RECENT DEVELOPMENTS ON THE ALBANIAN GAS SECTOR AND ITS INTEGRATION ON REGIONAL LEVEL

Prof. As. Dr. Stavri Dhima
Head of Unit
Sector of Development Programs in the Natural Gas Field
Ministry of Infrastructure and Energy,

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Main Pillars of Albania’s Energy Policy

- “National Energy strategy for the period 2018 - 2030”
  (Approved by the Albanian Council of Ministers Decision - DCM no. 480, dated 31.07.2018)

- Enhanced energy supply security.
  - Domestic resources
  - Sustainable
  - Environmentally friendly
  - Competitive
  - Reliable
  - Efficient
  - Cost effective

- Function as a regional energy center
- Contributed on the development of a safe and secure energy network in the South East Europe
  - Gasification to diversify and to increase energy security of supply
  - TAP project contribution as a part of Southern Gas Corridor
Albania as a Contracting Party of the Energy Community and one of the signatories of the Energy Charter.

**A.** We consider that the establishment of the Energy Community through signing of its Treaty in 2005, as a regional organization under the frame of the EU, has been of a great importance for the developing of the Energy Sector in the contracting parties (mainly Balkan countries) and integration of this sector in the EU level.

**B.** Meanwhile Albania is one of the signatories of the Energy Charter, and during 2018-2019 Albania has the chairmanship of this organisation.

**C.** Albania is one of the signatories on July 2015, in Dubrovnik Croatia, of the 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.
Albania was established as a Hydrocarbon bearing province as early as Roman times, when heavy oil and asphalts of Selenica mine were used for lamps.

**In 1918 the first oil discovery was made in Oligocene flysch in Drashovica.**

In 1927, 1928 respectively **Kucova and Patosi oil fields** related to Messinian clastic reservoirs were discovered. **Marinza** as the biggest oil field in Albania related to Messinian-Tortonian clastics reservoirs was discovered in 1957. **Visoka**, as the first oil field related to carbonate reservoirs, discovered in 1963, was followed by other discoveries such as: **Gorishti** (1965), **Ballshi** (1966), **Finiq-Krane** (1974), **Cakan-Mollaj** (1977), **Amonica** (1980) and **Delvina** (1987).

**With the first Gas discovery (1963) in the Tortonian sandstone layers of Divjaka**, other gas fields respectively: **Frakulla** (1972), **Ballaj** 1983, **Povelca** and **Panaja** gas fields in 1987 and **Durresi** (1988) were discovered.

**Gas production reached its peak in 1982 with 0.937 Bcm/year.** The cumulative production of N-G estimated at 3.15 Bcm, while the associated gas is at 8.7 Bcm.

**Crude oil production reached its peak in 1974 with 2.248 mil. Ton/y.** The cumulative production of crude oil estimated around 62 mil ton.
New petroleum explorations

SHELL ALBANIA has drilled the Shpiragu -4 well. The Shpirag-4 drilling is part of an agreement signed between Shell and the Albanian government for petroleum exploration in blocks 2 and 3 onshore, which is reviewed on May 2019.

On May 27, 2019, MIE and Shell Upstream Albania announced the important oil exploration in Blocks 2 and 3 in the Shpirag area of Berat (thousands barrels of oil per day), which is the first discovery of a new oilfield in the last 30 years in Albania. The Shpirag oil deposit, discovered by Shell within blocks 2-3, is at a depth of 5,000 to 6,000 metres.

SHELL Int. & Petromanas new discovery 2014.
Shpiragu-2 well, Blocks 2-3, ALBANIA (Test: oil 220-330 ton/day; Gas 80000 -100000 cm/day)
I. What is the energy situation in Albania?

Natural gas scenario for Energy Supply

- Calculation of total energy supply was done with the assumptions that Natural Gas will primarily replace 100% of the imported electricity, the remaining natural gas energy will replace 20% of wood energy and the rest will replace oil products.
- In the case of heavy industry and anchor loads, such as refineries, it is assumed that natural gas energy will primarily replace oil products.

Furthermore, assumptions were made for the efficiency of CCGT plants in generating electric energy: this efficiency was assumed to be 60%.

Based on the above, below Tables present the Total Final Energy Supply by sector and fuel type in Albania for the natural gas scenario. The gas contribution will arrive up to 28%.

Total Primary Energy Supply (TPES) in Albania by fuel type, 2020 -2040, Natural gas scenario, ktoe
Main goals for Gasification of Albania

- **Linking Albania with the international gas network** according to the best option (Eurasia Gas Corridor and Energy Community Gas Ring)

- **Preparation of the necessary Albanian legislation for the gas sector** in compliance with European legal framework (Regulatory and Investment framework reliability)

- **Development of national gas resources and national gas infrastructure**

- **Restructuring the existing pipeline system** for gas transmission in Albania

- **Management of the Albanian gas market**

- **Use of natural gas as an alternative energy source** and for the production of electrical energy with gas fired thermal power stations

- **Development of underground gas storage reservoirs and LNG Terminals projects.**
II.- Gas Master Plan for Albania & Project Identification Plan.

The proposed gas transmission network

The proposed gas transmission network, as it is presented in this Figure can be divided in five main branches:

• **The North branch**, starting from connection point with TAP (near Fier) and going towards Shkodra and the MNE border crossing point,

• **The Elbasan branch**, starting from connection point with TAP (near Fier) and going to Elbasan through Lushnja and Dumrea,

• **The South branch**, serving the areas of Fier, Vlora, Ballsh, Tepelenà and Gjirokastra,

• **The East branch**, connecting the areas of Korça, Pogradec, Prrenjas and FYRoM,

• **The Kukes/Kosovo branch**, starting from Milot and ending at the Albanian – Kosovo border point near Kukes.

• Refer to GMPA the potential Natural Gas Consumption by 2040, will be around 1.6 bcm.
II.- Gas Master Plan for Albania & Project Identification Plan.

Part of the GMPA are the three Priority Investment Projects (PIPs)

Priority Investment Projects (PIPs)

- Include Pre-feasibility study and Environmental & Social Impact Assessment screening

- PIPs identified:
  - PIP1: Gas Transmission Pipeline from TAP CP1 Fier and TPP Vlora;
  - PIP2: Gas Transmission Pipeline from TAP CP1 to Fier and Ballsh;
  - PIP3: Gas Transmission Pipeline from IAP to Tirana and Durres;

- PIP – Transmission pipelines – Scope of Project

1. Identify a more detailed route compared to GMP
   - Length, terrain assessment, land requirements, etc.
2. Assess land ownership and expropriation issues and procedures
3. Perform a detailed pipeline project
   - Configuration, Size & Pressure
   - Hydraulics & Flows
   - Facilities (PRMS, BVS, PTS, etc.)
4. Perform cost-benefit analysis
   - Investments & Depreciation
   - OPEX & Staffing costs
   - Expenditures and profit
   - Project Economics & Financial Assessment (ROI, NPV, IRR)
   - Full risks and sensitivity assessment
II. - Gas Master Plan for Albania & Project Identification Plan.

Approval of the GMPA by the DCM No 87, Dt. 14.02.2018

Approval of the GMPA by the Decision of NCT No 2, Dt. 26 07 2018
III.- Action Plan on GMP implementation

The concept of an Action Plan for the implementation of the Gas Master Plan for Albania aims at:

-. Development of the internal transmission and distribution network for natural gas

-. Creating opportunities for access to gas by large customers.

-. The use of natural gas in the generation of electricity in the Vlora TPP or in other TPP-s that can be build up in the future.

-. Albania's shift to a hub for regional gas networks and market in the SEE Europe.
III.- Recent developments on gasification of Albania.

1.- Trans Adriatic Pipeline Project (TAP Project)

- The Trans Adriatic Pipeline (TAP) is a project being promoted by the Swiss Elektrizitäts-Gesellschaft Laufenburg AG (EGL AG). EGL AG has signed the first MoU in 26 May 2004 with ex Ministry of Industry and Energy of Albania to develop the TAP Project.
- TAP’s shareholding, is comprised of BP (20%), SOCAR (20%), SNAM (20%), Fluxys (19%), Enagás (16%) and Axpo (5%).
- This pipeline will open a new corridor and market outlet for natural gas (Southern Gas Corridor for EU), from Caspian Sea and Middle East regions into Europe, through Turkey-Greece-Albania corridor. TAP will be interconnected with gas system in Greece.

- Contributing to Economic growth in Transit Countries
1. TAP a priority project for Albania, the Western Balkan countries, Italy and EU:

TAP will be approximately 870 kilometres in length (Greece 545 km; Albania 211 km; Adriatic Sea 105 km; Italy 8 km).

Its highest point will be 1,800 metres in Albania’s mountains, while its lowest will be 820 metres beneath the sea.

The TAP project will increase its regional role in the case of the option of developing the gas storage facilities (UGS) in the Dumre region in central Albania, using underground salt formations.
III.- Recent developments on gasification of Albania.

2.- Ionian Adriatic Pipeline Project (IAP Project)

In 2018 has started the preparation of the study: “Preliminary technical design for the IAP project in the territory of Albania and Montenegro (AL - MN)”, which is preparing by the Consultant SUEZ IPF 6.

For the study of the preliminary technical design for the IAP project. WBIF is giving a grant of EUR 2.5 million.

Map of the route of the Ionian-Adriatic Pipeline as defined in the IAP Feasibility Study.

<table>
<thead>
<tr>
<th>Country</th>
<th>Albania</th>
<th>Montenegro</th>
<th>Croatia</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>Pipeline Lenght (km)</td>
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<td>118 684.22</td>
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<td>618 629.13</td>
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<tr>
<td>Pipeline</td>
<td>139 954.47</td>
<td>99 875.33</td>
<td>263 320.36</td>
<td>493 150.16</td>
</tr>
</tbody>
</table>
3.- Albania - Kosovo Gas Pipeline Project (ALKOGAP Project)

The Albania-Kosovo Gas Pipeline (ALKOGAP) project as an interconnector, is to interconnect the existing and planned gas transmission system of the Republic of Albania (including TAP project) with the future projected gas transmission system of the Republic of Kosovo, and the transmission interconnectors which are part of eastern brunch of Energy Community Gas Ring (ECGR), as well.

The ALKOGAP project however shall be planned as bi-directional pipeline, The construction of this transmission pipeline would enable the gasification of Albania and Kosovo and providing a diversified and reliable natural gas supply. This transmission supply project, of about 260 km total length, would create the preconditions for the further development of the natural gas markets of Albania, and the creation and development of the natural gas markets of Kosovo. It would be possible to increase its capacity (double or triple), in the case that ALKOGAP will be used to supply other countries with Caspian or Middle East gas. This transmission supply project, of about 200 km total length, during 2018 has been prepared by the Consultant COWI-IPF 4 the “Pre-feasibility Study for Albania to Kosovo Gas Pipeline (ALKOGAP)”. (Founding 0,3 million Euro as grant by WBIF).
III.- Recent developments on gasification of Albania.

**PIP1 – Transmission pipeline from TAP CP1 to TPP Vlora**

Total gas Consumption by 2040: 252mcm

Total CAPEX: 16.2 Milion EUR

On the frame of 20-th WBIF Round on December 2018 is approved a grant 1.1 Million Euro to prepare the Detailed Design of the gas pipeline from TAP to Vlora TPP. Actually are underway the preparation of ToR.
III.- Recent developments on gasification of Albania.

5.- Dumre Underground Gas Storage Project (UGS Dumrea)

Dumre area is situated very close to the crossing of two main gas corridors, (TAP and IAP) the very thick rock salt deposit (Dumre rock salt formation), which could potentially host an underground natural gas storage facility.

The UGS Dumrea project is to support and increase the flexibility of the existing and planned gas transmission system of the Republic of Albania (including TAP project) with the existing and future projected gas transmission system of the neighboring countries.

The project has a regional impact, as construction of the UGS Dumrea would facilitate not only gasification of Albania, but also the potential gasification of Montenegro and Kosovo and provide a diversified and reliable natural gas supply.

This UGS project, of about 1 bcm capacity, would improve the preconditions for the further development of the natural gas markets in Albania. a and other countries with Caspian or Middle East gas.

On the frame of 20-th WBIF Round on December 2018 is approved a grant 1 Million Euro to prepare the Feasibility Study and ESIA for UGS Dumrea project. Actually are underway the preparation of ToR.
ALBANIA - Energy Interconnection Lines

Power interconnection lines
In the framework of the Berlin Process, the Western Balkan countries are recommended to further develop power interconnection lines. Albania has already power interconnection lines with Greece, Montenegro and Kosovo, which are listed below:

- 400 kV interconnection line Zëmblaku (Albania) – Kardia (Greece);
- 400 kV interconnection line Tirana (Albania) – Podgorica (Montenegro);
- 400 kV interconnection line Tirana (Albania) – Pristina (Kosovo);
- 220 kV interconnection line Fierza (Albania) – Prizreni (Kosovo);
- 220 kV interconnection line Kopliku (Albania) – Podgorica (Montenegro)
- 150 kV interconnection line Bistrica (Albania) – Myrtos (Greece).

The construction of the new 400 kV interconnection line with the Republic of North Macedonia (Elbasan (Albania) – Bitola (Republic of North Macedonia), is included in the Projects of Energy Community Interest (PECI) list.

Gas interconnection Lines.
The Gas Master Plan foresees the gasification of Albania and the development of the gas network in Albania.

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

- Trans Adriatic Pipeline, (TAP Project, under construction)
- Ionian Adriatic Pipeline, (IAP Project, under development)
- Albania Kosovo Pipeline, (ALKOGAP Project, under development).
IV.- Global energy demand towards 2040. The role of the natural gas on the global energy mix

It means that there is an increasing need for the fossil fuels it produces, even as low-carbon sources of energy surge ahead.

Renewables and natural gas account for 85% of energy growth.

Natural gas (1.7% p.a.), grows much faster than either oil or coal, overtaking coal to be the second largest source of global energy and converging on oil by 2040. (light blue).

BP's Energy Outlook 2019
IV.- The increasing diversity of Europe gas supply
Greater competition between LNG and pipeline gas

In the Evolving transition (ET) scenario, European gas production declines by 40%, causing Europe’s import dependency to increase to around three-quarters in 2040.

There is any place to increase the role and share of Meddle East, Caspian and East Mediterranean Gas on Europe Gas Supply??
IV.- Albania, a possible route for the Caucasian and East Mediterranean gas to Europe

The vision for the integration and development of European gas networks, where Albania can contribute to the interconnection progress with the goal of free gas flow in Europe not only in the East West but also South-North direction, to make a real connection between the Adriatic Sea, The Black Sea, the Eastern Mediterranean Sea and the Baltic Sea.

World’s largest proven natural gas and oil reserves: Middle East, Caspian Sea and Eastern Mediterranean regions.

Europe is the world’s largest natural gas importer.

The “Wide” Southern Gas Corridor is the NATURAL ENERGY CORRIDOR TO EUROPE
IV.- Southern Gas Corridor will open a new gas corridor for supply of Europe.

-TAP pipeline will open a new corridor and market for natural gas (Southern Gas Corridor for EU), from Caspian Sea and Middle East regions into Europe, through Turkey-Greece-Albania corridor.

-The SGC route from Azerbaijan to Europe consist of the South Caucasus Pipeline (SCP), the Trans-Anatolian Pipeline (TANAP), and the Trans-Adriatic Pipeline (TAP). The total investment of this route is estimated US$45 billion.

- This combination of these pipelines will be nearly 3,500 kilometres.
- The total investment of this route is estimated US$45 billion.
IV. Developing of the Western Balkan Gas Networks

- Main regional gas projects in the Western Balkan passing through Albania:
  - TAP Project - connection with Greek and Italian gas networks,
  - IAP Project - connection with Croatian and Central European gas networks,
  - ALKOGAP Project - connection with Serbian and North Macedonian gas networks.

- Albania, Kosovo and Montenegro are the three last European countries that yet hasn’t a gas sector and aren’t connected to the European gas network.
IV. EastMed Gas Pipeline - New important gas route of the East Mediterranean gas to Europe

- New important gas sources on the East Mediterranean region.
  - **EastMed gas pipeline** – an important connection with Greek and Italian gas networks. Length 1900 km (1300 offshore, 600 onshore). Capacity 10 bcm/y. The total cost of the pipeline has been estimated to be about $7 billion, but most experts consider this to be optimistic, expecting it to be closer to $8-10 bn.
  - **Poseidon project** – connection with Italian gas networks. (Length 216 km crossing the Ionian Sea, Capacity 10 - 15 bcm/y)
There is a concrete possibility to have real synergy instead of competition between the new gas routes of the Caspian and East Mediterranean Gas to Europe.

- Why is Albania an Eastern Mediterranean gas route to Europe, this refers to the success and the particular contribution to the realization of the TAP project, where Albania has played and continue to play a decisive role.

- Concrete proposal on the use of Albania and the Western Balkans as a way to Italy, but also towards Central Europe of the Eastern Mediterranean gas (the giant gas fields of the area between Cyprus, Israel and Egypt, but also Lebanon), expending northward Western Balkan the project of the EastMed pipeline
IV.- “Wide” - Southern Gas Corridor (SGC and EASTMED) to Europe
IV.- Albania, a possible route for the Caucasian and East Mediterranean gas to Europe

- The interest and importance of a gas interconnector from the end of EastMed in Greece territory towards its connection to the TAP project and the IAP project in Albanian territory.

- New interconnector called S-IAP, which will enable more efficient gas transmission to Italy via TAP, but also towards Croatia, Slovenia and Austria and across Europe (through the redesign of the IAP project).

- TAP annual capacity is possible to increase with 10 other bcm (second phase of offshore section of TAP),

- IAP annual capacity is possible to increase up to 7 to 10 bcm (a new calculations are part of the project: Preliminary technical design of IAP- Albania and Montenegro part).
IV.- THE IMPACT OF THE WIDE SOUTHERN GAS CORRIDOR ON THE EUROPE GAS SECURITY OF SUPPLY ARCHITECTURE

- The historical evolution of the Southern Gas Corridor to an “Wide” one, clearly exemplifies how the original idea of a multilateral and large-scale project based on a variety of gas supply sources, turned out to be a multilateral and medium-scale project with more than one supply sources, Caspian, Meddle East and East Mediterranean regions.

- In this framework, part of the gas arriving from TAP and IAP, as well, (part of “Wide” Southern Gas Corridor) could well be evacuated also to Central and North-West European markets, notably Austria, Germany, Switzerland, France and the United Kingdom (UK).

- This eventuality is reinforced by the fact that the TAP design (together with IAP Project) offers various connection options to a number of existing and proposed pipelines along its route. This would enable the possible delivery of Caspian, Meddle East and East Mediterranean gas to those destination.
IV.- WHY INTERNATIONAL NATURAL GAS CONNECTIONS SHOULD TAKE ADVANTAGE FROM CONNECTION AND CROSSING ALBANIA?

- Albania is now a member of NATO and has the status of the EU Candidate Member. Albania looks forwards the EU membership.
- Has historically been a factor of peace and stability in the region.
- Albania has a developed petroleum sector with the biggest crude oil proven reserves in the region.
- Its excellent geographical position offers the shortest and therefore the most cost efficient link for N-G pipes from Caspian and East Mediterranean areas to Southern Italy and to Central and Western Europe.
Thank you!

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stavri.dhima@infrastruktura.gov.al

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