Law on Energy Performance in Buildings.

- **Renewable Energy Sources (RES)**: Assumes that Albania meets its Energy Community Treaty commitments of reaching a 38% renewable energy target in 2020 by implementing the Albanian National Renewable Energy Action Plan.
- **Natural Gas Promotion**: Assumes maximum possible penetration of natural gas in line with the Gas Master Plan.
- **Albania-Kosovo Coupling**: Assumes the coupling of the Albania and Kosovo electricity markets by establishing a single bidding zone with a common PX platform and algorithm for settling market transactions.
- **Combined**: Combines the EE, RES and Natural Gas Promotion scenarios.

2.4 POLICIES AND OBJECTIVES

2.4.1 RECOMMENDED POLICY OBJECTIVES

The Energy Strategy addresses new laws, regulations and institutional reforms currently underway in Albania, including incentives for EE and RES, electricity tariff reform, market development and integration with EU and regional markets. With the implementation of the National Energy Strategy, Albania aims to achieve the following results:

- Reduced energy imports and increased domestic energy generation by meeting future energy demand in a sustainable manner while increasing social welfare
- Improved energy efficiency in the household, services and industrial sectors
- Increased use of RES technologies, based on least-cost planning, sustainability, climate action and environmental protection
- Penetration of natural gas in the Albanian energy sector through key infrastructure investments
- Development of mechanisms to encourage foreign direct investment in the Albania energy sector.
- Increased competition in the energy market while preserving customer and investors interests;
- Improved alignment and integration of Albanian energy-sector policy and regulation with the Energy Community energy acquis and regional and EU energy markets.
- Development of a policy framework for energy (including energy efficiency) in transport based on the "Transport Sector Strategy in Albania – Final Strategy & Action Plan (DCM No. 811, dated 16.11.2016, and introduction of new technologies for all other sectors
- Development of a competitive market that provides correct signals for production and consumption of electricity and gas.

- Focused activities regarding the use, remediation or removal of existing non efficient energy infrastructure that adversely impacts environment and potentially high value areas for other development sectors, i.e. tourism, agriculture, etc.

The results of the detailed analysis show that the most beneficial scenario for the Albanian energy sector, based on the strategic metrics, would be to implement all the measures from the EE, RES and Albania-Kosovo electricity market coupling scenarios along with the power and industry sector components of the Natural Gas Promotion scenario. Removing the gas infrastructure investment required to enable gas access to residential and commercial customers would improve outcomes, presenting an optimal scenario for the development of the Albanian energy sector till 2030. The recommended development scenario has the potential to achieve the following results, which in many cases exceed the commitments made by the country:

- Potential to reduce energy imports by 32% compared to the Baseline scenario;
- Potential to increase the RES share past 2020 by focusing the gas infrastructure investment to provide gas access to the power and industry sectors and not residential and commercial customers;
- Potential to reduce final energy demand by 19.4%, , close to the NEEAP target;
- Potential to reduce GHG emissions by 28% compared to the Baseline scenario;
- Potential to reduce electricity generation requirements by at least 31%, and
- Potential to reduce the Energy Intensity of GDP by 18%
- Potential to increase penetration of the TAP's natural gas in Albanian primary energy supply from 0.36% in 2015 to the 19.81% in 2030

2.4.2 OTHER POLICIES & OBJECTIVES

Implementing this Energy Strategy will increase the security of Albania's energy supply and begin to integrate the Albanian energy market into regional, the Energy Community and the European markets. This Strategy supports the country's overall economic development goals, and is based on an optimal energy scenario that balances national interests with those of the different energy sub-sectors. In addition, the strategy is designed to support social development goals, by increasing employment through promotion of the green energy sector, stimulating competition in the Albanian energy market, ensuring supply stability by moving towards regional markets, increasing the welfare for energy consumers, and minimizing adverse impacts to the environment.

Albania has signed the Paris Agreement on the 22nd of April 2016 in New York, entering in the new era of the climate international policy process. In fact, Albania joined the United Nations Framework Convention on Climate Change (UNFCCC) in 1995, and the Kyoto Protocol in 2005. Albania has started the process of changing the status from a developing country to a developed country, in the context of the UNFCCC. This process is an integral part of the process of integration into the European Union and involves the development of capacities at the national level for monitoring and annual reporting of Greenhouse Gases (GHG), the formulation and implementation of policies to reduce GHG and climate change adaptation, transposition and implementation of the European Union acquis on climate change. In line with the objectives of the EU 20-20-20, Albania has submitted its National

Determined Contribution within the Paris Agreement process in September 2015, committing itself to reduce CO2 emissions compared to the baseline scenario in the period of 2016 and 2030 by 11.5%.

The level of National Determined Contribution will be reviewed and further elaborated upon in the Integrated Energy and Climate Plan to be developed and adopted in 2018.

3. ANALYSIS OF POLICIES AND MAIN PRODUCTS

3.1 APPROACH TO ANALYSIS OF ALBANIAN ENERGY SECTOR SCENARIOS

The analysis of future development pathways for the Albania energy sector was performed using the Albania-LEAP model, a proven tool used previously by the Albanian Government and commonly used by other countries in the region and globally. The Albania-LEAP model was updated, calibrated to the 2014 energy balance and updated to 2015 and 2016 energy data where available, and extended to 2030 for this analysis, as documented in the Analysis Report[7].

A **Baseline** scenario, which represents a business as usual approach to the energy sector, was developed based on the following data and assumptions:

(i) The base year was calibrated to the official 2014 national energy balance, and relevant 2015/2016 data was considered as it became available.

(ii) Future projections of energy demand are consistent with the baselines used in the NREAP and NEEAP analyses.

(iii) Follows economic development objectives of the second National Strategy for Development and Integration (NSDI-II).

(iv) Current structure of energy supply and demand in all economic sectors remains similar to the base year.

(v) A continued prevalent use of electrical energy for heating and warm water in residential and the service sector.

(vi) A significant portion of future demand for electricity will be met through new hydropower plants and new thermal generation based on imported natural gas.

(vii) The planned short-term measures from the national action plans on Renewable Energy Sources and Energy Efficiency will not be strictly implemented.

(viii) National energy intensity will decrease only slightly from 2014-2030.

The Baseline scenario serves as the reference for comparing each of the energy strategy scenarios that will look to accomplish specific policy goals.

The **Energy Efficiency** scenario is based on Albania's commitments under the Energy Community Treaty, the 2015 law on Energy Efficiency (No. 124), and the new law on Energy Performance in Buildings. The EE scenario also assumes that Albania implements the second NEEAP. The scenario includes 14 specific measures needed to increase energy efficiency in both supply and demand.

[7] Analysis of Energy Development Scenarios in Support of the National Energy Strategy of Albania, Report to USAID and Ministry of Energy and Industry, December 2016.

The **Renewable Energy** scenario is based on Albania's obligations as a Contracting Party to the Energy Community Treaty to comply with EU Directives on the promotion of renewable energy sources. One of the directive's requirements is the preparation and adoption of a National Renewable Energy Plan (NREAP). The RE scenario incorporates Albania's NREAP, which calls for increase the portion of renewables to 38 percent of the total final energy consumption by 2020, which should be further developed by 2030.

The **Natural Gas Promotion** scenario calculates how much natural gas could penetrate in the different demand sectors (residential, service, industry, transport and agriculture) as well as power generation. This scenario assesses the costs and benefits of accessing natural gas from the Trans Adriatic Natural Gas Pipeline.

The **Albania-Kosovo Coupling** scenario assesses the impacts of integrating the operation of the electricity markets in Albania and Kosovo as a first step towards a regional coupled electricity market. This project, which is a Project of Mutual Interest, would have the following benefits:

- Reduced electricity system costs through more efficient utilization of cross-border capacity between Albania and Kosovo.
- Improved security of electricity supply, especially given existing problems with blackouts and in some cases of load shedding.
- Greater utilization of the existing generation capacities and improved generating diversity.
- Improved power system control and system reserve by combining thermal (base) generation in Kosovo and hydropower (peak) capacities in Albania.
- Improved regional integration of Albania's power market that could lead to further market coupling in line with the WB 6 commitments
- Improved competition and market efficiency due to increased market size.

The following **strategic analysis metrics** were selected because of their relationship to the long-term strategic objectives. Each metrics is the change from the Baseline scenario for the following model outputs:

- Percentage of renewable energy utilization;
- Reduction in energy-related CO_2 emissions;
- Level of final energy consumption,
- Level of electricity generation; and
- Level of utilization of cross-border capacity;
- Fraction of energy imports in the total energy supply;
- Level of natural gas penetration into the total primary energy supply
- Energy intensity of GDP.

3.2 RESULTS OF ENERGY SCENARIOS ANALYSIS

In order to identify a national strategy that supports the best interests of the country and its citizens/consumers, each of the energy scenarios was evaluated against the strategic objectives mentioned above using the strategic metrics that were extracted from the Albania-LEAP model results. Each of these scenarios shows what is possible in the Albanian energy system under different policies. They quantify the ***potential changes*** that would likely results from specific policy changes using the Baseline scenario as a comparison point, and are ***not*** a precise prediction of the future. The following section summarizes the scenarios results against each of the strategic metrics.

3.2.1 ENERGY CONSUMPTION TRENDS

From 2009-2016,, final energy consumption in Albania expanded from 1,871 ktoe to 2,060 ktoe, an increase of approximately 10.13 percent, but the growth was not consistent during the years. As shown in Figure 3, final energy consumption in Albania increased gradually between 2009 and 2011 before decreasing in 2012, coinciding with a slowdown in the Albanian economy. However, energy consumption rebounded sharply in 2013, in spite of slow GDP growth. This was mainly due to increased residential demand. Energy consumption increased significantly in 2014, driven primarily by the iron and steel industrial sectors.

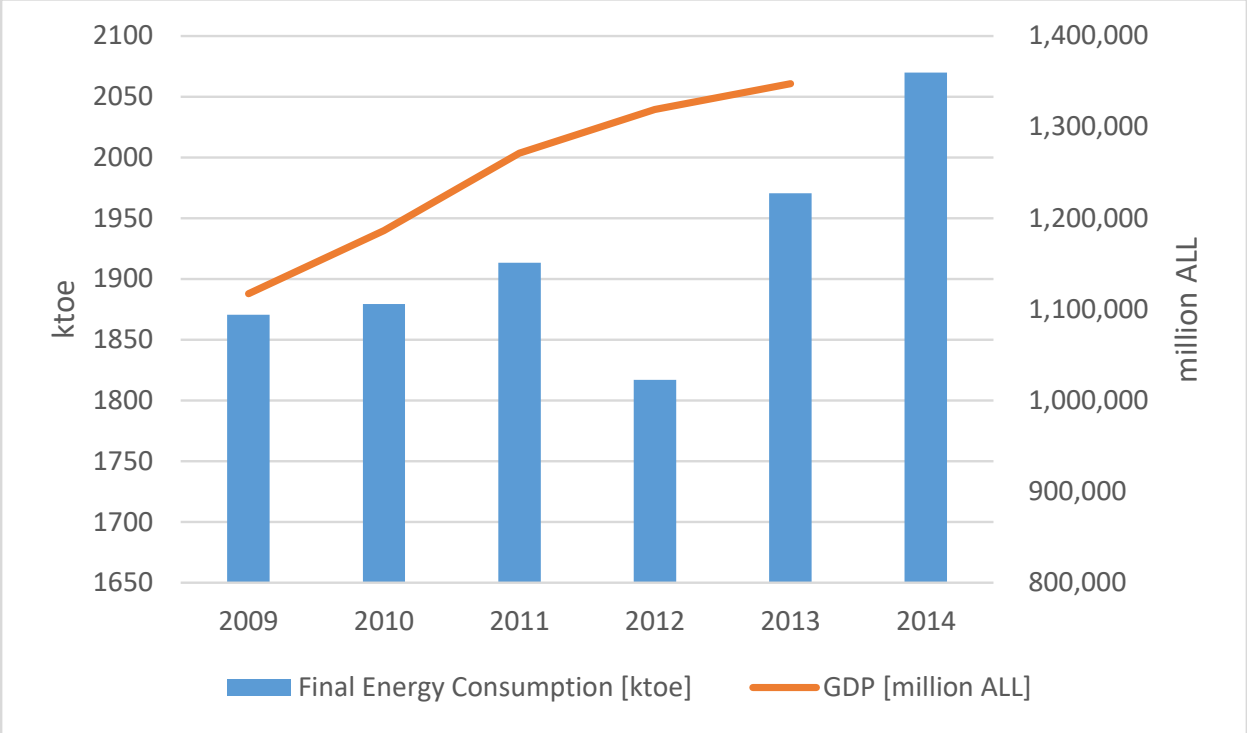


Figure 3: Final energy Consumption Data (Source: Energy Balance of Albania 2009-2014, AKBN; INSTAT

The projections for the growth of energy consumption in Albania for the period 2014-2030, for each scenario are shown in the Figure 4, along with the projected GDP growth.

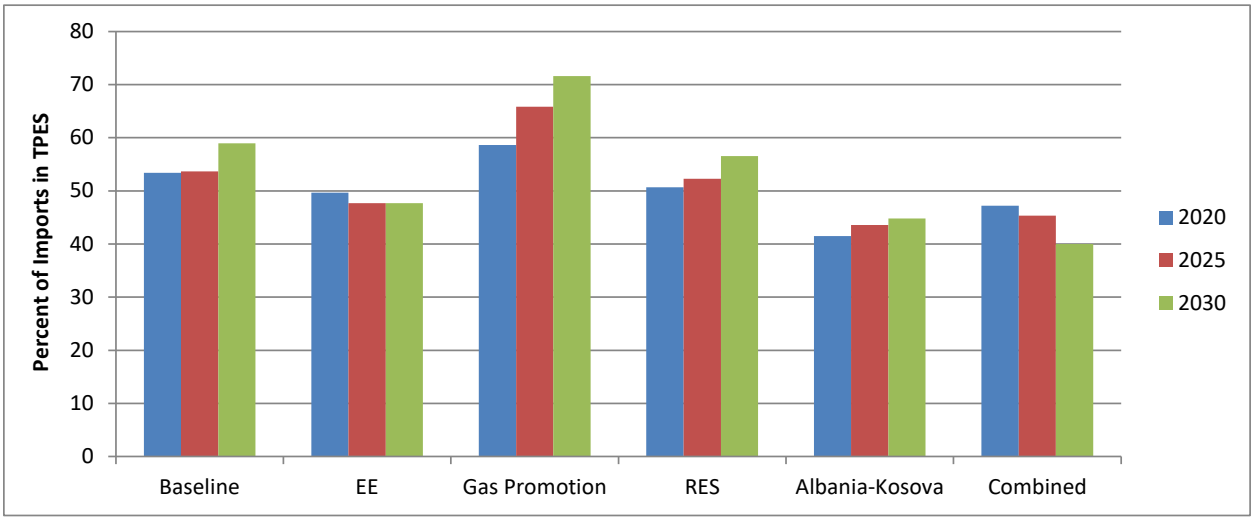
ktoe, Billion Euro	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Baseline	2160	2230	2325	2424	2524	2632	2744	2832	2922	3018	3117	3221	3333	3458	3589	3725	3869
Combined	2160	2193	2287	2326	2366	2408	2451	2481	2511	2557	2607	2669	2732	2808	2898	3001	3118
EE	2160	2191	2295	2337	2379	2423	2467	2497	2527	2557	2587	2618	2648	2680	2711	2742	2773
Gas Baseline	2160	2231	2326	2424	2525	2632	2744	2831	2922	3028	3139	3263	3388	3538	3707	3897	4110
RES	2160	2252	2341	2432	2525	2624	2726	2808	2892	2980	3073	3169	3274	3388	3507	3632	3762
GDP	9.86	10.16	10.46	10.78	11.10	11.43	11.78	12.13	12.49	12.87	13.26	13.65	14.06	14.48	14.92	15.37	15.83

Figure 4: Final energy Consumption and GDP Projections 2014-2030

The Baseline scenario shows that the Final Energy Consumption will increase to 3,868 ktoe. All the other scenarios, except Natural Gas promotion show reduced Final Energy Consumption in comparison to Baseline scenario, while supporting the Albanian GDP growth.

3.2.2 ENERGY IMPORTS

Figure 5 shows the percentage of total energy imports for 2020, 2025 and 2030 for each of the scenarios. The **Energy Efficiency (EE)** scenario shows that there is a potential to reduce energy imports by 19%, final energy consumption by 28%, and GHG emissions by 27% compared to the Baseline scenario. The **Gas Promotion** scenario shows energy imports increasing by 22%, and the **Albania-Kosovo** coupling scenario shows that there is a potential to reduce imports in Albania by 24% compared to the Baseline. The **Combined** scenario shows the potential to reduce imports by 32% because of combining the EE and RES measures and by replacing hydropower used for space heating with natural gas.

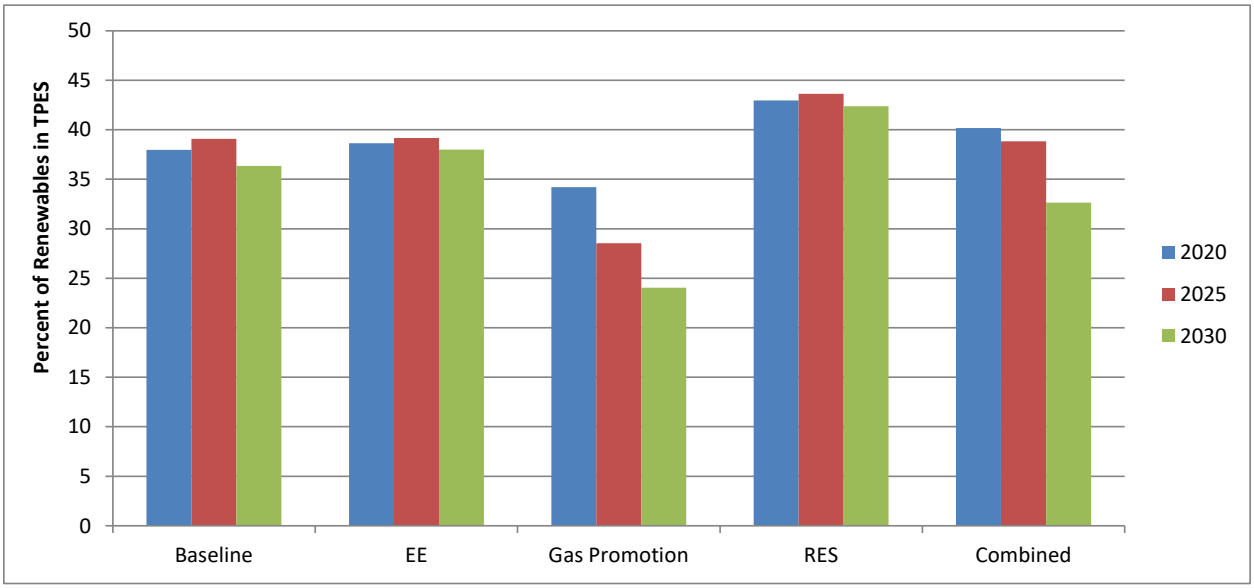


Scenarios / Year	Percent		
	2020	2025	2030
Baseline	53.40	53.68	58.92
EE	49.63	47.69	47.69
Gas Promotion	58.64	65.82	71.60
RES	50.64	52.26	56.55
Albania - Kosova	41.49	43.55	44.80

Figure 5: Imports as a function of Total Primary Energy Supply

3.2.3 RENEWABLE ENERGY SHARE

Figure 6 shows the share of renewable energy sources in the total primary energy supply. Only the **Renewable Energy Sources (RES) scenario** achieves and maintains the NREAP target through 2020. It has an impact on the reduction of electricity and oil by products imports and it has the potential to achieve 1/3 the CO_2 emission reduction compared to the EE scenario. The **Gas Promotion scenario** reduces RES utilization by replacing some electricity generated from hydropower used for space heating with natural gas. The **Combined scenario** also shows reduced RES utilization for the same reason, but the RES share is greater because of the reduced electricity demand produced by the EE measures. As a result, Albania would not meet its national target for RES after 2026.

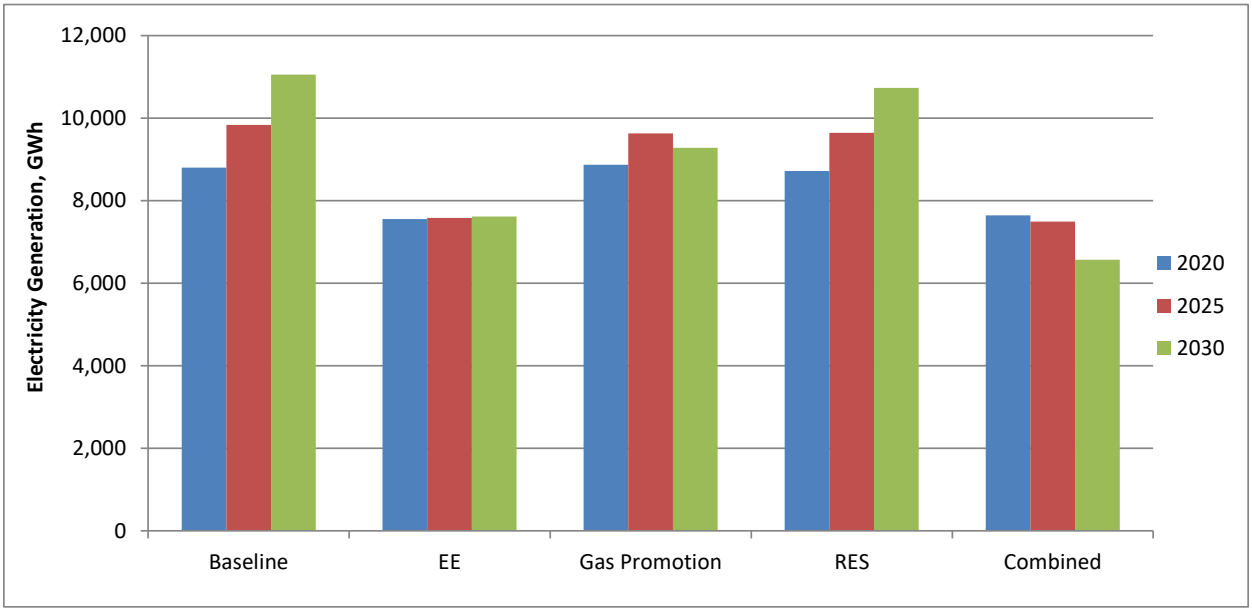


Scenarios Year	Percent		
	2020	2025	2030
Baseline	37.98	39.09	36.33
EE	38.65	39.16	38.00
Gas Promotion	34.20	28.54	24.04
RES	42.95	43.64	42.38
Albania - Kosova	26.35	28.97	26.87

Figure 6: Percentage of RES in TPES

3.2.4 ELECTRICITY GENERATION

Figure 7 shows the annual electricity generation in Albania in 2020, 2025 and 2030. The **EE scenario** shows the potential to reduce new electricity generation requirements by 31% and the **Gas Promotion** scenario shows the potential to reduce new generation requirements by 16% compared to the Baseline scenario because it replaces hydropower used for space heating with natural gas. The **RES scenario** has minimal impact on electricity demand, and the **Combined** scenario shows the potential to reduce new generation 41% below the Baseline because of combining EE and RES measures and by replacing hydropower used for space heating with natural gas.

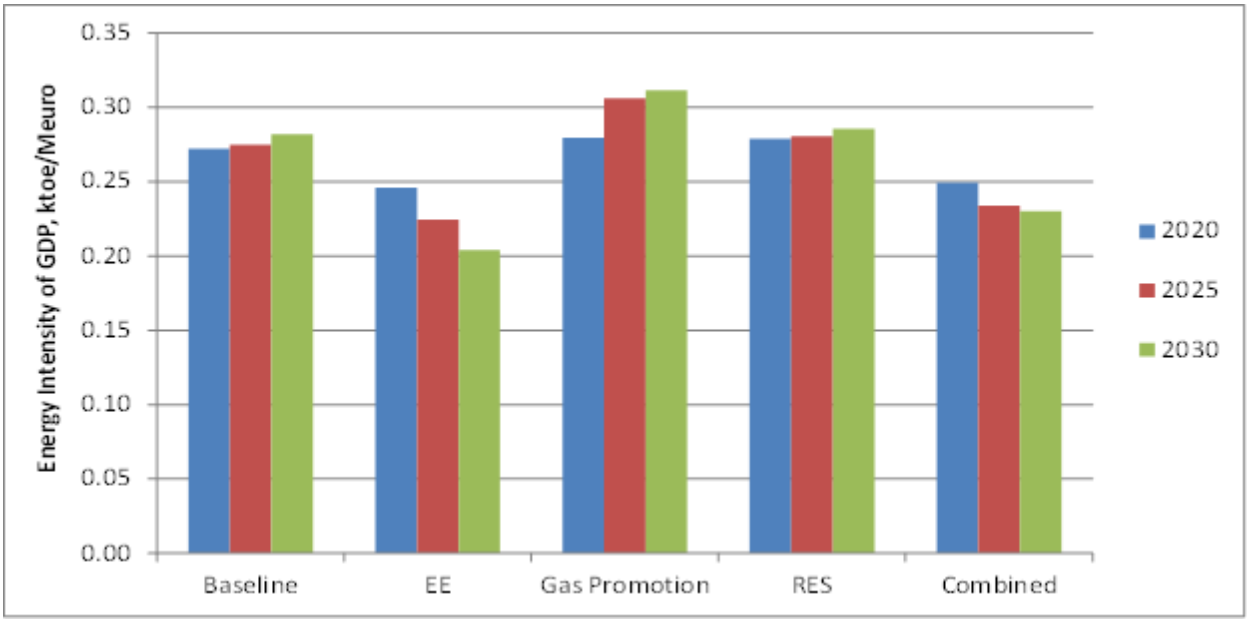


Scenarios Year	Gigawatt-Hours		
	2020	2025	2030
Baseline	8798	9831	11051
EE	7554	7578	7616
Gas Promotion	8869	9627	9278
RES	8717	9640	10733
Albania - Kosova	14507	16606	18402

Figure 7: Electricity generation (GWh)

3.2.5 ENERGY INTENSITY OF GDP

Figure 8 shows the energy intensity of GDP (ktoe per MEuro) for each scenario. The **EE scenario** shows the potential to decrease energy intensity by 28%, while the **Gas Promotion scenario** increases energy intensity by 11%. The **Combined** scenario shows the potential to decreases energy intensity by 18%.

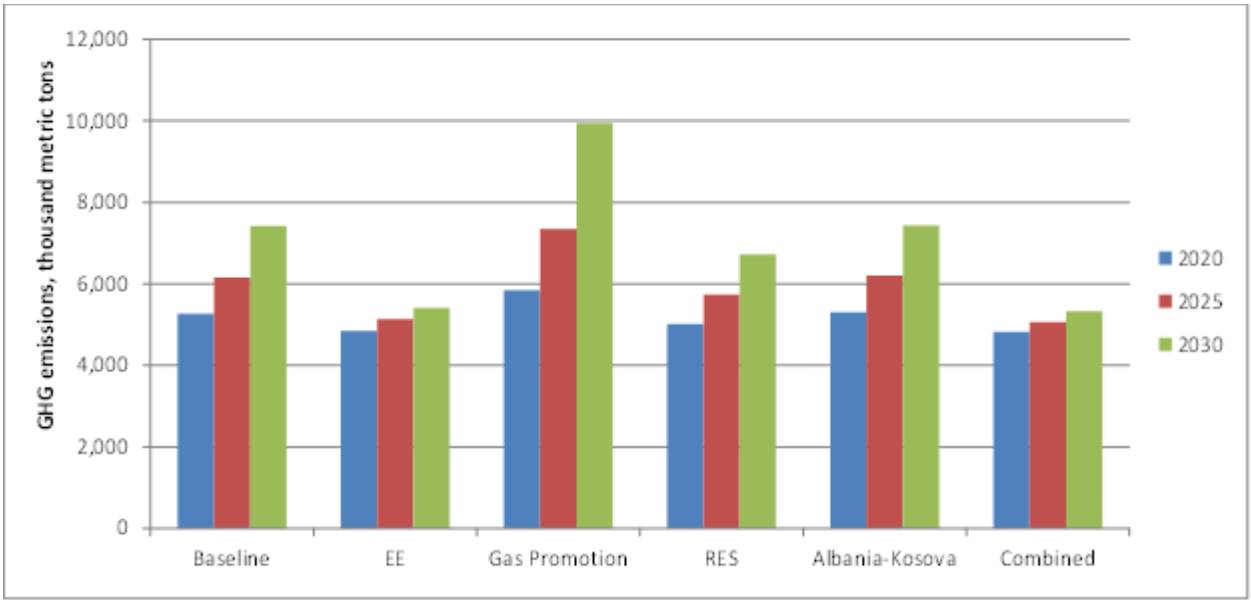


Scenarios Year	ktoe/MEuro		
	2020	2025	2030
Baseline	0.27	0.27	0.28
EE	0.25	0.22	0.20
Gas Promotion	0.28	0.31	0.31
RES	0.28	0.28	0.29
Combined	0.25	0.23	0.23

Figure 8: Energy Intensity of GDP (ktoe/MEuro)

3.2.6 GREENHOUSE GAS EMISSIONS

Figure 9 shows total GHG emissions in 2020, 2025 and 2030 for each scenario. The **EE scenario** shows the potential to reduce GHG emissions by 27%, while the **Gas Promotion** scenario increases GHG emissions by 34%. The **RES scenario** shows the potential reduces GHG emissions by 9%, and the **Combined scenario** reduces GHG emissions by 28% compared to the Baseline. Both the **EE and Combined** scenarios exceed Albania's NDC target.



Scenarios Year	Thousands Metric Tons		
	2020	2025	2030
Baseline	5262	6159	7411
EE	4837	5131	5415
Gas Promotion	5841	7344	9944
RES	5011	5728	6721
Albania - Kosova	5303	6207	7434
Combined	4792	5038	5276
Combined (reduction in % versus Baseline)	**8.9%**	**18.2%**	**28.8%**

Figure 9: Albania GHG Emissions (kt CO_2 eq.)

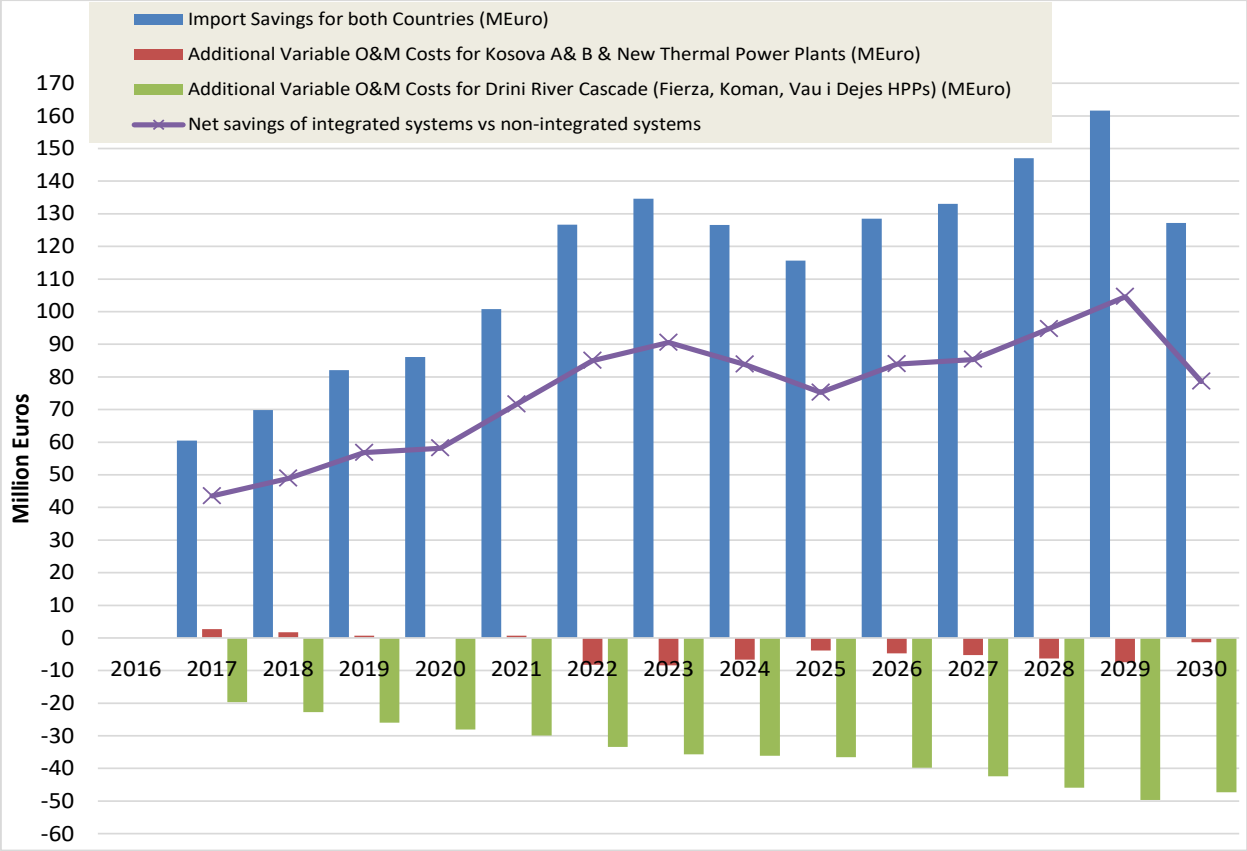
At the European level a proactive approach involves all Member States in promoting a concerted international response to climate change. This involves mitigation efforts to control greenhouse gas emissions, as well as the promotion of adaptation measures to counter the adverse impacts of climate change that are already inevitable.

This Albanian Energy Strategy is fully in line and in harmony with EU "Low-carbon Economy Roadmap" and promotes EE, RES and natural gas policies that promote a stable business climate which will encourage low-carbon investments for the period 2017-2030. As the analyses supporting this strategy shows, there is significantly greater GHG reduction potential in the Albanian energy system than the initial NDC commitment, Therefore, the energy strategy and the policy objectives it envisions are in-line with the increasing ambition goals of both the UNFCCC and the EU/Energy Community. Given the current status of Albania as a candidate country in accession to the EU, it is likely during the period covered by this strategy Albania will accede to the EU. For this reason, as well as required by its Energy Community membership, it is of great importance that Energy Strategy is in line also with EU Climate Change Policy by ensuring that the energy policy objectives and the respective energy action plans identified in this document are supporting the levels of ambition expressed in EU CO_2 reduction targets and climate change

political goals. The Integrated Energy and Climate Plan to be adopted in the course of 2018 will be the key document for this purpose.

3.2.7 ALBANIA-KOSOVO COUPLING

The results of the **Albania-Kosovo** power market scenario shows there is a significant potential for better utilization of cross-border transmission capacity and increase the welfare through market optimization of operation of the thermal power resources in Kosovo and hydro resources in Albania (specifically, the Drin River Cascade), as well as exchanging balancing reserve requirements. Figure 10 shows a breakdown of the projected changes in savings and costs for electricity generation and imports for this scenario. By 2030, the two systems combined would generate annual financial savings from reduced import costs of more than €1 billion. The results also show that under a joint Albania-Kosovo power market, generation costs would likely decrease in both countries. Further synergy effects can be expected from market coupling on an even larger scale, i.e. on regional level including the Energy Community Contracting Parties and neighboring EU member states in South East Europe.



MEuro/Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Imports Saving to both countries	60.49	69.84	82.09	86.06	100.8	126.7	134.7	126.6	115.6	128.5	133.0	147.0	161.7	127.2
Additional Variable O&M Costs for Kosova A, B & New TPP	2.73	1.74	0.65	0.12	0.70	-8.24	-8.42	-6.65	-3.85	-4.71	-5.26	-6.32	-7.44	-1.31
Additional Variable O&M Costs for Drini River Cascade (Fierza, Koman and Vau i Dejes HPPs)	-19.71	-22.71	-25.94	-28.05	-29.91	-33.43	-35.65	-36.09	-36.55	-39.81	-42.40	-45.94	-49.64	-47.27

Net Savings of Integrated Systems vs. Non-integrated Systems	43.51	48.87	56.80	58.13	71.60	84.98	90.51	83.86	72.25	73.95	85.34	94.74	104.6	78.62
Cumulative Savings of Integrated Systems vs. Non-integrated Systems	43.51	92	149	207	279	364	454	538	614	697	783	878	982	1061

Figure 10: Breakdown of Net Annual Savings from Albania-Kosovo Coupling (MEuro/year)

3.3 RECOMMENDED DEVELOPMENT SCENARIO

Based upon the strategic metric results, the detailed analysis shows that the most beneficial development scenario for the Albanian energy sector would be to implement all the measures from the EE, RES and Albania-Kosovo electricity market coupling scenarios along with the power and industry sector components of the Natural Gas Promotion scenario by removing the gas infrastructure investment required to serve residential and commercial customers. The recommended development scenario is considered the most beneficial because it has the potential to achieve the following results:

- Potential to reduce the energy imports by 32% compared to the Baseline scenario
- Potential to reach the RES target past 2020 by including the gas infrastructure investment to serve the power and industry sectors and not at the middle terms to the residential and commercial customers;
- Potential to reduce the final energy demand by 19.4%, compared to the Baseline scenario;
- Potential to reduce the GHG emissions by 28% compared to the Baseline scenario;
- Potential to reduce the electricity generation requirements by at least 31%, and
- Potential that natural gas to penetrate up to 19.81% of the total primary energy source by 2030;
- Potential to reduce the reduce the energy intensity of GDP by 18%

Implementing this Energy Strategy will increase the security of Albania's energy supply and begin to integrate the Albanian energy market into regional and European markets. This Strategy is based on an optimal energy scenario that balances national interests with those of the different energy sub-sectors. In addition, the strategy is designed to create equal conditions for all energy companies engaged in the Albanian energy market, increase the welfare, and minimize adverse impacts on the environment.

3.4 KEY POWER SECTOR INSTITUTIONAL REFORMS

Albania is in the process of developing and implementing a number of key laws and regulations that will have an impact on the role of main stakeholders in the power sector, and in the area of energy efficiency as well as climate action. This chapter summarizes the key areas of reform, sets out the implications for the role of both existing and new energy sector institutions, and identifies gaps between the actual situation and what is expected to be achieved after the successful implementation of the reforms.

3.4.1 POWER SECTOR INSTITUTIONAL REFORM DRIVERS

The main drivers of reform in the power sector reforms include:

- The Energy Community Treaty ("ECT"), ratified by the Albanian Parliament with Law No.9501, dated 3.04.2006, which provides a legal framework for convergence with the European Union's ("EU") energy acquis[8];
- Law No. 43/2015 "On Power Sector", which was approved by the Albanian Parliament in April 2015;
- New Market Model for the Albanian electricity sector, which was approved by the Council of Ministers Decision no. 519, dated 13.07.2016;
- Decision of ERE no.214, dated 28.12.2017 "On approval of Albanian Electricity Market Rules and Participation Agreement in the Day Ahead Market";
- Law No. 124/2015 "On Energy Efficiency", which was approved in November 2015;
- Law No. 7/2017 "On Renewable Energy Sources", which was approved by the Albanian Parliament in February 2017.

3.4.2 ECT AND POWER SECTOR LAW

As a signatory to the ECT, much of Albania's energy sector legislation and regulation is guided by requirements of the EU's Internal Energy Market. Specifically, the ECT sets out a number of *acquis*, which comprises core EU legislation in the energy sector. More details on the component parts of the acquis that are relevant to the power sector are described in the Technical Annex.

Law No. 43/2015 "On Power Sector" was approved in 2015, with the primary objective of moving towards alignment with the EU acquis on electricity. The key reform actions and the progress being made against these actions are described in the Technical Annex.

3.4.3 NEW ELECTRICITY MARKET MODEL

A new Electricity Market Model ("Market Model") for Albania was approved by the Council of Ministers in July 2016 and sets out changes to the electricity sector that would see a move away from the regulated market arrangements that have until now been in place, towards more liberalized trading arrangements. Implementation of the Market Model would also improve compliance with many components of the EU energy acquis set out in the ECT. In order to facilitate the establishing of the Albanian Power Exchange and enabling TSOs or Market Operators from other countries to join the APX, an amendment to the Power Sector Law was proposed and approved by the Albanian Government. The draft law is under the review and approval by the Parliament.

OST has a full set of market rules to implement the Market Model, which were approved by the ERE in December 2017. It is intended that implementation of the new Market Model is phased in over the period 2017-2020. The key characteristics of the new Market Model can be summarized as follows:

[8] The EU's "acquis communautaire on energy" is defined in Annex I of the Energy Community Treaty and includes a number of EU Directives and Regulations that are core to the regulation of the energy sectors of EU member states.

- Physical trading by market participants is exclusively to take place through the following platforms:
    - A day-ahead ("DA") and intra-day ("ID") market, to be set up by a new Albanian Power Exchange.
    - Trading of long-term physical power is permitted based on cross-border capacity bought through cross-border capacity auctions.
- All other forms of trading will be financial, for example through bilateral Contract for Difference (CfDs) or establishment of decentralized futures markets.
- Specific t bidding rules are to be developed and an efficient regulatory monitoring regime shall be enforced with the goal to prevent the abuse of any market power by specific participants.
- A Balancing Market which integrates imbalance settlement is to be established and operated by OST, which will balance supply and demand, starting from the positions nominated by market participants through physical trading, and through contracting for balancing services directly.

The new Market Model will have implications for existing commercial arrangements in the market:

- Where RES generators have Power Purchase Agreements ("PPAs") with the KESh public supplier, the intention will be for these volumes to be traded through the organized market, but with a Contract for Difference ("CfD") put in place to keep the RES generator whole relative to the original PPA. The affected generators will need to be able to access a liquid reference price, which will be the index for settlement against the strike (fixed) price in the CfD. The wholesale public supplier role will also be transferred to OShEE once the new market model is implemented.
- There is currently a bilateral agreement in place between KESh and OShEE that governs supply of power to OShEE. In order to comply with the Market Model, these volumes will also be required to pass through the new power exchange. The Market Model refers to this as a "Market Maker Obligation" on KESh and OShEE. As with the IPPs, a CfD could be put in place between KESh and OShEE to provide a financial hedge against volatility in the organized physical market.

Once implemented successfully and accompanied by cost-reflective network and market access tariffs, the new Market Model should facilitate improved competition, first in the wholesale market, and then in the retail market. OShEE will retain its supplier business, and will be exposed to competition by new suppliers that could enter the market to supply end consumers. An overview of the commercial relationships in place on implementation of the Market Model is presented in the schematic in Figure 11.

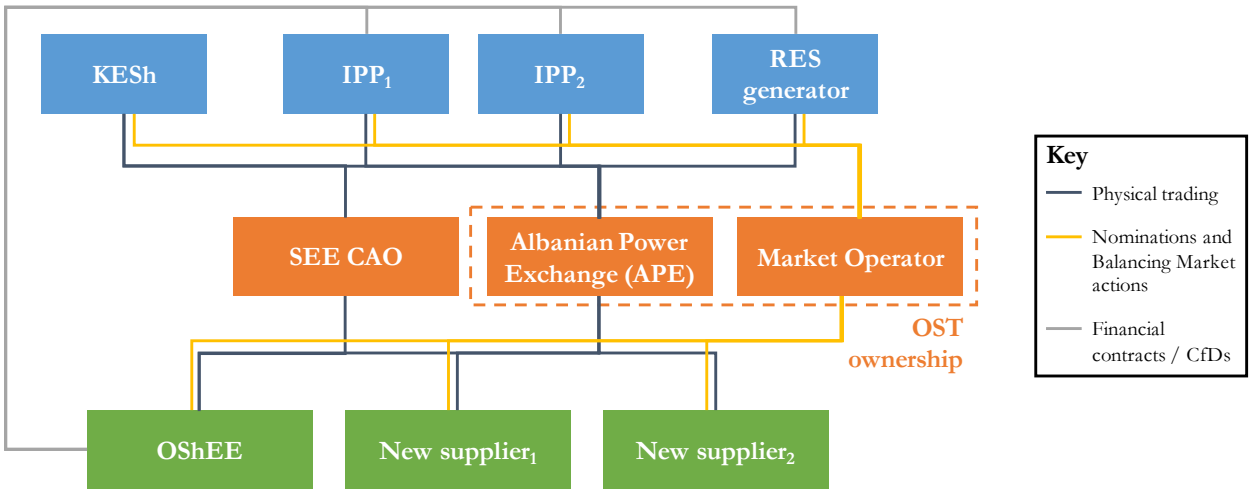


Figure 11: Recommended Schematic of the key commercial relationships under the Market Model

The implications of the Market Model are taken into account in setting out the roles of key power sector institutions. The most important actions and reforms that are required to implement the Market Model can be summarized as follows:

- **OST**, in consultation with other market participants including ERE, is to continue work to **finalize the market rules** for implementing the new Market Model. In particular, rules for the Balancing Market, the procurement of balancing services, and the calculation of imbalance charges need to be defined.
- The Market Model will require the **APE** to be established as a separate legal entity with the participation of OST and other legal entities, and strengthening for the capability of the market unit within OST, with the required capabilities being built through recruitment and/or training.
- **Affected market participants** (e.g. IPPs), in consultation with **ERE**, need to draft new **financial contracts, such as CfDs**, where these are required as transitional measures to ensure that the intent of previous commercial agreements in honored under the new Market Model.
- **All market participants will need to build new capabilities** in order to interact effectively with the new market arrangement, for example establishing trading departments, or commercial teams to manage bilateral financial contracts.

3.5 ENERGY EFFICIENCY LAW

The new EE Law's primary objective was to align with the EU's Energy Efficiency Directives (2006/32/EC and partly 2012/27/EU). The main objectives of the Law can be summarized as follows:

- Setting of a National Energy Saving Indicative Target, and preparation of a National Energy Efficiency Action Plan ("NEEAP") that is to be updated at least every three years.
- Creation of an Agency for Energy Efficiency ("Agency for EE") to oversee implementation of many of the Law's provisions, and an Energy Efficiency Fund ("EE Fund") to support and finance energy efficiency measures.

- Putting in place requirements for larger energy consumers to improve their energy efficiency, requiring them to employ an energy manager, and carry out regular energy audits.
- Establishing criteria and standards for energy auditors and energy services providers.

3.6 RENEWABLE ENERGY LAW

The objective of the RES Law is to facilitate the harnessing of Albania's significant renewable energy resources, in particular in the area of hydroelectric plants, biomass and biofuel resources. Through the Energy Community, Albania has set a binding target of 38% of its gross final energy consumption to be fulfilled from renewable energy by 2020, which is an ambitious target compared to 33.1% in 2014, mostly due to the increase of final energy consumption. Specifically, the RES Law will introduce a renewable energy support scheme for electricity based on Contracts for Difference ("CfDs"), which takes into account the creation of a competitive day-ahead electricity market. The details of the CfD-based support scheme will need to be closely coordinated with the drafting of Market Rules described earlier. An effective CfD mechanism will require a robust reference price that RES generators can access through a liquid wholesale market. This should be available once the Market Model has been fully implemented.

3.7 IMPLICATIONS FOR THE ROLES OF KEY POWER SECTOR INSTITUTIONS

Figure 12 presents an overview of the key power sector institutions and companies in Albania:

- Government and regulatory actors, which include government and ministries, the regulator, and agencies to whom ministries delegate specific sector responsibilities;
- Public sector companies, such as KESh, OST, and OShEE, who are currently major players;
- Line of oversight from the relevant ministry to each public sector company, reflecting the recent shift in oversight for OST to the Ministry of Economic Development to meet the unbundling requirements of the acquis.

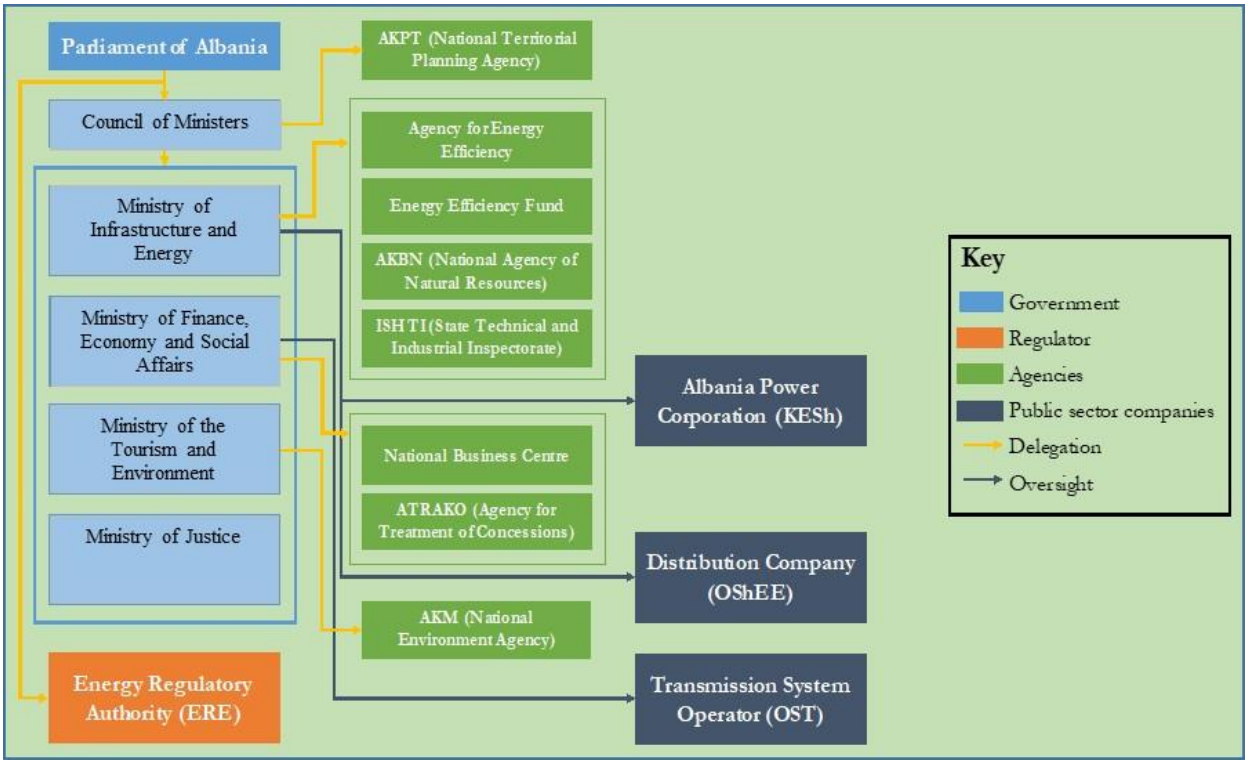


Figure 12: Key Power Sector Institutions in Albania

3.7.1 GOVERNMENTAL INSTITUTIONS

The most significant institutions in setting policy and regulation in the power sector in Albania are the Ministry of Infrastructure and Energy ("MIE") and the regulator, the Energy Regulatory Authority ("ERE"). In addition to MIE and ERE there are a number of ministries that have a smaller role in the sector, and also a number of government agencies with responsibilities with respect to the power sector that are delegated to them by the ministries.

Council of Ministers: The Council of Ministers is the cabinet of Albania, which along with the Prime Minister sets the overall direction for policy across the government. Specifically in the energy sectors, its role is review and approval of decisions that are proposed by MIE, such as this Energy Strategy, before the decisions can go into force.

Ministry of Infrastructure and Energy (MIE): MIE has overall responsible for the energy sector and is responsible for developing energy policy and the medium and long-term strategies for the energy sector. MIE's key area of focus in the power sector is continuing to make progress in implementing reforms to align Albanian policy and regulation with the EU's energy acquis. This process is now well under way with the recent passing of the Law on the Power Sector, the EE Law, Energy Performance in Building Law and RES Law. Ministry through its Energy Efficiency Agency (EE Agency) and Energy Efficiency Fund (EE Fund) is involved in some of the reforms being implemented to improve energy efficiency, specifically in implementation of the Energy Performance in Buildings ("EPB") Law.

While MIE is the ministry most engaged in the sector, there are a number of other Government ministries that work with MIE in setting the overall policy agenda for the sector. These ministries, and

the actions that they will need to take to implement the new laws, are set out below, and all government priority actions are summarized in Table 1.

Ministry of Finance and Economy: (" MoFE") includes the Directorate of Public Property, which oversees the economic and financial performance of state enterprises, including OST, KESH and OSHEE. The Directorate of Competitiveness is responsible for ensuring the free movement of goods and services and implementation of legislation to align with the EU's internal market. In addition, the National Business Centre subordinated to the Ministry of Finance and Economy helps new entrants to the market to navigate licensing requirements.

Ministry for Health and Social Welfare: is responsible to implement the requirement from the Law on the Power Sector that appropriate criteria are defined to identify vulnerable customers. The ministry needs to ensure these rules are implemented correctly so that the support available is targeted more appropriately.

Ministry of Tourism and Environment ("MoTE"): has overall responsibility regarding protection of the environment and regarding the energy sector; MoTE is responsible, through the National Environment Agency), for approving the Environmental Strategic Assessment for planned development in the power sector. MoTE is also responsible for climate change related policies, and it serves as focal point for the Albanian Government under the UNFCCC.

Table 1: Power Sector Priorities and Actions - 1

Government	• Review and approve new legislation and regulations as required to facilitate the implementation of reforms to the power sector
Ministry of Infrastructure & Energy	• Develop secondary regulations to implement the PS, RES, EPB and EE Laws • Support the Ministry for Finance, Economy and Ministry for Health and Social Protection in assigning appropriate rights to vulnerable customers • Set up and staff the new Agency for Energy Efficiency and the Energy Efficiency Fund • Determine the criteria for the award of licenses to energy auditors and energy service providers • Develop the secondary legislation for implementation of EPB Law • Work with other stakeholders to develop and implement a Building Renovation Strategy • Prepare secondary regulations to implement the ("EPB") Law •
Ministry of Finance and Economy	• Strengthen the National Licensing Centre to help new entrants navigate project licensing requirements
Ministry for Health and Social Protection	• Ensure that criteria defined to identify vulnerable customers are implemented correctly so that the support available is targeted more appropriately.
Ministry of Tourism and Environment	• Continue to work with Ministry of Energy & Industry to ensure that energy sector policies are consistent with and supportive of Albania's strategy for fulfilling its agreed NDC • Increase transparency and compliance in strategic and environmental impact assessment, in particular for HPP

3.7.2 REGULATORY BODIES AND OTHER GOVERNMENT AGENCIES FOR ENERGY

Energy Regulatory Authority (ERE): The Energy Regulatory Authority ("ERE") is an independent public body responsible for the regulation of activities in the electricity and natural gas sectors. ERE is the competent body for issuing licenses for carrying out electricity generation, transmission, distribution, supply and trade of electricity. It is responsible for approving the grid codes which govern connection with and access to the transmission and distribution networks to all power producers. ERE also has responsibility for approving tariffs in the sector, including feed-in tariffs for RES producers, tariffs for access to the transmission and distribution networks, and tariffs for end users supplied by the Universal Service Provider. ERE approves standard industry documents such as the standard PPA to be used by priority RES producers. ERE is also responsible for the development of most secondary legislation in the sector as well as approving the electricity market rules.

Agency of Energy Efficiency: The establishment of the Agency of Energy Efficiency ("Agency of EE") is required under the EE Law. Setting up the Agency for EE is clearly a priority of the Government based on the EE Law and the priority actions set out in Table 2 are to be carried out by MIE. Duties and responsibilities of the Agency for EE are set out in detail in Article 25 of the EE Law, and include:

- Develop secondary legislation and programs to promote energy efficiency.
- Develop and monitor the National Energy Efficiency Action Plan ("NEEAP") and prepare an annual progress report regarding the NEEAP.
- Work with market participants and stakeholders to develop a database to monitor progress being made in improving energy efficiency.
- Develop technical standards and regulations to improve the energy efficiency of products.
- Evaluate projects to improve energy efficiency for potential funding from the EE Fund.
- Support energy efficiency through providing advice, training, and developing open source contracts for energy services.
- Verify the accuracy of data from energy audits, if deemed necessary.

Energy Efficiency Fund: The EE Law mandates the setting up of an Energy Efficiency Fund that shall be managed by a Board of Trustees composed by representatives of different public institutions. Representatives of the private business associations might also be represented in the Board. The Energy Efficiency Fund shall be financed through agreements with donors, and shall be established and operated as an independent public entity. The EE Law sets out clearly the types of projects that the Fund can be used to finance:

- Improvements to energy efficiency for end consumers or in the production, transmission, or distribution of energy, including projects awarded funding through voluntary agreements;
- Improvements to energy efficiency in public lighting, or in water supply and waste water treatment.
- Research and development activities, and development of demonstration projects for new technologies.
- Energy audits in the public sector.
- Improvements to metering and billing, and awareness campaigns regarding energy efficiency.

Table 2: Power Sector Priorities and Actions - 2

Energy Regulatory Authority	• Continue to act as a fully independent regulator of the energy sector and autonomously and transparently set an annual budget for ERE activities • Become more active in market opening • Work with OST to finalize and approve fair, competitive and cost-reflective electricity market rules • Establish accounting standards to be used by electricity sector licensees, for each type of licensable activity in the sector • Establish rules for end consumers to change electricity supplier • Based on RES Law develop a methodology for a PSO charge to recover costs of the renewables support scheme
Agency of Energy Efficiency	• Ensure approval of the updated National Energy Efficiency Action Plan, and update this document every three years • Ensure that energy consumption is metered where it is distributed via a grid • Develop regulations to set out the requirements for mandatory energy audits and the format of reporting from those audits. • Establish capability to monitor progress and compliance with the requirements of the EE Law.
Energy Efficiency Fund	• Develop and adopt the statute and the operational manual of the Energy Efficiency Fund • Set up a Board of Trustees to manage the Energy Efficiency Fund • Identify resources such that the Fund can fulfil its roles and can support the financing of energy efficiency projects as defined under the EE Law

3.7.3 OTHER GOVERNMENT AGENCIES AND REGULATORY BODIES

In addition to the government departments and agencies set out above there are a number of agencies that have a smaller role within the power sector, mentioned below for completeness. There are no major changes to the roles carried out by these organizations as a result of the reforms currently being implemented.

I. **AKBN – National Agency of Natural Resources:** The National Agency of Natural Resources ("AKBN") reports to MIE. AKBN mission is the development, supervision of rational use of natural resources, according to the government policy, and monitoring of their post-exploitation in mining, petroleum and energy. These responsibilities include:

- The proposal, consultation and cooperation with relevant government structures for the design of its policies and strategies in the field of mining, hydrocarbons and energy;
- The implementation of Government policies in the field of mining, hydrocarbons and energy;
- Ensuring within the scope of its activity, the government critical for studies and projects in the field of activity of mining, hydrocarbons and energy, presented by government or private entities, domestic or foreign. For special cases may require specialized assistance;

- Promotion of mineral resources, petroleum, hydro and renewable energy sources;
- Negotiation of petroleum and mining agreements and monitor the implementation of their development plans;
- Preparation of the necessary documentation and procedures for issuing permits, licenses, authorizations, in accordance with the law, which allow entry into the petroleum agreement and conducting petroleum operations under signed agreements;
- Monitoring the implementation of agreements on hydrocarbons;
- Supervises mining, hydrocarbons and energy;
- Performs the monitoring of areas used, the risk of closure of mining and mining activities;
- Monitoring the concessionary contracts for hydropower;
- Exclusively manages all primary hydrocarbon sector data and data related to mining and post-mining activities;
- Propose measures to increase the use of energy in the energy cycle;
- Drafting and publication of the annual energy balance, in national and regional level, in accordance with Eurostat formats and International Energy Agency.

Once the new EE Agency is set up, AKBN will need to work closely with the new Agency to minimize overlap between the two agencies, and to ensure that both are working towards common goals. Specifically, responsibility for preparing plans for the implementation and monitoring of the NEEAP is likely to move to the Agency for EE and AKBN will be focus more towards RESAP.

AKPT – National Territorial Planning Agency and National Territory Council: The National Territorial Planning Agency ("AKPT") is a public institution subordinated to MUD that is responsible for preparation and coordination of the national planning instruments.

AZHT - National Agency of Development: AZHT has responsibility for making decisions regarding specific projects of national importance. This includes, for example, approval of construction permits for projects in the energy sector such as power generation, transmission and distribution, and oil and gas projects.

AKM – National Environment Agency: National Environment Agency ("AKM") is an institution subordinated to the Ministry of Tourism and Environment, which is responsible for reviewing and approving the environmental impact assessments for large development projects, such as those in the energy sector. The Agency also has responsibilities for monitoring compliance with environmental standards.

PUBLIC ENERGY COMPANIES

In addition to the government departments and agencies presented above, there are a number of large public energy companies in Albania who are essentially the incumbent state-owned utilities. These companies will be affected by elements of the reforms being implemented, such as unbundling requirements, and the introduction of increasing levels of competition in the sector. The section below sets out some of the key implications of reform for these public energy companies, and the priority actions are summarized in Table 3.

Albania Power Corporation, KESh: KESH remains the dominant electricity generator in Albania, generating ~75% of power generated in 2015. Originally KESh was established as a state-owned, vertically-integrated company comprising all functions of electricity generation, transmission and distribution. In 1995, according to two laws[9], KESh was transformed into a joint stock company with 100% of the shares owned by the state, and KESh started to function as a commercial company. However, KESH is still largely regulated under public service obligations, because major part of the production is allocated to OShEE for supply of tariff customers.

Transmission System Operator, OST: OST is the Transmission System Operator ("TSO") in Albania managing the network at 110 kV and above. On implementation of the power sector reforms OST will have three main roles:

- It will remain owner and operator of the transmission network – the reforms will have relatively little impact on this role on a day-to-day basis.
- It is initially likely to own the Albanian Power Exchange, which will be the primary trading platform for the organized power market in the competitive market. This is a new role in the Albanian market that OST will need to build capacity for.
- OST will continue to be responsible for balancing of the system through the procurement of balancing and ancillary services.

Distribution Company, OShEE: OShEE owns the electricity power distribution system below 110 kV. OShEE is a single legal entity that includes both the Distribution System Operator ("DSO") and the Universal Service Provider. In 2009 OShEE was privatized in order to secure investment, improve operational efficiency, reduce power losses, and improve revenue collections. With support from government it was envisaged that this would overcome mounting losses and lead to lower, more affordable and competitive retail power tariffs over the medium-term. From the outset, however, challenges began to emerge between CEZ, the new owners, and government regarding bad debt provisions, the rate of loss reduction and annual tariff filings. The distribution license was revoked by the Albanian Energy Regulatory Authority (ERE) in 2013 on the grounds that the distribution company had failed to meet the conditions of its license. The company went back to public ownership and embarked on an ambitious program of loss reductions and improved collections and dramatically improved its financial position. The Ministry of Infrastructure and Energy and OShEE are working to unbundle the distribution wiring service from the Universal Service of suppling tariff customers. Unbundling of OShEE is an obligation under the Energy Community acquis and the Power Sector Law, which will create more transparency for all users of the distribution network.

[9] No.7926, dated 20.04.1995 "On transformation of state enterprises into commercial companies" and No.7962, dated 13.07.1995 "On electric power."

Table 3: Power Sector Priorities and Actions - 3

Albania Power Corporation (KESh)	• Establish new capabilities (e.g. trading) that KESh generation will need to sell power and compete in the new market • Deregulate generation prices and terminate full supply contract with OShEE • Increase its generation capacity by becoming a key player in the region
Transmission System Operator (OST)	• Prepare unbundled accounts for TSO and market operator functions of OST's business • Prepare rules on grid security, quality of supply, and procedures for new connections • Finalize market rules, including rules for allocating cross-border interconnector capacity • Prepare short-term, medium-term, and long-term forecasts of electricity demand • Prepare a 10-year development plan for Albania, and provide annual investment plan updates alongside the annual tariff submissions • Recruit and train staff to operate and settle the market in line with the new market rules • Establish power exchange APE
Distribution System Operator (OShEE)	• Continue investments to further reduce distributions losses and improve collection rates • Prepare rules on grid security, quality of supply and procedures for new connections • Prepare a 5-year development plan for the distribution network, and provide annual investment plan updates alongside the annual tariff submissions • Define any new role(s) assumed once the new market design is implemented, for example in managing CfDs with legacy generators • Complete legal and operational unbundling of distribution and supply functions by end of 2017 • Build operational capability to carry out responsibilities under the new Market Model; e.g. buying power on the APE, managing offtake contracts with RES generators and processing consumers that change electricity supplier

3.8 KEY OIL AND GAS SECTOR INSTITUTIONAL REFORMS

Albania's petroleum sector is small by international standards, but is significant to Albania's economy and has potentially large undiscovered reserves. Albania is one of the transit countries for the Trans Adriatic Pipeline, which will carry Azeri gas across Greece, through Albania, to Italy. By the end of 2020, the pipeline should give Albania access to natural gas for domestic use. The new pipeline will also connect Albania to the much larger economies of Greece and Italy, both of whom are important trading partners and sources of investment.

Albania's state-owned oil company ALBPETROL estimates Albania's proven oil reserves at roughly 220 million barrels and natural gas reserves at approximately 5.7 billion m^3 gas. Currently, nine companies hold Production Sharing Agreements (PSA) with the state-owned oil company ALBPETROL for

development and production in the existing oil fields. Patos Marinza - Bankers Petroleum (2004); Ballsh Hekal – Continental Oil and Gas (2016); Cakran Mollaj - Albpetrol; Gorisht Koculit - Albpetrol; Delvina – Global Energy Management (2016); Kucova - Sherwood International Petroleum (2007); Visoka - Transoil Group (2009); Amonica – Albpetrol, Drashovica, Finiq-Karne and Pekisht-Murriz – Phoenix Petroleum (2013); and Divjake, Ballaj-Kryevidh, Povelce, Panaja and Frakull – Phoenix Petroleum (2013).

As a result, heavy crude oil production in Albania has tripled over the last decade to 1.29 million tons in 2015, with Bankers Petroleum (a Canadian oil company) driving almost the entire increase. There is little or no production of domestic natural gas. However, the steady decline of oil prices in the international market has caused a corresponding decline in oil production and investment in the sector in the past two years. China-based Geo Jade Petroleum Corporation has recently bought Bankers Petroleum for approximately $440 million.

The elements of government management over the oil and gas sector are dispersed through many ministries, agencies and public sector entities, resulting in an ad hoc approach to policy, which needs to be focused to meet the specialized needs of the oil and gas sector. Institutional reforms are critical to improve the management force needed to effectively direct the rational development of nation's current oil and gas sector.

Albania's decision to apply for membership in the European Union requires that the management of Albania's oil and gas sector be brought into conformity with the EU Directives. This process, which is also driven by the imminent arrival of Caspian natural gas via the Trans Adriatic Pipeline transiting Albania to Italy, will require a major restructuring of the government's ability to manage to the processes of gas purchase, distribution and sales to the domestic market. . Albgaz Sh.a, is a joint stock company that has been incorporated, stocks fully owned by the Albanian State, with the functions of a combined gas transmission and distribution system operator in the Republic of Albania.

As part of the transition required to join the EU, Albania became compliant under the Extractive Industries Transparency Initiative (EITI) in May 2013. The Government plans to use this as a platform for enhancing governance, transparency and accountability within the energy sector. It also plans on using it as a vehicle to strengthen the legal and institutional framework in the extractive industries and as a tool for removing the large regulatory barriers to economic agents that impede growth and job creation, by strengthening the legal and institutional framework in these subsectors.

3.8.1 CURRENT NEEDS

To function effectively, the government requires the following facilities:

1. The Directorate for Strategies and Policies of Industry and Energy of MIE should develop mechanisms for appropriate petroleum policy.
2. AKBN, Albpetrol and ALBGAZ are responsible to organize the structures to supervise the implementation of these policies in an acceptable fashion and ensure their compliance with existing laws, regulations and contractual agreements.
3. The petroleum law has been successfully amended in February 2017 and the associated legal documents that reflects these policies, current international petroleum practices compliant with EU Standards.
4. A composite list of Petroleum Regulations that ensure that policy implementation progresses in an acceptable fashion, according to the government's instructions.

5. A trained set of Petroleum Inspectors who will monitor regulatory implementation for compliance and/or remediation.
6. Structural provisions to ensure that the produced reserves of petroleum are replaced, new deposits discovered, and modern mechanisms of exploitation are utilized.
7. ISHTI is responsible for Monitoring and quality control of all imported petroleum products, their distribution to the public to ensure that the public is served with sufficient supplies to meet their demands, that their quality meets international standards, the prices to be charged are fair and that there is sufficient storage of product to sustain unexpected delays in the supply chain.
8. Consolidating the legal framework for the gas sector in line with the Third Energy Package will create a solid basis for supporting policies and projects for the development of the gas sector in Albania, as well as its regional integration in line with the EU practices and standards.
9. Consolidating the legal framework for the implementation of the Oil Stocks Directive
10. Preparations for the advent of imported natural gas through the vehicle of the TAP, making possible the integration and supply diversification with energy sources.

Most of these facilities currently exist, but require modifications to bring them the capability to implement effective management tools that are in compliance with EU laws. Their structure must be modified to fit the present needs, their mission must be re-defined, and they need to be staffed, managed and well trained. Authority and responsibilities must be quantified and secondary legislation written to define these new vehicles.

3.8.2 ENERGY REGULATORY AUTHORITY (ERE)

The Energy Regulatory Authority is an independent public body that is the single authority responsible for regulation of electricity and the natural gas sector as well. With the passing of the Law on Natural Gas Sector in September 2015, ERE has certified TAP AG pursuant to the tailor-made independent Transmission Operator (ITO) model elaborated under the Final Joint Opinion of the Energy Regulators on TAP's exemption application in February 2016. TAP must finalize and prove its full compliance with the ITO rules under the EU Directive prior to the commencement of commercial operation, scheduled to take place by 31 December 2020. ERE certified AlbGaz as a Combined Operator of natural gas (Decision No. 179, date 08.11.2017).

3.8.3 MINISTRY OF INFRASTRUCTURE AND ENERGY (MIE)

The MIE has overall responsibility to manage the existing concessions of the National Oil Company (ALBPETROL) and those that have been granted to the foreign PSA-holding companies. A secondary objective to develop the future reserves through the promotion of private investment in an environmentally responsible and financially transparent manner. The legal climate for these investments needs to further be improved, including the appropriate petroleum regulations and mechanisms for their enforcement. Demand forecast for petroleum products throughout the country are to be made and regularly updated, and arrangements must be made for the emergency stockpiling of petroleum products within the country to ensure compliance with EU Directives. Plans for the negotiating, off-taking, transmission, distribution and retail sales of natural gas from the TAP need to be developed based to the Gas Master Plan projects, prior to the anticipated arrival of gas at the end of 2020. Market reforms

must be developed to comply with the Energy Community commitments and to complete the transformation of Albania into a member of the European Union. The internal administrative structure of the MIE, should therefore, with respect to petroleum, contain separate Directorates for each of these responsibilities. . Priority actions for the government in the oil and gas sector are listed in Table 4.

Table 4: Oil & Gas Sector Priorities and Actions - I

Energy Regulatory Authority	• Raise the limits of its power to impose penalties up to the limits required by the Third Energy Package. • Complete the structure by completing the natural gas unit, and Infill lacking competencies within ERE
Ministry of Infrastructure & Energy	• Improve management of existing concessions of the National Oil Company (ALBPETROL) and those that have been granted to the foreign companies for new petroleum explorations and production. • Develop the future reserves through the promotion of private investment in an environmentally responsible and financially transparent manner, including strict environmental impact assessment. • Make arrangements for the emergency stockpiling of oil and petroleum products in compliance with EU product Directives • Develop plans for the establishment of the Albanian gas market and its regional integration, and for off-taking, transmission, distribution and retail sales of natural gas from the TAP and other gas sources prior to the anticipated arrival of gas; • Consolidation and further strengthening of ALBGAZ s.a., on the role of the combined gas transmission and distribution operator, as well as for the regional integration of the Albanian gas network; • Implement market reforms needed to comply with Energy Community acquis • Improve the administrative structure of the MIE by strengthening and consolidating the Directorate of Policies and Strategies of Industry and Energy in oil and gas sector

MIE, through the Directorate of Policies and Strategies of Industry and Energy and the Directorate of Development Programs of Industry and Energy needs to develop and consolidate the specific roles and functions of oil and gas sector organization complying with the international best practices.

It is important that the competency of the Ministry be such that Operating Companies will have a clear view as to what is required of them and that there will be penalties for non-compliance. The Directorate of Policies and Strategies of Industry and Energy should in addition, provide direction and supervision to the management of two public companies, ALBPETROL and ARMO. Priority actions for MIE in oil and gas sector are listed in Table 5.

Table 5: Oil & Gas Sector Priorities and Actions - 2

Directorate of Policies and Strategies for Industry and Energy	• Monitoring existing operations with a view of either rejuvenating them or bringing them to a realistic termination, including environmental remediation • Planning for the national supply and demand for petroleum products: Procurement, Quality Control, Emergency Stockpiling, Product Distribution and the respective taxes (which will have impact on pricing); • Planning for ongoing modern exploration and development of the national petroleum endowment; • Utilization of the industry to bring foreign direct investment funds, enhance technology transfer, infrastructure development, job creation, training and utilization of domestic goods and services.
Directorate of Development Programs of Industry and Energy	• Anticipating, formulating, adopting, executing, monitoring the policy related to natural gas • Monitoring existing operations with a view of either rejuvenating them or bringing them to a realistic termination, including environmental remediation • Planning for the national supply and demand for gas: Procurement, guaranty of necessary quantities, and establish conditions for transmission of these quantities, taking into the consideration feasibility for the consumers. • Planning for utilization of natural gas off-take from the TAP pipeline • Utilization of the industry to bring foreign direct investment funds, enhance technology transfer, infrastructure development, job creation, training and utilization of domestic goods and services

3.8.4 ALBPETROL

ALBPETROL is a wholly government-owned, vertically integrated oil company that has the exclusive rights for the development of all oil and gas fields. Most of the oil production over which ALBPETROL has production rights, has been contracted out to foreign companies of which nearly 60% is exported for refining into products elsewhere. Albania's yet-to-be-discovered reserves of oil and gas, both offshore and onshore, are believed to be significant, but their exploration will require the use of sophisticated technologies which are not locally available. Programs must therefore be developed to present these opportunities to the international oil industry in a structured fashion as a means of converting them into tools of economic development for Albania.

The petroleum sector in Albania faces significant challenges in both the upstream and downstream. In the upstream, there has been a steep decline in production since the 1970s and 1980s, largely owing to the lack of investment in exploration.

Albania's existing and potential hydrocarbon resource makes c1ear that there is significant potential for Albania to achieve considerable economic benefit from more extensive and intensive petroleum exploration and development. Albania's two major petroleum basins, which have thus far produced 429 million barrels of oil equivalent (MMboe), hold another 467 MMboe in proven and probable recoverable

reserves and also have estimated potential from yet undiscovered fields of 718 MMboe. All above mentioned figures are based on the declared figures of Ministry of Infrastructure and Energy as well as AKBN. These oil-equivalent estimates are expected to consist primarily of oil; but the potential for gas reserves from undiscovered fields is also significant at 5.7 billion cubic meters.

Some preliminary study carried out from the IFC shows that the recent growth in Albanian oil production to roughly 21,400 barrel per day (bd) in 2013, largely on the basis of the ALBPETROL (Patos Marinza) field, which can be sustained and expanded to 44,000 bd by 2020, on the basis of horizontal drilling at multiple existing oil fields. After 2020, the potential exists for further growth in production on the strength of new discoveries-but only if Albania can optimize its policy framework to encourage high levels of exploration and development activity. Unfortunately, Albania's regulatory and investment framework for oil and gas exploration and production since the passage of the Petroleum Law in 1993 has been ineffective in promoting the development of these potentially considerable hydrocarbon resources and several amendments of petroleum law in February 2017 has significantly improve this law. The failure of two licensing rounds in the 1990s, when crude oil prices were much lower than today, led to an unstructured ad-hoc approach to license negotiations. Nevertheless, the state has made all efforts to promote its acreage internationally through "open door policy" and active participation in international conferences. It is noted also the organization for the first time of the Oil & Gas Summit held in 2015 in Tirana, where participated almost all well-known international oil companies, such as SHELL, Exxon Mobil, BP, SOCAR, ENI etc..

3.8.5 CRUDE OIL REFINING PLANT

Albania's market for refined products is small by European standards, with total reported consumption of about 1 million metric tons (mt) per year at present. The plants employ 1960's design technology and include 220,000 cm of storage capacity and 1500 employees in 2012. 85% of the State's holding of the company was sold in 2008.

Petroleum product demand is concentrated in the transportation and to a lesser extent, the agriculture sector and is dominated by diesel. Albania relies primarily on imported fuels, which are readily available in the regional market from Italy and southeastern Europe. The quality of petroleum products has been improved continuously and has reached the average EU level, since the level of abuse with the quality is not more than 5% of the total quantity, but have been plagued by substandard products. The number of retail gas stations relative to population is very high by European standards, and needs to decrease significantly in order to meet the best practices.

Albania's refinery at Ballsh faces serious challenges to its continued commercially viable operation as crude oil refinery. It is very small by European and global standards, and thus lack the economies of scale and the catalytic conversion technology that is required to process the locally available heavy crude oils with their high sulphur and acid content. The refinery is located inland with logistical constraints that make it quite infeasible to consider imported crudes.

3.8.6 ALBGAZ

ALBGAZ sh.a. Is a wholly-owned government company, created in the form of a combined gas transmission and distribution operator. (DCM No. 848, dated 07.12.2201 2016. ALBGAZ sh.a. will engage in the realization of important projects for the development of the gas sector in Albania, as well as for the interconnection of Albania with the regional gas networks.

ALBGAZ Company includes the possibility of cooperation with foreign companies currently operating in Albania, such as TAP AG, but also with other companies that may be present in the future. The gas sector in Albania will face significant challenges because it is a commercial sector that will be built from the start but that will be one of the most important sectors that will make possible the diversification of energy sources and increasing the security of energy supply of different sectors of the economy and the population.

Table 6: Oil & Gas Sector Priorities and Actions – 3

ALBPETROL & Upstream activities	• Reform Albpetrol with the goal to have it again engaged in oil and gas operations. • Offer incentives for fast-track exploration and development drilling. • Develop a new grid with much smaller exploration blocks for any relinquished or returned acreage. • Institute a practice of holding formal and frequent licensing rounds as soon as possible and the new petroleum law has allowed to 2 licensing procedures.. • Restore the competencies and authority of the National Agency of Natural Resources (AKBN) • Consider simplifying the upstream fiscal system by shifting from profit-sharing mechanisms to a tax-and-royalty approach.
ALBGAZ Sh. A. Combine operator for gas transmission and distribution	• Consolidation of ALBGAZ sh.a. In order to increase the skills and competences in the gas transmission and distribution activity and the development of gas networks in Albania and the interconnection with the region and further. • Develop an Environmental Impact Statement regarding where the off-take line will be located and get approval from the Ministry of Environment • Finalize a Natural Gas Investment Plan and begin planning and budgeting so that the required plans and necessary funds can be developed before the arrival of TAP gas within the next three to four years
Albanian Refining and Marketing of Oil Company (ARMO sh.a.)	• Strongly back efforts (already under way) to re-establish the integrity of the domestic fuels market using rigorous enforcement. • Encourage consolidation of the retail fuels market through certification requirements and potentially also modest land-site taxes. • Support efforts to attract international retailers into the market. • Investigate options to reduce logistics costs in the petroleum sector through refurbishment of disused pipeline and rail infrastructure as well as road-building programs, where appropriate. • Support proposals that might emerge from the refinery owner to reorient its operations. • Exempt fossil fuels used in the refinery operations from the levy of excise duty. • Undertake a feasibility study on renovating the existing refineries or building new skid-mounted mini-refineries

3.8.7 NATIONAL AGENCY OF ENVIRONMENT

The National Agency of Environment (NAE) is an institution subordinated to the Ministry of Environment, which is responsible for reviewing and approving the environmental impact assessment reports for different projects carried out by licensed environmental experts for issuing the environmental permits. Although not a direct report to the MIE, the NAE is responsible for much of the important environmental regulatory work dealing with MIE-related project construction (such as the TAP, and possible rehabilitation of Ballsh and Fieri refineries.

3.8.8 NATIONAL AGENCY OF NATURAL RESOURCES (AKBN)

AKBN is an independent agency reporting to the MIE and is responsible for the development and supervision of the exploitation of national natural resources based on government policies. AKBN is also responsible for monitoring post-exploitation cleanup in the mining, hydrocarbons and hydropower sectors. AKBN's competencies have been redefined more specifically through the amendment to the Law no. 7746/1993 "On hydrocarbons" (Exploration and Production), approved in February 2017.

3.8.9 STATE TECHNICAL AND INDUSTRY INSPECTORATE (STII)

STII is an agency reporting to the MIE that is responsible for preserving the public safety aspects of goods in the marketplace, focusing on electrical appliances, pressure vessels (especially LPG tanks for households and small business). STII is also responsible for public safety aspects of equipment used in power generation, transportation and distribution. Quality control of imported hydrocarbon fuels is included within the mandate of the Inspectorate, but skilled personnel and lack of adequate appropriate testing equipment has hampered these efforts. Although focused predominantly on the electric power sector, as STII has responsibilities in preserving the safety in gas infrastructure as well, the capacity building of this Inspectorate should be one of the near term priorities of MIE. Priority actions for the above mentioned agencies are listed in Table 7.

Table 7: Oil & Gas Sector Priorities and Actions - 4

National Agency of Environment	• Continues monitoring for upstream and downstream oil and gas activities with the main goal to follow strictly Environmental Mitigation and Management Plan for each oil and gas company.
National Agency of Natural Resources (AKBN)	• Develop and implement clear demarcation between agencies as to who is responsible for energy sector planning and statistics if EU compliance is to be assured • Develop secondary legislation for the collection of energy data in general and oil products in particular, including MOS (Monthly Oil Statistics) questionnaire • Internal discussions within MIE should focus on increasing the professional expertise of the AKBN as the basis for the Technical Department, with contributions from the Contract negotiations unit as well
State Technical and Industry Inspectorate	• Sharply increase the technical competency of the staff of the Inspectorates. with a priority in gas sector • Provide laboratory apparatus and equipment needed to undertake the mandated inspections

3.9 NEED FOR A STRATEGIC PLAN FOR OIL AND NATURAL GAS

Albania will provide a vital link and have a concrete institutional role in completing the energy loops that tie Italy, Central Europe and the Balkan states into a more integrated energy system that provides far greater energy security through a multitude of suppliers and energy transportation vehicles. The Albanian Government's vision therefore is to promote economic development by serving as an energy transit corridor for electricity, natural gas and oil in all its forms, to move into greater Europe by sea and by overland pipeline. Its geographic location places Albania in the position of sharing its newly acquired energy sources with those of its neighbors in South East Europe, through the development of energy wheeling networks to strengthen the regional energy security of its neighbors, as well as itself.

Given the impending arrival of the TAP pipeline and the potential reinvigoration of domestic exploration and production of oil and gas both onshore and offshore Albania, the development of an integrated strategic plan for the entire oil and gas economic subsector is critical. Each of the many components of Government that will ultimately be related to the utilization of oil and gas, must be integrated into a single smooth, functioning system, connected to its adjacent related Ministries in such a fashion that the benefits of increase energy access may be shared by the rest of the government and through that, to the population in general.

The broad elements inherent in a national strategy for the oil and gas sector include:

1. **Establishing a baseline** that adequately defines Albania's present place in its oil and gas development.
2. **Defining a series of development objectives** that are to be achieved against a fixed time-line for the plan to succeed by the agreed upon time, currently 2030.

3. **Creating detailed plans for implementation** of each major component of the plan along a time-line.
4. **Adjusting existing Government mechanisms** for administrative, technical management, legal, regulations, and regulatory compliance elements as required to efficiently administer and manage the economic development of the national petroleum resource.

Much of the above has already been accomplished, but needs to be organized and put into a plan format. There has been little apparent movement in this direction so far within Albania's hydrocarbon sector.

3.10 INCENTIVES FOR ENERGY EFFICIENCY INVESTMENT

Given the importance of energy efficiency (EE) measures, which includes RES use on the demand side, specific financing measures and fiscal incentives were examined based on best practices identified by old and new EU Member States. Table 8 shows the types of incentives that have been implemented by EU Member States in order to help achieve the targets set up in their various NEEAPs. The EU member States database[10] describes both the measures and statistical evidence of how well the measures have performed. The applicability of successfully implemented schemes and mechanisms in the EU Member States has been examined taking into account the specifics of Albania's conditions. The details of this assessment, which supports the recommendations in this chapter, can be found in the Technical Annex.

Table 8: Financial Mechanisms and Incentives

Financial mechanisms	Revolving Funds	Fiscal mechanisms	Tax rebates
	Preferential Loans		Tax deduction
	Subsidies		VAT reduction
	Grants		Carbon taxes
	Loan Guarantees		
	Technical assistance for loan preparation	Energy levies	Public EE Fund
	Third Party Financing		Finance DSM program run by utilities
	Energy performance contracting		Shared investment by the utility and energy consumers to reduce the level of demand
	Trading (White/Energy Certificates).		

[10] Energy Efficiency Policy Recommendations, IEA 2008, 2014

3.10.1 GENERAL RECOMMENDATIONS

This chapter proposes recommendations for financing mechanisms and fiscal incentives in Albania to support the sustainable implementation of the Second NEEAP as well as to implement all measures presented under the EE Scenario presented in Section 1 of this strategy. No single measure is going to diminish the challenges which Albania is facing. Only a comprehensive package of awareness and information on legal, financial, fiscal and institutional measures will gradually improve the situation and bring Albania closer to modern standards in the energy efficiency field. Such a package should include:

- Transposition and adoption of technical regulations and other secondary legislation, which should be prepared in the following short term period;
- Fully staffed and operational Energy Efficiency Agency, as leading implementing body.
- Capacity building at all levels;
- Continuous awareness raising campaigns;
- Permanent advice and technical information on EE for all energy consumers;
- Establishment of the Energy Efficiency Fund shall be a legal person, having the status of a non-profit organization and an energy tax as a source of income for the energy efficiency fund;
- The Fund aims to provide financial support and project management for developing a market of energy efficiency improvement and supporting programs for final customers with high-cost and high-risk investments.
- The Fund shall be used to promote energy efficiency improvement programs, energy service companies, independent energy experts, energy auditors, energy distributors, distribution system operators, retail energy sales companies and installers of efficient equipment
- Grants for low cost EE investments for vulnerable groups,
- Energy audits of public buildings;
- Grants for energy audits of multi-apartment buildings, commercial services and industry,
- Loans at lower interest rates from IFIs for EE investment in public buildings,
- Investment deduction for selected EE investments,
- Detailed studies on appropriate fiscal mechanisms to support EE investments, especially related to VAT reduction for selected EE investments the relevant sector,
- Specific financing schemes for vulnerable groups (e.g. a 'Pay as You Save' mechanism),
- Detailed studies on poverty and energy service affordability,
- Regulatory tariff incentives on energy efficiency.

3.10.2 ENERGY EFFICIENCY FUND

Energy efficiency funds are helpful in overcoming market barriers to energy efficiency investments in general and for specific energy consumer groups. At start-up, such a fund needs access to grant financing from global trust funds such as the Global Environment Facility (GEF), and this strategy recognizes that MIE is working in this direction with the support of the UNDP Climate Change Unit. Furthermore, the

Government will try to get loans on favorable terms from IFIs like the World Bank, foreign financial institutions such as Climate Change Fund, WB, KfW, EBRD and the EIB, and bilateral donors for securing the initial EE Fund budget. In addition, the EE Fund will secure an initial fund from the State Budget based on the State Budget Law. The sustainable operation of the Fund will be guaranteed through a stable annual income coming from energy carrier and environmental pollution taxes. Ministry of Infrastructure and Energy will carry out a feasibility study for defining the amount of the expenses for the yearly operation of the fund and also covering the pilot projects carried out in the different sectors. When a market segment is sufficiently developed to attract commercial financing, the Energy Efficiency (EE) Fund's objective has been reached and it can be phased out over the medium-term (at least five years).

Energy efficiency funds are usually established for implementation of national energy efficiency programs and action plans. . An EE Fund may be based on one of three financing options: 1) loan guarantees, 2) interest rate buy-downs or investment deduction and 3) direct loans. EE Fund will not play the role of classic bank and Figure 13 lists the key characteristics of each fund model.

Guarantee Fund	Interest rate deduction / Investment deduction	Direct funding
•Fund provides a guarantee for all or part of the loans given by commercial banks to loan users •Lower risk for commercial banks results in better loan terms and conditions •Repayment from the Fund to the banks depends on loan users' behaviour •High investment to fund costs ratio (usually 4 to 1) •Advantage: Experience with guarantee funds in most of Energy Community Countries (and in New EU MS)	•Fund pays full or part of loan interest rate costs or pays part of the investment •Lower loan costs improve project economic performance •Interest rate payment or investment deduction decreases Fund assets •Disadvantage: Repayment and grace period are often more relevant than interest rate or investment •Advantage: Interest rate is higher in Albania, thus reduced interest rate may make for attractive loans; •Lack of equity fiancing may make loans attractive due to investment deduction	•Fund gives preferential loans to the users directly (reduced interest rate, longer repayment period, longer grace period) •Better loan conditions can be provided •Fund gathers and evaluates loan applications •When loans are reimbursed the Fund can be used again •Funds for environmental protection, EE and RES can be combined

Figure 13: Main characteristics of EE Fund models

Based on the new Energy Efficiency Law, the Government plans to establish soon an Energy Efficiency Fund, which shall function as a legal entity, having the status of a non-profit organization. The Energy Efficiency Fund shall be governed by a Board of Trustees with members representing MIE and other Ministries engaged in the improvement of energy efficiency in the areas under their responsibility. Each of the Fund models presented above can potentially stimulate EE investments. However, these models have different impacts in terms of their ability to mobilize new investment, make efficient use of the Fund's capital and ensure the sustainability of the Fund's operation. Some advantages and drawbacks of Fund models are listed in Table 9.

Table 9: Advantages and Drawbacks of Energy Efficiency Fund Models

Fund model	Advantage	Drawback
Loan Guarantee	• Provide funding for EE investments that are not financially viable under current loan conditions • Reduced risk of non-repayment helps projects to receive better loan conditions from the commercial banks • High guarantee to loan ratio and mobilization of high external investments for the projects • Possible support to development of EPC/ESCO industry • Guarantee can be used again for new loans, once current loans are repaid	• If failure to repay loans by borrowers is higher than expected, the Fund's resources could be used more rapidly than planned and its ability to support new loans diminished • Certain borrowers may not meet the loan standards of the Fund and hence not qualify for financing • If the Fund charges a fee for its guarantee, these costs might be passed on to the borrower, thereby increasing total loan costs
Interest Rate / Investment deduction payment	• Reduced cost of borrowing will increase the feasibility of projects • The Fund benefits from the commercial banks' client portfolio and expertise • Limited or no exposure of the Fund to borrower credit risk	• Interest rate / investment deductions will reduce the Fund's capital until it is depleted • If investment deduction is applied, the Fund resources will be spent faster, leaving no resources for other projects • Does not address essential risks the banks may perceive in making loans • Very limited benefit for small investments
Direct Loans	• Fund provides loans at more favourable and flexible terms than those offered by the commercial banks • Fund is the last alternative for some projects that cannot get financing from commercial banks • Fund may give loans to projects being implemented on an EPC/ESCO basis, supporting developing of this new business model • Once loans are repaid, funds can be used to finance new projects (i.e. act as a revolving fund)	• Significant costs associated with staff training and Fund operation (since the Fund acts as a bank) • Potential legal obstacles for establishing and running such a fund • Fund bears all credit risks • If the Fund's capital is fully distributed then no resources will be available to make new loans for other projects until the first repayments have been collected

However, if the annual income of the EE Fund is secured by energy and environmental taxes, then the sustainability of the Fund's operations can be achieved. Based on the advantages and drawbacks of fund options presented above, the following actions are recommended for the EE Fund development.

- Begin by providing loan guarantees, so that by reducing the risk exposure of the Fund, higher external investments can be attracted.
- Determine the Fund models to be used for different investment projects, according to the type of projects, the level of investment and the type of client.

- Utilize interest rate payment reductions, because the benefits for smaller investments are low.
- Utilize investment deductions with caution, particularly if the annual income of the Fund is not secured since this option spends the Fund's resources the fastest.
- Build up a capability to offer direct loans over the medium-term, cooperating where possible with similar existing state institutions such as a Guarantee Fund, or a Development Fund.
- Draft eligibility and evaluation criteria for investments to be supported by the Fund for pre-screening of potential projects and to ensure that the development of selected projects helps the Fund achieve its priorities.
- Prepare promotion of the Fund among target groups to bring together all potential partner organizations (commercial banks, project developers, clients-investors) that may wish to cooperate with or capitalize the Fund in future.
- Evaluate cooperation alternatives with external financiers and identify how the Fund, partner institutions and clients can benefit from such cooperation.

3.10.3 SUPPORT ENERGY EFFICIENCY MECHANISMS IN BUILDINGS SECTOR

BUILDING EFFICIENCY IMPROVEMENTS

Support mechanisms to improve energy efficiency in the buildings sector are different for public buildings, commercial buildings and households. Taking into account the mechanisms applied in EU Member States, the following suggestions could be used for Albania:

- In additions to EE Fund it is very important to investigate other financing mechanisms, including preferential loans, grants, subsides and third party financing, which are recommended rather than fiscal mechanisms;
- Financing of energy efficiency measures in central and municipal public buildings should be organized by the government in close collaboration with local authorities. Improvements in the energy efficiency of public buildings and public street lighting may be financed from grants that are still provided by IFIs and PPP model/ESCO projects. Grants and soft loans should be sought from IFIs for specific activities. PPP model/ESCO projects typically include detailed energy auditing, technical design, implementation and monitoring and verification of the results (energy and cost savings, cost and energy indicators); Also,
- Improvements in the energy efficiency of commercial buildings should be financed by preferential loans from existing guarantee funds such as the EBRD Sustainable Energy Fund (SEF) Programme (under Western Balkan Sustainable Energy Programme). Implementation of Western Balkans Green Economy Financing Facility (WB GEFF - Residential) in the Western Balkans, focusing on the residential sector through the EBRD is supporting Residential sector with grants for all projects that reach 20% energy savings or 20% reduction of CO2 emissions. Albania will be included in this scheme during the year 2017 and the program will continue until 2020. Energy audits and technical advice are already granted from EBRD Western Balkan Sustainable Energy Direct Financing Facility (WeBSEDFF) program through financial support provided by the EBRD/EU;
- Some external financing for commercial building energy efficiency is also available in the form of preferential loans (which include incentive payments) combined with technical assistance

energy audits provided free of charge for the borrower) launched by IFC, GGF and from private banks with their internal funds;

- Financial support to improve the energy efficiency of households should combine awareness, technical advice and information, and preferential loans for EE investments from an established list.
- Financing of low income households should focus on low cost measures and technical advice which will be subsidized either from a state budget allocation or from local authority budgets and by redirected subsidies from energy utilities to end-users;

SOLAR WATER HEATING INCENTIVES

The following financial and fiscal measures for promotion of solar hot water technologies should be further investigated and recommended to be followed to maintain the momentum of such technology use in residential, commercial and public buildings as well as in some industrial sectors.

- Exempt producers of solar thermal systems from the customs duties and VAT for these solar water heaters.
- Reimburse producers or assemblers of the solar water heating systems providing sanitary or technological hot water the customs duties paid for the raw materials imported for actually assembling or producing solar water heating systems. The Council of Ministers, upon the proposal of Minister responsible for energy, shall approve the rules and procedures for governing reimbursement of such customs duties.
- The Council of Ministers, upon the proposal of the Minister responsible for energy, shall determine the economy sectors and the categories of buildings, the minimum area or the capacity of the solar water heating systems, technical requirements of solar water heating systems to be installed as well as the specific procedures and criteria to be followed regarding the enforcement and monitoring of such an obligation by the responsible institutions.

3.10.4 SUPPORT ENERGY EFFICIENCY MECHANISMS IN INDUSTRY SECTOR

The only grant program available for the industry sector is managed by EBRD (WeBSEDFF) with a grant level up to 20% of the loan amount required, and Albania is part of this scheme since 2010. IFIs usually extend loans to local Participating Banks which then provide loans to private sector companies for industrial energy efficiency projects. In Albania, the new EE Law defines an ESCOs role, and the Government support to ESCOs, based on new secondary legislation that will be prepared during 2018 and will assign their development to the private sector only.

3.10.5 SUPPORT OF ENERGY EFFICIENCY MECHANISMS IN TRANSPORT SECTOR

On average in the EU, half of the measures in the transport sector are directly targeted at cars and that share rises to 60% if measures on fuel substitution (e.g. on the promotion of biofuels) are also included. Only a limited number of measures address freight transport, despite it being the transport mode with the most rapid increase in energy consumption in last decade. Two-thirds of national measures target improvement in the efficiency of -or reduction of CO_2 emissions from - new cars, with financial incentives to purchase more efficient/low emission new cars being the most common measure. Based on the experience of new and old EU Member States discussed above, and different financial and fiscal

mechanisms, the following are recommendations that can be implemented in Albania and can bring significant EE improvements in the transport sector:

- Require Vehicle Technical Centers (VTCs) to provide strict and regular technical testing, including measurement of air pollutant and CO_2 emissions, for all categories of cars and freight transport. These VTCs will be useful for governments in preparing taxes related to energy efficiency and forecasting of transport energy use and in providing a realistic basis for target setting and effective regulation.
- Develop measures for a purchase tax and annual tax on cars and other vehicles should be linked to energy efficiency performance. It will be useful to study the example of the French government, which has taken innovative action in this area by setting up a combined subsidy and tax scheme, with a subsidy for low emission cars (i.e. <130g CO_2/km) and a tax on cars with high emissions (i.e. above 161g CO_2/km).
- Establishment and implementation of EE criteria in procurement of state and municipality vehicles and transport services.
- Another measure to be developed for the medium-term is the introduction of road charging. Road charges for heavy goods vehicles are already in place in many EU countries. The German Toll Collect system is an innovative system that uses satellite-guided systems rather than conventional tolls and links road charges to the vehicles' emissions factor. The toll revenues are used to subsidize rail and water transport infrastructures.

3.11 ELECTRICITY TARIFF REFORM

3.11.1 LONG-TERM STRATEGY

The long term tariff strategy for the Albanian power sector should take account of the following interconnected features.

- The evolution of the power market in Albania, particularly the creation of a competitive wholesale and retail market which will require legally, functionally and financially separate transmission and distribution entities.
- Abandoning price regulation in the wholesale market (including through PSO), and continue with deregulation of the public generation according to the Power Sector Law
- The insolvency of the entire Albanian power sector and the importance of restoring it to solvency over time to avoid the need for government subsidy.
- The priorities for development of the sector and in particular the enhancement of the role of renewable energy through the development of small scale hydro, wind and solar PV capacity in order to meet EU and national priorities and sustainability.
- The priorities for development of the sector and in particular the enhancement of consumer benefits in terms of securing supply of electrical power and quality of service.
- The development of sustainable tariff reforms in order to protect especially vulnerable customers as well as to increase the efficiency of the electrical power system of Albania.

- The integration of the Albanian power market with the regional market, and later with the European power market in compliance with the *acquis*.

3.11.2 POWER MARKET EVOLUTION

Significant changes in the power market will create a regional market for power generators, with all generation passing through the market. Albania will have improved insurance against dry years when hydro generation falls below normal levels, providing greater consistency in costs between wet and dry years as the regional market improves price stability for generation. KESH is likely to become significantly more profitable, especially in wet years, by selling into a regional market against higher cost thermal generators. The extent to which KESH can become profitable depends partly on how much electricity it can sell to the market and how much (if any) it is obliged to sell under the public service obligation. The overall impact on Albania and the extent of imports and exports are also uncertain and will depend on both the evolution of the market and power sector investment decisions in both Albania and the countries with which it trades power.

3.11.3 SECTOR INSOLVENCY

The insolvency of the Albanian power sector is quite severe. It stems in large part from the performance of the distribution company OSHEE since there are excessive technical and non-technical losses in the distribution sector and inadequate collection of cash from customer bills. In principle, this problem can be addressed by significant financial injections from the Government, by policy and other reforms to improve the financial performance of sector entities or by a combination of these two approaches. Given that government finances are very tight and policy reforms would be needed to complement any financial injections in order that such injections were not required regularly. Therefore, the focus should be on initiatives that can improve financial performance through initiatives in the sector that do not require government funding or an expectation of any other external finance.

Reforms implemented by the Albanian government in 2014, improved the ability of OSHEE to collect overdue debts accrued over the years. Moreover, it decreased non-technical losses of power in the local grid due to the unlawful interventions of third parties. Specifically, the amendments of the Albanian Criminal Code (Law n. 7895), in full force since September 2014 increased the legal responsibilities of any individual and/or legal entity unlawfully stealing electricity. The Government needs to continue to improve the financial solvency of the OSHEE and of KESH which will help promote important investments in the power sector.

3.11.4 RENEWABLE ENERGY

The Government has committed to a policy of increasing the use of renewable energy, primarily hydropower, solar and wind, with small-scale hydropower having the highest priority. Methodologies for offering support schemes have been developed as part of this strategy and are described in the Technical Annex. At this stage they address general principles. However, the detail will need to be kept under review as the Albanian power market evolves. In particular:

- Government will ensure that the levels of all renewable energy sources generating electricity offered to the market are manageable within the framework of other electricity sources and the evolving market.

- There is already extensive experience in commissioning small scale hydro projects through concession agreements. Such hydro projects are therefore likely to continue to be the main source of renewable energy projects, building on this experience. However, for solar and wind projects there is little previous experience. The Government has defined the FiT for solar, wind and biomass energy in order to promote the best site and in the same time help to reach the respective targets
- The development of a regional market is likely to lead to greater variation in prices over the day, season (winter-summer) and the benefits of by optimizing the utilization of scale hydro projects with small solar photovoltaic and wind power plants to help balance intermittent solar and wind power will increase significantly benefits and the tariff policy should recognize this.

3.11.5 RETAIL PRICES AND TRANSMISSION TARIFFS

The developments discussed above will not affect the methodology for retail prices applied for electricity supply under public service and the role of the Universal Service Provider directly. However, there are potential significant implications as the market develops, generation tariffs are being deregulated, and increased renewable generation introduces greater uncertainty into estimating the level of generation. There are two broad areas in which changes are likely to be needed:

- Changes in retail Universal Service prices structure to respond to variations in generation prices and make tariffs more cost reflective for that particular category of consumer.
- Actions by the system operator to incentivize short term management of the balance between supply and demand through a competitive balancing market.

For the system operator, OST, the new market arrangements will mean that balancing supply and demand becomes more complex. System operators have devised numerous ways of coping with the challenges arising from this complexity. The arrangements will depend on the characteristics of consumer demand on the Albanian system. The responsibility for devising innovative mechanisms for balancing demand will include balance responsibility and competitive balancing market, enforced and implemented by OST. However, the Government will want to ensure that the utilities are thinking ahead in devising new mechanisms and ensuring that the quality, economy and reliability of the power system are enhanced by them.

3.11.6 FINANCIAL RESTRUCTURING OF THE ALBANIAN POWER SECTOR

Albania's power sector has made financial and operational progress in recent years. Results for 2015-2016 suggest that all three major utilities were profitable and showed financial performance improvements compared to 2014. Supplies are generally reliable, although voltage sometimes drops to very low levels at the end of long distribution lines. However, the power sector faces three interconnected and major issues. These issues are only partly within the capacity of ERE as regulator to resolve. In particular, the Government, as owner of the main generation, transmission and distribution companies, has to exercise its ownership responsibilities more effectively in order to resolve these issues and create a more sustainable power sector.

The three core issues are firstly the insolvency of the sector, in particular the distribution company OSHEE, secondly excessive technical and non-technical losses in the distribution sector and thirdly inadequate collection of cash from customer bills. The reform implemented by the Albanian

Government recently in the power electricity sector aimed at collecting debts and enforcing the prevention of energy non-payment[11] by customers has had some impact, but the financial position remains difficult. The extent of the insolvency of the sector can be illustrated by the financial position of OSHEE, which had negative equity of over 55 billion ALL at the end of 2015 (Figure 14). This is an improvement as there was negative equity of over 71 billion ALL at the end of 2014 but it is uncertain whether this performance improvement can be sustained. Moreover, the financial data of the OSHEE balance sheet for the first semester of 2016 made available online in its website[12], shows a further improvement in the financial position of the company compared to 2015.

The position of KESH is better in that its balance sheet appears solvent but the company has significant short term credits and loans, much of it in the form of an overdraft, amounting to over 44 billion ALL at the end of 2015. This is also an improvement on the 2014 position when short term credits and loans amounted to over 49 billion ALL but KESH would not be capable of repaying the overdraft and other short term debt in the near term. In principle an overdraft is repayable on demand by the bank and as a matter of principle the balance on the overdraft should reduce to zero at least once during each year. The overdraft is providing long term financing for the company's operations. Similarly, the transmission company OST had trade receivables of 9.5 billion ALL in 2015 and 9.7 billion ALL in 2014, again showing a small improvement. These amounts are largely receivables due from OSHEE and are equivalent to over a year's transmission revenue. This in turn damages the position of OST.

Resolving these issues can only be achieved over a period of time. There are manifold challenges in devising a package of measures which will deliver improved performance while achieving political and social acceptability. Responses are required from both ERE and Government. These are necessary conditions for sectoral performance improvement. Their effectiveness can be enhanced by a number of further financial reforms to boost sector performance and by changes to the way the ERE reviews investment plans in order to make its role more manageable. The Government will work with ERE to develop a joint plan to carry out the reforms.

[11] The available data shows decreased of the non-paid energy from 52% in 2013 to about 29.8% for the first six months of 2015.

[12] http://oshee.al/rezultati-financiar-i-6-mujorit-i-2016-per-OSHEE/

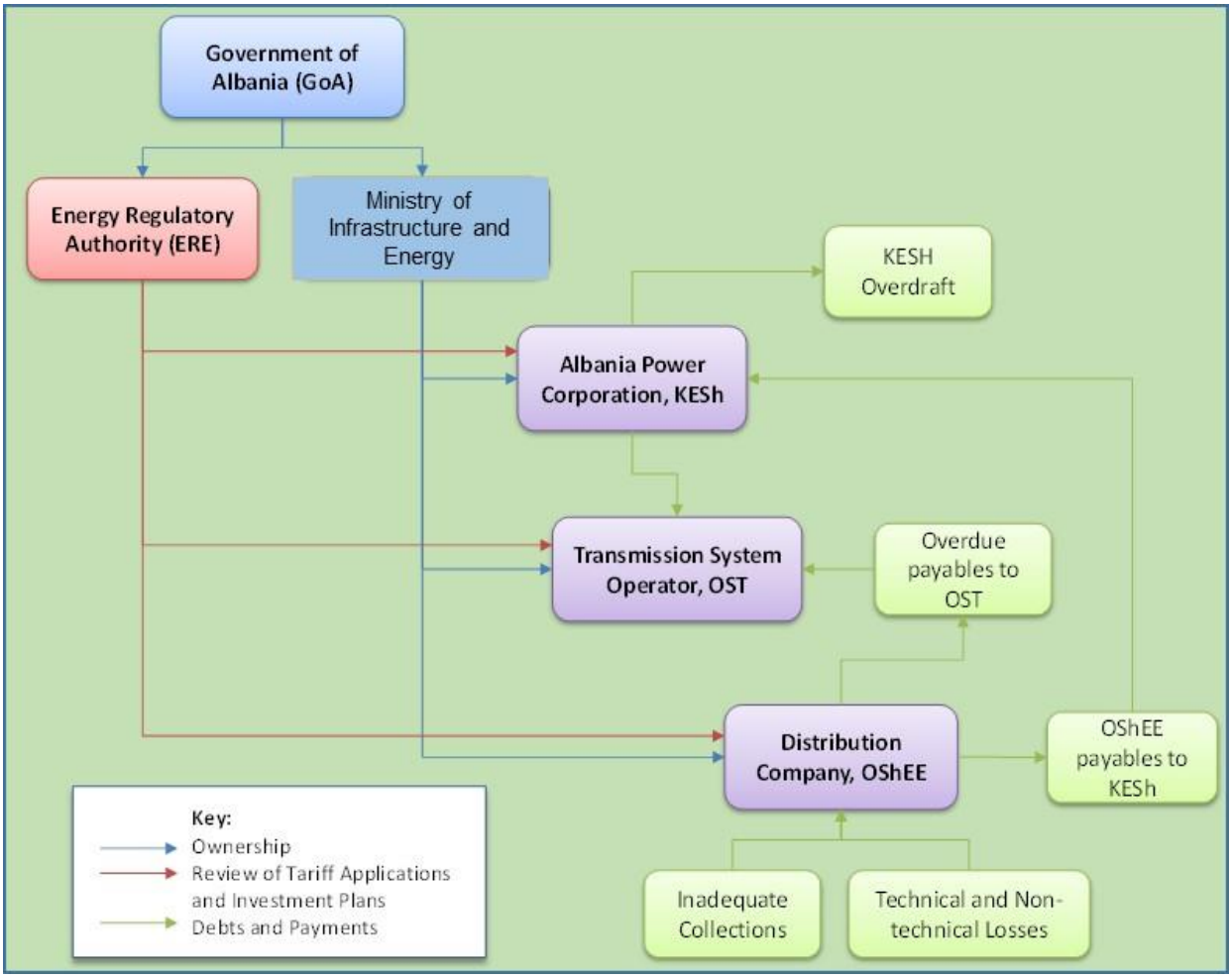


Figure 14: Institutional Arrangements in the Albanian Electricity Sector

Better management of losses and cash collection can lead to huge improvements in sector financial performance. Such improvements can be complemented by a number of other financial initiatives that will help to enhance performance further. The following activities would be clearly complementary to loss reduction initiatives:

- Developing a sector financial model.
- Reformulating the Universal Service Supplier responsibilities.
- Permitting the utilities to earn a higher rate of return on equity.
- Carrying out financial restructuring of each of the utilities to place them in a solvent position.

3.11.7 DEVELOPING FINANCIAL MODEL

At present Government and ERE do not have a comprehensive financial model to help inform decisions regarding the entire electricity sector. Government should create one interconnected model that connects the accounting structures of the three publicly owned utilities so that the overall financial implications of tariff and other regulatory and financial decisions can be evaluated quickly and easily. The model should cover all the interactions between the generation, transmission and distribution businesses

so that, for example, the impact of an increased generation tariff on distribution tariffs and financing can be evaluated. It should also have the capacity to make forward projections so that the impact of investment programs and the evolution of the regional power market can be evaluated. It should enable the calculation of financial ratios such as the debt equity ratio, self-financing ratio and debt service coverage ratio. The model should enable both government and ERE to carry out evaluations of power sector finances.

3.11.8 UNIVERSAL SERVICE SUPPLIER RESPONSIBILITIES

At present, the Universal Service Supplier (USS) responsibilities are a mechanism which enables certain categories of consumer to benefit from the availability of relatively less expensive power from regulated, state-owned hydro generation. In the past all consumers were beneficiaries, but the USS is being progressively withdrawn from high and medium voltage consumers as the power market evolves. Consumers connected to the distribution network at 10 kV and 6kV will cease to be eligible for supply by the USS on December 31, 2017. Thereafter, only low voltage (0.4 kV) households and eventually small enterprises will qualify to get supply service from USS. Nevertheless, the low voltage customers shall be eligible to switch to a competitive retail on their own accord.

Government, supported by ERE, will need to develop further and replace the USS responsibility with a clear government commitment to support alleviation of energy poverty for the socially vulnerable consumers rather than uniform support across customer classes at lower voltages. Once such customers are identified and the conditions are regulated and enforced, a lifeline tariff could be applied to the poorest consumers applying funds outside the electricity market (with no cross-subsidizing), with other consumers paying cost reflective tariffs. The Government will seek to define the criteria in a transparent manner. The financial impact of this on the responsible suppliers (i.e. OSHEE) would still need to be determined and such suppliers to be compensated without disturbing the electricity market or cost of supply to other consumers.

3.11.9 RATE OF RETURN FOR KESH

The present tariff model only permits KESH to earn a return on its assets equivalent to the one-year government bond rate. This rate is likely to be too low for a power utility which requires long term finance for up to thirty years. In general, longer term debt commands a higher interest rate than short term money such as one year bonds. Equity rates of return are higher still. KESH is highly unlikely to be able to achieve adequate self-financing for its investment program unless it is permitted to earn an equity rate of return on at least some of its investment. This will continue to be an issue as long as KESH continues to sell some power to OSHEE under special arrangements and outside the market. Once all power passes through the market it will cease to be an issue.

3.11.10 FINANCIAL RESTRUCTURING

At some point a substantial sector financial restructuring is likely to be required to place all power companies on a sustainable basis. This may for example require the write off of some debt owed by OSHEE to KESH. The aim should be to place debt within the sector on a sustainable and commercial basis. This sort of restructuring is only worthwhile if the various parties are required to operate on a commercial basis in the future. Thus, current interventions such as the government requirement that OSHEE only needs to pay 85% of the invoice for transmission tariffs from OST would have to be

dropped. These sorts of interventions serve only to entrench mismanagement in the sector and have no role in a commercial power sector.

3.11.11 IMPROVING MANAGEABILITY OF THE REGULATOR'S ROLE

At present ERE tries to review tariff applications against very tight time deadlines. ERE could discharge its responsibilities more effectively if the submission of tariff applications was separated from the submission of investment plans for transmission and distribution. Investment plans could be submitted at a different time of year and developed more thoroughly in a way that would enable ERE to review the plans more effectively and approve investment with more confidence. There are already requirements for the transmission and distribution companies to produce ten and five year investment plans respectively and this requirement should be enforced within the next year.

ERE should develop formats and timetables for the separate submission of investment plans by the transmission and distribution utilities. Government will also benefit from this initiative as it will enable government, as owner of the companies, to scrutinize their plans more closely. The plans should demonstrate that the companies have the financial and operational capacity to carry out the proposed investment plans and be realistic in the light of performance in previous years.

The steps required to implement the program described above and possible timings are outlined in Table 10. It is assumed that there will not be any government cash injection to the sector.

TABLE 10: Steps Requires to Improve Power Sector Financial Solvency

Item	Timing	Responsibility
Requirement from ERE and government for OSHEE to develop performance improvement plan to reduce losses and increase cash collection	Early 2018	Government and ERE to instruct OSHEE Jointly
OSHEE to develop performance improvement plan, for review by government and ERE	First version in June 2018 then updated annually	OSHEE
Develop sector financial model	By end of 2018	ERE, with external assistance
Permit higher returns for KESH	In 2018 price approval	Government to approve
Perform financial restructuring	Complete in 2018. Final timing depends on performance improvement	Government to authorize, ERE to oversee implementation
Reschedule submissions to regulator	From 2018	Government and ERE jointly

3.11.12 EXPERIENCE WITH FEED-IN TARIFFS FOR RES TECHNOLOGIES

The electricity tariffs for qualifying RES generators needs to reflect the cost of service, and the recommended strategy for a support schemes according to the RES Law and the respective Council of Ministers Decisions for Small Hydro Power Plans (SHPPs), Photovoltaic Power Plans (PvPPs) and Wind Power Plans (WPPs). Tariff setting process is based on a number of important documents: a) Existing structure of electricity tariffs; b) RES Targets for the period 2014-2020 and the impact of RES- support schemes for average electricity tariffs; and c) Qualitative analysis of year 2015 on costs and average

tariffs. The Technical Annex presents a summary of the core characteristics of support schemes used in a variety of countries in the E&E region. Of the nine countries studies all use feed-in tariffs as support mechanisms except one, where tradable green certificates are being used. The regime of tradable certificates was included in the review as it offers valuable insights to the set-up of alternative support mechanisms. All regimes are a market based support schemes systems. In addition to the obligation of connecting RES generators, most support systems also require suppliers or grid operators to purchase RES generated electricity based on the purchase supporting obligation scheme of RES-e generation.

3.11.13 PROPOSED SUPPORT METHODOLOGY FOR RES PLANTS

The new RES Law specifies that a support schemes system will be introduced that takes into account the type of technology and efficiency of generating equipment. The new RES Law also provides other incentives such as:

- Establishment of a national RES target in the total energy final consumption;
- Obligatory connection to the transmission or distribution networks;
- Payment only of the direct costs of connection to the electricity transmission or distribution networks;
- Long-term (15 years) power purchase agreements for the electricity produced from Priority RES power plants up to 15 MW installed capacity will remain the same. However, the support scheme will be based on a contract for differences. ERE will prepare the respective secondary legislation for their implementation.
- Obligatory off-take of the electricity produced from Priority RES power plants

In addition, all RES plants with installed capacity higher than 2 MW will now have balancing responsibilities. As a result of these measures, interest in RES power plants has grown considerably and new plants have started to be constructed – initially small hydropower and photovoltaic power plants, which are the best-known and available technologies. In addition, several investors have started to request authorizations for wind turbines as well as biomass power plants.

A key component of the new RES law is a new tariff methodology which is the result of a study ERE had undertaken in June 2017 to define the most appropriate methodology. Because the private sector has been identified as the key player in the development of the RES sector, the focus of the methodology was to consider the rate of return on the project from the viewpoint of the private investor. Hence the study came to the conclusion that the result of a long run marginal unit cost (LRMC) analysis should be the basis on which the feed in tariff for each type of qualifying RES power plant must be based. The study concluded that:

- The EU targets for renewable energy share can only be met by a significant share of new SHPPs, the utilization of solar energy for providing heat and electricity, traditional and new industrial biomass resources, and wind power plants, which requires mobilization of the private sector.
- The level of investment needed will requires considerable involvement from private investors who are looking for an attractive rate of return on their investment.
- Given the current market conditions: 7-10 years loan maturity, 2 years grace, a rate of return on equity 15-16% should make an investment attractive to this sector

The new RES Law requires the Council of Ministers to approve, based on the proposal of ERE, the methodology for establishing the support schemes for Priority Producers of SHPPs, PvPPs, WPPs, BioGas PPs. It is important that the methodology (i) allow the recovery of the investments in the installation using the currently available renewable energy technology with reasonable profit, (ii) determine the maximum installation size for each type of qualifying RES technology, (iii) determine the total installed capacity for each type of RES technology that will benefit from the support schemes, (iv) take into account the social and economic impacts of the support scheme on consumers, (v) include an indexation formula to cover inflation for each year, and vi) establish a formula for the calculation of any additional RES Surcharge on end-user's electricity price for all electricity consumers in Albania.

The new RES Law specifies that the support will be given under a contract for differences (CfD) that provides a variable premium calculated as the difference payment between an administratively prefixed price (the strike price) and a measure of the market price for electricity (the reference price).

- The strike price (support schemes level) has to be calculated in such a way as to make a significant volume of a particular renewable energy technology economically viable and as such incentivize investment decisions. The reference price is a price which is based on Albanian Power Exchange (APEX) price or before on comparable wholesale market price in a given period. To ensure that the renewable energy producers are not being overcompensated, the off-takers are obliged to pay the difference between the reference price and the strike price to the CfD.
- Financial support under a contract for difference (CfD) and the level of such support is in principle to be determined via a competitive, non-discriminatory bidding process (auction) to become a qualified producer of electricity from renewable energy sources.
- CfD's will have a duration of 15 years.

The relationships among and the role of market participants in the physical operation of the Market Model are defined by agreements between the individual participants and the Albanian Power Exchange (APE) and TSO, or regulated through applicable standard bilateral agreements. All RES power plants are divided in two groups: all RES plants with installed capacity lower than 2 MW will not have any balancing responsibility; and all RES plants with installed capacity greater than 2 MW will have balancing responsibility. Any fine/fee/penalty that will be imposed for not meeting balancing responsibility and how it will be decided under draft RES Law by Decision of Council of Ministers, which will be needed to be drafted and approved for practical implementation of the APE and future RES Law requirements. The Technical Annex provides detailed proposals for the methodology of calculating strike price for specific RES technologies. Table 11 presents the strategic recommendation to be taken into consideration during the calculation of supporting scheme based on the new RES Law.

TABLE 11: MAIN TECHNICAL AND FINANCIAL PARAMETERS TO BE TAKEN INTO CONSIDERATION FOR THE RES SUPPORT SCHEME

	SOLAR PHOTOVOLTAIC (PV)	SMALL HYDRO POWER PLANTS (SHPPs)	WIND POWER PLANTS (SHPPs)
1	An installed capacity target should be established for each RES generation type foreseen to be needed to be reached the 2020 targets of the RES Action Plan and for 2030 projections according to the RES scenario under this Strategy.		
2	The support schemes methodology should take into consideration the size/capacity of the RES plant		
3	Support schemes for Solar PV proposed for Albania should not be lower than all countries and especially lower compare with border countries.	Support schemes for SHPPs defined for Albania should not be lower than all countries and especially lower compare with border countries.	Support schemes for WPPs defined for Albania should not be lower than all countries and especially lower compare with border countries.
4	Average Annual Solar Radiation measured for the site is a very important parameter to be used for definition of support schemes	Average Annual Water Flow at the Intake for the respective river is a very important parameter to be used for definition of support schemes	Average Annual Wind Speed for the respective site is a very important parameter to be used for definition of support schemes
5	Average Investment Costs based on the international benchmarks is 1500-1750 Euro/kW peak for medium size capacity	Average Investment Costs based on the international benchmarks is 1000-1550 Euro/kW for medium size capacity	Average Investment Costs based on the international benchmarks is 1250-1650 Euro/kW for medium size capacity
6	Operation and Maintenance in the case of Solar PV systems are 1.2-1.5% of total first investment based on the international benchmarks	Operation and Maintenance in the case of SHPPs systems are 1.7-2% of total first investment based on the international benchmarks	Operation and Maintenance in the case of WPPs systems are 1.5-1.7% of total first investment based on the international benchmarks
7	Electricity Generation of Solar PV system is depended from the efficiency of unit, the solar radiation and average annual number of sunshine hours.	Electricity Generation of SHPPs system is depended from the efficiency of unit, the water flow duration curve and average yearly load factor.	Electricity Generation of WPPs system is depended from the efficiency of unit, the average wind speed, wind regime and average yearly load factor.
8	Weighted Average Capital Cost (WACC) consider in the calculation of FiT for RES WACC should be at least 15-16%. This value is considered the minimum for all RES scheme in general. PV power plants in particular will be financed from developer equity (banks in Albania are requiring 40-50% of total investment) and banks loans) the remaining 50-60% of total investment) based on the Project Financing Concept. So, in order to convince the Financial Institutions during the initial years of the FiT, the allowed WACC needs to be higher than 15-16%.		
9	Duration of the incentive: According to Concession Law related to the support scheme, the applicable promotion scheme consists of the Public Supplier (OSHEE) entering into a fifteen (15) year power purchase agreement with all Priority RES Plants admitted to the support scheme, pursuant to which OSHEE purchases electricity at feed-in tariffs. .		
10	Indexation of CoD: FiTs are annually adjusted according to inflation for new power plants. Once the CoD was awarded to a specific facility, there is no longer indexed. ERE has decided to index the yearly CoD with inflation index HICP according to the NACE Rev2 and published from EUROSTAT		
11	Allocation of network investment costs: The Albania grid code currently allows the cost of deep network connections to be charged to the developer, which increases the project costs and has a negative impact on the investor returns. The RES law provides that Priority RES Generators should pay only of the direct costs of connection to the electricity transmission or distribution networks, while the upgrade of the network is a responsibility of both system operators. ERE should improve the transmission and distribution codes in order to include practical rules for the implementation of this measure.	Allocation of network investment costs: The Albania grid code currently allows the cost of deep network connections to be charged to the developer. This approach increases the costs especially for SHPPs less than 2 MW and has a negative impact on the investor returns and interest.	Allocation of network investment costs: The Albania grid code currently allows the cost of deep network connections to be charged to the developer. This approach increases the costs for WPP developers and has a negative impact on the investor returns and interest.
12	Licensing procedures: Licensing procedures are almost the same for medium RES (>2MW) and very small one like Solar PV, SHPPs, WPPs (20-2000 kW) systems. This will require a lot of preparatory work (and respective investment will be increased) and FiT should be impacted. In order to reduce the investments required in preparatory phase the licensing procedures need to be simplified especially for small Solar PV, SHPPs and WPPs less than 2000 kW.		

3.12 ALIGNING ALBANIAN ENERGY LEGISLATION WITH ENERGY COMMUNITY AND EU DIRECTIVES

Albania's energy sector is governed by primary and secondary legislation. In line with its commitments under the Energy Community acquis and as part of its strategic objective to accede to the EU, the Government of Albania has worked to align its legislation with the legal framework of the EU. The government aims to establish clear and transparent responsibilities for the implementation of the Acquis. Legislation and regulations in the energy sector fall under four major categories: primary legislation, secondary legislation, international agreements and EU directives.

3.12.1 PRIMARY LEGISLATION

Relevant primary legislation includes the Power Sector Law No. 43/2015, the Natural Gas Sector Law No. 102/2015, the Energy Efficiency Law No. 124/2015, the Renewable Energy Sources Law No. 8/2017, the Law No. 68/2012 "On Information of the Consumption of Energy and Other Resources by Energy-Related Products", and the Law on Energy Performance of Buildings No. 116/2016 And the Law on biofuels in transport (2008).

3.12.2 SECONDARY LEGISLATION (BY-LAWS)

The Albanian Government, MIE and ERE are reviewing the secondary legislation in power sector, with the aim of putting them in line with the requirements of the new Power Sector Law. The secondary legislation subject to review are provided below.

Government decisions:

- The DCM no 52, dated 25.01.2017 "On the approval of the procedure for authorization of construction the direct lines", was approved by the Albanian Council of Ministers in January 2017.
- The DCM no.16, dated 11.01.2017 "On the approval of the procedure for authorization of building new interconnectors", was approved by the Albanian Council of Ministers in January 2017.
- The Decision of the Council of Ministers (DCM) no. 519, dated 13.07.2016 "On the approval of the Market Model of the Power Sector", was approved by the Government in July 2016. This DCM sets out the steps that the Government is taking in the process of transitioning the vertical integrated structure of the electricity sector, towards a structure with legally, functionally and financially separate generation, transmission and distribution entities. In addition, it specifies the political objectives of the Government to the process of privatization in the power sector and its harmonization with EU power sector directives. Moreover, this market model aims at developing an electricity market according to clear market rules and grid codes as the minimal technical requirements for efficient power system operation. Notwithstanding, the new market model will be implemented once the establishment of the Albanian Power Exchange, which is still pending, has been achieved.

- According to DCM no. 449, dated 15.6.2016 "On the approval of terms and procedures to appoint the last resort supplier (LRS) of power electricity", the LRS appointed by ERE will be obliged to supply customers with electricity in case where the previous supplier becomes insolvent or subject to bankruptcy proceedings, or the license of the previous supplier has been revoked or suspended, or where it is impossible for the customer to find a supplier within the local market. On 7 July 2016 by its decision no. 155, ERE appointed OSHEE as the new LRS for an initial period starting from 07.08.2016, up to 31.12.2016. Such period was further extended by ERE until end of June 2017.
- The DCM no. 317, dated 27.4.2016 "On the appointment of the public authority which represents the state stakeholder's rights in the share capital of the public owned companies acting in the power sector", was approved by the Government in April 2016. This DCM sets out MIE as the public authority entitled to represent the state interests in the share capital of the public owned companies KESH and OShEE, and specifies the Ministry of Economic Development, Tourism and Trade as the entity that represent the state stakeholder's rights in the share capital of OST.
- The DCM no. 244, dated 30.3.2016 "On the approval of the public service obligation to the licensed operators which generate, transmit, distribute and supply the electricity", sets out the terms and conditions that the operators, licensed in the power sector to generate transmit and distribute electricity, must comply with in order to offer these public services. The decision was amended in December 2017 transferring the right to establish the selling price from KESH to OShEE to the Shareholder's Assembly of KESH.
- The DCM no. 27, dated 20.1.2016, "On the National Renewable Energy Action Plan 2015 – 2020", was approved by the Albanian Council of Ministers in January 2016.
- DCM no. 822, dated 7.10.2015 "On approval of the regulation for procedures of granting permits/authorizations for the construction of new power generation plants/facilities not subject to concession" as amended, sets out the necessary procedures and documents for application, evaluation and granting of an authorization for building a new power generation capacity that is not subject to concession. It repealed the outdated DCM no. 1701, dated 17.12.2008, enacted according to the abrogated power sector law no. 9072, of 2003.
- The DCM no. 125, dated 11.02.2015 "On the approval of the financial recovery plan in the power electricity sector", was approved by the Government in February 2015.
- On December 7, 2016 the Government approved DCM no. 848 "On the incorporation of the new joint stock company ALBGAZ Sh.A and the appointment of the public authority which represents the state stakeholder's rights in the share capital of the public owned companies ALBPETROL Sh.A. and ALBGAZ Sh.A.". This DCM authorizes the spinoff of the gas unit within the company ALBPETROL Sh.A., and incorporation of a new independent entity in the form of a joint stock company namely ALBGAZ Sh.A to be owned 100% by the State. It is projected that such new entity will serve simultaneously as a combined transmission system operator and supply system operator of natural gas in Albania. According to the DCM, MIE is appointed as the public authority which represents the state stakeholder's rights in the share capital of ALBPETROL Sh.A. On the other hand, the Ministry of Economy, Tourism, Trade and Entrepreneurship is appointed to represents the state stakeholder's rights in the share capital of ALBGAZ Sh.A. Art. 7 of this DCM sets out the obligation of the new entity ALBGAZ Sh.A.

to apply to ERE for the certificate of the transmission system operator according to Art. 37 of the Natural Gas Sector Law No. 102/2015. In addition, it is required to obtain the license of the combined system operator of natural gas pursuant to the procedures of Art. 22, 23 and 24 of the same law.

Other relevant legislation connected or related to the energy sector:

- Amendment of the Law on Concessions and Public Private Partnership No. 77/2015, was approved by the Albanian parliament in July 2015. It provides for liberalization of the energy market, increases competition, and encourages the development of renewable resources as well as the attraction of foreign investments. Specifically, the amendments of this law exclude the applicability of the concession and Public Private Partnership (PPP) tender procedures for the construction and operation of renewable energy sources up to 2MW according to the Law on Renewable Energy Sources No. 138/2013.
- DCM no. 575, dated 10.07. 2013 "On approval of evaluation rules and award of concessions/public-private partnership" defines the detailed procedures and requirements for the evaluation and award of concession applications for hydropower plants.
- DCM no. 416, dated 13.05.2015 "On approval of the general and special conditions, accompanying documents, term of validity, application forms for authorization and permit, procedures for the revision of decision-making process and permit authorization forms for the use of water resources", defines the specific conditions and procedures for reviewing and decision-making to grant an authorization or permit for use of water resources, including the use of water for construction of hydropower plants.

3.12.3 INTERNATIONAL AGREEMENTS AND STATUS OF IMPLEMENTATION

In 1997, Albania ratified the Energy Charter Treaty and the Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA), which committed the government to draft and implement policies for improving energy efficiency and reducing the negative environmental effects of the energy system. The aim of PEEREA is that contracting parties, including Albania, shall cooperate by assisting each other in developing and implementing energy efficiency policies, laws and regulations. In fulfilling its commitments under PEEREA, Albania presented a regular review of its energy efficiency policies in 2007.

The Energy Community Treaty ("ECT") was approved by the Albanian Parliament in April 2006 (Law No. 9501, dated 3.04.2006). It provides a legal framework for convergence with the EU's energy acquis[13]. Being a contracting party to the ECT, Albania has made binding commitments to implement the relevant EU Acquis on energy, environment, RES and competition and to promotion of investments, statistics, and social policy. Albanian authorities have explicitly acknowledged that energy efficiency and renewable energy deployment have the potential to bring benefits to the local consumers, reduce emissions and contribute to security of supply. Energy security, sustainable development and

13 The EU's "acquis communautaire on energy" is defined in Annex I of the Energy Community Treaty and includes a number of EU Directives and Regulations that are core to the regulation of the energy sectors of EU member states.

international obligations are identified as the main drivers of energy efficiency policies with competitiveness, employment, comfort and climate change providing further incentive to the energy sector at the national level.

3.12.4 ENERGY COMMUNITY LAW AND EU DIRECTIVE ALIGNMENTS

The status of the alignment of the Albanian Energy Sector with the EU directives is summarized in **Error! Reference source not found.**.

Table 12: Status of Albanian Energy Sector Alignment with EU Directives

ELECTRICITY		
Applicable law	**EU directive**	**Status of alignment**
Power Sector Law No. 43/2015	Directive 2009/72/EC concerning common rules for the internal market in electricity repealing Directive 2003/54/EC	→ There are many aspects of this law not yet implemented, in practice such as the rights to all customers to switch the supplier of the power electricity, as required by Article 33 of the Directive. → In addition, the obligations defined in the law for corporate, operation and legal restructuring distribution and the unbundling activities of OShEE need to be implemented in practice. → The appointment of a compliance officer is required according to Articles 21 and 26 of the Directive, which still need to be implemented. → The electricity market needs to be deregulated. To date, OShEE continues to provide supply services to all end-customers under regulated prices.
NATURAL GAS		
Natural Gas Sector Law No. 102/2015	Directive 2009/73/EC concerning common rules for a market in natural gas and repealing Directive 2003/55/EC	→ The law specifies important secondary legislation necessary for its application, such as the gas distribution grid code, and incorporation of a transmission system operator to be approved by ERE. → Moreover, practical application of the customers' rights is yet to be developed through secondary legislation, which are still pending approval by the Government and ERE. → The implementation of the natural gas sector law will facilitate the development and construction of the domestic gas infrastructure necessary for the gasification of the country's economy.
RENEWABLE ENERGY		
The Law No. 7/2017 On the Incentives for the Use of the Renewable Energy Resources	Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources	→ This law is partially approximated with the Directive 2009/28/EC of the European Parliament. It entered in full force and effects late in February 2017; → This law sets out several incentives for the operators producing the energy from renewables, as well as it envisages the right to apply with and obtain from ERE the guarantees of origin for each 1MWh of renewable energy produced. The law is relatively new and lacks important secondary legislation necessary for its application.
The Law on biofuels in transport	Directive 2003/30/EC	Directive has been repealed in EU and in the Energy Community, replaced by Directive 2009/28/EC; the Law no 7/2017 does not include relevant Articles (17 to 21) related to biofuels. The existing law on biofuels or a new law should

		be adopted in order to comply with the provisions of the new EU Directive 2009/28/EC on biofuels and address issues of measures to reach biofuel target, sustainability verification scheme and body etc.
ENERGY EFFICIENCY		
EE Law	Directive 2012/27/EU on Energy Efficiency	Partially approximated with the Directive 2012/27/EU. It also envisages the establishment of an energy efficiency agency and an energy efficiency fund. The Energy Efficiency Agency was formally established by the government in December 2016, while the process of establishing the fund is ongoing. Albania has not adopted the 2nd and the 3rd EEAP and the set of secondary legislation to implement the Law on Energy Efficiency. Law should be also amended to include all requirements of Directive 2012/27/EU
The Law No. 116/2016 on Energy Performance of Buildings	Directive 2010/31/EU on the energy performance of buildings	Partially approximated with the Directive 2010/31/EU on the energy performance of buildings, the law was recently approved by the parliament in November 2016 and will come in force and effect in the beginning of 2017. Required action: → The establishment of the EE Agency envisaged by the Energy Efficiency Law No. 124/2015, is of importance, because such agency will verify and supervise the implementation of the energy performance of buildings; → The establishment of the EE Fund to support energy efficiency measures.
The Law No. 68/2012 "On Information of the Consumption of Energy and Other Resources by Energy-Related Products	Directive 2010/30/EU on energy labelling	Albania is still not in compliance with the labelling delegated acts. → Further, secondary legislation for the energy labelling of specific products are still pending. Currently, the only secondary legislation enacted based on this law are: - DCM no. 65, dated 21.10.2015 " On the technical rules for the energy labelling of air conditioner"; - DCM no. 928, dated 19.12.2012 "On the technical rules for the energy labelling of household washing machines"
Draft Decision of CoM "On the adoption of practices for promoting joint regional investments in the energy sector infrastructure	EU Regulation no.347/2013 on energy projects	The new draft decision of CoM is in the process of being finalized in the first quarter of 2018. The draft fully transposes the EU Regulation no.347/2013.

3.12.5 ALIGNING ALBANIAN CLIMATE CHANGE POLICY WITH INTERNATIONAL AND EU DIRECTIVES

Albania is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), adopted at the "Rio Earth Summit" in 1992, which established the objective to combat climate change by stabilizing GHG concentrations in the atmosphere and limiting average global temperature increases to support sustainable development. The Paris Agreement, adopted in December 2015, provides a

common framework for all Parties aimed at holding the increase in the global average temperature to well below 2° C above pre-industrial levels. To achieve such a long term goal, parties should aim to reach a global peaking of GHG emissions "as soon as possible", recognizing that peaking will take longer for developing country parties and to undertake rapid reductions thereafter in accordance with best science available, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks in the second half of this century.

Based on the GHG Emissions Baseline Scenario and the Third National Communication and projections of the transport sector, assume that the energy demand for the Transport Sector will increase at the same rate as it was increasing since 2000. The potential measures for increasing energy efficiency, considered under the EE scenario and reduction of GHG to be considered are as follows:

1. Implementing EE Targets for transport sectors of Albania based on 2nd and 3rd NEEAP already approved;
2. Implementing RES Targets for transport sectors (especially focus on bio fuels to be consumed in this sector according to the respective targets) of Albania based on first RESAP;
3. Reconstruction of existing poor quality roads and construction of new roads;
4. Road maintenance through public and private sector cooperation;
5. Increasing the share of public transport for passengers and freight transport (road, rail and waterways);
6. Increasing taxes for second hand category cars in order to reduce at maximum their introduction to Albanian market.
7. Promotion of an integrated intermodal transport system, which includes infrastructure/transportation by land and sea;
8. Further restructuring of the railway system, the creation of the Albanian Railway Authority, the reorganization of the Albanian Railways, through total separation of operating activities from management activities and infrastructure maintenance;
9. Intensification of work for the creation of an integrated system of transport, focused on the connection of ports of Durres, Vlora, and Shëngjini by rail;
10. Construction of an intermodal port in Shengjin, which will be one of the largest ports in the region, and will serve as a connecting point between the Adriatic Sea and other countries in central and eastern Balkan;
11. Construction of new tourist ports, equipped with the necessary infrastructure and modern logistics for this purpose;
12. Opening of the market and reducing the cost of travel fees for passengers, in order to increase the movement of passengers and goods;
13. Promotion of investments based on public-private partnership for domestic tourism purposes;
14. Construction of a new airport in the south of the country;
15. Enhancing regional collaboration in the area of air transport;
16. Enable a better performance of air safety functions, as well as strengthening the administrative and technical capacity in this sector.

The Paris Agreement also aims to strengthen the ability to adapt to the adverse impacts of climate change while ensuring a sustainable, resilient and low carbon development through adequate finance flows. The support should be provided by developed countries Parties to developing countries with respect of both mitigation and adaptation, continuing the existing collective goal to mobilize USD 100 billion per year until 2025 when a new collective goal will be set.

In order to achieve the emission reduction objectives, the Agreement establishes a "bottom up system" where Parties will have to prepare and communicate successive nationally determined contributions (NDC) every five years with the aim of progressively improving their efforts.

In addition to their NDC, Parties should also formulate long-term, mid-century low GHG development strategies, and submit them by 2020 that demonstrate how their efforts will contribute to the goal of zero-net emissions by the second half of this century.

Albania has signed the Paris Agreement on the 22nd of April 2016 in New York, and the agreement will enter into force after 55 countries that account for at least 55% of global emissions have deposited their instruments of ratification.

The EU adopted the "Low-carbon Economy Roadmap[14]" in 2011 setting out a cost-efficient pathway to make the European economy more climate-friendly and less energy-consuming. The roadmap suggests that, by 2050, the EU should cut its emissions to 80% below 1990 levels. Milestones to achieve this are 40% emissions cuts by 2030 and 60% by 2040. All sectors need to contribute to the low-carbon transition according to their technological and economic potential. The EU Low Carbon Economy Roadmap calls for actions in all main sectors responsible for Europe's emissions – power generation, industry, transport, buildings, construction and agriculture - and significant investments need to be made in:

- New low-carbon technologies
- Renewable energy
- Energy efficiency and
- Grid infrastructure.

Albania has started the process of changing the status from a developing country to a developed country, in the context of the UNFCCC. This process is an integral part of the process of integration into the European Union and involves the development of capacities at the national level for monitoring and annual reporting of Greenhouse Gases (GHG), the formulation and implementation of policies to reduce GHG and climate change adaptation, transposition and implementation of the European Union acquis on climate change. In line with the objectives of the EU 20-20-20, Albania has set quantitative targets related to energy efficiency (increase by 6.8%) and renewable energy sources (increase up to 38%) within the framework of Energy Community Treaty. These objectives are currently under review within the 2nd revision of the National Energy Efficiency Action Plans

In 2014 the Order of the Prime Minister No. 155, dated 25.04.2014 established an inter-ministerial working group on the coordination of the Ministries tasks, according to the country's obligations on UNFCCC. The group, chaired by the Deputy Minister of Environment, includes the representatives of 12 Albanian Ministries. The group has the mandate, among other things, to draft policies and strategies, ensure inter-institutional coordination for the implementation of climate change activities. In its first

14 COM(2011) 112 final/2. Available at: http://eur-lex.europa.eu/resource.html?uri=cellar:5db26ecc-ba4e-4de2-ae08-dba649109d18.0002.03/DOC_2&format=PDF

NDC, Albania has committing to reduce CO2 emissions by 11.5% in 2030 compared to the Baseline scenario.

Further analysis of this area as well as targets and actions to be taken will be provided in the Integrated Energy and Climate Plan to be prepared together with the Energy Community Secretariat

3.12.6 MAIN FINDINGS TO ENERGY POLICIES AND KEY RECOMMENDATIONS

In order to develop sustainable energy policies according to the needs of the country, international commitments, and the priorities of the Strategy, the Government is working to:

- Continue to implement a consolidated set of policies for energy efficiency and renewable energy sources;
- Improve strategic planning for physical capacities, financial requirements and budgetary implications of the energy sector;
- Continue to secure the stability and reliability of the Albanian electricity system;
- Ensure that the goals of loss reduction and full bill collection are completed by OShEE;
- Recognize the current slow pace of reform and speed up the implementation of the energy acquis considering that faster implementation will facilitate much needed investments and influence the local market towards sustainable energy objectives;
- Ensure effective implementation of energy policy and legislation which needs to be further developed and implemented in practice.

3.13 INTEGRATION INTO THE REGIONAL/EU ENERGY MARKETS

Integration into the regional and EU energy markets will be a crucial step for Albania to meet its growing demand for energy. In 2014, total energy consumption in Albania was 2070 ktoe[15]. Electricity consumption was 7722 GWh, or 34 percent of primary energy use. With a projected annual GDP growth rate of 4% for the coming decades, energy consumption is also expected to increase. In order for Albania to sustain its growth, the country will need to find additional sources of energy and invest in its energy transportation and delivery infrastructure. New energy sources and infrastructure investments will help Albania's energy sector to continue its transformation towards a more competitive marketplace, while aligning with the Third Energy Package initiative and objectives.

Albania is one of the earlier Contracting Parties to have successfully achieved transposition of the Third Energy Package in 2015. As part of the Third Energy Package, emphasis on market opening and cross-border market integration are crucial steps towards a pan-European regional energy market.

3.13.1 ELECTRICITY SECTOR: MARKET INTEGRATION

[15] Energy Balance of Albania 2009-2014, AKBN; INSTAT

Installed electricity generation capacity in Albania is 1.8GW, and hydropower plants provide most of the electricity. In the past, the hydropower production was sufficient to meet the domestic demands. However due to varying hydrological conditions, faster demand growth in contrast with a stagnation in new capacity installation since the 1990s and relatively high system distribution losses, the country has had to rely more on electricity imports to meet demand. Including losses, the total overall electricity consumption over the next decade is expected to increase by more than 33% over its 2014 level and will remain dominated by the residential consumption.

Albania has adopted an Integrated Planning System (IPS) policy to provide operating principles for facilitating a coordinated and coherent government policy planning. One of the key features to IPS is the second National Strategy for Development and Integration (NSD-II) which describes the national social, democratic and economic development country's objectives over the period 2015-2020. Some of strategic objectives in the NSDI-II for the electricity sector include:

- Increasing hydropower energy supply to 7,300 GWh/annum by 2020 (from 4,425 GWh in 2012),
- Reducing electricity losses in the distribution network to 14% by 2020,
- Reducing energy dependency in imports to 65% in 2020 (from 69.75% in 2015),
- Start operation on the second half of 2018 of the 400 kV interconnection line between Albania and Kosovo (completed in 2016) with the assistance of the Energy Community Secretariat and European Commission.
- Strengthen interconnection of electricity networks with Kosovo and Macedonia to improve the linkage of the Albanian energy system with the region. ,
- Aligning the electricity sector's legal and regulatory framework with the EU Acquis and meeting the obligations of the Third Energy Package.
- Regional market coupling

In order to meet its obligations with the Third Energy package and further promote and sustain its economic development, Albania is taking steps to remain attractive financially and economically in the energy sector. While being one of the first Contracting Parties to begin transposing the Third Energy Package in the electricity sector, Albania's electricity sector is characterized by a market structure in which most of the energy procurement is dominated by bilateral transactions for large customers, while most of the other customers and the retail market remains operated under a regulatory regime. Positively, the unbundling of operations and interests is underway, and the one positive aspect in the transmission ownership was adopted by law in 2016.

OST, the certified transmission system operator central to the development of a robust market, is tasked to ensure quality development of the transmission grid, while ensuring transparent and non-discriminatory grid access for market participants. It must also coordinate the planning and development of the transmission network with counterpart companies in the region. As part of its effort to strengthen its transmission network, Albania has initiated several improvement projects within the country such as for the mid-term (2017-2021):

- Extension of Komani substation with 400/220 kV autotransformer 345 MVA and its connection to the grid.

- Construction of 400/110 kV Tirana3 Substations 2x150 MVA, Strenthening of 110 kV Tirana ring network and Construction of double circuit 220 kV line Tirana2 Ss- Rashbull Ss.
- Construction of 400 kV interconnection line Fier Ss - Elbasan2 Ss - Bitola Ss, rehabilitation of Elbasan2 Ss and extention of Fier Ss with 400/220 kV autotransformer 400 MVA.
- Construction of 220 kV line Burrel – Peshkopi and 220/110 kV Peshkopi Ss 120 MVA.
- Installation of a Shunt Reactor 400 kV, 120 MVAR in 400 kV Zemblak Ss busbars.
- Purchase and implementation of a new electronic platform for the energy Management

Long term plans for the transmission network will be prepared from OST by the end of 2018.

3.13.2 ESTABLISHMENT OF A COMPETITIVE DAY AHEAD ELECTRICITY MARKET

The integration of the Albanian electricity market to the European electricity market requires that a competitive wholesale and retail market should be established first in the country. The new Power Sector Law (PSL) provides a gradual opening of the retail market and establishment of an immediate competitive wholesale market. Based on PSL, a new Albanian Market Model was approved by the Council of Ministers. The development and approval of the Albanian Market Model (AMM) is the final step towards the development of the Albanian Electricity Market into a fully competitive power market in line with the Energy Community obligations. Closely linked to the previous two developments, a process towards the establishment of an Albanian Power Exchange (APE) has been initiated which also requires further alignment of the electrical power market in full compliance with the Energy Community. In addition to allowing for further regional integration between Albania and its neighboring countries, the updated Albanian Market Model should encourage the following:

- Higher consumer benefits in terms of securing supply of electrical power and quality service;
- More efficient utilization of the cross-border trading between Albania and its neighboring countries allowing the Albanian power sector gain on their specific generation portfolio;
- The harmonization of the power legislation and market practice with the requirements of Energy Community Treaty;
- Finalizing the move from the vertical integrated structure of the Electricity Sector towards a structure with legally, functionally and financially separate Supply, Generation, Transmission and Distribution entities allowing for competition in wholesale and retail markets;
- The development of the electricity market according to clear market rules and grid codes as minimal technical requirements for an efficient operation of the Power System;
- The implementation of third party access in order to participate in the electricity market and the creation of the conditions for the development of a transparent and non-discriminatory market;
- The liberalization of the power market, creating structure that increases the interest and number of participants and opens the sector for competition and foreign participants and investors;
- The monitoring of the electricity market by ERE;

- The need to design and implement rules that provide for level-playing field for carrying out transactions in the markets, as well as market integrity regime to mitigate market manipulation, market abuse and insider trading in line with the European best practice; and
- The integration of the Albanian Electricity Market with the Regional Market in South East Europe, and later with the European Electricity Market to be a guiding design principle.

The Albanian Market Model is characterized by a wholesale market based on bilateral transactions, while all the physical contracts are traded on an organized Day-Ahead and Intraday Market organized through the APE. The ERE, the Albanian Competition Authority and State Aid Commission shall, in coordination with the Energy Community Secretariat and in consultation with the market participants, make sure that appropriate and well-justified measures are taken for ensuring that the market performance satisfies the criteria of transparency and openness as well as security of supply. All forms of direct and indirect price regulation and subsidies will be removed except what is covered in any Public Service Obligation compliant with the Power Sector Law and Energy Community obligations.

The implementation of the Albanian Market Model shall be enabled by the detailed market rules. Its implementation will also enable Albania to comply with the commitments already undertaken or may undertake in the framework of international and regional cooperation. The competitive market will also facilitate a future market coupling of Albanian market with other markets from neighboring countries. With regard to RES electricity producers, the Market Model is expected to support schemes in compliance with the relevant Energy Community acquis in the form of contracts for difference (CfDs) that will replace their current Power Purchase Agreements (PPA).

3.13.3 BENEFITS OF A REGIONAL ELECTRICITY MARKET

Analysis of a coupled electricity market between Albania and Kosovo has been analyzed and shown to provide the following benefits:

- Improved security of electricity supply, as Albania has almost 100% hydro capacities (strongly vulnerable to variable hydrological conditions) and Kosovo has almost 100% thermal capacities (partly very old and inflexible). The combined generation capacity mix is approximately 50% hydro and 50% thermal, which is expected to improve security of supply through more efficient use of cross-border capacity and price signals. Based on the Memorandum of Understanding signed between Albania and Kosovo both power systems are going to operate as a single bidding zone and are going to establish the efficient market.
- Efficient use of cross-border capacity and increased welfare on both sides.
- Improved power system control and system reserve synergies provided by the combination of thermal (base) and hydro (peaking) capacities.
- Improved investment climate to attractive potential generation investors.

The financial benefits associated with integrating the Albania and Kosovo electricity markets were quantified based on the savings that would come from the reduction of electricity imports and the additional variable O&M costs for Kosovo Thermal Power Plants and the Drin River Cascade HPPs. The savings from reducing imports greatly overshadows the incremental operating costs for both the thermal and hydropower plants, and the net financial benefit for both systems averages 75 million euros annually between 2017 and 2030, with a cumulative benefit of over 1 billion euro by 2030.

In such an environment where system resources utilization and trading occur based on market-driven principles, Albania in the long term could attract further generation capacity investment in renewable energy given its hydropower potential, achieve a smarter diversity of supply sources through energy imports from other countries thermal generation, and improve its security of supply. From a transmission infrastructure standpoint, such endeavors require the development of transmission interconnection between the concerned countries. To that effect, the projects mentioned below can be seen as part of the process to further integrate Albania and other Contracting Parties within a larger regional electricity market system:

- Starting commercial operation of the 400KV interconnection line between Tirana2 (Albania) and Kosova B (Kosovo), which should increase the electrical energy exchange potential between the Albania and Kosovo up to 600 MW. This project was commissioned in June 2016. However, in order to make this line operational the recognition by ENTSO-E of Kosovo transmission system as a separate control area is needed.
- Construction of a 400 KV interconnection line between Elbasan (Albania) and Bitola (Macedonia), which should increase the electrical energy exchange potential between Albania and Macedonia up to 600MW. This project should be operational by 2018.

3.13.4 REGIONAL ELECTRICITY MARKET INTEGRATION STATUS

For Albania to take full advantage of the electricity market liberalization as directed in the Third Energy Package, additional steps towards its implementation are still needed. Some of the positive achievements to date include:

- April 2015 - Adoption of new power sector Law in transposition of the Third Energy Package. It transposes Directive 2009/72/EC and Regulation (EC) 714/2009
- April 2015 onwards – Participation in the Coordinated Auction Office of South East Europe with Montenegro
- October 2015 – Memorandum of Understanding on regional capacity coordination initiative with the TSOs of Kosovo, Greece, Macedonia, Turkey and Bulgaria.
- November 2015 onwards - Participation in the Coordinated Auction Office of South East Europe with Greece
- January 2016 – Adoption of the law enabling ownership unbundling of OST
- April 2016 – Signing of the WB 6 Memorandum of Understanding on regional electricity market development and establishing a framework for other future collaboration
- July 2016 – adoption of a set laws including:

– Albania market model:

  - will consist of a day-ahead market, intraday-day market, settlement functions and a balancing market
  - will consider the coupling of the Albanian market with neighboring markets

– Price regulation phase out

– Action Plan for setting up power exchange (PX)

Secondary legislation remains to be fully enforced[16], more specifically with respect to:

- Balancing: the actual real-time balancing mechanism is not market based. Further balance responsibility is not compliant with the acquis.
- Market Opening: full competitive market access on the retail markets is not expected before 2018 and will be performed in phases according to the voltage level
- Price Regulation: complete phase out is not expected before 2019,
- Public Service Obligations: compliant methodologies for operations have not been adopted nor implemented by ERE
- Eligibility: the distribution network tariffs are not cost-based relative to the voltage level and the conditions for supplier switching still need to be practically implemented,
- Protection of Vulnerable Customers: rules on conditions for termination of the supply to this customer class are not developed.

3.13.5 PRIORITY ACTIONS

Although the approval of new Power Sector Law and Albanian Market Model are the right step towards implementation of EU acquis, a number of other activities are required to fully comply with them, which would enable further integration of the Albanian electricity market to the European market. These steps would include:

- Deregulation of wholesale prices and contracts (KESh –OShEE)
- Development and adoption of market rules, including market participation criteria, standard contracts, settlement rules, etc. for functioning of the day-ahead market;
- Revise grid codes reflecting the market developments;
- Adoption of the rules for security of supply;
- Development and adoption of transparent balancing mechanism with the final goal of establishing a competitive balancing market;

Full unbundling of distribution function from retail supply function to be actually carried out by OSHEE. The Law 43/2015 of 30.04.2015 in its Article 72 stipulates that the legal and functional unbundling of distribution from the supply activity should be finalised by 31 December 2017.

- The Distribution System Operator (DSO) prepared the unbundling plan and selected COM METODI S.P.A. as company as the consulting company for the unbundling process. The unbundling model was approved by the Supervisory Council of OSHEE S.A. with the Decision No 65 date 19.12.2016 "On approval of the corporate model" and also by the Minister of Energy and Industry as the General Assembly of the Company. The functional unbundling of distribution activity from the supply one is in progress and will be finalized by the end of 2018.

[16] Energy Community Annual Report (for the year 2016)

- Creation and training of the structure responsible for operating the day-ahead market;
- Revision of transmission and distribution tariff methodologies with the goal to create non-discriminative access conditions for all market participants and enable both system operators to cover their reasonable costs of service;
- Gradual elimination of regulation of public generation price;
- Development and adoption of rules for protection of customers interests, including specific rules for vulnerable customers;
- Strengthening of independence and market monitoring capacities of the ERE;
- Make the necessary amendments to Power Sector Law and to secondary legislation to enable market coupling of Albania with other markets from neighboring countries starting with Kosovo.

3.13.6 GAS SECTOR: MARKET INTEGRATION

The Western Balkan region can be described as a fragmented gas market made of individual markets, each with its own regulatory environment, and with little cross-border competitive transactions. These markets, initially established with the purpose of satisfying domestic needs, are in their current form an obstacle to achieving a regional market environment without significant reforms and additional infrastructure investment. More specifically, Albania has a small, isolated gas distribution system, which is not linked to international gas transmission systems.

Albania's current gas market size remains one of the smallest in the Western Balkan region 15 million m^3N (consumption in 2015). All of the indigenous production in the country, which has been in significant decline since the 1990s, is used to meet the national consumption, and the portion of energy consumption met by gas usage remains small. However, over the next couple of decades it is estimated that the total potential gas consumption in the country could reach 1.15 billion m^3N at 2030 and 1.37 billion m^3N by 2040 (See Table 13) and current domestic reserves will be explored to meet the expected future needs.

Table 13: Total Potential Natural Gas Consumption[17] in Albania (Million M^3)

Million m^3N	2020	2021	2025	2030	2035	2040
a. Theoretical natural gas demand without considering climate change scenario:	11.82		1,791	2,193	2,454	2,851
b. Theoretical natural gas demand with considering climate change scenario:	11.82		1,339	1,555	1,799	2,078
c. Natural gas demand based on the master plan development scenario		244		833		1,371

[17] Western Balkans Investment Framework Infrastructure Project Facility Technical Assistance 4 (IPF 4) WB11-ALB-ENE-01, Gas Master Plan for Albania & Project Identification Plan, Draft final, June 2016.

d. Natural Gas Demand based on "Gas Promotion" Scenario – calculated based on LEAP Analysis	11.82	173	422	1151		

The development of a gas market in Albania is a must and will allow the country to:

- Develop a policy for security of supply,
- Increase the number of participants in the local market
- Attract investments in the gas sector
- Improve retail market efficiency
- Improve system operations
- Become part of regional gas market
- Improve economic development with potential regional trading hub.

Successful gas market integration for Albania will require the development of a modern national gas network robust enough to satisfy projected consumption needs and meet European standards, and the inclusion of Albania as part of a sub-regional gas network allowing for infrastructure development targeting a larger sub-regional demand. While the former will ensure the delivery of gas to the local market and strengthen the national economy, the latter will guarantee diversity in supply options which if provided in the context of the Third Energy Package should provide Albania with reliable and competitive gas for its economy.

3.13.7 STATE OF THE MARKET: GAS MARKET INTEGRATION EVOLUTION IN ALBANIA

With the intent of establishing a sustainable gas sector and achieve the objectives cited above, the government of Albania has been working on the development of a Gas Master Plan[18] of Albania. This study concluded that Albania can play a significant role in the development of a regional gas market while restoring and upgrading its national natural gas transmission and distribution system.

The natural demographics of Albania present a challenge to the development of a dense gas distribution network. The country consists of approximately 3,000 settlements with a small number of inhabitants per settlements, administered under 12 administrative counties, which are divided into 61 municipalities and 373 local government units (LGUs). As such attention must be put on how to best develop a national distribution system that can have reasonable economies of scale.

Based on relevant criteria such as population density and distribution, the existence of anchor consumers (e.g. power sector, industrial users), the level of urbanization and the type of dwelling, the Gas Master Plan found that it is not possible for Albania to develop a national gas transmission and distribution network capable of covering all of its 373 LGUs while achieving significant economies of

[18] WBIF WB11-ALB-ENE-01 – Gas Master Plan for Albania & Project Identification Plan – Gas Demand and Supply Assessment Final

scale. Alternatively, the solution with the most economies scale achievement proposed for Albania is a gas transmission and distribution system that would allow the country to meet 77% of the potential national demand in 2020, growing to 82% of the potential gas demand by 2040. The proposed gas transmission and distribution network which includes 85 viable LGUs (i.e. viable coverage zone) covers 12% and 65% of the country's area and population respectively.

3.13.8 STATUS OF A NATIONAL GAS TRANSMISSION AND DISTRIBUTION NETWORK

In order to have access to the regional and European gas infrastructure, Albania needs to identify both legal works and infrastructure investments needed to gain that access. In September 2015, Albania adopted the new Law on Natural Gas Sector, which transposes provisions from the Third Energy Package. In December 2016, the Government of Albania decided to separate the gas activities from the existing oil & gas public company ALBPETROL, creating a new public company, ALBGAZ, with the goal to play the role of the combined operator of transmission and distribution. According to Directive 2009/73/EC, and the Albanian Law on Gas Sector, any gas TSO shall be fully unbundled from other activities, including ownership unbundling. This means that the newly established company is required to be fully unbundled from the existing ALBPETROL to comply with the requirements of the new Gas Sector Law.

It is obvious that any investment in the gas transmission and distribution networks shall be conditioned by the natural gas demand in country. Challenges in gas sector include:

- Large investment needed for the development of the domestic gas system;
- Lack of a proper market-based environment for attraction of private investors in gas sector;
- Competitiveness of natural gas or the economics of fuel source switching;
- Complete market opening through the establishment of functioning traded markets;
- Market size and sustainability.

3.13.9 REGIONAL GAS MARKET CORRIDORS

Although facing low domestic production and with few economically explored reserves to meet its potential gas needs, Albania can take advantage of its geographical location within the Western Balkan region and become a key player in the development and deployment of a regional gas transmission network for a sub-regional market[19]. In addition to the establishment of a national gas transmission and distribution network, the possibility of a connection to a wider regional network offers Albania the opportunity to develop sustainable gas sector and become part of a more robust gas market. Development of dual national and regionally connected gas network infrastructure provides Albania with more options towards building its natural gas supply portfolio while expanding its role as trading hub in the region.

[19] Energy Community Cross-Border Gas Market Integration Study – March 2016

Benefits for Contracting Parties[26] are achievable through several market integration options aiming at establishing regional wholesale natural gas markets in South East Europe and Central East Europe (SEE/CEE) and their further integration in the European Union internal natural gas market. Based on feasibility criteria including gas sources, interconnection, gas hub, timescale and consumption, Albania was found to be a critical node in the establishment of two possible market integration options corridors in the South East Europe region, augmented by the development of LNG terminals. These strategic projects include the Adriatic Integration Corridor and the Ukraine South Integration corridor.

The Adriatic Integration corridor consists of a market integration option that involves Albania and Montenegro with Croatia, Italy, Greece, and Bulgaria. While it offers high potential to access different supply sources for the Contracting Parties along the Ionian and Adriatic Seas, this market integration option will only deliver its full benefits when all needed and planned infrastructure projects critical to its implementation are completed. From an Albania perspective, it is worth noting that this market integration option would solve the natural gas supply imbalance in the country, while allowing the country to become a natural trading hub for the region.

On the implementation side, portion of the Trans Adriatic Pipeline (TAP) is under construction. TAP's route through Albania is around 271 kilometers, of which 211 kilometers is onshore and 60 kilometers is offshore. Some advantages of TAP for the region include:

- Independent, non-discriminatory and open for third parties and private investments,
- Deepening the diversification and security of gas supply in Europe,
- Potential for enlargement of new and additional projects,
- Built-in concept of flexibility by construction of gas storage in Albania.

Similarly, the Ionian Adriatic Pipeline (IAP) project which aims at interconnecting the existing and planned gas transmission system of Croatia with the TAP. The project will make Albania the gateway for Caspian gas to enter the West Balkans. Some advantages of IAP for the region include:

- Diversification of gas supply in South East Europe,
- Providing access to future Croatian and Albanian gas storage capacities,
- Economic development in the West Balkan region,
- Trading hub role for Albania.

The Ukraine South corridor consists of a market integration option that involves Albania, Macedonia, Ukraine, and Moldova with Greece, Bulgaria, and Romania. Similar to the previous option, this market integration option will only deliver its full benefits when all needed and planned infrastructure critical to its implementation is completed. This market integration option would also solve the natural capacity supply imbalance in the country, while allowing the country to become a natural trading hub for the region.

As mentioned previously, the market integration options described above are part of a gas infrastructure development framework that would benefit from additional gas supply projects in the form of LNG terminals recently considered and under construction. These LNG terminal projects have been found to benefit Albania and other Contracting Parties in the Western Balkans in key areas such as diversification and security of gas supply, greater gas integration of the SEE region and economic development.

- LNG Krk in Croatia: The Government of Croatia in June 2016 adopted the conclusion to speed-up of activities on realization of construction of LNG terminal on the Island of Krk. LNG Croatia LLC has been appointed as the project developer.
- Expansion of LNG Revithoussa in Greece: Notice for an international tender for design and construction of a new LNG Tank in Revithoussa has already been published.
- Eagle LNG in Albania.

3.13.10 REGIONAL GAS MARKET INTEGRATION STATUS

Based on Natural Gas Sector Law in transposition with the Third Energy Package the following milestones have occurred or are expected:

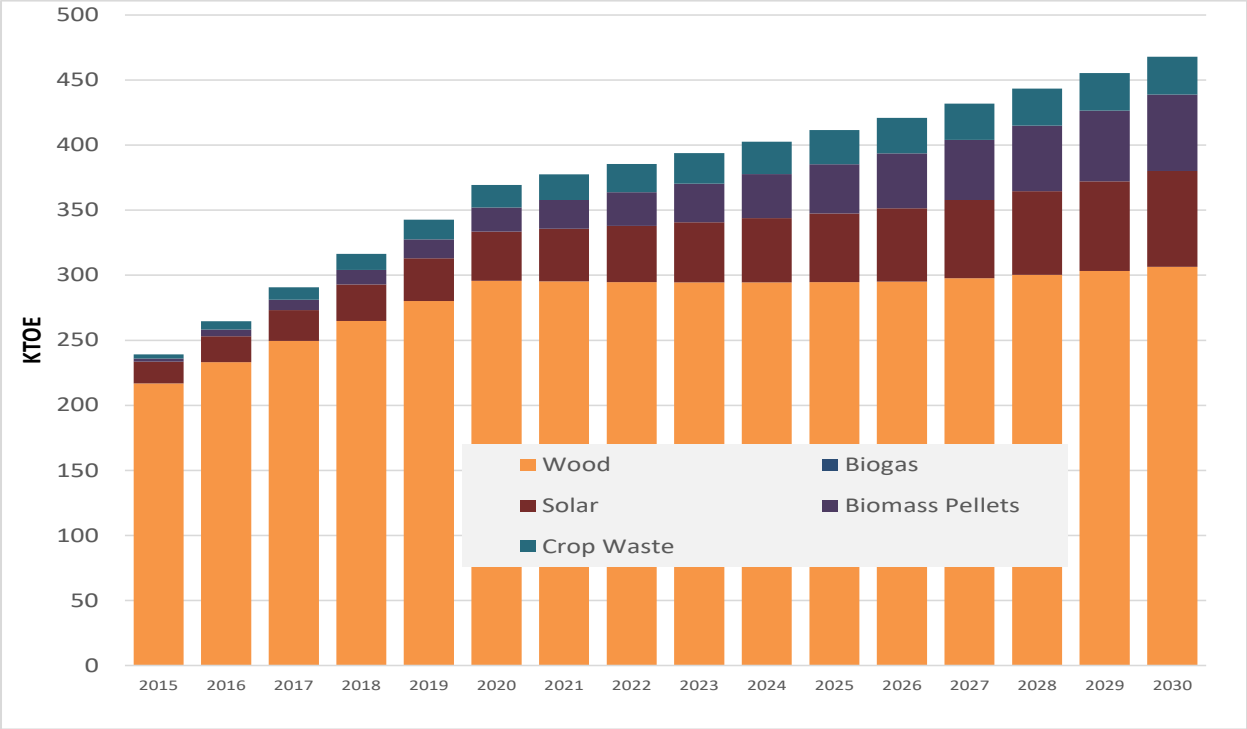
- March 2016: TAP AG certified as an independent transmission operator (TO) for natural gas.
- December 2016: New public company, ALBGAZ, was established with the functions and responsibilities of a combined transmission and distribution system operator of natural gas.
- Nov 2017 – Certification of ALBGAZ by the ERE according to requirements of Law on Natural Gas Sector.

Tariff systems are still not developed and a number of other requirements of the Law on Natural Gas sector still remain to be implemented through secondary legislation, including:

- Approval by the Council of Ministers of a gas market model.
- Approval of Gas Market Rules by the ERE.
- Third Party Access: the national company has not yet developed the Transmission Grid Code, which is subject of approval by the ERE.
- Balancing: the national company has not yet implemented the rules adopted in the new Law on Natural Gas sector.
- Eligibility: customers' supplier selection programs are not developed yet.
- Price Regulation: similar to the new electricity law, where small customers are permitted to receive gas supplies from regulated (gas) supplier under public service obligation.
- Market Opening: small enterprises and household customers are permitted to choose their supplier.
- Protection of Vulnerable Customers: criteria defining this customers class still need to be defined and developed

3.13.11 BIOFUELS: MARKET INTEGRATION

Different forms of biomass resources are available in Albania to cover energy services related to heating; electricity generation; and transport, as shown in the Technical Annex. Figure 15 shows that fuel wood, agriculture crop waste, biomass pellets, and biogas contribute a very important share of the RES's heating demand.



Yr / ktoe	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Wood	195	217	233	249	265	280	296	295	295	294	295	295	295	298	300	303	306
Solar	12	17	20	24	28	33	38	40	43	46	49	53	56	60	64	69	74
Biodiesel	29	66	75	83	92	100	108	117	125	133	142	150	159	167	175	184	192
Biomass/ Pellets	-	2	5	8	11	15	19	22	26	30	34	38	42	46	50	54	59
Crop waste	-	3	6	9	12	15	17	20	22	23	25	26	27	28	28	29	29

Figure 15: Energy from renewable sources covering heating energy demand (ktoe)

RES supplies in the transport sector, which are primarily biodiesel, are targeted at a 10% share of renewable energy in transport, and in the RES scenario, the transport biofuel share could reach up to 15.5% at the year 2030, exceeding the target of 10%.

3.13.12 REGIONAL BIOENERGY MARKET DEVELOPMENT

Several important recommendations regarding how Albania might support development of a regional bioenergy market and how the regional market might supplement the Albanian biomass resources are summarized below[20] and described in more detail in the Technical Annex.

1. Identify the most urgent forest road rehabilitation projects in Albania through the preparation of forest roads master plans in cooperation with other W-B countries. The plans should be prepared in line with best environmental practice for forest road rehabilitation guidelines.
2. Legislation and regulatory technical framework should be improved in line with:
    - Requirements set in international agreements of sustainable forest management and use;
    - Principles of biodiversity conservation and mitigation of consequences of climate change.
3. Introduce techniques of silvicultural thinning of young forest stands, the conversion of coppices into high forests, and the increasing use of logging residues for production of woody biomass.
4. Enhance the efficiency of data collection, control & monitoring mechanisms on sustainable forest management in Albania and W-B countries
5. Promote forest protection and sustainable forest management in order to decrease the consumption of woody biomass that is coming from unknown sources (58% of the total). Improve forest governance through simultaneous use of incentives, regulations, sanctions and rewards.
6. Reduce the risk of forest fires by establishing an integrated management system that involves:
    - Identification of main risks for forest fires and implementation of prevention activities through public awareness raising activities
    - Improvement of equipment for the monitoring, surveillance and detection of the fires
    - Improvement of fire suppression equipment by providing vehicles for fighting forest fires.
7. Provide capacity building for all stakeholders at the local level, in order to gain their support for implementation of recommended activities. These activities would also support biomass market development in Albania.
8. Create the enabling environment for the use of agricultural residues for heating through the implementation of measures that involve:
    - Utilization of the olive pomace from olive oil industry, wood processing, wine production and fruit processing industries for meeting the respective energy demand within the above mentioned sectors and producing pellets/briquettes for selling them;
    - Use of abandoned agricultural land (mainly grasslands) that is currently not utilized for agricultural production;

[20] Summarized from World Bank Study Report for establishing a regional market. "Sector Study on Biomass-based Heating in the Western Balkans," Task 1 Report, May 2015.

- Increasing agricultural productivity, which is low compared to EU countries;
- Establishment of standards for the production of agricultural biomass feedstocks for energy purpose; and
- Progress in developing commercially available conversion technologies that use agricultural biomass.

3.13.13 BIOFUEL SUPPORTING ALBANIAN RES TARGETS FOR TRANSPORT

Albania has adopted in February 2008 and amended it on June 2016 a specific law (Law no. 9876, dated 14.02.2008) on biofuels and other renewable fuels used for transport. The purpose of this new law is to promote production and use of biofuels and other renewable combustibles used for replacement of oil by-products in the transport sector, in order to help reduce GHG emissions, promote the cultivation of energy crops and to protect the environment. The law transposes the former EU Directive 2003/30/EC of May 8, 2003 on promotion of biofuels or other renewable fuels used for transport. The law on biofuels has established specific targets for using of biofuels in transportation sector, and according to the law on renewables these targets are integrated into the overall target for renewables in the total final energy consumption in the country.

According to the law on renewables, implementation of the NREAP will be monitored by the agency responsible for the renewable energy sources, which is expecting to have authority and competencies in monitoring the compliance with the targets established for all renewables including biofuels. At the same time, the new law on biofuels will confer to the Agency responsible for renewables the responsibility for monitoring and verifying the compliance of biofuel producers with the sustainability criteria established in the law. The administration and protection of the land is made by the Sections of Land Administration and Protection established in each Council of County according to the Law no.8752, date 26.03.2001 "On establishing and functioning of structures for land administration and protection" as amended, and by the offices of land administration and protection in communes and/or municipalities.

Albania has applied only one supporting measure for producers of biofuel, that of tax exemption. The scheme provides tax exemptions (VAT and custom duties) for machineries and equipment used for construction of a biofuel producing plant. Whoever gets a permit to construct a biofuel producing plant will benefit from this scheme. The scheme doesn't have any specifications regarding the technology used for biofuel production to benefit from the scheme. The VAT is reimbursed according to the procedures provided for by the VAT law, while the exemption from custom duties is applied at the moment that the machinery and equipment enter the border of Albania. As mentioned above, despite the fact that the law requires that the Council of Minister, upon the joint proposal of the Ministers responsible for energy and transport, approves the minimum percentage of biofuels to be used in transport sector in a year, no such annual obligations have been established.

On the other hand, the amendment to the law on biofuels approved in October 2014, removed all biofuels and other RES fuels used in transportation sector from the excise tax till 2018 with the objective to make these fuels competitive in the market. However, transposing the section of biofuels in the EU RES Directive 2009/28 into a new law on biofuels in Albania remains one of the future actions in this sector.

3.13.14 EU BIOFUEL MARKET - PRODUCTION, SUPPLY AND DEMAND

Biodiesel is also the most important biofuel in the EU and, the EU is the world's largest biodiesel producer. Biodiesel has been used in the EU transport sector since the 1990s, during which time, rapid expansion was driven by increasing crude oil prices, provisions for the production of oilseeds under Common Agricultural Policy set-aside programs, and generous tax incentives, mainly in Germany and France. The structure of the EU biodiesel sector is very diverse and plant sizes range from an annual capacity of 250,000 tons owned by a group of farmers to 1,000,000 tons owned by a large multi-national company. EU biodiesel production capacity is expected to increase to 25.5 billion liters (22.3 million tons) in 2017, when a new biodiesel facility in France is expected to start production. Biodiesel production facilities exist in every EU member state with the exception of Luxemburg.

Demand for biofuels in Albania is based on the NREAP biofuel target, which is approximately 95.53 ktoe for the year 2020 (108,000 tons per year). There is currently one biodiesel plant in Albania located in Porto Romano, which is near Durres, and has a production capacity of 100.000 tons per year of biodiesel and 20,000 tons per year in glycerin. The Plant is connected through a pipeline with the Porto Romano Port infrastructure, and it is connected by land through the main highway of the country. This biodiesel refinery has the capacity to supply biofuels to the market in Albania, and this plant could cover the supplies needed to meet the RES transport targets until 2025. In addition, the plant will have an initial surplus production that could be traded to neighboring countries like Kosovo, Montenegro and Macedonia, which for time being do not have such refineries. Albania has no possibility to export to EU countries since the unit cost of biodiesel production in Albania is high compared to EU producer since the plant capacity in Porto Romano is 2.5 to 10 times lower than average EU's plant capacities.

4. FINANCIAL RESOURCES

4.1 INTRODUCTION

The National Strategy of Energy is a multidimensional strategy with a long-term planning horizon (2014-2030) that involves a considerable number of sectors and sub-sectors, policies and results. This chapter aims to identify the financial resources that are likely to be required for implementation of the policies, objectives and results that have been identified in this Strategy. Given the uncertainties inherent is developing an energy strategy, the investment funding needs for each scenario were developed in general terms from the LEAP model scenario results and specific sectoral cost parameters. This chapter describes how these financial requirements were estimated, and presents a detailed breakdown by sector.

The total investment needs can be sourced directly from private investors (foreign and domestic), donor institutions, and public institutions, including public funding from the state budget. The investment contributions can take the form of grants, loans and other anticipated capital, operational and major technical assistance funding. The estimates that follow include all the sources that fulfil the investment funding needs.

It is expected that the National Energy Strategy will have a minimal influence on the distribution of public expenditures, and that the required investments are mostly likely to come from private sources, development banks, foreign technical assistance and finally from the state budget. To that end, it is intended that proposed financial instruments do not have, or have minimal influence on the competitive market conditions in the context of free market access and development of sustainable market prices, with no cross-subsidization and compliance with EU rules on state aid if such is applied.

Due to the fact that this National Strategy of Energy extends over the period of 2018 to 2030, it is likely that unforeseen developments may occur during the years to come, not only to identified objectives, which may be achieved earlier than planned, but also to new challenges which may arise in the future. Therefore, existing planned resources may need to shift from one budget program to the other, or new resources may need to be committed according to new needs.

This chapter quantifies the likely capital investment expenditures over time and will serve as a reference document guiding future government spending plans. In the meantime, the existing staff of the responsible institutions in most cases will be directly responsible for the implementation of the necessary operational measures.

4.2 METHODOLOGY

This financial chapter covers the required investments for all sectors of the Albanian energy system: power sector (generation, transmission and distribution), natural gas supply (transmission and distribution), crude oil (exploration, production, refining and distribution), energy efficiency investment for all sectors and investment for all renewable energy sources.

4.2.1 POWER SECTOR

In order to meet the growing demand for electricity and reduce the level of import, different scenarios have been prepared through the Albania-LEAP model and it has served to identify a new power plant

expansion plan for each scenario based on a minimal cost of generation approach. The generation investment cost is determined from the investment costs for each power plant in the expansion plan and are based on current Albanian data according to many feasibility study for SHPPs, medium and large HPPs, WPPs, PvPP, Natural Gas CCs and GTs, using average figures for the specific investments for the respective technologies.

The investment cost for expansion of the high voltage transmission system, including 400 kV, 220 kV and 110 kV networks, is based on the cost information contained in the Electricity Demand Forecast by OST, which were used to determine average the system expansion cost as a function of the overall increase in electricity consumption, which is specific to each scenario.

Investment costs for the distribution system include: a) upgrading the sub-transmission distribution system to improve reliability; b) targeted investments in the medium voltage grid (6-20 kV); c) customer metering d) system metering for the low voltage network; and e) upgrading of the company's management information and billing and collection system. The basic investment data was taken from an ongoing project of OSHEE and WB/IBRD regarding improvements to the distribution and transmission system.

Table 14 provides the cumulative power sector investments for 2018 to 2030, expressed in million Euros (MEUR), for generation, transmission, and distribution for the Baseline, EE, RES, and Combined scenarios. For the Natural Gas Promotion scenario, the power sector investment requirements follow the Baseline scenario, and are not shown in the table. Table 22 provides the annual investment profile for each scenario.

Table 14: Power Sector Investment for 2018 – 2030 (MEUR)

Power Sector Activities	Baseline Scenario	Energy Efficiency Scenario (EE)	Renewable Energy Sources Scenario (RES)	Combined Scenario (Co)
Generation	1,970	1,149	1,568	1,442
Transmission	195	153	191	157
Distribution	419	330	412	338
Total	**2,584**	**1,633**	**2,171**	**1,937**

Table 14 indicates that the Baseline scenario has the highest required power sector investment for the period 2018-2030, while the Energy Efficiency scenario has the lowest required power sector investment, showing the potential cumulative investment savings equal to 951 MEURO.

4.2.2 NATURAL GAS SECTOR

Investment costs for natural gas infrastructure are based on data in the Masterplan of Natural Gas for supplying gas to different sectors according to the following assumptions:

- Interconnection costs include the incremental costs needed to prepare TAP for offtake within Albanian territory;
- Transmission and distribution system investment costs include the following:

- Connection of Vlora TPP;
- Connection of Fier-Ballsh areas and their internal distribution network;
- Connection of Durres-Tirana areas and their internal distribution network;
- Connection of Korca areas and their internal distribution network, and

Table 15 provides the cumulative natural gas sector investment costs for 2018 to 2030, expressed in million Euros (MEUR), for interconnection, transmission, and distribution in the Natural Gas Promotion scenario. Table 23 provides the annual investment profile for each component.

Table 15: Natural Gas Infrastructure Investment for 2018 – 2030 (MEUR)

Natural Gas Sector Activities	MEUR
Interconnection	230.0
Transmission & Distribution	117.0
Total	347.0

4.2.3 OIL SECTOR

This Energy Strategy supports the exploration and production of the crude oil from the existing oil fields and new ones. The Strategy takes into account the current domestic import, and identifies the internal infrastructure of crude oil and oil by products transport, product stocking, and modern standards management needed to reach a minimal cost of service for oil and oil byproducts and avoid temporary market abnormalities. The investments required for exploration and oil production are based on information from AKBN for existing and new oil fields.

The Strategy supports the rehabilitation of Ballsh and Fier refineries to European norms and standards, including adoption of environmental norms (below 1% sulphur) for refinery products and technology, increasing refinery processing capacity to 1.5 Mt/year, modernization of Vlora terminal, and modernization of transport infrastructure from Vlora to Ballsh.

Investment costs for rehabilitation and modernization of the two refineries depends directly on the actual situation of installations, equipment and environment pollution level. Ministry of Energy and Industry also is considering the option of building new refineries with 3.2 Million tons capacities. Estimates for the investment cost required for rehabilitation of the existing refineries and constructing new refineries are based on information from AKBN.

Fuel oil by product market infrastructure in Albania includes a large number of distributors, and the total number of retail stations should be reduced and better optimized according to European norms and standards. The investment required for improvements to the downstream infrastructure for oil by-products are also based on information from AKBN. Table 16 provides the cumulative oil sector investment costs for 2018 to 2030, expressed in million Euros (MEUR), for exploration and production, rehabilitation, infrastructure improvements and construction of new refineries, and Table 24 provides the annual investment profile for each component.

Table 16: Oil Sector Infrastructure Investment for 2018 – 2030

Oil Sector Activities	MEUR
Exploration and Production of Crude Oil	203.0
Rehabilitation of Ballsh & Fier Refineries	30.0
Improvements of downstream oil by-products infrastructure	65.0
Construction of New Refineries	350.0
Total Oil Exploration, Production Refining, Downstream	**648.0**

4.2.4 EE SUPPORT

Measures undertaken during the 1st NEEAP were predominantly done with either the direct support of an international financing institution (IFI) or donor, or were provided via local commercial bank loans supported by an IFI or donor. This support came both via financial and technical means according to the analysis carried out and presented under the 2nd and 3rd NEEAP. Such international support may continue, but to scale-up energy efficiency actions requires that increased domestic funds (public and private) are made available. In order to realize many of the efficiency measures, the EE law calls for development of an Energy Efficiency Fund, as a mechanism of financial support for the implementation of EE projects in the public and private sectors. Financing of the Energy Efficiency Fund is foreseen to come from the Albanian state budget (limited to public awareness campaigns and pilot projects pursued in the public sector), external donors, the fund's activities and offered services. The Energy Efficiency Fund aims to provide financial support and project management for developing a market of energy efficiency improvement and supporting programs for final customers with high-cost and high-risk investments. The Fund will be used to promote energy efficiency improvement programs, energy service companies, independent energy experts, energy auditors, energy distributors, distribution system operators, retail energy sales companies and installers of efficient equipment.

A competitive bidding process should be used for fund allocation and for selection of third parties to carry out awareness campaign and pilot projects based on the legislation and procedures defined under the EE Fund Procedures, which also should be in line with Public Procurement Law.

The Energy Efficiency Fund will in itself have limited financial means for achieving all the objectives noted within the second NEEAP. The funding proposed from the State Budget should be seen as a tool to leverage greater resources from external parties (IFI and donors as well as private banks). To do this the EE Fund, in addition to direct financing, has the option of providing loan guarantees, subordinate debt, investment gap financing or interest-rate buy-downs.

To reach the EE Target of a 6.8% energy savings for the year 2020, a ballpark estimate of approximately 100 MEUR added investment was calculated assuming an average investment cost per energy saved of 0.05 Euro/kWh. The biggest part of such investment will be direct financing, with the option of providing loan guarantees, subordinated debt, investment gap financing or interest-rate buy-downs, and the main task of the state budget is to carry out awareness campaign and pilot projects to promote EE in all economic sectors.

Table 17 provides the cumulative public sector investment costs for 2018 to 2030, expressed in million Euros (MEUR), for EE awareness campaigns and pilot projects, and Table 25 provides the annual investment profile for each component.

Table 17: Public Sector Investment In EE Awareness Campaigns and Pilot Projects 2018 – 2030 (MEUR)

EE Activity	MEUR
Implementation of NEEAP measures through the awareness campaign and pilot projects	22.7
Total	**22.7**

4.2.5 RES SUPPORT

The financial support to RES power producers is provided through two schemes: i) Contract for differences (feed-in tariffs) for Priority RES producers with installed capacity up to 15 MW and ii) Tax exemption.

With the approval of the new law on renewable, and the new Market Model, only the small RES Producers with installed capacity up to 2 MW (PV) and 3 MW (Wind) will continue to benefit from the feed-in tariffs, while other Priority RES Producers with installed capacity from 2 to 15MW will be subject of feed-in premium provided through the CfD applied for them in the day ahead market.

Therefore, this RES support is covered by final customers through a dedicated surcharge in their final rates, and the primary state budget funding to be allocated for RES support will go towards awareness campaigns and pilot projects, which indirectly will assist to achieve the national RES target.

Table 18 provides the cumulative public sector investment costs for 2018 to 2030, expressed in million Euros (MEUR), for RES awareness campaigns and pilot projects, and Table 26 provides the annual investment profile for each component.

Table 18: Public Sector Investment in RES Awareness Campaigns and Pilot Projects 2018 – 2030

RES Activity	MEUR
Implementation of NRESAP measures through public awareness and pilot projects	37.8
Total	**37.8**

4.3 TOTAL ENERGY SECTOR INVESTMENT REQUIRED

Under this session is presented in the form of a summary table the investment required for all energy subsector and the total for the whole period 2018-2030, meanwhile all tables 23-30 are presenting the yearly required investment break down for each sub-energy sector and breakdown according to investment which will be covered from the state budget (including the equity contribution from public companies) and from the private investors (foreign and domestic ones), donors and Albanian Banks

Table 19 provides the total of the respective cumulative sectoral investments (2018 to 2030) discussed above, and Table 27 provides the annual investment profile for each component.

Table 19: Total Cumulative Investment Requirement 2018 – 2030 (MERU)

Sector	MEUR
Power Sector (EE Scenario)	
Generation	1,149
Transmission	153
Distribution	330
Subtotal	1,633
Natural Gas Sector	
Interconnection	230.0
Transmission and Distribution	117.0
Subtotal	347.0
Oil Sector	
Exploration and Production of Crude Oil	203.0
Rehabilitation of Ballsh & Fier Refineries	30.0
Improvements of downstream oil by products infrastructure	65.0
Construction of New Refineries,	350.0
Subtotal	648.0
Awareness Campaigns and Pilot Projects	
Promotion of EE	22.7
Promotion of RES	37.8
Subtotal	60.5
Total	**2,688.5**

The

The table shows that the highest total investment is for power sector (1,633 MEUR cumulative between 2018 and 2030), the second highest subsector is for development of the oil sector (648.0 MEUR) followed by the natural gas sector (347.0 MEURO).

4.3.1 STATE BUDGET AND PUBLIC INVESTMENT CONTRIBUTIONS FOR EACH SECTOR

Estimates of the state budget and public investment contribution for each energy sector required to reach the identified strategic objectives have been calculated based on the following assumptions:

- Total investment for generation (including RES Plants and Natural Gas CCGTs) will be based on the private initiatives. KESH should support not only rehabilitation projects of the existing generation assets, but the construction of new capacities as well. KESH shall support not only rehabilitation projects of the existing generation assets, but the construction of new capacities as well. KESH will continue to support only rehabilitation of Drin River Cascade based on the ongoing project for fierza, Koman and Vau i Dejes HPPs for increasing dam safety side and improvement of mechanical and electrical performance; Based on the WB study, KESH sh.a has prepared a project proposal for the Development of HEC Skavica (Feasibility Study,

business model and socio-economic assessment) which, after being included in the National Strategic Package in 2016-2017 by the National Investment Council, has been submitted for review and support to the Western Balkans Investment Fund (WBIF) in its XVII-th round of call for applications. WBIF Committee reviewed the project proposal submitted by KESH sh.a. for the construction of Skavica and approved the technical assistance grant at EUR 1.5 million (Project Code: WB17-ALB-ENE-03). Also, additional investment identified for the conversion of Vlora TPP into gas fired technology.

- Transmission, Distribution of Electricity, Exploration and Production of Crude Oil, Rehabilitation of Ballsh & Fier Refineries will be based on the general assumption considering that each investment will have a structure of the capital as follows: equity contribution from OST and OSHEE will be 20-30% of total specific required investment and the rest will covered from the IFIs and possibly from private banks;
- Natural Gas interconnection, transmission and distribution investment will be based on private initiatives, with an equity contribution will be 20-30% of total specific required investment.

Table 20 provides estimates of the amounts of state budget and public investment contribution for each energy sector for the period 2018 to 2030, and **Error! Reference source not found.** provides the annual investment profile for each component.

Table 20: Cumulative Investment Needs from State Budget 2018 – 2030 (MEUR)

Sector	MEUR
Power Sector (EE Scenario)	
Generation	0
Transmission	45.9
Distribution	99
Subtotal	144.9
Natural Gas Sector	
Interconnection	0
Transmission and Distribution	0
Subtotal	0
Oil Sector	
Exploration and Production of Crude Oil	40.6
Rehabilitation of Ballsh & Fier Refineries	6
Improvements of downstream oil by products infrastructure	0
Construction of New Refineries,	0
Subtotal	46.6
Awareness Campaigns and Pilot Projects	
Promotion of EE	22.7
Promotion of RES	37.8
Subtotal	60.5
Total	**252.0**

The total state budget and public investment contribution is equal to 252 MEUR for the period 2018-2030, which is only 8.4% of the total required investments. This is a very important conclusion, since these contributions are not likely to put pressure on the state budget, and it is very important that the Albanian Government undertake these contributions on order to facilitate attraction of the needed private sector and donor investments. As it was mentioned above he potential cost for the fulfilling and implementing all of the strategy's activities is a total of 2.7 billion euros for whole period 2018-2030. Figure 16 presents the share of State Budget planned for energy sector including equity of the public companies related to investment requirement versus total state budget.

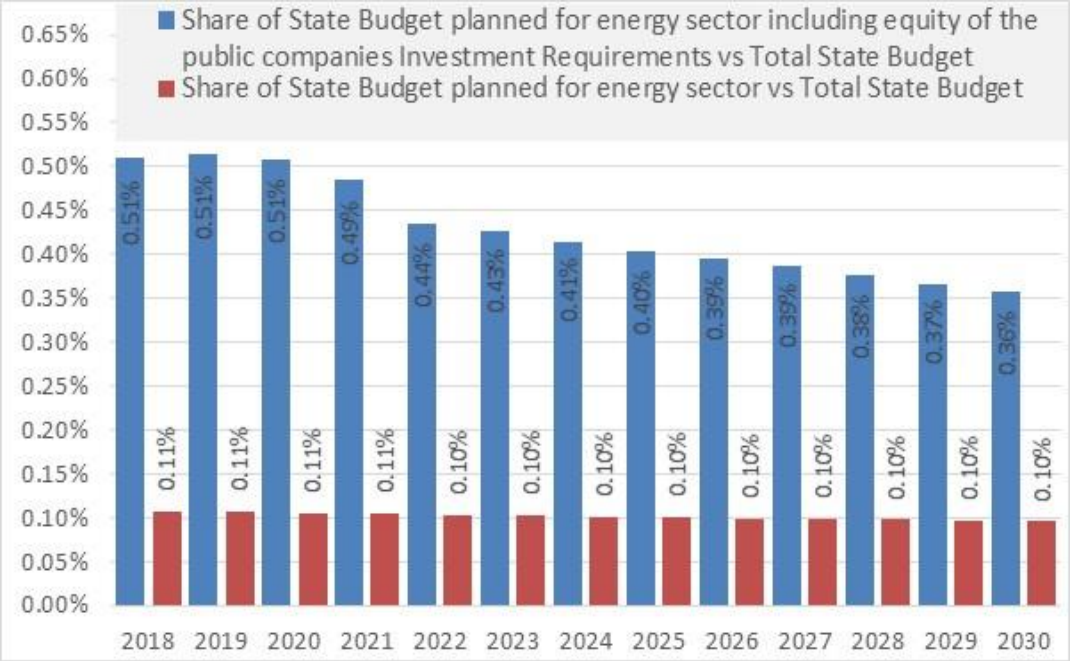


Figure 16: Share of State Budget planned for energy sector including equity of the public companies Investment Requirements vs Total State Budget

Analysis of the above mentioned figures shows clearly that establishment of combined energy scenario that Share of State Budget planned for energy sector including equity of the public companies related to the investment requirements versus yearly total state budget is (0.35-0.5)%. Since the equity contribution of energy public companies is not part of the state budget the share of state budget planned for energy sector versus the total yearly state budget is further small equal to (0.1-0.11)%.

Final conclusion: implementation of combined scenario will support Albania social and economic development according to the NSDI**, will reduce strongly state deficit and in the same time has been design not to be a burden to State Budget.**

Action presented to whole chapters of this document a number actions related to financial improvements of OSHEE, KESH, OST, Albetrol together with minimum state budget support will minimize the risk especially for securing the private investment. Strong financial situation for OSHEE, KESH, OST, Albetrol will be the best signal to guarantee the funds from Donors, foreign and domestic investors as well as Albanian Banking System.

4.3.2 PRIVATE INVESTMENT AND DONOR RESOURCES REQUIRED FOR EACH SUBSECTOR

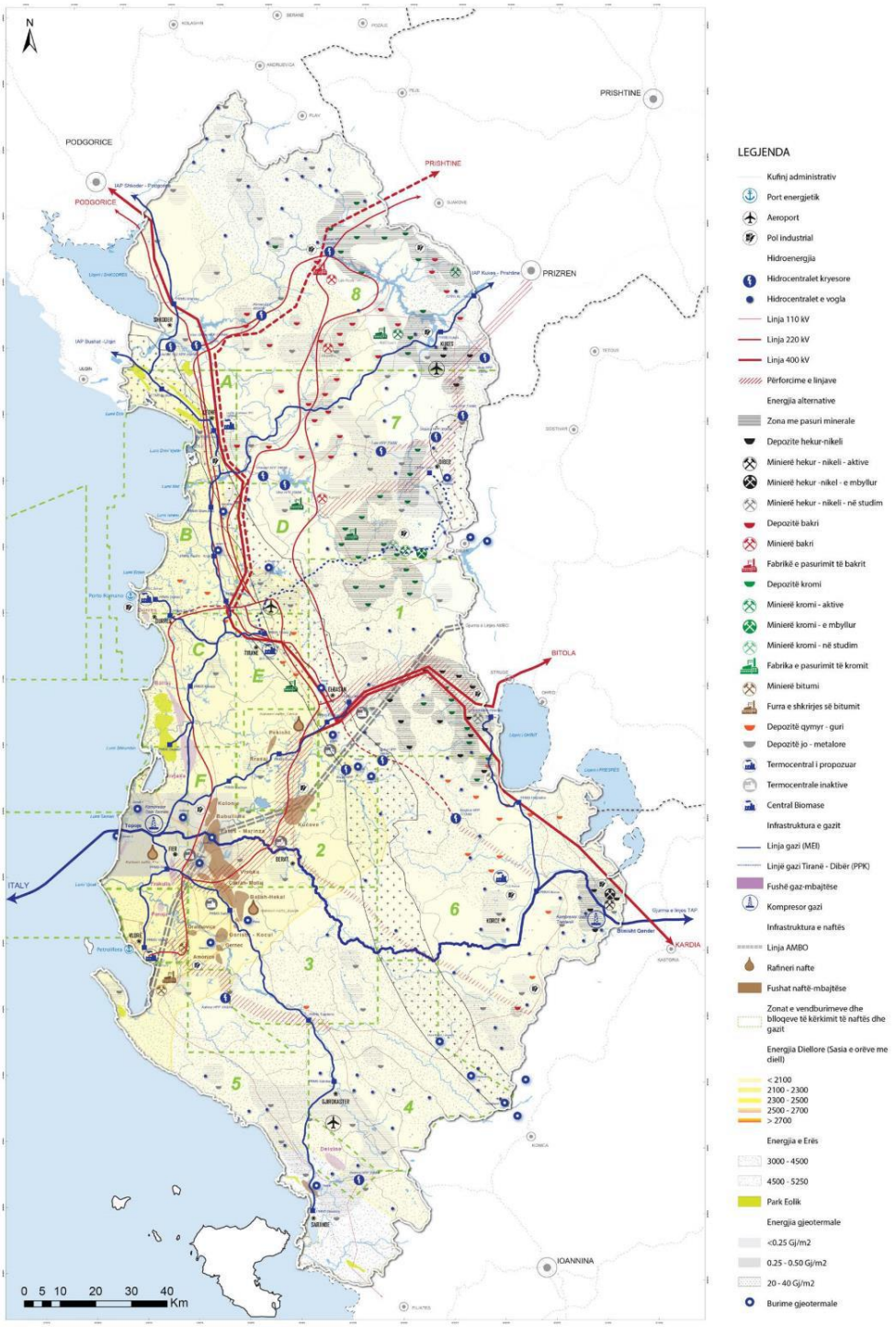
The remaining investment requirements are assumed to be met by private investors (foreign and domestic) and donors financing, which could include development bank loans, technical assistance support and grants. Table 21 shows the cumulative investment required from these sources for each

energy sector, and **Error! Reference source not found.** provides the annual investment profile for each component.

Table 21: Private Investment and Donor Financing 2018 – 2030 (MEUR)

Sector	MEUR
Power Sector (EE Scenario)	
Generation	1149
Transmission	107.1
Distribution	231
Subtotal	1488.1
Natural Gas Sector	
Interconnection	230.0
Transmission and Distribution	117.0
Subtotal	347.0
Oil Sector	
Exploration and Production of Crude Oil	162.4
Rehabilitation of Ballsh & Fier Refineries	24
Improvements of downstream oil by products infrastructure	65
Construction of New Refineries,	350
Subtotal	601.4
Awareness Campaigns and Pilot Projects	
Promotion of EE	0
Promotion of RES	0
Subtotal	0
Total	**2,436.5**

Private investment and Donors financing account for almost 91.6% of the total required investments.



Harta 3.27 Infrastruktura e energjisë

Figure 17: Existing and Planned Energy Infrastructure

Table 22: Power Sector Investment for Generation, Transmission, Distribution (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Baseline Scenario														
Generation	370.0	43.4	342.2	509.3	6.3	121.8	354.5	6.8	6.9	186.5	7.3	7.4	7.6	1,970
Transmission	13.3	13.5	13.8	14.1	14.4	14.6	14.9	15.2	15.5	15.8	16.2	16.5	16.8	195
Distribution	28.6	29.1	29.7	30.3	30.9	31.5	32.2	32.8	33.5	34.1	34.8	35.5	36.2	419
Total	**411.8**	**86.0**	**385.7**	**553.7**	**51.5**	**168.0**	**401.6**	**54.8**	**55.9**	**236.5**	**58.2**	**59.4**	**60.6**	**2,584**
Energy Efficiency Scenario (EE)														
Generation	40.3	43.0	315.8	178.0	5.5	103.2	293.0	5.5	5.5	143.5	5.5	5.5	5.5	1,149
Transmission	12.1	12.0	11.8	11.8	11.8	11.8	11.8	11.7	11.7	11.7	11.7	11.6	11.6	153
Distribution	26.1	25.8	25.5	25.5	25.4	25.4	25.3	25.3	25.2	25.2	25.1	25.0	25.0	330
Total	**78.5**	**80.8**	**353.2**	**215.3**	**42.7**	**140.4**	**330.1**	**42.5**	**42.4**	**180.3**	**42.2**	**42.1**	**42.0**	**1,633**
Renewable Energy Sources Scenario (RES)														
Generation	119.3	111.2	268.9	56.8	56.8	154.6	171.8	229.3	171.8	56.8	56.8	56.8	56.8	1,568
Transmission	13.2	13.4	13.7	13.9	14.2	14.4	14.7	14.9	15.2	15.5	15.8	16.0	16.3	191
Distribution	28.4	28.9	29.4	30.0	30.5	31.1	31.6	32.2	32.7	33.3	33.9	34.5	35.2	412
Total	**160.9**	**153.5**	**312.0**	**100.7**	**101.5**	**200.1**	**218.1**	**276.4**	**219.7**	**105.6**	**106.5**	**107.4**	**108.3**	**2,171**
Combined Scenario (Co)														
Generation	102.8	110.3	379.5	42.3	41.2	102.9	195.9	142.7	104.7	35.7	117.6	33.5	32.4	1,442
Transmission	12.4	12.3	12.1	12.1	12.1	12.1	12.1	12.0	12.0	12.0	11.9	11.9	11.9	157
Distribution	26.8	26.5	26.1	26.1	26.1	26.0	26.0	25.9	25.9	25.8	25.7	25.7	25.6	338
Total	142.0	149.0	417.8	80.5	79.4	141.0	234.0	180.6	142.5	73.5	155.3	71.1	69.9	1,937

Table 23: Natural Gas Infrastructure Investment for Transmission, Distribution and Natural Gas Supply (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Interconnection	60	70	85	15										230.0
Transmission & Distribution	8	12	15	20	15	10	7	5	5	5	5	5	5	117.0
Total Natural Gas Sector Investment	68	82	100	35	15	10	7	5	5	5	5	5	5	347.0

Table 24: Oil Sector Infrastructure Investment for Exploration, Rehabilitation and Improvements (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Exploration and Production of Crude Oil	13	13.4	13.8	14.2	14.6	15.1	15.5	16.0	16.5	17.0	17.5	18.0	18.5	203.0
Rehabilitation of Ballsh & Fier Refineries	4	8	10	8										30.0
Improvements of downstream oil by-products infrastructure	5	7	10	15	10	8	5	5						65.0
Construction of New Refineries		20	80	150	100									350.0
Total Oil Sector Investment	22.0	48.4	113.8	187.2	124.6	23.1	20.5	21.0	16.5	17.0	17.5	18.0	18.5	648.0

Table 25: Public Sector Investment for EE Awareness Campaigns and Pilot Projects (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
EE Awareness & Pilot Projects	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.83	1.87	1.92	1.97	2.02	22.71
Total	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.83	1.87	1.92	1.97	2.02	22.71

Table 26: Public Sector Investment For RES Awareness Campaigns and Pilot Projects (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
RES Awareness & Pilot Projects	2.50	2.56	2.63	2.69	2.76	2.83	2.90	2.97	3.05	3.12	3.20	3.28	3.36	37.85
Total	2.50	2.56	2.63	2.69	2.76	2.83	2.90	2.97	3.05	3.12	3.20	3.28	3.36	37.85

Table 27: Total of Investment Requirements (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Power Sector (EE Scenario)														
Generation	40.3	43.0	315.8	178.0	5.5	103.2	293.0	5.5	5.5	143.5	5.5	5.5	5.5	1,149
Transmission	12.1	12.0	11.8	11.8	11.8	11.8	11.8	11.7	11.7	11.7	11.7	11.6	11.6	153
Distribution	26.1	25.8	25.5	25.5	25.4	25.4	25.3	25.3	25.2	25.2	25.1	25.0	25.0	330
Subtotal	78.5	80.8	353.2	215.3	42.7	140.4	330.1	42.5	42.4	180.3	42.2	42.1	42.0	1,633
Natural Gas Sector														
Interconnection	60	70	85	15										230.0
Transmission and Distribution	8	12	15	20	15	10	7	5	5	5	5	5	5	117.0
Subtotal	68	82	100	35	15	10	7	5	5	5	5	5	5	347.0
Oil Sector														
Exploration and Production of Crude Oil	13	13.4	13.8	14.2	14.6	15.1	15.5	16.0	16.5	17.0	17.5	18.0	18.5	203.0
Rehabilitation of Ballsh & Fier Refineries	4	8	10	8										30.0
Improvements of downstream oil by products infrastructure	5	7	10	15	10	8	5	5						65.0
Construction of New Refineries,		20	80	150	100									350.0
Subtotal	22.0	48.4	113.8	187.2	124.6	23.1	20.5	21.0	16.5	17.0	17.5	18.0	18.5	648.0
Awareness Campaigns and Pilot Projects														
Promotion of EE	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.83	1.87	1.92	1.97	2.02	22.7
Promotion of RES	2.50	2.56	2.63	2.69	2.76	2.83	2.90	2.97	3.05	3.12	3.20	3.28	3.36	37.8
Subtotal	4.00	4.10	4.20	4.31	4.42	4.53	4.64	4.75	4.87	5.00	5.12	5.25	5.38	60.5
Total	162.5	215.3	570.1	426.8	186.8	178.0	362.2	73.2	68.7	207.3	69.8	70.4	70.9	2,688.5

Table 28: State Budget Investment Requirements (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Power Sector														
Generation	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transmission	3.63	3.6	3.54	3.54	3.54	3.54	3.54	3.51	3.51	3.51	3.51	3.48	3.48	45.9
Distribution	7.83	7.74	7.65	7.65	7.62	7.62	7.59	7.59	7.56	7.56	7.53	7.5	7.5	99
Subtotal	11.46	11.34	11.19	11.19	11.16	11.16	11.13	11.1	11.07	11.07	11.04	10.98	10.98	144.9
Natural Gas Sector														
Interconnection	0	0	0	0										0
Transmission and Distribution	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oil Sector														
Exploration and Production of Crude Oil	2.6	2.68	2.76	2.84	2.92	3.02	3.1	3.2	3.3	3.4	3.5	3.6	3.7	40.6
Rehabilitation of Ballsh & Fier Refineries	0.8	1.6	2	1.6	0	0	0	0	0	0	0	0	0	6
Improvements of downstream oil by products infrastructure	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction of New Refineries	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	3.4	4.28	4.76	4.44	2.92	3.02	3.1	3.2	3.3	3.4	3.5	3.6	3.7	46.6
Awareness Campaigns and Pilot Projects														
Promotion of EE	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.83	1.87	1.92	1.97	2.02	22.7
Promotion of RES	2.50	2.56	2.63	2.69	2.76	2.83	2.90	2.97	3.05	3.12	3.20	3.28	3.36	37.8
Subtotal	4.00	4.10	4.20	4.31	4.42	4.53	4.64	4.75	4.87	5.00	5.12	5.25	5.38	60.5
Total	**18.86**	**19.72**	**20.15**	**19.94**	**18.5**	**18.71**	**18.87**	**19.05**	**19.24**	**19.47**	**19.66**	**19.83**	**20.06**	**252.0**

Table 29: Private Sector Investment Requirements (MEUR)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2018-2030
Power Sector														
Generation	40.3	43	315.8	178	5.5	103.2	293	5.5	5.5	143.5	5.5	5.5	5.5	1149
Transmission	8.47	8.4	8.26	8.26	8.26	8.26	8.26	8.19	8.19	8.19	8.19	8.12	8.12	107.1
Distribution	18.27	18.06	17.85	17.85	17.78	17.78	17.71	17.71	17.64	17.64	17.57	17.5	17.5	231
Total	67.0	69.5	342.0	204.1	31.5	129.2	319.0	31.4	31.3	169.2	31.2	31.1	31.0	1488.1
Natural Gas Sector														
Interconnection	60	70	85	15										230
Transmission and Distribution	8	12	15	20	15	10	7	5	5	5	5	5	5	117
Subtotal	68	82	100	35	15	10	7	5	5	5	5	5	5	347
Oil Sector														
Exploration and Production of Crude Oil	10.4	10.7	11.0	11.4	11.7	12.1	12.4	12.8	13.2	13.6	14	14.4	14.8	162.4
Rehabilitation of Ballsh & Fier Refineries	3.2	6.4	8	6.4	0	0	0	0	0	0	0	0	0	24
Improvements of downstream oil by products infrastructure	5	7	10	15	10	8	5	5	0	0	0	0	0	65
Construction of New Refineries,	0	20	80	150	100	0	0	0	0	0	0	0	0	350
Subtotal	18.6	44.1	109.0	182.8	121.7	20.1	17.4	17.8	13.2	13.6	14	14.4	14.8	601.4
Awareness Campaigns and Pilot Projects														
Promotion of EE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Promotion of RES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**153.6**	**195.6**	**551.0**	**421.9**	**168.3**	**159.3**	**343.3**	**54.2**	**49.5**	**187.8**	**50.1**	**50.6**	**50.8**	**2436.5**

5. ACCOUNTABILITY, MONITORING AND EVALUATION

5.1 INTRODUCTION

Implementation of the National Energy Strategy is a very significant undertaking for Albania, requiring consistent and meaningfully applied political will, coordination of all energy related stakeholders within the country, and cooperation with Albania's development partners. Furthermore, successful implementation depends on the commitment of private investors, donors, public energy companies and state budget resources, and the cost-effective management of these resources within state institutions to achieve the expected results, outcomes, and impacts. Successful implementation of the National Energy Strategy depends on sound governance, clearly defined accountabilities, transparency, and the ongoing participation of a wide range of institutions within the government and externally.

Reporting, monitoring and evaluation analysis are essential for an efficient and timely implementation of the National Energy Strategy, and this chapter identifies a set of clearly defined metrics for monitoring of the Energy Strategy's main objectives. These monitoring metrics build upon the strategic objectives discussed in section 2.2 and the strategic metrics discussed in section 2.3 to provide a clear basis for monitoring Albania's progress towards implementing this Energy Strategy.

5.2 MONITORING INDICATORS

The monitoring metrics will be measured through specific indicators, which were selected from the respective indicators used for the National Strategy for Development and Integration 2015-2020, RES Targets, EE Targets and NDC Targets already committed to by the Albanian Government until 2020. Implementation of the Strategy will be monitored through and benchmarked against a set of thirteen monitoring indicators, which are generally available on an annual basis. These monitoring indicators are listed below:

- Reduction of transmission technical electricity losses; calculated as the ratio of the technical losses in the transmission network over the electricity that is supplied to the transmission network;
- Reduction of distribution non-technical electricity losses; calculated as the ratio of non-technical losses (not billed) in the distribution network over the electricity that is supplied to the distribution network;
- Reduction of distribution technical electricity losses; calculated as the ratio of the technical losses in the distribution network over the electricity that is supplied to into the distribution network;
- Increasing rate of electricity collection; calculated as the ratio of the total amount of electricity billed in the distribution network over the electricity that is supplied to the distribution network;
- Level of cross-subsidies in energy supply. this is an important indicator of quality and shows the degree of cross-subsidizing of electricity prices between all categories of customers. It is difficult to quantify it at the current level.
- Rate of switching the supplier. this is an important quality indicator and shows the number of energy sources that make the total supply. It is difficult to quantify it at the current level.

- Opening of electricity market (percentage of energy supplied from the competitive market - both domestic and from imports); the percentage of energy supplied by the competitive market - both domestic and imported;
- Self-sufficiency of domestic primary energy produced versus total primary energy supply; which is calculated as a ratio of the sum of all primary energy sources produced in the country versus the amount of all the energy sources supplied in a given year;
- Share of Imports of energy; which is calculated as a ratio of the sum of all energy sources imported domestically versus all the sources of energy supplied in a given year;
- National Energy Efficiency Target; calculated as the ratio of energy saved in a given year versus the final consumption forecasted based on the respective approved energy efficiency plan;
- Utilization of renewable energy in TPES (RES Target); calculated as the ratio of the sum of renewable energy contributions over a given year versus the final consumption forecasted under the relevant approved renewable energy plan;
- Biofuel Targets as share of biofuels versus total fuel consumption in transport sector; calculated as the ratio of energy supplied by biofuels to the transport sector versus the final consumption forecasted based on the approved plan of renewable energy sources.
- CO2 emission reductions; CO2 emission as a percentage reduction of GHG emissions versus total GHG emissions under the baseline scenario (%);calculated as the ratio of CO2 emissions and other greenhouse gases emitted over a given year in relation to the relevant GHG emissions forecasted on the basis of the NDC document; and
- Natural Gas Penetration; calculated as the ratio of natural gas input to a country on a specific year versus the sum of all energy sources supplied in a given year;

Ministry of Energy and Industry together with ERE, AKBN, EE Agency are responsible for monitoring and providing an efficient implementation of the energy strategy for all respective sectors. All institutions that are shown on the respective list in table 30.1 & 30.2 must report the results of the previous year to the Ministry of Infrastructure and Energy by April 30 of each year, in the framework of unifying reporting and monitoring of strategic documents. The Ministry of Infrastructure and Energy will prepare the yearly report until June 30 of each year. The Annual Report on Monitoring the Implementation of the Energy Strategy is sent to the Council of Ministers for their final analysis. At the end of 2020, the MEI should present the report in a short time frame and update the Energy Strategy. The same process should be repeated in 2025 and 2030.The annual monitoring report should focus on results, indicators, current and perspective tendencies, barriers encountered during the reporting period, lessons learned and achievements, measures to be undertaken for speeding up development in certain energy sectors and on the results reached during the reporting period. While the responsibility for the overall implementation oversight rests with Ministry of Energy and Industry, strategy implementation involves almost all line ministries, central government institutions and local government.

5.3 MONITORING TARGETS

The monitoring indicators will be evaluated periodically by Ministry of Energy and Industry together with ERE, AKBN, EE Agency. Annual monitoring reports on the implementation of the National Energy Strategy will be presented for review to the Council of Ministers for approval.

Information will be collected for the respective monitoring indicators in accordance with the type of intervention. Monitoring data should be collected annually, and some of this data will be inserted into the Yearly Energy Balance, which is prepared and updated by the Ministry of Energy and Industry through AKBN. A functional task of AKBN will be making requests for data that are to be generated by all public and private energy companies, and carrying out surveys for determining the level of consumption among various energy demand sectors. The data collected will be confirmed and transferred in EUROSTAT Energy Balance Template, where data will be processed and systemized in tables with the monitoring indicators. All monitoring indicators will be part of the annual monitoring report, which will be submitted for decision-making to the Ministry of Energy and Industry, and then sent officially to the Council of Ministers.

Table 30.1 presents an initial set of monitoring indicators, which includes their baseline values (for the year 2015), short-term goals (2020), medium term goals (2025) and long term goals (2030). Meanwhile table 30.2 Meanwhile the table 30.2 presents all yearly indicators for easy monitoring process.

The annual reports shall address progress in all of energy sectors and subsectors, either in terms of significant achievement or in terms of significant issues, such as major policy shifts, serious implementation issues, or other factors. The reports will be produced in a timely manner, so that government institutions and development partners might take the appropriate action. The production of the annual reports may be combined with an annual government–development partner conference or roundtable.

TABLE 30.1: MAIN ENERGY INDICATORS AND TARGETS FOR THE NATIONAL ENERGY STRATEGY

Indicators	Baseline Value - 2015	Short term goals -2020	Medium term goals - 2025	Long term goals-2030	Responsible institution
Reduction of transmission technical electricity losses	2.20%	2.00%	1.80%	1.70%	MIE/ERE/OST
Reduction of distribution non-technical electricity losses	14.04%	8.00%	6.00%	4.00%	MIE/ERE/OSHEE
Reduction of distribution technical electricity losses	14.00%	9.00%	7.00%	6.00%	MIE/ERE/ OSHEE
Increasing rate of electricity collection	90%	92%	95%	98%	MIE/ERE/ OSHEE
Opening of electricity market	35%	40%	100%	100%	MIE/ERE
Self-sufficiency of domestic primary energy sources vs total primary energy supply (%)	47.47%	50.37%	52.31%	52.40%	MIE/AKBN
Imports of energy sources vs total primary energy supply (%)	52.53%	49.63%	47.69%	47.60%	MIE/AKBN
Energy Efficiency Target (%)	0.2%	6.8%	10%	15%	MIE/AEE
Utilization of renewable energy in TPES (RES Target) (%)	32.50%	38.00%	40.50%	42.00%	MIE/AKBN
Biofuel Targets as share of biofuels versus total fuel consumption in transport sector (%)	3.55%	10%	10%	10%	MIE/AKBN
CO_2 emission as percentage reduction versus baseline (%)	0%	0%	5.75%	11.5%	ME/MIE/AKBN
Natural Gas Penetration (ktoe) versus total primary energy supply	0.36%	0.37%	5.10%	19.81%	MIE/AKBN

TABLE 31.1: MAIN YEARLY ENERGY INDICATORS AND TARGETS FOR THE NATIONAL ENERGY STRATEGY

Indicators/targets	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Responsible institution
Reduction of transmission technical electricity losses	2.08 %	2.04%	2.00%	1.96%	1.92%	1.88%	1.84%	1.80%	1.78%	1.76%	1.74%	1.72%	1.70%	MIE/ERE/OST
Reduction of distribution non-technical electricity losses	10.42 %	9.21%	8.00%	7.60%	7.20%	6.80%	6.40%	6.00%	5.60%	5.20%	4.80%	4.40%	4.00%	MIE/ERE/OSHEE
Reduction of distribution technical electricity losses	11.00 %	10.00 %	9.00%	8.600 %	8.200 %	7.800 %	7.400 %	7.00%	6.80%	6.60%	6.40%	6.20%	6.00%	MIE/ERE/ OSHEE
Increasing rate of electricity collection	91.20 %	91.60 %	92%	92.60 %	93.20 %	93.80 %	94.40 %	95%	95.6%	96.2%	96.8%	97.4%	98%	MIE/ERE/ OSHEE
Opening of electricity market	38.00 %	39.00 %	40%	52.00 %	64.00 %	76.00 %	88.00 %	100%	100%	100%	100%	100%	100%	MIE/ERE
Self-sufficiency of domestic primary energy sources vs total primary energy supply (%)	49.21 %	49.79 %	50.37%	50.76 %	51.15 %	51.53 %	51.92 %	52.31%	52.33 %	52.35 %	52.36 %	52.38 %	52.40%	MIE/AKBN
Imports of energy sources vs total primary energy supply (%)	50.79 %	50.21 %	49.63%	49.24 %	48.85 %	48.47 %	48.08 %	47.69%	47.67 %	47.65 %	47.64 %	47.62 %	47.60%	MIE/AKBN
Energy Efficiency Target (%)	4.16 %	5.48%	6.80%	7.44%	8.08%	8.72%	9.36%	10%	11.00 %	12.00 %	13.00 %	14.00 %	15%	MIE/AEE
Utilization of renewable energy in TPES (RES Target) (%)	35.80 %	36.90 %	38.00%	38.50 %	39.00 %	39.50 %	40.00 %	40.50%	40.80 %	41.10 %	41.40 %	41.70 %	42.00%	MIE/AKBN
Biofuel Targets as share of biofuels versus total fuel consumption in transport sector (%)	7.42 %	8.71%	10%	10.00 %	10.00 %	10.00 %	10.00 %	10%	10.0%	10.0%	10.0%	10.0%	10%	MIE/AKBN
CO_2 emission as percentage reduction versus baseline (%)	0%	0%	0%	1.15%	2.30%	3.45%	4.60%	5.75%	6.9%	8.1%	9.2%	10.4%	11.50%	ME/MIE/AKBN
Natural Gas Penetration (ktoe) versus total primary energy supply	0.37 %	0.37%	0.37%	1.32%	2.26%	3.21%	4.15%	5.10%	8.04%	10.98 %	13.93 %	16.87 %	19.81%	MIE/AKBN