SITUATION AND MAIN CHALLENGES OF ALBANIA'S ENERGY SECTOR, ON THE WAY OF ENERGY DIVERSIFICATION AND INTEGRATION

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SITUATION AND MAIN CHALLENGES OF ALBANIA'S ENERGY SECTOR, ON THE WAY OF ENERGY DIVERSIFICATION AND INTEGRATION

Main topics:

1. –Key pillars of the Albanian's energy policy.

2. -Situation in development of the energy sector in Albania

3. – Albanian Power Stock Exchange (ALPEX)

4. –Current Laws and Regulations for the Albanian Energy Sector

5. -Government policy for the restructuring of the energy industry

6. –Government Medium Term/long term Plan for the supply with electricity and gas.

7. –Regional cooperation in framework of geopolitical development

8. –Instead of the conclusions

1.- THE MAIN PILLARS OF ALBANIA'S ENERGY POLICY

National energy strategy for the period 2018-2030" (Approved with the Decision of the Albanian's Council of Ministers – DCM no. 480,date 31.07.2018)

-**Increasing Security of the energy supply .**

- Internal Sources
- Reliable
- Sustainable
- Efficient
- Environmentally Friendly
- Cost effective
- Competitive

-**Functioning as a regional energy center, that contributes on the development of a safe and the guaranteed energy network in South-East Europe.**

- Linking of the high voltage power network with the neighboring countries,
- Increasing contribution of the renewable energies and energy efficiency
- Gasification, for the diversification and increasing energy security of supply
- Contribution of the TAP project as part of the Southern Gas Corridor
- Increasing role and contribution of the Coast Petroleum Terminals on the supply of country and neighboring countries with petroleum byproducts..

Interconnection of the Albanian Energy Sector with Regional and European Energy Networks

1.- THE MAIN PILLARS OF ALBANIA'S ENERGY POLICY

Albania as a Contracting Party of the Energy Community and one of the signatories of the Energy Charter.

A. It is considered that the creation **of the Energy Community** through the signing of its Treaty in 2005, as a regional organization on the frame of EU, has been of great importance for the development of the Energy Sector in the contracting parties (mainly in the Balkan countries) and the integration of this sector at the EU level. (Ratified by the Law no. 9501, dated 04.03.2006)

B. Meanwhile, Albania is one of the signatories **of the Energy Charter** and during the years 2018-2019, Albania also held the presidency of this organization.

C. Albania is one of the signatories in July 2015, in Dubrovnik, Croatia**, of the Memorandum of Understanding on a joint approach to address the challenges of natural gas diversification and security of supply** as part of the Central and Southeastern European Gas Interconnection Initiative (CESEC).

D. Albania is one of the signatories **of the Paris Climate Agreement**, an international agreement that addresses climate change. It was approved by 196 parties at the Conference of the Parties held in Paris on 12.12.2015. The agreement entered into force on 4.11.2016 and legally binds the parties to its implementation. (Ratified by law no. 75/2016, dated 14.7.2016)

Energy security, sustainable development and international obligations are identified as the main incentives for energy policies, along with competition, employment, comfort and climate change, providing further incentives for the energy sector at the national level.

2.- The situation in the development of the energy sector in Albania

Considering the recent developments in the energy sector related to the energy crisis, Russia's unprovoked war in Ukraine, the war in the Middle East, as well as the drastic climate changes that have affected Albania and all of Europe, the **necessity for the development and diversification of energy supply sources (especially from renewable energy sources) both for Albania** and for the entire region of South-Eastern Europe.

In this context**, the further increase of energy security will be enabled through a much more substantial integration of regional energy markets and infrastructure within the South East European Region and the connection of pan-European electricity and gas networks** (especially the TAP Pipeline as part of Southern Gas Corridor), as well as the increase of import capacities through coastal terminals of hydrocarbon products, as well as the construction and operation of LNG terminals, relying in this way on the diversification of energy supply routes not only for Albania but in the whole region and all of Europe.

In response to the current developments and problems encountered in the security of energy supply of the Albanian economy, **concrete projects have recently been supported that also use Albania's geopolitical position in the region, which are related to finding new sources of energy supply, development of photovoltaic and wind parks, the intensification of new oil operations for the discovery and exploitation of new oil and gas deposits), as well as with the construction of new electricity interconnection lines with neighboring countries,** as well as the development of projects new developments in the gasification of the country, which include projects for the construction of LNG terminals and those for connecting Albania with regional gas pipeline networks.

Map of Albanian Energy Infrastructure

2.- The situation in the development of the energy sector in Albania

2.1. Electricity production for 2023

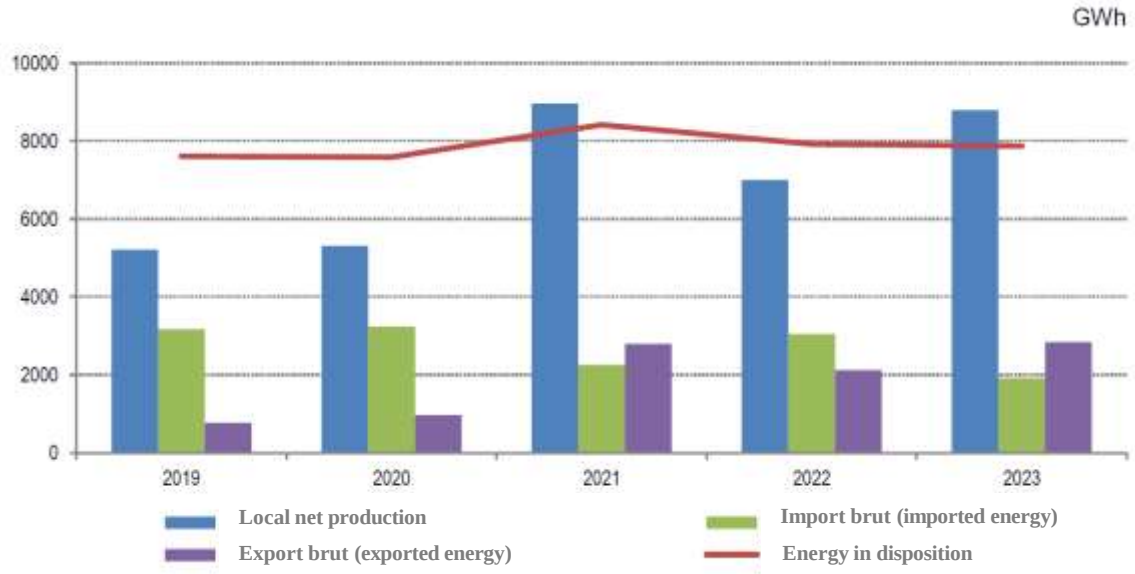
The year 2023 can be described as a good hydro year where **the domestic net production reached about 8,796 GWh of electricity, almost 11% more than the energy consumption.**

The net domestic production of electricity, which in 2023 reached the value of 8,796 GWh, marked an increase in production by 25.6% compared to 2022, where it was 7,003 GWh.

This production was realized by public hydropower plants (KESH sh.a.) to the extent of 58.2%, by private and concessionary hydropower plants to the extent of 40.8% and by other producers (Photovoltaics) to the extent of 1.0% of the net domestic production of electricity.

The gross import of electricity (energy in receipt) reached the value of 1,922 GWh from 3,044 GWh in 2022, marking a decrease of 36.9%.

The gross export of electricity (energy in delivery) reached the value of 2,842 GWh from 2,123 GWh, marking an increase of 33.9%.



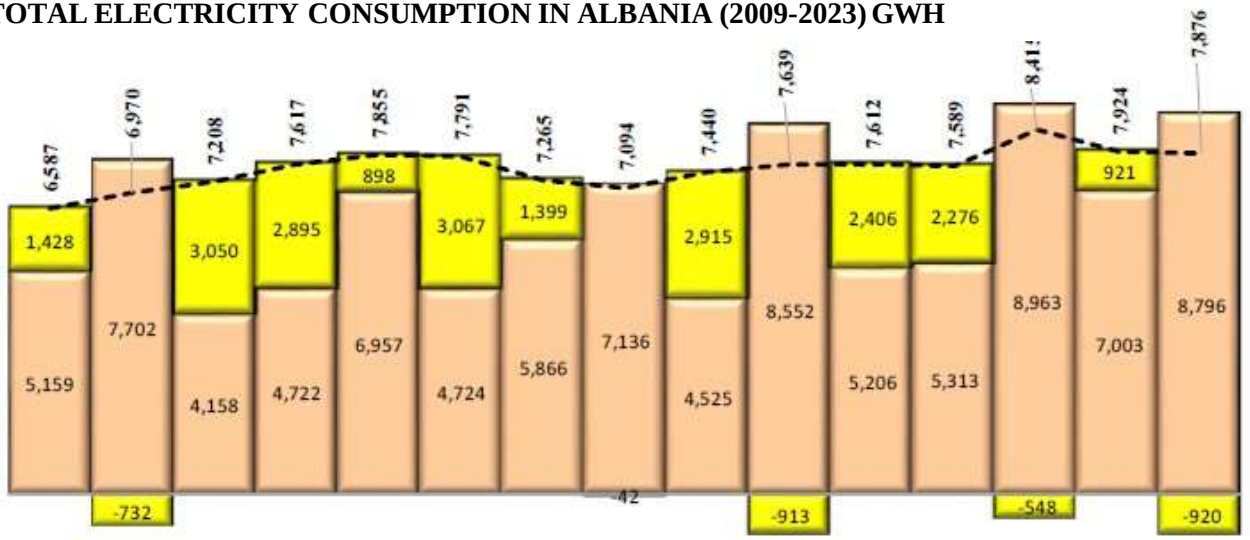
Available energy, net domestic production, gross import and export (Source INSTAT)

2.- The situation in the development of the energy sector in Albania

2.2. Electricity exchange for 2023

For the last 10 years, our country turns out to be generally a net importer of electricity with the exception of the years 2010, 2016, 2018, 2021 and 2023. We clarify that the presented values represent all incoming and outgoing flows from all participants of electricity market in Albania.

CONTRIBUTIONS OF DOMESTIC NET PRODUCTION AND IMPORT-EXPORT BALANCE TO TOTAL ELECTRICITY CONSUMPTION IN ALBANIA (2009-2023) GWH

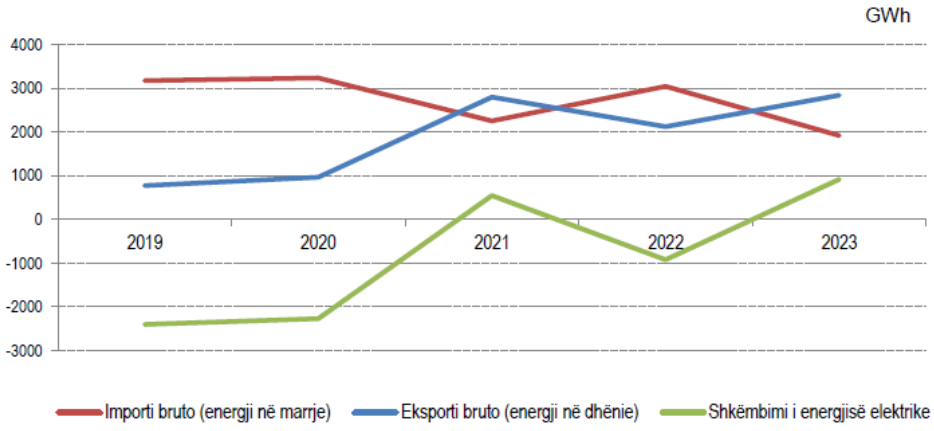


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Balanca Imp-Eks	1,428	-732	3,050	2,895	898	3,067	1,399	-42	2,915	-913	2,406	2,276	-548	921	-920
Prodh Neto Vendas	5,159	7,702	4,158	4,722	6,957	4,724	5,866	7,136	4,525	8,552	5,206	5,313	8,963	7,003	8,796
Konsumi Total	6,587	6,970	7,208	7,617	7,855	7,791	7,265	7,094	7,440	7,639	7,612	7,589	8,415	7,924	7,876

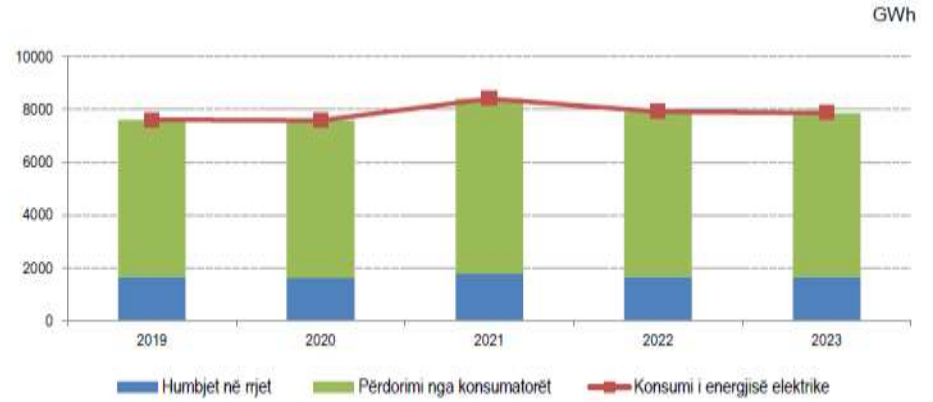
Contributions of domestic net production and import-export balance to total electricity consumption in Albania (2009-2023) GWh (Source ERE)

2.- The situation in the development of the energy sector in Albania

2.2. Electricity Exchange for 2023 and Losses in the Electricity Market for 2023



Electricity exchange (INSTAT source)



Electricity consumption, losses in the network and use by consumers (Source INSTAT)

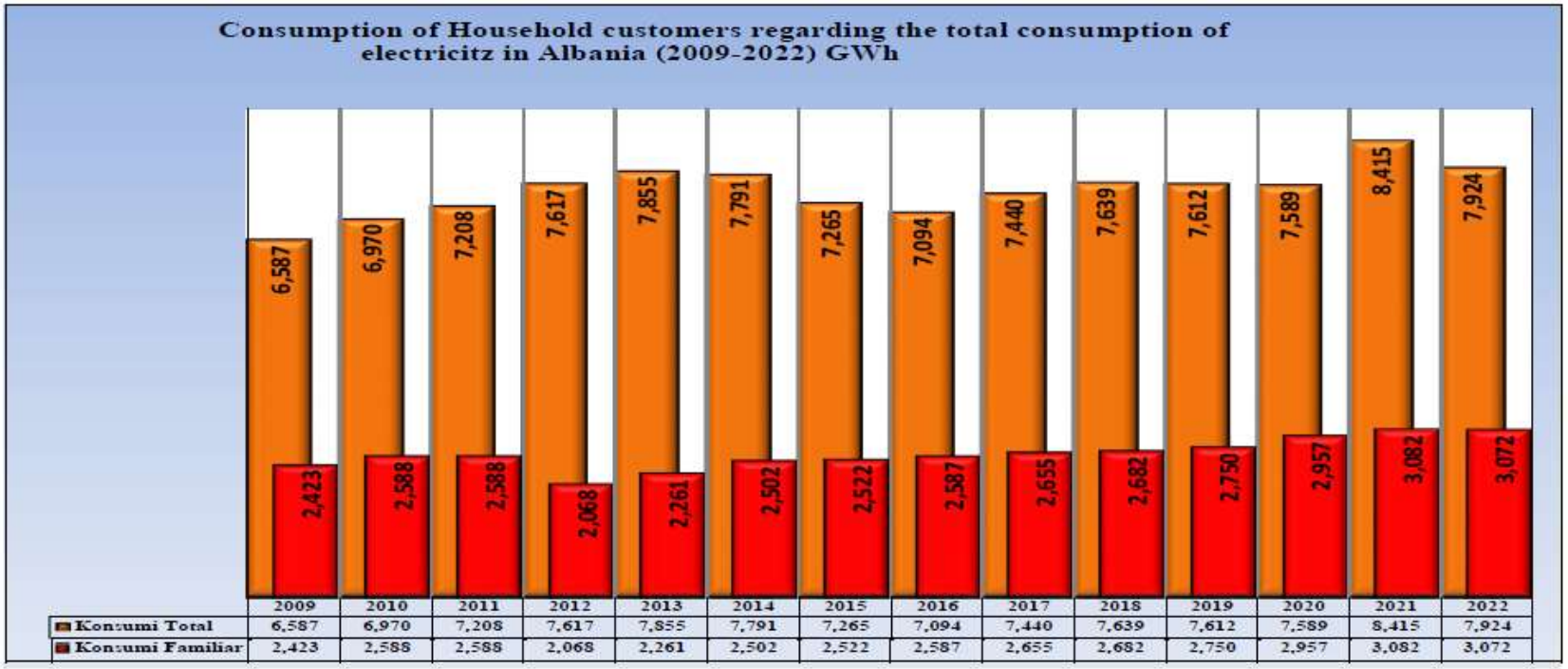
The exchange of electricity (difference between export and gross import of energy), in 2023, has reached the positive value of 920 GWh. In 2022, the electricity exchange had a negative value of 921 GWh

Losses in the network have reached the value of 1,655 GWh in 2023 from 1,658 GWh in 2022, marking a decrease of 0.2%. Transmission losses have increased by 10.1% and their weight in total network losses is 13.3%.

Distribution losses account for a larger share, about 86.7% of network losses, and in 2023 they decreased by 1.6%, compared to 2022.

2.- The situation in the development of the energy sector in Albania

2.4. Electricity consumption by household customers in relation to total consumption for 2022, as well as consumption for 2023.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Konsumi Total	6,587	6,970	7,208	7,617	7,855	7,791	7,265	7,094	7,440	7,639	7,612	7,589	8,415	7,924
Konsumi Familiar	2,423	2,588	2,588	2,068	2,261	2,502	2,522	2,587	2,655	2,682	2,750	2,957	3,082	3,072

Household customers against the country's total consumption in years (Source: ERE - FSHU sh.a.)

In 2023, the use of electricity by consumers reached 6,221 GWh from 6,266 GWh in 2022.

The use of electricity by household consumers increased by 1.4%, reaching 3,117 GWh in 2023 from 3,075 GWh in 2022, while the use by non-household consumers decreased by 2.7%, reaching 3,104 GWh in 2023 from 3,191 GWh that was in 2022.

2.6.- The infrastructure of the electricity sector

The lengths of the transmission system lines according to the voltage level are:
400 kV transmission lines 445.7 km
220 kV transmission lines 1,250 km
150 kV transmission lines 34.4 km
110 kV transmission lines 1624 .162 km

The above lines are part of the transmission system and interconnection lines with neighboring countries such as:
400 kV interconnection line Zemblak (Albania) – Kardia (Greece)
400 kV interconnection line Tirana (Albania) – Podgorica (Montenegro)
400 kV interconnection line Tirana (Albania) – Pristina (Kosovo)
220 kV interconnection line Fierze (Albania) – Prizren (Kosovo)
220 kV interconnection line Koplik (Albania) – Podgorica (Montenegro)
150 kV interconnection line Bistrica (Albania) – Myrtos (Greece).

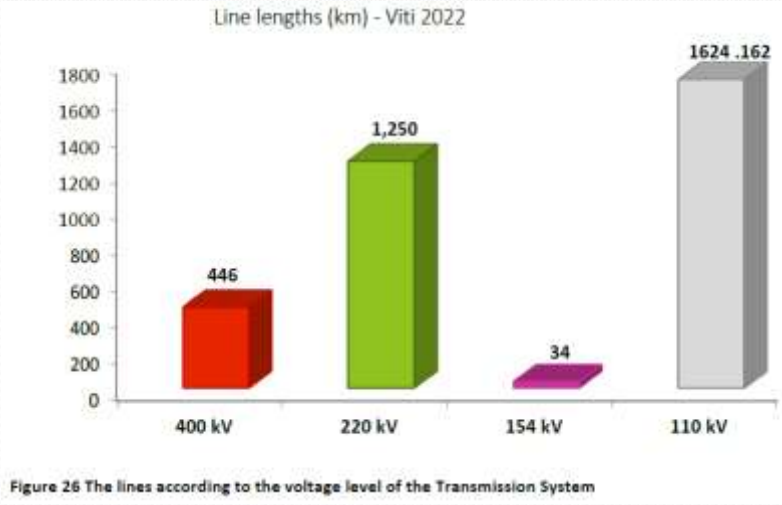
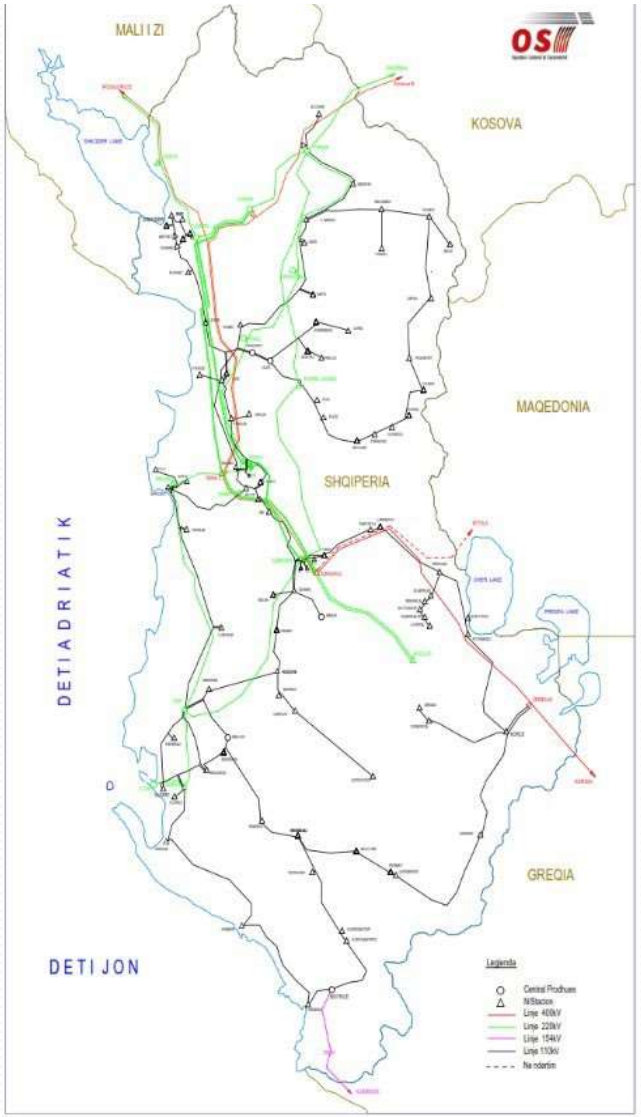


Figure 26 The lines according to the voltage level of the Transmission System

Scheme of the Albanian Transmission System



Scheme of the Albanian Transmission System

2.7. - The current situation of the oil and gas sector

The oil sector in Albania is small by international standards, but it is important for the Albanian economy and there are still large reserves of undiscovered oil and natural gas.

Status of the national natural gas transmission and distribution network.
Albania is one of the transit countries for the Trans Adriatic Pipeline, which will transport Azerbaijani gas from Greece, through Albania, to Italy.
In order to have access to the regional and European gas infrastructure, Albania must complete both the legal acts and the infrastructural investments necessary to achieve this access.

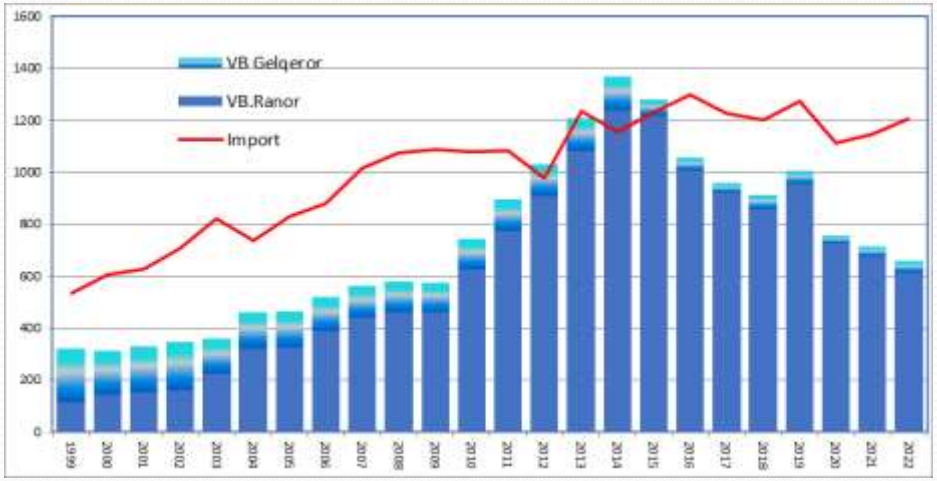
Biomass, biofuels: market integration
Various forms of biomass resources are available in Albania to cover energy services related to heating, electricity generation and transport. Firewood, agricultural waste, biomass pellets and biogas can contribute to a very important part of the energy demand to provide thermal energy in the framework of meeting the objectives from RES.

2.- The situation in the development of the energy sector in Albania

2.8. Domestic production of oil for the period 1999 - 2022

Domestic oil production for 2023 was 641.58 ktoe. while for 2022 it was 657.40 ktoe, which indicates a decrease for 2023 of 15.82 ktoe or 2.4%.

Crude oil from hydrocarbon agreements in 2023 was 572,622 ktoe, while in 2022 it was 586,831 ktoe (In 2022, domestic sales were 137,769 ktoe and exports 532,919 ktoe.



Progress of Production, Import and Export of petroleum products (ktoe) – (Source AKBN)*)*

VIT	Prodhimi i naftës ndër vite (Ton)
2015	60 462,31
2016	59 958,80
2017	63 005,96
2018	69 477,24
2019	75 495,33
2020	48 820,39
2021	60 462,31
2022	70 970,90
2023	66 966,00
Total	610 320,76

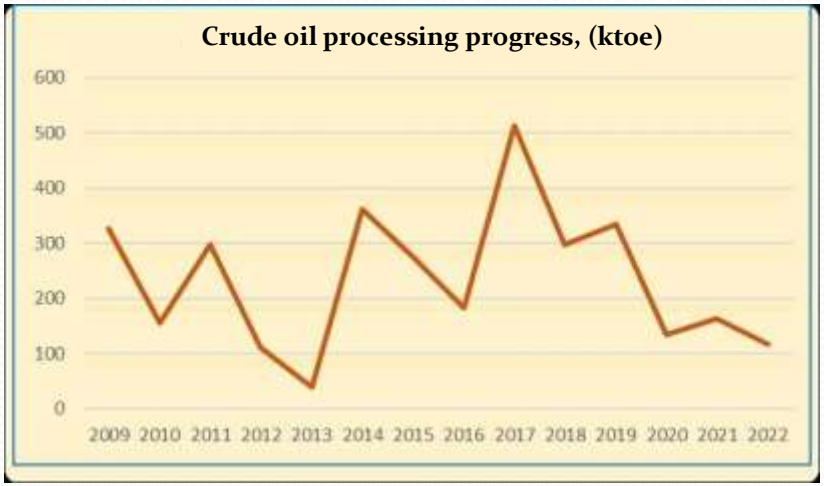
Progress of crude oil production by ALBPETROL sh.a., period 2015 – 2023, (tons) – (Source MONITOR)

Oil export: for 2021 for crude oil was 547.84 ktoe and for 2022 crude oil export was 532.92 ktoe (a decrease of 14.92 ktoe conditioned by market demand).

2.- The situation in the development of the energy sector in Albania

2.9. Processing in the country of oil for the period 2009 - 2022

For 2022, the amount of crude oil for refining was 116.64 ktoe, having a decrease compared to 2021 of 48.11 ktoe. This decrease in the amount of refining has come as a result of the limited production of oil products as well as the decrease in demand for these products.



Crude oil processing progress, (ktoe) – (Source AKBN)

ALGLOBAL OIL sh.a. -UPN (Rafineria e Naftës), Fier

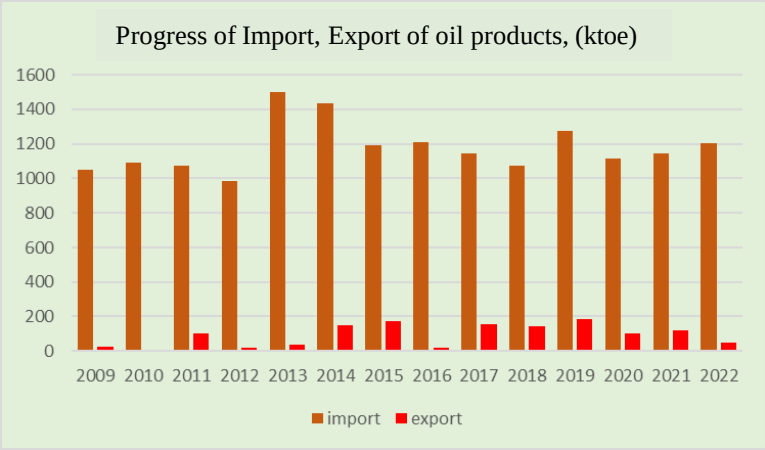
Meanwhile, **there are currently numerous interventions and improvements in the technological scheme in the technological plants of the Former Fier Oil Refinery** (put into use in 1968), made in recent years by the company AL.GLOBAL OIL sh.a, which has a direct impact on increasing safety and reducing risks in the technological process, as well as improving the environment. In this aspect, the fact is evident that with the improvements that have been made currently, **all the waters from the technological refining processes are no longer poured into the Gjanica river, but are collected in special tanks and further transported by trucks to be injected into the special wells that the TERRAOIL company has SWISS at the Visoka site.**

2.- The situation in the development of the energy sector in Albania

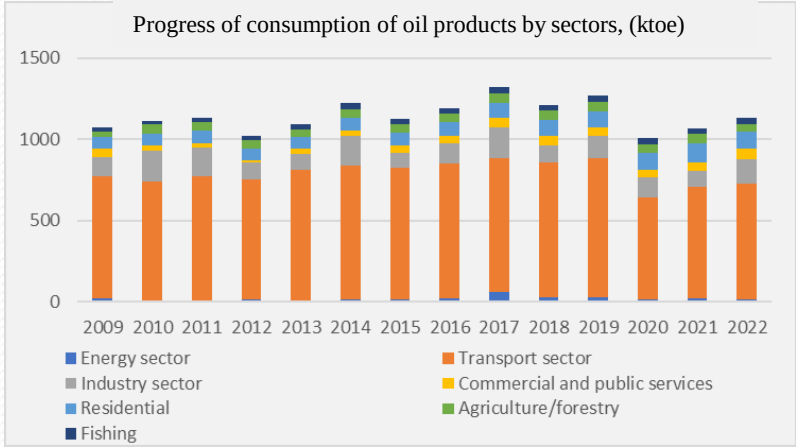
2.10. Import, export and consumption of oil products for the period 2009 - 2022

The import of petroleum products for 2022 reaches the value of 1205.68 ktoe with an increase of 60.65 ktoe compared to 2021. Diesel, gasoline and liquid petroleum gas continue to dominate the import of petroleum products. (The domestic consumption of products during 2022 is about 822 ktoe, while about 384 ktoe, about 32% were re-exported, mainly Kosovo. In 2020, re-exports were about 26%)

The consumption of oil by-products, the main weight is occupied by the transport sector with about 64%



Progress of Import, Export of oil products, (ktoe) – (Source AKBN)



Progress of consumption of oil products by sectors, (ktoe) – (Source AKBN)

Nr.	Periudha	Sasitë e importuara në (ton)							
		Gazoil	Benzinë	Karburant avionësh	Karburant anije	Vajra lubrifikante	Bitum	GLN	Totali
1	2017	648607	91523	13785	0	7454	315	162228	923912
2	2018	851751	75162	15903	0	9171	452	153010	1105449
3	2019	889715	117487	29756	0	7716	77	215204	1259955
4	2020	1053635	79583	11343	0	8497	2733	330953	1486744

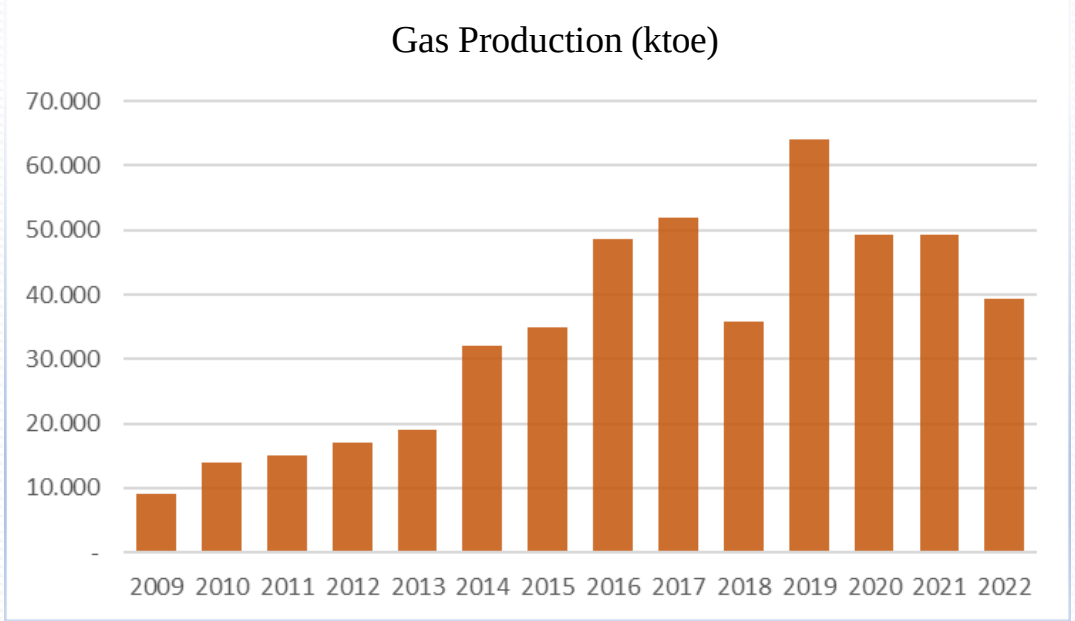
Nr	Periudha	Sasitë e produkteve të rieksportuara në (ton)		
		Gazoil	GLN	Totali
1	2017	386417	20948	407365
2	2018	417219	19635	436854
3	2019	480979	52951	533930
4	2020	310023	79806	389829

2.- The situation in the development of the energy sector in Albania

2.11. Domestic production of gas for the period 2009 - 2022

The production of gas in our country for 2022 has been a total of gas associated with oil, about 49.289 million Nm3, an almost negligible amount that serves only for the technological processes of the oil industry. Despite the commitments of the state structures and the encouragement of foreign investors, our country is not connected to the international gas network.

It is understandable **that Albania's connection to the international gas network will have a positive impact on the improvement of the energy situation in the country,** significantly influencing the energy use reports, where until now the main burden belongs to oil by-products and electricity.

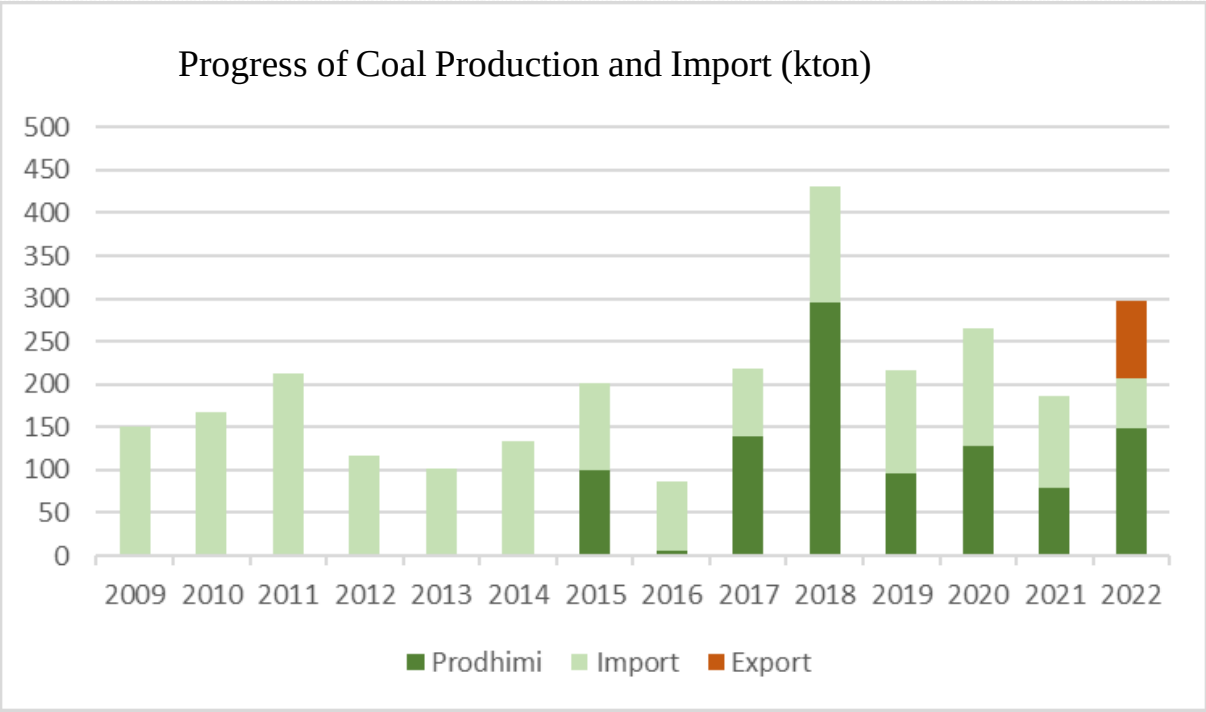


Gas Production (ktoe) – (Source AKBN)

2.13 Production, import and export of coal for the period 2009-2022

Coal

For the year 2022, the production of bituminous gravel was 148.87 ktoe with an increase compared to 2021 of 69.42 ktoe as a result of the use by the cement industry of petroleum coke, which has a high calorific value as well as a low price in the international market . **While the import of coal is in the value of 58.68 ktoe and has suffered a decrease of 48.44 ktoe**.



Progress of Coal Production and Import (kton) – (Source AKBN)

2.- The situation in the development of the energy sector in Albania

2.14. The overall energy balance in Albania, period 2017 - 2022

Bilanci i përgjithshëm i energjisë
General balance of energy

(ktoe)

Emërtimi	2017	2018	2019	2020	2021	2022	Discription
Konsumi i brendshëm bruto	**2,366**	**2,332**	**2,340**	**2,055**	**2,227**	**2,177**	**Gross inland consumption**
Prodhimi i produkteve primare	1,661	1,997	1,727	1,480	1,773	1,615	Primary production
Import	1,569	1,377	1,636	1,498	1,452	1,532	Import
Ndryshimi i gjendjeve	177	113	100	70	47	70	Stock change
Eksport	650	899	892	822	922	863	Export
Depozituar	36	31	31	31	29	38	Bunkers
Konsumi në degën e energjisë	**156**	**135**	**112**	**89**	**93**	**78**	**Consumption of the energy sector**
Humbje në shpërndarje	107	100	91	71	96	74	Distribution losses
Disponibël për konsum final	**2,147**	**2,137**	**2,116**	**1,877**	**2,007**	**2,010**	**Available for final consumption**
Konsumi final joenergjetik	77	55	49	31	42	37	Final non-energy consumption
Konsumi final i energjisë	**2,070**	**2,082**	**2,067**	**1,845**	**1,964**	**1,972**	**Final energy consumption**

Burimi: Agjencia Kombëtare e Burimeve Natyrore
Source: National Agency of Natural Resources

Prodhimi dhe konsumi i energjive parësore
Production and consumption of primary energy

(ktoe)

Emërtimi	2017	2018	2019	2020	2021	2022	Description
Prodhim i produkteve parësore	**1,661**	**1,997**	**1,727**	**1,480**	**1,773**	**1,615**	**Production of primary products**
– Qymyr	46	98	31	42	79	149	– Lignite
– Naftë	959	911	1,005	758	712	657	– Crude oil
– Gaz natyror	82	73	64	49	49	39	– Natural gas
– Energji elektrike	389	735	448	457	767	602	– Electric power
– Dru zjarri	168	162	160	155	145	147	– Fuelwood
– Të tjera	17	18	19	19	21	21	– Others
Disponibël për konsum final	**2,147**	**2,137**	**2,116**	**1,877**	**2,007**	**2,010**	**Available for final consumption**
– Qymyr	100	186	113	134	187	118	– Lignite
– Naftë	1,299	1,206	1,291	1,015	1,076	1,154	– Crude oil
– Gaz natyror	54	46	7	7	7	6	– Natural gas
– Energji elektrike	515	524	532	543	573	567	– Electric power
– Dru zjarri	165	159	157	160	146	148	– Fuelwood
– Të tjera	16	16	17	17	18	17	– Others

Burimi: Agjencia Kombëtare e Burimeve Natyrore
Source: National Agency of Natural Resources

In total energy for consumption, the main contribution is made by hydrocarbon products, whose weight varies from 63% in 2017 to 57.8% in 2022, but still remaining at over 50% of the total.

2.- The situation in the development of the energy sector in Albania

2.14. Progress of energy consumption according to sectors of the economy (ktoe) – (Source INSTAT)

Konsumi i energjisë sipas degëve

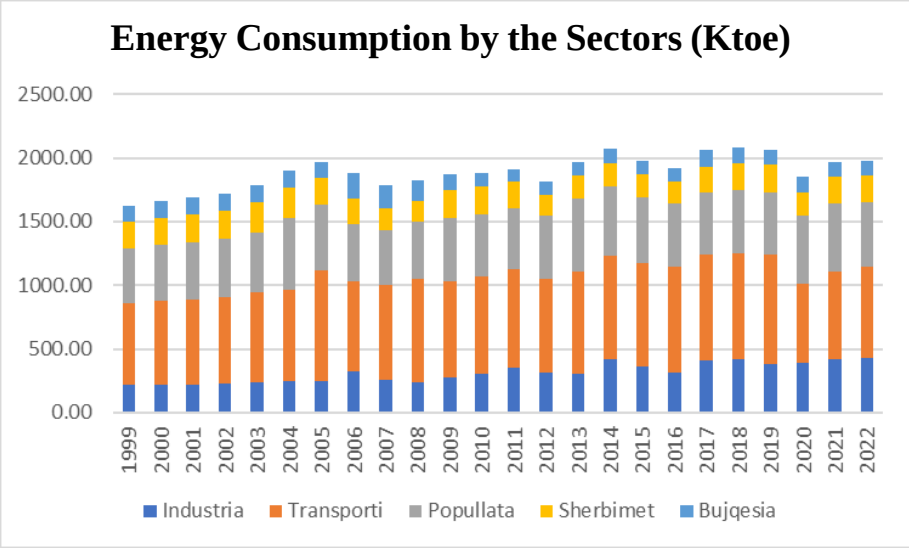
Energy consumption by branches

(ktoe)

Emërtimi	2017	2018	2019	2020	2021	2022	Discription
Konsumi final i energjisë në:	**2,070**	**2,082**	**2,067**	**1,845**	**1,964**	**1,972**	**Final energy consumption**
Industri	413	416	378	388	417	429	Industry
Transport	828	832	860	627	691	712	Transport
Konsumatorët familjarë, biznese, administrata publike	689	711	710	718	745	722	Households, commerce, public authority, etc.
- nga të cilët konsumatorë familjarë	485	500	492	528	535	516	- from which, households
Bujqësi	74	80	79	75	77	69	Agriculture
Peshkim	39	40	40	41	41	41	Fisheries
Të tjera	22	0	0	0	0	0	Other

Burimi: Agjencia Kombëtare e Burimeve Natyrore

Source: National Agency of Natural Resources



In the total energy consumption for 2022, the main weight is occupied by the transport sector with about 36%, followed by the population with about 26% and the industry sector with about 22%.

2.- The situation in the development of the energy sector in Albania

2.15. Import-export of oil, gas and their by-products THEIR

Albania's geographical position is mostly enviable due to the ease offered by its ports in maritime transport, including the transport of hydrocarbons. It has been the ability of the Albanian governments to develop them in the service of the region, to make them competitive in prices and services, not leaving them as dormant assets and without the dimension they deserve in the economy.

While **about 25 years ago the study for the development of the port infrastructure for the import-export of oil and its by-products** was carried out (approved by the Council of Ministers and KRTRRSH), **20 years ago the concessions for two companies for construction and operation of hydrocarbon ports** (Romano Port sh.a. and La Petrolifera Italo Rumena sh.a.).

- The oil port "Vlora-1" in the Bay of Vlora, which is managed by the concessionaire company "La Petrolifera Italo Albanese" s.a.

and

- The oil ports of "Porto Romano" and "MBM" in the area of the Energy and Industrial Zone of Porto Romano, Durrës, which are respectively administered by the concession companies "Romano Port" s.a. and "MBM" s.a.

Regarding the import-export of oil, gas and their by-products, after the entry into operation of two specialized ports for oil by-products, as well as with the investments that have been made, it is estimated that the processing capacities of the hydrocarbon ports in the area of Porto Romano and of the Bay of Vlora to be more than 2 million tons per year.

In 2022, companies imported about 820 thousand tons for the domestic market, while about 384 thousand tons (or about 32%) were imported for the purpose of transiting the Kosovo market.

-"Porto Romano" and "MBM" –oil ports

- "Vlora -1 " Oil port

15 Years ago, in 2009, the concessionary companies started the activity of processing oil tankers and their by-products (including LPG) for the account of the local market, as well as for the purpose of transit to the market of Kosovo and other countries in the region.

2.16. Southern Gas Corridor and Trans-Adriatic Gas Pipeline (TAP)

The Southern Gas Corridor is the 3,500 km long pipeline system connecting the Shah Deniz, Gas Condensate Field II in the Caspian Sea in Azerbaijan to European gas markets via Italy.

It consists of **the South Caucasian Gas Pipeline** (SGP-Azerbaijan-Georgia) followed by **the Trans-Anatolian Gas Pipeline** (TANAP-Turkey) and further by **the Trans-Adriatic Gas Pipeline** (TAP-Greece-Albania-Italy). **The total investment of this road is estimated at 45 billion dollars.**

The South Corridor completed the construction, testing and commissioning works within 2020 and as of December 31, 2020 it has officially started commercial operations for gas transmission to Italy and European countries.

In the long term, although new routes avoiding Russia are being developed, the export capacities of the Caspian coastal countries are insufficient to transform into powerful actors for guaranteeing energy to the EU. Therefore, one thing is clear:

The Southern Gas Corridor could bring competition to all EU countries and reduce Russia's role in the natural gas market.

Map of the Southern Gas Corridor (Source: https://www.flickr.com/)

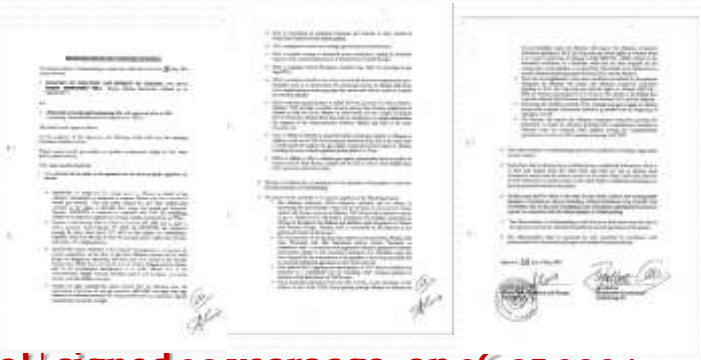
2.- The situation in the development of the energy sector in Albania

2.16. The role of TAP as part of the Southern Gas Corridor in the security of EU gas supply

TAP has an initial capacity of 10 BCM/year which can be increased up to 20 BCM/year by expanding the capacities of existing compressor stations and building two new stations in Serres (Greece) and Bilisht (Albania). In the forecasts made for the period 2020-2040, the transport capacity of TAP to Italy was predicted to vary between 7 and 9 BCM/year.

Table – Minimum and maximum of imports for the years 2025, 2030 and 2040						
	2025		2030		2040	
Milliard m3/year	Min	Max	Min	Max	Min	Max
Passo Greis	0	1	0	1	0	1
Tarviso	22	31	24	32	12	31
Mazara del Vallo	13	22	8	26	7	31
Gela	5	5	5	5	5	5
TAP	7	9	7	9	7	9
LNG	10	13	5	9	0	10

Maximum and minimum capacities foreseen for the TAP for the period 2020-2040



The MoU signed 20 years ago, on 26.05.2004, between the former MIE and the Swiss company EGL, is the first document signed for the development of the Trans Adriatic Pipeline project (TAP Project).

TAP entered commercial activity on November 15, 2020. From the start of operations in late 2020 until April 2024, TAP has played a critical role in connecting the Southern Gas Corridor with Italy, Central Europe and the Balkans.

The gas transported via TAP accounted for 16% of the total gas imported to Italy and 18% to Greece in 2023".

TAP has transported over 35 bcm of gas from Azerbaijan, of which 2.14 bcm to Bulgaria, 3.37 bcm to Greece and 29.22 bcm to Italy, informs the Head of Foreign Affairs of TAP, at the Belgrade Energy Forum . "Only in 2023, TAP transported 11.5 bcm.

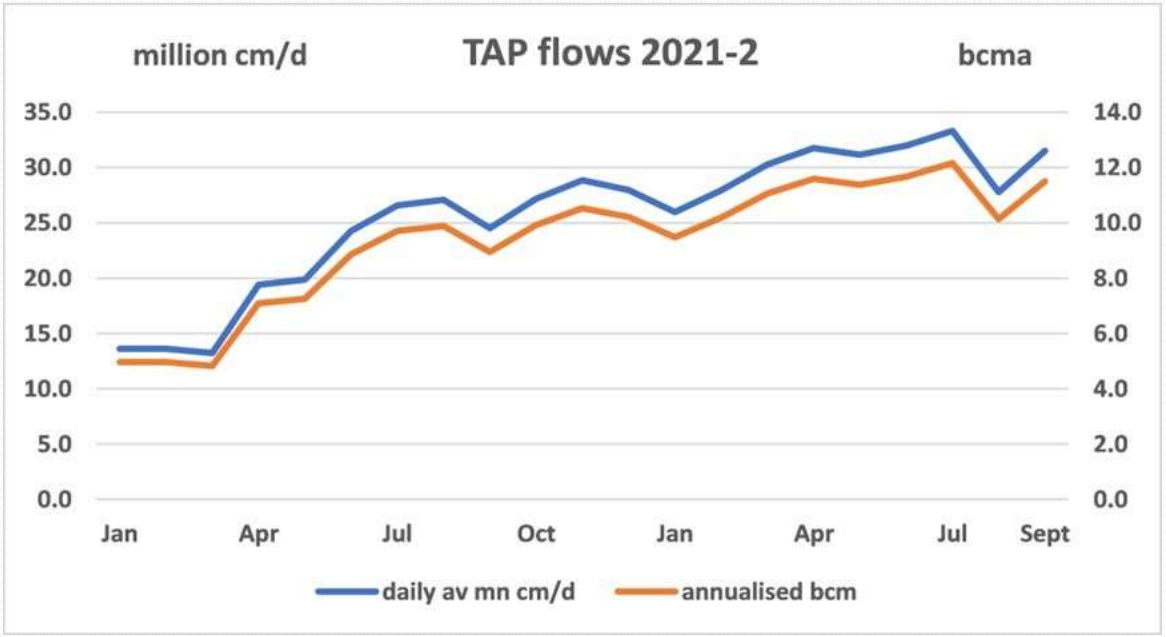
2.- The situation in the development of the energy sector in Albania

2.16 The role of TAP as part of the Southern Gas Corridor in the security of EU gas supply

Europe needs new sources of gas to meet its long-term energy demand, replace its declining energy production, boost economic growth and diversify its energy supply.

TAP will pave the way for new energy sources to enter these markets and promote the development of their energy sectors. TAP is a project of great strategic, commercial and geopolitical importance for Albania and the Western Balkans/Southeastern Europe, creating a tangible opportunity for future gasification for the countries of this region.

With Shah Deniz nearing full production now, with Azerbaijan production increasing by 5-6 percent in 2022. Exports will also increase, roughly unchanged to Turkey, but up for the Trans Adriatic Pipeline (TAP) markets in Italy, Greece and Bulgaria.
Note, TAP volumes have recently been at 12 bcma



Source: ENTSOG daily flows

2.- The situation in the development of the energy sector in Albania

2.17-Renewable energy sources

The Albanian Government is continuing efforts for a better balance between the diversification of energy production sources, the security of energy supply and the protection of nature and sustainable system in order to increase domestic production, reduce the level of technical and non-technical losses of electricity in the distribution network as well as reducing the amount of imported energy to meet the demand for electricity in the country.

Moving on to alternative renewable sources, Albania has a high solar radiation in most of its territory. On average, there are about 286 days, with up to 2700 hours of sunshine per year (in Myzeqes it goes to 1700 kWh/m²/a).

According to preliminary site studies, there is currently an untapped technical potential, with a low capital cost, for the deployment of solar projects of up to 2,378 MW. **The latest data show that in the project in the solar energy sector there are 1.3 GW.**

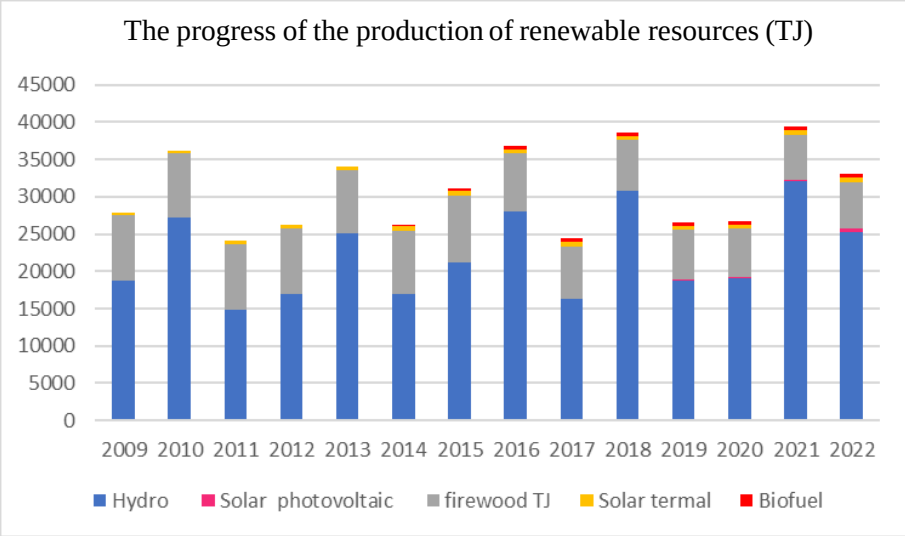
The National Plan for Energy and Climate (PKEK) 2020 - 2030, approved by decision of the Council of Ministers no. 872, dated 29.12.2021. During the period January - April 2022, the draft of the PKEK was revised based on the recommendations of the EnC. In the revised document, it is intended to reduce final energy consumption by 9.4% compared to 8.4% in the previous version, the share of renewable energy in final energy consumption has increased to 59.4% compared to 54.4%, while GHG emissions only remain. in 18.7%.

During the year 2022, 22 subjects were licensed in the activity of electricity production and the novelty of this year was the high number of applications and consequently of licenses in the activity of electricity production from Photovoltaic plants located mainly in the Fier District.

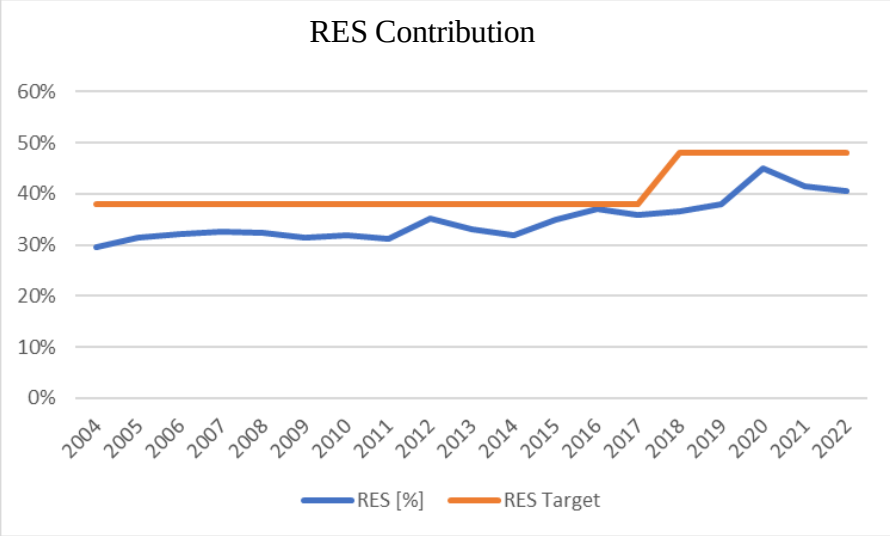
In total, during the year 2022, the production capacity of electricity from the entities that have been licensed is 289.4 MW, of which 62.3 MW from hydroelectric power production sources and 227.1 MW from photovoltaic sources.

2.- The situation in the development of the energy sector in Albania

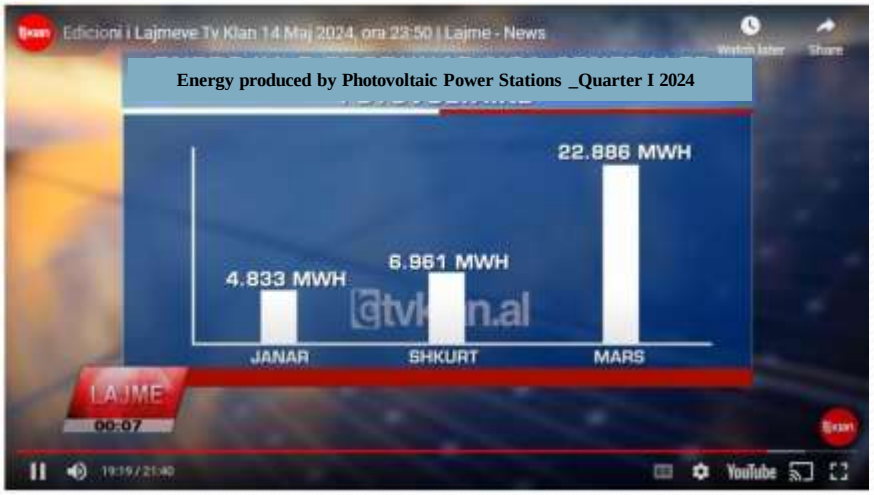
2.17. -Renewable sources and their role in the Energy Balance



The progress of the production of renewable resources (TJ) – (Source AKBN)



The current progress of RES contribution in Albania



The energy produced by photovoltaics increased even during the first 3 months of this year (2024), reaching about 34.6MWh.
The Energy Regulatory Agency informs that photovoltaic parks made the main contribution, but the plants installed by businesses also have a great impact..

Energy produced by Photovoltaic Power Stations _Quarter I 2024

2.- The situation in the development of the energy sector in Albania

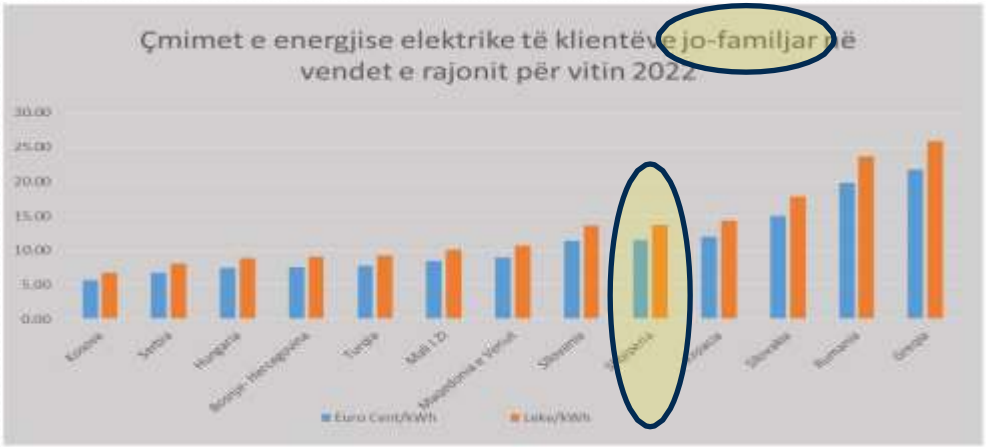
2.17. –Renewable sources

VOLTALIA 2024

The Karavasta Solar Project with an installed capacity of 140 MWp has been producing energy for the Albanian consumer since December 2023. It has been put into operation since the end of January 2024. On a sunny day, it can produce even one Gigawatt hour of electricity.

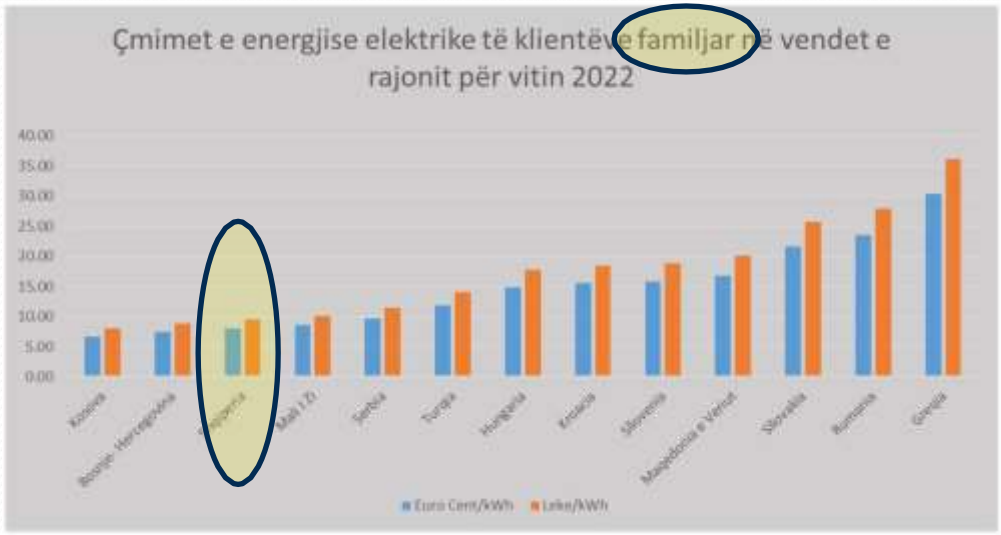
Today, VOLTALIA looks beyond this project, to renewable energy projects that will have an important place in the Albanian energy mix and will help Albania's ambitious climate policy goals.

2.18. Electricity prices in the countries of the region for 2022



Electricity prices of non-household customers in the countries of the region for 2022

The graph shows the electricity prices for the year 2022 in Eurocents/kWh and Lek/kWh before taxation (VAT) **for non-household customers.**
According to the data published by EuroStat, the average price of electricity for non-family customers for the countries of the region for 2022 was 13.18 ALL/kWh.
(Albania is ranked among the countries with average electricity prices for non-household customers)



Electricity prices for household customers in the countries of the region for 2022

The graph shows the prices of electricity for the year 2022 in Eurocents/kWh and Lek/kWh before taxation (VAT) **for household customers.**

According to the data published by EuroStat, the average price of electricity for family customers for the countries of the region for 2021 was 17.45 ALL/kWh.
(Albania is ranked among the countries with the lowest electricity prices for family customers)

2.- The situation in the development of the energy sector in Albania

The figures presented above for both the electricity sector and the oil and gas sector illustrate the following characteristics of the energy sectors in Albania:

- High dependence on the import of oil by-products;

- The importance of hydropower plants in the energy balance of the country;

- Most of the energy consumption comes from the transport sector;

-. Minimum supply of natural gas as domestic production

3. Albanian Electricity Exchange (ALPEX)

Based on DCM no. 322, dated 15.05.2019 "On the establishment and determination of the legal form of the ownership structure of the share capital of the market operator" and DCM no. 609, dated 11.09.2019 "On the determination of criteria and procedures for the selection of participants in the share capital of the market operator", **in October 2020 the Albanian Electricity Exchange (ALPEX) was founded as a Joint Stock Company, jointly owned by the Operators of the Broadcasting Systems of Albania (OST) and Kosovo (KOSTT).**

Meanwhile, **ALPEX has opened on May 6, 2021 its branch in Pristina**, which focuses on the management of market participants for Kosovo, regulatory issues, etc.

On February 1, 2022, ALPEX has been accepted as an Associate Member in the Association of European Energy Exchanges (EUROPEX), which is an important organization in policy making in the field of electricity and gas trading. Starting from February 1, 2024, the Day Advance auctions at the Albanian Electricity Exchange, ALPEX, take place as a market union between Albania and Kosovo.

The union of the energy markets between Albania and Kosovo was announced as early as 2023, while the official announcement for the 2 bidding areas was made by ALPEX, considering the first day of delivery on February 1, 2024.

The number of companies that are members of the stock exchange has been increasing since the start of operations, on April 11, 2023. Currently, the number of private Albanian companies that have become part of the Albanian Electricity Stock Exchange has reached 12. Meanwhile, together with the 5 Albanian public energy companies, which were the first to join, the total number of entities goes to 17. Meanwhile, as far as Kosovo is concerned, the number of listed companies has gone to 4.

In addition to increasing transparency and lowering prices, the merger of the Albania-Kosovo energy markets is expected to bring an increase in energy security. This taking into consideration that Albania produces electricity mainly from water, while Kosovo from thermal power plants, enabling a market with a wide variety of products.

4.- Current Laws and Regulations for the Albanian Energy Sector

The main law of the Albanian Electricity Sector: Law no. 43/2015, dated 30.04.2015, "On the electricity sector", amended Official Gazette No. 87, dated 28.05.2015,

The main law of the Albanian Oil Research and Production Sector: Law No. 7746, dated 28.07.1993, "On hydrocarbons (Exploration and Production)", amended

The main law of the Albanian Gas Sector is Law No. 102/2015, dated 23.09.2015, "On the natural gas sector", as amended

The main law of the Albanian Oil Refining and Trade Sector: Law no. 8450, dated 29.03.1999, "On the refining, transportation and trading of oil, gas and their by-products", as amended.

The main law on the fiscal regime in the hydrocarbon sector: Law no. 153/2020, dated 17.12.2020 "On the fiscal regime in the oil sector". Official Journal No. 8, dated 18.01.2021,

The main law of the Renewable Energy Sector in Albania is Law No. 7/2017, dated 2.2.2017 "For encouraging the use of energy from renewable sources". (Official Gazette No. 26, dated 20.02.2017),

The main Law on Energy Efficiency, Law no. 124/2015 dated 12.11.2015 on energy efficiency (Official Gazette no. 201, 24.11.2015).

The Energy Regulatory Entity (ERE) created on the basis of law no. 43/2015, dated 30.04.2015, "On the electricity sector", amended, as well as the law no. 102/2015, dated September 23, 2015, "On the Natural Gas Sector", as amended, is organized and operates according to the decision of the Board of the Energy Regulatory Entity (ERE) no. 96, dated 17.6.2016, for the approval of the "Regulation on the organization, operation and procedures of ERE".

5.-Government policy for the restructuring of the energy industry

ENERGY SECTOR REFORMS

Albania is in the process of developing and implementing a series of laws, by-laws, key regulations that will affect the role of the main actors in the energy sector and in the field of energy efficiency, as well as in the climate process.

Vision for 2030:

The development of internal energy resources leading to an integrated and diversified regional energy system based on market principles, capable of meeting the demand for energy and the sustainable development of the economy, guaranteeing the security and quality of supply, security and environmental protection and climate action, as well as increasing well-being

Recommended energy policies

The National 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 the EU and regional markets.

Reforms in the energy market will go beyond the implementation of the third energy package domestically and in fact beyond the implementation of the fourth EU energy package. Albania is a member of the Berlin Process or the Initiative for the Western Balkans 6 (WB6) and is engaged in the regional integration of the electricity market as an intermediate step towards the targeted European electricity model.

Albania's decision to apply for membership in the European Union is accompanied by the changes necessary for the management of the oil and gas sector in Albania to be in accordance with EU directives.

Also, Albania has created the first operator of the gas transmission system, TAP AG, certified according to the procedures of the third energy package, which has laid the foundations for the development of the gas market through the Trans Adriatic Pipeline, TAP. ERE also certified the second operator of the gas transmission system, ALBGAZ sh.a., on November 8, 2017.

5.-Government policy for the restructuring of the energy industry

Implementation of the Strategic Plan for reforms in the ELECTRICITY sector

Implementation of the plan of measures approved by **DCM No. 742, dt. 12/12/2018 "For the approval of the strategic plan for the reform of the energy sector in Albania",** which opens the perspective and possibility of accepting the public offer for OSHEE, remains one of the main tasks in which ERE is fully engaged. engaged.

With the establishment of the objectives for the implementation of this plan, according to the tasks defined in VKM, by ERE in cooperation with the Ministry of Industry and Energy and the Ministry of Finance and Economy, they are periodically monitored through the "Steering Committee" set up. in this context, the achievement of the objectives and the implementation of the action plan by all parties.

ERE in cooperation with the donors of the sector is seeing the possibility of developing an electronic platform which will enable the participants in the energy market to fulfill all the obligations arising from the directives and regulations of the EC and the law 43/2015 "On electricity sector" as amended and 102/2015 "On the natural gas sector" as amended, will simultaneously serve all those interested in obtaining the necessary information and data as soon as possible.

The reform in the electricity sector initially allowed large consumers to be supplied in the free market (so-called qualified consumers).
More and more consumers are considered privileged (ie have the right to choose their own supplier).
According to the law no. 43/2015 For the electricity sector (amended by law no. 7/2018, dated 15.2.2018), starting from 1 January 2018, electricity customers connected to all voltage levels (over 110 kV, 35 kV, 20 kV, 10 kV and 0.6 kV) are considered to have entered the liberalized market.

Consumers connected to the 0.4 kV voltage have the right to freely choose their supplier.

ERE, for all users, will continue to set the price (tariff) for access to transmission or the possibility of switching to transmission and distribution networks.

5.-Government policy for the restructuring of the energy industry

Institutional reform for the oil and gas sector.

In order to effectively oversee and allocate functional responsibilities, the government has provided that:

MIE continues to develop mechanisms for appropriate hydrocarbon sector policies and strategies.

AKBN, Albpetrol and ALBGAZ are currently responsible for organizing the structures in order to supervise and implement these policies in an acceptable manner and to ensure their compliance with existing laws, regulations and contractual agreements.

The law on hydrocarbons was amended in February 2017 and the relevant legal documents reflect policies and practices in accordance with international conditions for the development of the oil sector in accordance with EU standards, **which includes the re-establishment of the Hydrocarbon Scientific Institute.**

To increase the inspection capacities of the relevant structures that will monitor the implementation of the regulatory framework in the field of research and production.

The consolidation of the legal framework for the gas sector in accordance 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 accordance with the practices and standards of EU.

Alignment of legislation on pollution and administration of minimum reserves of emergency oil stocks crude oil and its by-products in accordance with Albania's commitments as a member of the Energy Community Treaty and the relevant EU directive.

Preparations for the arrival of natural gas imported through the TAP network, enabling the integration and diversification of the supply of energy sources.

6.- The government's medium-term/long-term plan for the supply of electricity and gas

- **Basic Plan for the Long-Term Power Supply and Demand**

The Basic Plan for the Long-Term Supply and Demand of Electricity is defined in the document of the National Energy Strategy for the period 2018 - 2030, approved by **DCM, no. 480, 31.07.2018.** "For the approval of the national energy strategy for the period 2018-2030", Official Journal No. 119, dated 9.08.2018,

- **Basic Plan for the Long-Term Supply and Demand of Natural Gas**

Basic Plan for Long-Term Gas Supply and Demand based on the document/report "Gas Demand and Supply Assessment" (2016), prepared within the framework of the Master Plan for the Gas Sector for Albania. This document/report is part of **DCM no. 87, 14.02.2018**, "For the approval of the development plan of the natural gas sector in Albania and the identification of priority projects".

The recommended development scenario of the energy sector is the combined scenario which has the potential to achieve the following results, which in many cases exceed the commitments foreseen at the country level until 2030;

- **Reduction of energy imports by 32% compared to the base scenario;**
- **Increasing the share of RES in 2030 by 42%;**
- **Reduction of demand for final energy by 15.5%, close to the target of PKVEE;**
- **Reduction of GHG emissions by 11.5% compared to the base scenario;**
- **Reducing the energy intensity of GDP by 18%;**
- **Increase the penetration of natural gas through the TAP project in the supply of primary energy sources from 0.36% in 2015 to 19.81% in 2030,** focusing natural gas infrastructure investment to serve the electricity and industry sectors in a period short term and residential and long term commercial customers..

6.- The government's medium-term/long-term plan for the supply of electricity and gas

The expected level of demand and the prospect of security of supply for a period of 5 to 15 years

Demand forecasting has been carried out for four scenarios defined as follows:

- **High scenario –** based on modeling that does not include natural gas (does not foresee additional gasification in Albania);
- **Moderate scenario** – represents the scenario where natural gas supply infrastructure is available as one form of energy for consumption;
- **Low scenario** – it is assumed that economic growth will be slower (migration will be higher and population growth slower);
- **High scenario with lower population** – presents a high scenario with slower population growth and proportional reduction of GDP and no gasification of the country;

So, in conclusion we have two scenarios without gasification with high and low population and two scenarios with gasification of the country with high and low population, the results of which are presented in the table and graphically as follows:

Request for electricity (TWh)	Year 2022	Year 2025	Year 2028	Year 2030	Year 2033	Year 2035	Year 2040
High Scenario	7.424	8.476	9.299	9.861	10.897	11.584	13.436
Moderate scenario	7.424	8.315	8.921	9.34	10.067	10.549	11.914
High scenario with low population	7.424	8.283	8.928	9.373	10.233	10.803	12.392
Low scenario	7.424	8.018	8.414	8.694	9.23	9.583	10.438

Figure 36 Longterm provision of electricity requirement for the 2023 – 2040 period

Demand forecasting scenarios for electricity by 2040, where demand could go from about 7.4 TWh in 2022 to about 10.4-13.4 TWh in 2040

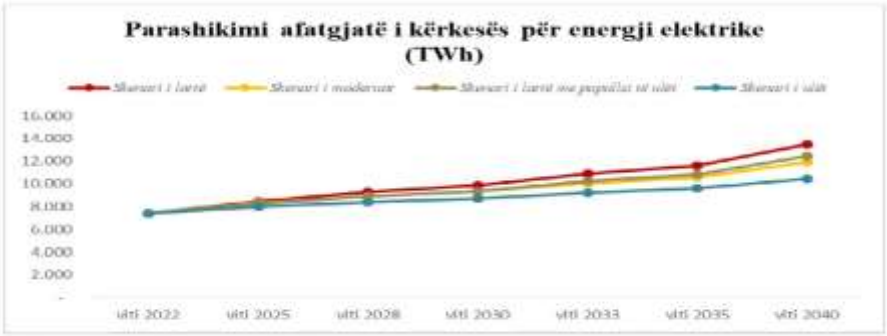


Figure 37 Schenarios for providing the request for electricity

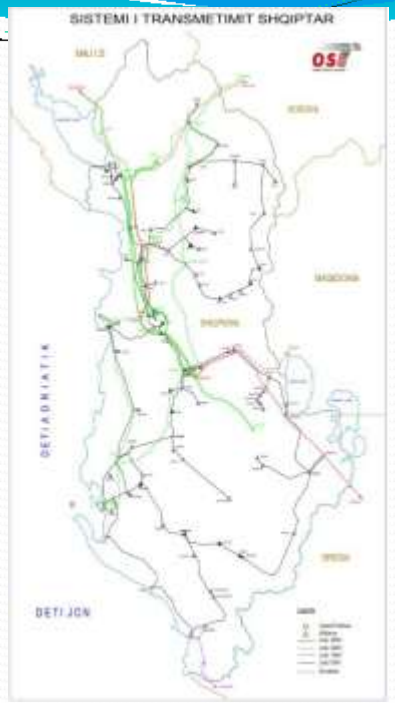
6.- The government's medium-term/long-term plan for the supply of electricity and gas

Power interconnection lines

Construction of the 400 kV interconnection line Elbasan 2 (Albania) – Bitola (Macedonia) and Elbasan 2 – Fier as well as the expansion of the Elbasan 2 and Fier substations

The financing of this project is provided by the German-Albanian Development Cooperation.

This project reinforces interconnections with the regional electricity grid, creating conditions for trade exchanges and unrestricted transits of electricity in the region, develops the 400 kV network in the Southern area of Albania where future sources of electricity production are expected to be developed, and as part of the infrastructure of the Eighth European Corridor it creates good opportunities for connection via submarine cable with Italy.



Scheme of the Albanian Power Transmission System and projects

Gas interconnection lines.

The Gas Master Plan envisages the gasification of Albania and the development of the gas network in Albania.

The three gas interconnectors that are being planned are considered the main pillars for the development of the gas sector in Albania:

- **Trans Adriatic Gas Pipeline, (TAP Project, in operation)**
- **Ion Adriatic Gas Pipeline, (IAP Project, under development) and**
- **Gas pipeline Albania Kosovo, (ALKOGAP Project, under development).**

Existing and proposed gas transmission networks

6.- The government's medium-term/long-term plan for the supply of electricity and gas

- **TAP has a strategic and essential role for decarbonization, security of supply and interconnection in Albania and SEE.**
- **TAP plays an essential role in providing reliable access to a new source of natural gas from the Caspian Sea and on a new route.** TAP thus contributes to the diversification of sources and supply routes and can enable the gasification and decarbonization of Southeastern Europe and the Western Balkans, including that of Albania. TAP thus promotes access to cleaner and more affordable energy in the Western Balkans.
- **TAP can also contribute significantly to the decarbonisation process** by facilitating the decarbonisation of European economies by accelerating the phase-out of coal, particularly in South-Eastern Europe and the Western Balkans. TAP will allow gas to replace the most polluting fuels in the region. To this end, TAP has been included by DG Neighborhood & Enlargement as a possible solution for decarbonisation.
- Further, **in line with the European Green Deal and decarbonisation objectives,** it is planned that the TAP interconnector may also allow new renewables and/or any other low-carbon gas (including hydrogen) from countries along the SGC, to transport to Europe (including from decentralized production in Greece and Albania), creating an opportunity to connect significant volumes of H2 to growing demand in Europe (both residential and industrial).
- **The expansion of TAP can be realized by adding compressor units to already existing compressor stations and building new compressor stations**, after successful Market Tests, which TAP must organize at least every two years, in accordance with the framework of its regulatory.

Extension of the capacity of the TAP Project

6.- The government's medium-term/long-term plan for the supply of electricity and gas

In March 2024, the Norwegian giant Statkraft announced the launch of the study for the 1200 MW pumped hydro plant project, which it aims to build in the course of the Devoll River, in Albania. Currently, the company operates two hydropower plants within the Devolli Hydropower Project, HEC Banjën (with a total installed capacity of about 72 MW) and HEC Moglica (installed capacity of about 197 MW).

This project is based on the idea of using the Moglica reservoir, which holds 380 million cubic meters of water, as the basis for the new pumping station, while the turbines can also be placed underground. This would significantly increase the annual electricity production in Albania and improve the management of the Devolli cascade. The company expects the study phase to be completed this year, to start the implementation phase in 2025 and production by 2030.

In an announcement in April 2024, the Ministry of Infrastructure and Energy announced that Albania intends to add 1 GW of solar capacity through three competitive procedures, revealing that it plans to issue a call for investors by June for 300 MW in total, **where it offers power purchase agreements and contracts for difference for 300 MW in total capacity.**

The French company Voltalia won the last two auctions and last year completed the construction of its Karavasta photovoltaic plant with a maximum capacity of 140 MW. The tenders for Karavastana and Spitalla took place after the locations were determined. This time the participants will have to propose the places within the areas marked by the ministry as potentially suitable.

On April 13, 2023, the Council of Ministers, through 3 decisions, approved the construction of wind power generating plants and ancillary works, which are not concession objects, in Tragjas, Orikum Administrative Unit, Vlora district, with generating capacities of 3MW respectively.

6.- The government's medium-term/long-term plan for the supply of electricity and gas

OPEC predicts increased oil demand in 2024 Good news from the Organization of the Petroleum Exporting Countries (OPEC)! They have confirmed that global oil demand will continue to grow in 2024.

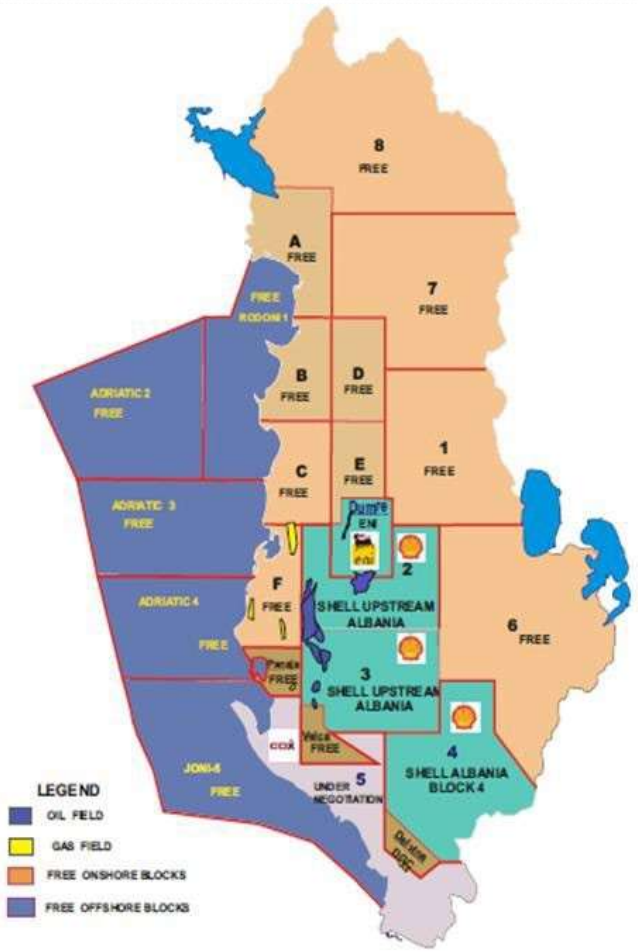
According to the latest OPEC report, demand is expected to increase by 2.25 million barrels per day in 2024 and by 1.85 million barrels per day in 2025.

Despite some risks, OPEC is optimistic about global economic growth. They believe that the world economy may perform better than expected this year, bringing great potential for the coming years.

This is very positive news for the oil industry and the global economy!

Currently in Albania, new oil and gas exploration is carried out in accordance with the provisions of law no. 7746, dated 28.07.1993, "Petroleum Law (Exploration and Production)", amended

- SHELL Upstream Albania Company (in explorationBlocks 2 and 3)
- ENI Company (in Dumre Block),
- DGC Society (in Delvina block),



Map with new oil and gas exploration blocks

6.- The government's medium-term/long-term plan for the supply of electricity and gas

A very important development is also considered a historic intervention by Albpetrol sh.a. at the Oil Gathering Station in Zharrëz, for a radical transformation and revitalization of it.

In recent days, a public hearing was held with representatives of environmental associations, residents of the area, representatives of public institutions, during which we presented the project for the transformation of the Zharrza station and the area around it.

This project aims at the rehabilitation of the squares and the environmental condition of our wells in this territory as well as the total reconstruction of the Zharrëz Oil Collection Station, giving a final solution to the problems of oil treatment in this station and the negative environmental impact of the area.

iA project that directly benefits the urban residential area, n which the group of wells of the Albpetrol company is located, but also improves the working conditions of workers and engineering-technical personnel

7.- Regional coopeíation within the fíamewoík of geopolitical development

The Energy Forum of the countries of South-Eastern Europe gathered in Thessaloniki on 10.09.2022 the Ministers of Energy of the countries of the region, as well as the ambassadors of the United States of America in the Balkans. Diversification of energy sources is one of the main initiatives to respond to the situation. The Energy Forum of Southeast European countries gathered in Thessaloniki on 10.09.2022 the Ministers of Energy of the countries of the region, as well as the ambassadors of the United States of America in the Balkans. Diversification of energy sources is one of the main initiatives to respond to the situation

In the meeting with the President of Azerbaijan, Mr. Ilham Aliev, on 15.11.2022, it was discussed about the joint projects in the field of energy, which will put an end to Albania from the beginning of the gasification program with the investment of Azerbaijan, of which will start with a municipality that will be determined at one of the points of contact with TAP - until the establishment of concrete milestones for the construction of an ultramodern refinery, the great dependence on imported oil.

Greece and Bulgaria on 01.10.2022 launched the joint gas interconnector (IGB Project),
which was billed as a project that will change the energy map of Europe, the pipeline could provide gas to Bulgaria, Serbia, North Macedonia, Romania and beyond, Moldova and Ukraine.

Cooperation between the Ministry of Infrastructure and Energy of Albania and the Ministry of Energy and Environment of Greece.
On 13.05.2022, a meeting took place in Tirana between the Minister of Infrastructure and Energy of Albania, Mrs. Belinda Balluku and the Minister of Energy and Environment of Greece, Mr. Kostas Skrekas.
One of the most important issues that was discussed was the new electric interconnection line between the two countries, it is intended to be put into operation within 2030. The issues in gasification in the next 10 years, given that both countries, both Greece with the LNG terminal of Alexandropol, and Albania with the LNG terminal of Vlora create concrete opportunities.
Experience was discussed and exchanged regarding all the plans that Albania has for gas distribution or even the construction of the new gas line of the Ionian-Adriatic line (IAP Project).

8. - INSTEAD OF CONCLUSIONS

Albania is already a member of NATO and has the status of a candidate for EU membership. Albania awaits EU membership.

- Historically, it has been a factor of peace and stability in the region.
- Albania has a developed oil sector with the largest proven crude oil reserves in the region.
- Albania has a domestic electricity production based entirely on renewable energy sources.
- Its excellent geographical position offers the shortest and therefore most economical connection for N-G pipelines from the Caspian and Eastern Mediterranean areas to Southern Italy and Central and Western Europe.

- **Recently, concrete projects have been supported that also use the geopolitical position of Albania in the region, which are related to:**
  - ☐ **finding new sources of energy supply** (development of photovoltaic and wind farms, intensification of new oil operations for the discovery and exploitation of new oil and gas reserves),
  - ☐ **the construction of new electricity interconnection lines with neighboring countries, as well as the development of new projects in the gasification of the country**, which include projects for the construction of LNG terminals and those for connecting Albania with regional gas pipeline networks.
- Despite its modest size, the Albanian economy is growing steadily.
- **There is a general very friendly and cooperative climate in Albania regarding foreign investments, including those linking two or more countries.**
- Albania guarantees high security for foreign investments, both in economic terms, but also security for the entire business, including the physical security of facilities and installations used for the specific activity.

8. - INSTEAD OF CONCLUSIONS

The point of view for continuity in dealing with the issues of the situation and future developments for the Albanian energy sector and its regional and European integration:

- **The growth potential of the energy market in Albania**, including further cooperation with neighboring countries.
- **Challenges and future perspectives of energy resources currently used in Albania** and the transformation of its energy system infrastructure.
- **Energy efficiency and cogeneration and their growing importance in buildings and industry,** in the context of demand management policies.
- The rapid growth of Renewable Energy Sources (mainly PV and wind) and the need for energy storage
- **The need for additional balancing capacities and the main role that the production of energy from natural gas** can play, as well as the perspective of the import of natural gas for the Albanian energy sector.
- **Albania's considerable hydrocarbon exploration and production** potential within current production and planned investments and significant contribution to the country's finances as a result of crude oil exports.
- **The importance of the activity of the Albanian Energy Exchange (ALPEX),** as well as the connection of the Albanian electricity market (mainly based on the production of hydropower plants) with Kosovo (based mainly on the production of thermal power plants), and the increasingly important role of energy resources renewables (especially photovoltaics) in the country's energy system.

8. - INSTEAD OF CONCLUSIONS

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THANK YOU

SITUATION AND MAIN CHALLENGES OF ALBANIA'S ENERGY SECTOR, ON THE WAY OF ENERGY DIVERSIFICATION AND INTEGRATION

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