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**“DIVERSIFICATION, MODERNIZATION AND REGIONAL
INTEGRATION OF THE ENERGY INFRASTRUCTURE, AN
IMPORTANT ORIENTATION FOR A SUCCESSFUL
DEVELOPMENT OF THE ENERGY SECTOR IN ALBANIA
AND THE WHOLE REGION”**

**Prof. Asc. Dr. Stavri Dhima
Head of Petroleum and Mining Policies Sector
Industrial Policies Directorate
Ministry of Economy, Trade and Energy,
Albania**

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I. ENERGY SECTOR OVERVIEW

- **The reforming, modernisation and strengthening of the national energy sector**, represent one of the most important targets of Albania, in its way of developing and European integration.
- **The energy in general and sustainable energy in particular are becoming more and more sensitive topics** and a big challenge to be overcome, in local and regional level and beyond.
- **The further modernization of the energy sectors in national level, in order “to guarantee the energy security of supply”**, is a key objective for all SEE countries, and European countries, as well, towards their further social and economic development, as well as their regional integration.

I. ENERGY SECTOR OVERVIEW

- To face this situation the energy policy has to be addressed not only on the growing of energy sector resources in domestic level, but also **developing of compressive synergies and close cooperation amongst all countries in the SEE Region, and on European level.**
- **We believe that independently from the actual situation of our energy sector, the security of energy supply is depending more and more from the developments of energy networks and infrastructures in the regional level.**
- **From the Albania Government point of view this objective has to be achieved by internally development of the energy sources and infrastructures, and further more, through strengthening the regional coordination and cooperation**

II. ENERGY COMMUNITY

➤The Establishing of the Energy Community Treaty is considered as a very important instrument to face the challenges and for the achievement of the main targets in the energy sector for the contracting Parties and for the whole region, In order to increase energy exchange and energy supply competition, as well as to enhance the security of energy supply in regional level,

➤As a Contracting Party of the Energy Community Albania has adopted its strategy and Action Plan supported by necessary legal and institutional framework.

➤The Action Plan of Albania aims towards fulfilling the Treaty's requirements regarding energy network and energy market regulation, first of all for the security of energy supply and its integration to the Energy Community.

III. ENERGY SITUATION OF ALBANIA

➤ **In general energy resources of Albania** include some poor quantity of coal, crude oil, some quantities of natural gas and associated gas and a lot of hydro potentialities.

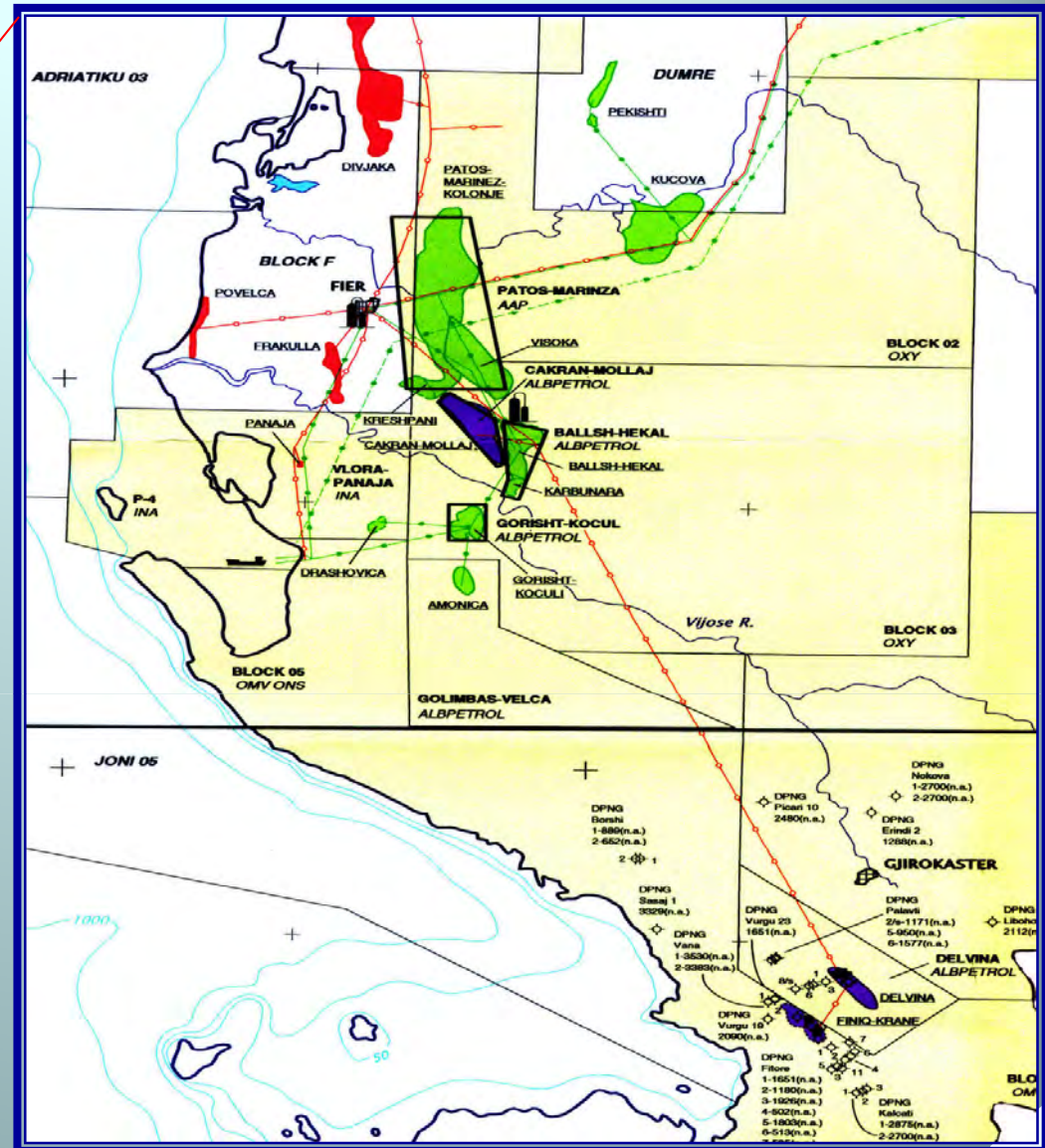
➤ On the other side **most of countries in the region, including EU members, like Greece and Italy, cannot satisfy their domestic energy demand by using only local resources.** Some of them like Croatia, Montenegro, Kosovo and Macedonia, have also experienced an increasing of electricity imports.

➤ **The security of energy supply during these last years**, first of all 2006-2009, has been mainly conditioned by insufficient power generation and transmission capacities, in regional level, due to generation decreases, monopolies and protection positions.

➤ These regional insufficiencies, particularly in case of Albania, whose power generation is highly sensitive to weather conditions, **translate into severe and repeated energy crisis, which can impede social and economic development of the country.**

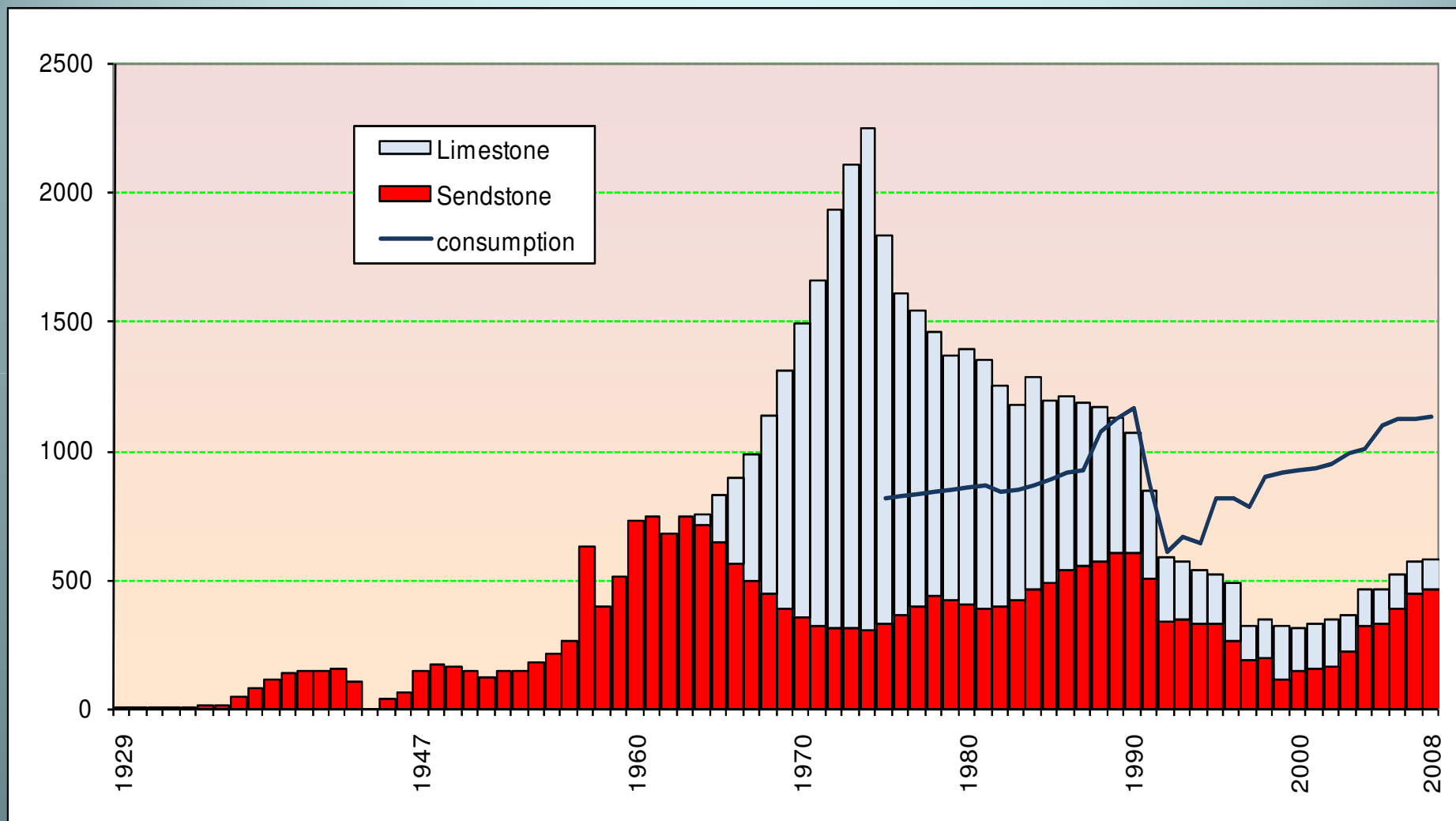
III. ENERGY SITUATION OF ALBANIA

- **The Albanian oil demand of about 1,2 million toe**, partially is covered by domestic production and partially by imports.
- The import of oil by products for 2009 was more than 60 % of total consumption.
- **Due to the actual very low level of domestic gas production (about 9 million cm)** and availability, gas system in Albanian has been practically out of use.
- But gas is becoming more and more important due to socio and economic development impact of the country in general and Power Sector in particular.



The location of main oil and gas field in Albania

Historical Crude Oil Production and Consumption (Ktoe)



III. ENERGY SITUATION OF ALBANIA

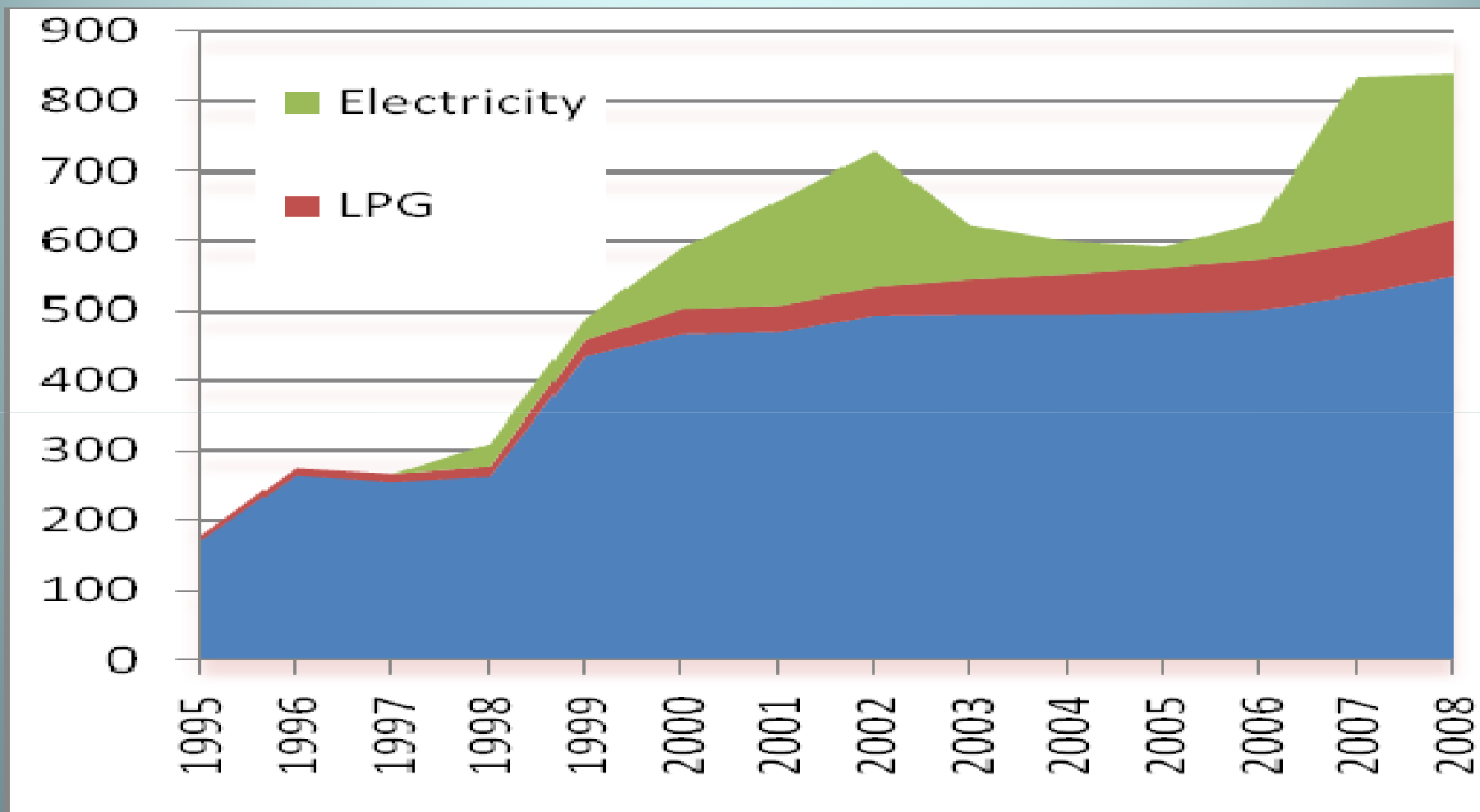
➤As regard the power sector, Albania is a very rich hydro resources country.

➤The hydro reserves are around 16 billion kWh per year, out of which we have exploited only 30-33 %.

➤The demand of electricity of about 6,5 billion kWh is higher than year local generation, which means that Albania is an importer of electricity and in some cases more than 30 % of yearly consumption.

➤To cover our electricity needs we have to import more than 2 billion kWh hours per year, through the interconnection capacities with neighbouring countries.

THE ENERGY IMPORTS IN ALBANIA



Import of energy products 1995-2008 (ktoe)

RECENT MARKET DEVELOPMENTS

- One combined cycle power generation plant of 97 MW convertible to NG and expandable up to 300 MW was completed near Vlora town in year 2009
- Three Large capacity cement factories already functional in Albania.
- A year consumption of LPG about 100 000 ton
- Positive economic growth despite global crisis.



IV. ENERGY INFRASTRUCTURE

- **In close cooperation with our partners there are identified concrete projects in that extension, both in generation and transmission of electricity and some of them are now in place or under implementation phase.**
- **There are identified concrete projects for the regional interconnection of Albania with oil and gas networks.**
- **In this prospective, Albania seems to play an important role on the Energy Community transiting energy from Western Balkan to Western and Central Europe.**

IV.1. ENERGY INFRASTRUCTURE

Transmission System

The Transmission System in Albania is composed of the 400, 220 and 110 kV level networks and has 120 km 400 kV lines, 1,103 km 220 kV lines, 34 km 150 kV line and 1,202 km 110 kV lines.

The 220 kV network is completely meshed and connects the main plants in the North of Albania with load centers in areas of Tirana, Elbasan and Fieri.

The 110 kV network is used for the supply of the Distribution System. Part of this network is meshed and the other part is radial.

The 12 substation 220 kV and 400 kV are generally constructed with double busbar in 220 kV and 400 kV side.

The map with power plants, lines and substations



IV.1. ENERGY INFRASTRUCTURE

The Albanian system is connected to neighbouring countries by the following interconnecting lines:

400 kV between Zemplak and Kardhja (Greece)

Rated power: 1200 MVA and Transmittable power: 700 MVA due to the 400/220 kV transformer at Elbasan2 and Zemblak.

220 kV between Fierze and Prizren (Kosovo)

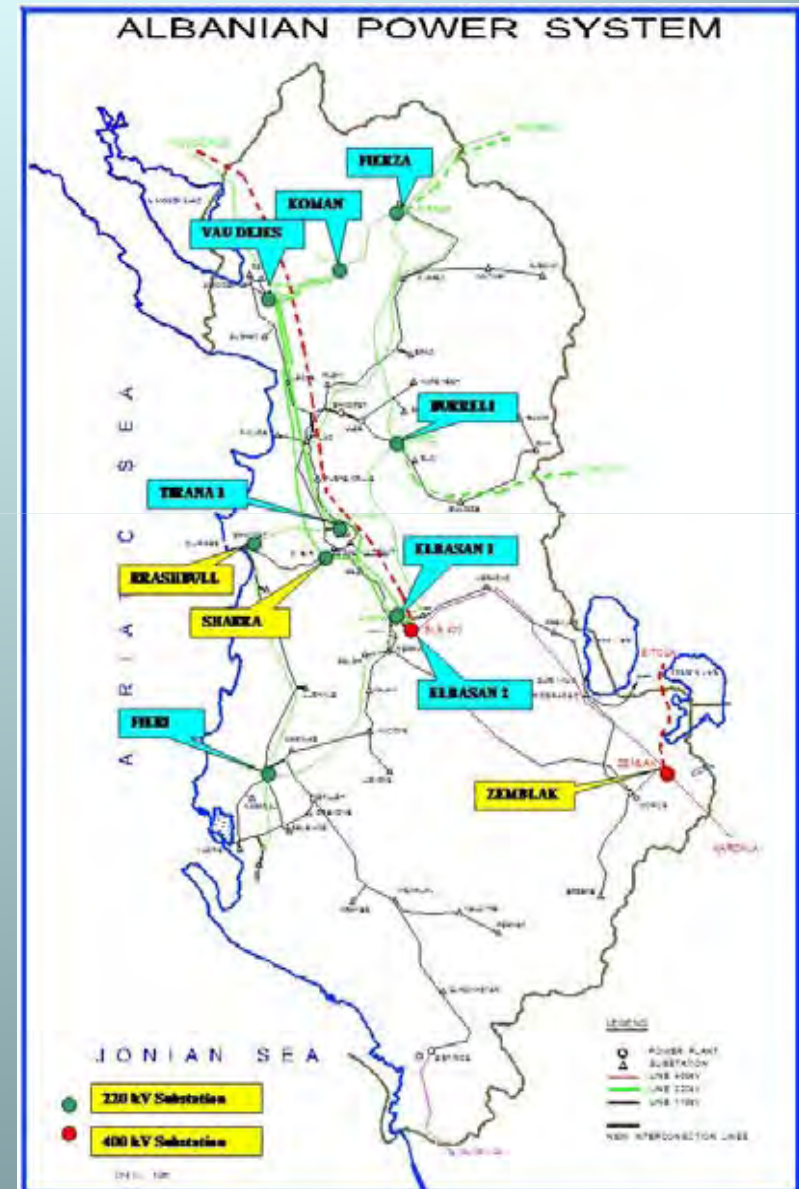
Transmittable power: 311 MVA

220 kV between Vau Dejes and Podgorica 1 (Montenegro)

Transmittable power: 311 MVA

150 kV between Bistrice 1 and Igumenice (Greece), used only in radial operation mode) er at Bistrice.

The 400 KV System with Greece arrived up to 400/220 kV Elbasani substation and don't closed the 400 kV ring with Monte Negro.



IV.2. INFRASTRUCTURE ON THE PETROLEUM SECTOR

Map of main oil and gas pipelines
on the Albanian territory.



IV.2. INFRASTRUCTURE ON THE PETROLEUM SECTOR

- ◆ Concerning oil and gas transportation and stockholding, the investments shall be made in several directions.
- ◆ There are two new Oil Terminals on the Albanian seaside.
- ◆ The Oil Terminal of “Porto – Romano” under the administration of the concessionary company “Romano Port”. (Operational since June 2009)
- ◆ The Oil Terminal of “Vlora Bay” under the administration of the concessionary company “La Petrolifera Italo Albaneze”sh.a. (Operational since June 2009)
- ◆ The Investments shall continue **to increase the existing stockholding capacity** and the relevant infrastructure of oil gas and their by-products in this area .

IV.2. INFRASTRUCTURE on the petroleum sector



“Porto Romano” Port is built 6.5 km north of the city of Durrës.

The terminal will afford cargo ships with liquid gas capacity of **9.000** tones
and
oil cargo ships with capacity of **20.000** tones.

Discharge capacity of the equipment is:

4.000 tones per L.P.G / 24 hours

9.000 tones oil (gasoline) 24 /hours



“Vlora 1” Port is built 3.5 km north of the city of Vlora

Shore infrastructure

50000 cbm for
Petroleum Products

4000 cbm for LPG

Marine infrastructure

600 m long quay

Depth about 8,5 m

Possible
accommodation of
two vessels



V. DEVELOPING OF THE ENERGY INFRASTRUCTURE

	Energy Statistics (Ktoe)			Energy Forecast (Ktoe)		
	2002	2006	2008	2010	2020	2030
Gross Inland Consumption (GIC)	1730,4	1961,6	2094,9	2345,4	3985,0	5080,0
Solids	20,6	18,0	23,0	24,0	62,0	105,0
Oil	961	1171	1307	1455	2102	2420
Natural Gas	8	10	8	8	603	1042
Nuclear	0	0	0	0	0	0
Electricity	166	53	209	220	78	110
Renewable energy forms	575,3	710,0	548,0	638,4	1139,9	1403,0
Net imports	834	727	941	1069	2484	3342
Solids	16	3	3	4	40	80
Oil	653	671	729	845	1772	2120
- Crude Oil and Feedstock	160	170	180	220	0	0
- Oil Products	493	501	549	625	1772	2120
Natural Gas	0	0	0	0	594	1032
Electricity	166	53	209	220	78	110

Energy balances and indicators of Albania

V. DEVELOPING OF THE ENERGY INFRASTRUCTURE

➤ **These situations, on the Albanian Energy Infrastructure and necessity to improve the diversification of energy sources and interconnection with regional energy networks,** well, have stressed the Government of Albania to establish developing policies and programs of the country and the economy, giving a specific priority to the strengthening of the energy infrastructure.

➤ **There are o lots of projects in the energy sector, identified in close cooperation with our neighbors and foreign partners** to increase Albanian Power System interconnection capacities, and to link our oil and gas network with Eurasia energy resources and corridors and to play an important role in transiting energy to Western Europe Countries.

V. 1. - INVESTMENTS IN ELECTRICITY PRODUCTION AND TRANSMISSION

➤ The balance of the Albanian power system with alternative energy sources is a determinant factor for the sustainable economic development of the country, and for the future and its integration on the Energy Community, as well.

➤ Actually are given on concession contracts the construction of Devolli River Cascade (installed capacity 319 MW), Ashta HPP (installed capacity 48 MW), Kalivaçi HPP (installed capacity 93 MW), more than 160 small hydropower plants (installed capacity 344 MW), and several wind farms (with a installed capacity about 1500 MW).

➤ We hope that after some years Albania will be able to cover the local demand and to be a real exporter of electricity on the region, as well.

V. 1. - INVESTMENTS IN ELECTRICITY PRODUCTION AND TRANSMISSION

A number of projects to improve electricity supply in the medium and long term are:

Construction of **Elbasan-Tirana 2/Kashar-Podgorica** (already under construction and financed by Italian Cooperazione and KfW);

400 kV transmission network identified projects are:

- **400 kV Interconnection between Albania and Kosovo**, committed to be financed by KfW of Germany)
- **400 kV Substation (busbar) Lezha Commutation Point.**
- **400 kV Substation (busbar) Elbasan New Commutation Point**
- **400 kV Interconnection between Albania and Macedonia** - OHTL Elbasan New-Macedonia.

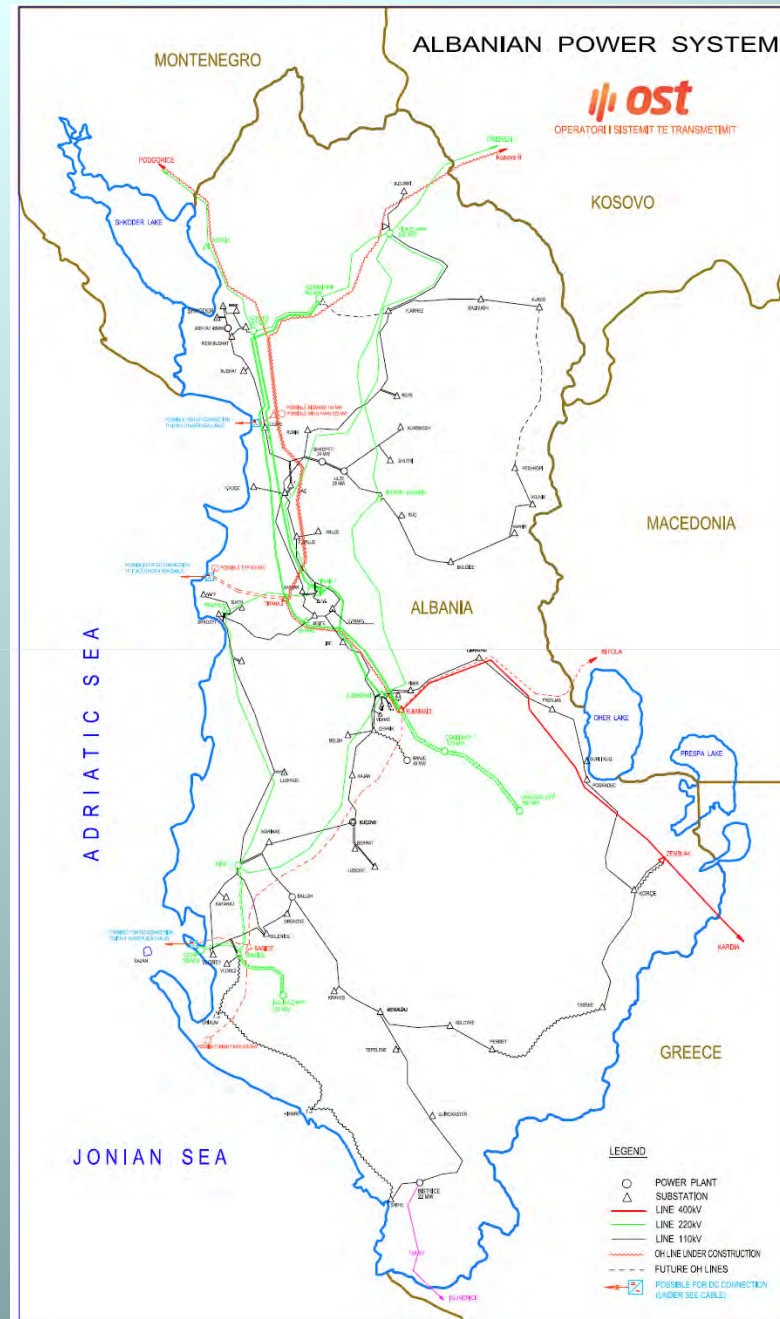
-Albania –Italy HV undersea interconnection lines

- **Construction of the new Dispatching Center.**



V.1. - INVESTMENTS IN ELECTRICITY PRODUCTION AND TRANSMISSION

In this regards can mention
the 400 kV lines with
Montenegro, Kosovo and
Macedonia and Italy.



ALTERNATIVES OF ALBANIA'S FUTURE N-G SUPPLY

- ☐ Eventual new HC discoveries. (HC exploration under way)
- ☐ Connection to the international pipeline N - G networks.
- ☐ Construction of an LNG plant on the Albanian coast.

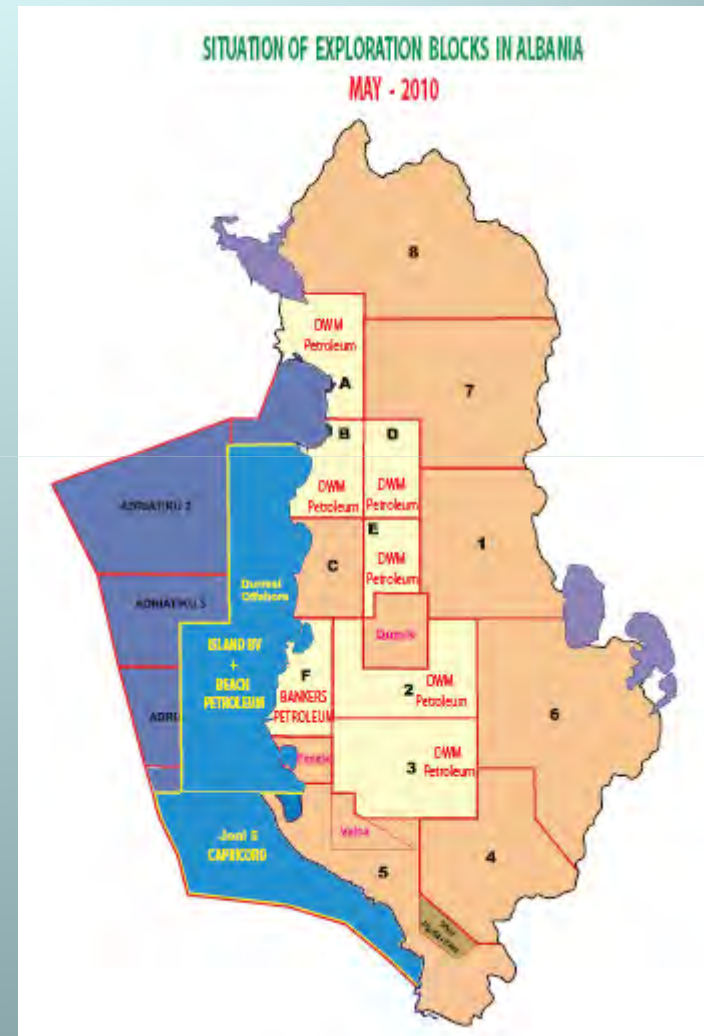
Energy Community Gas Ring (Western Balkan Ring project) on the frame of regional projects



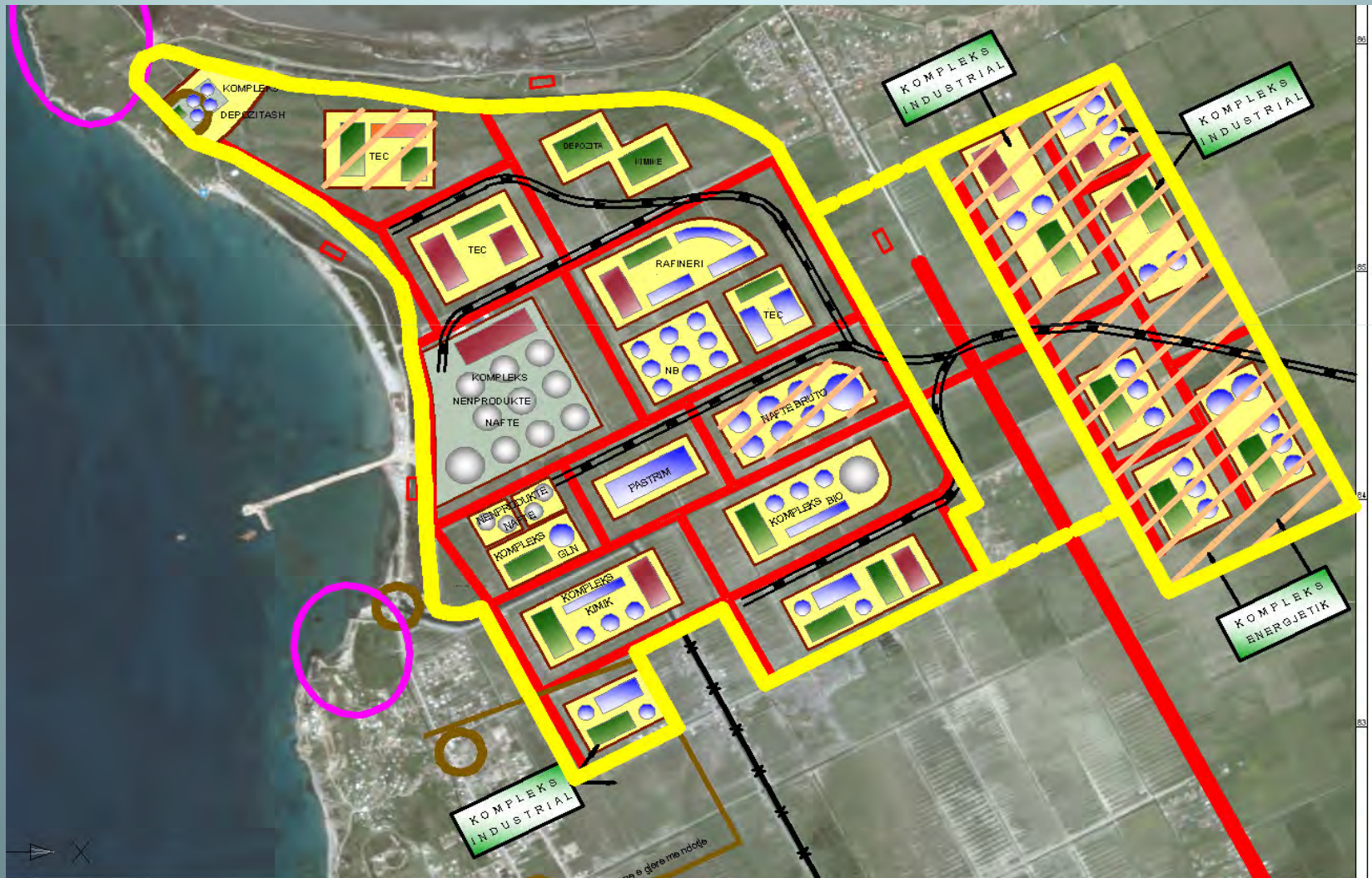
Petroleum agreements on exploration

Actually are under operation for the exploration oil and gas the following agreements:

- [Durresi block offshore](#), with the company ISLANDROCKALL Jv. And the Australian company Beach Petroleum Ltd
- [Joni 5 block offshore](#), with the company Medoil, which was bought by Cairn Energy company and the Agreement for this block is covered by the branch Capricorn Albania Ltd
- **A-B blocks** onshore and the Agreement on blocks **D-E onshore**, with company DWM Petroleum AG
- **Blocks 2-3** onshore, with company DWM Petroleum AG
- **Block F** with Bankers-Petroleum (under approval)
- Until now in this activity is invested about **800 million USD**
- The total amount of investment is expected to be **38 million USD**



Energy and Industrial infrastructure project of Porto Romano (Durrës), 810 ha



Infrastructure Projects on petroleum sector

- ◆ **Projects in the oil and gas pipeline and their infrastructure**
- **The Ionian Adriatic Gas Pipeline -IAP Project**
- **“Trans Adriatic Pipeline” (TAP Project)**
- **LNG Terminal of the Trans European Energy BV sh.c on the Fieri District seaside.**
- **On the project of the Trans Balkan Oil Pipeline (AMBO Project):**

A substantial „Regional Integrated Gasification - Initiative“ is the possible interconnection of Albania with regional gas market.



WHY INTERNATIONAL N-G CONNECTIONS SHOULD TAKE ADVANTAGE FROM CROSSING ALBANIA ?

- Albania is now a member of **NATO** and looks forwards the **EU membership**.
- Has historically been a **factor of peace and stability** in the region
- Its excellent geographical position offers the shortest and therefore the **most cost efficient link** for N-G pipes from Caspian areas to Southern Italy
- Has important capacities for **underground storage**
- Despite its modest size the Albanian economy is **growing** steadily.

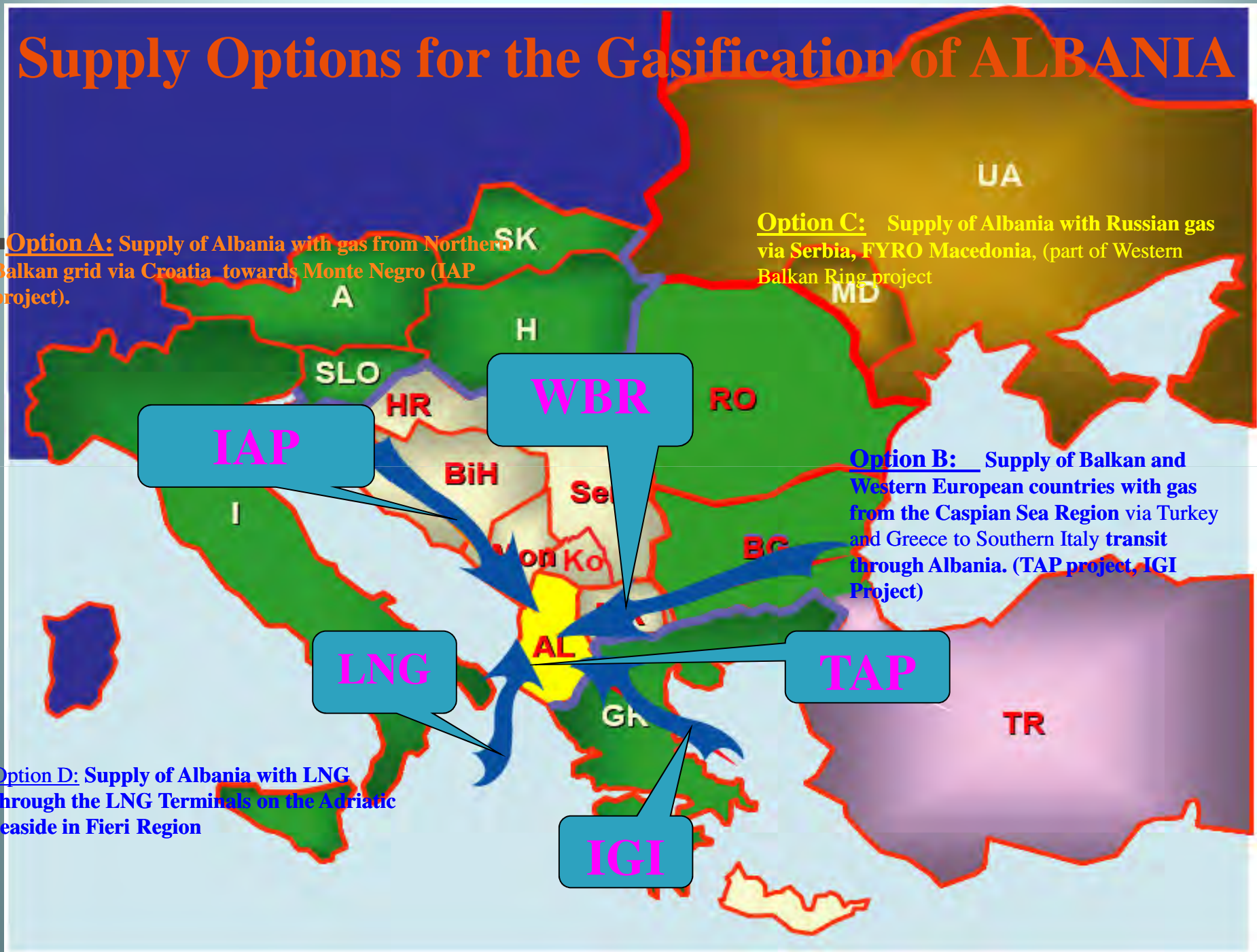
Supply Options for the Gasification of ALBANIA

■ **Option A:** Supply of Albania with gas from Northern Balkan grid via Croatia towards Monte Negro (IAP project).

Option C: Supply of Albania with Russian gas via Serbia, FYRO Macedonia, (part of Western Balkan Ring project)

Option B: Supply of Balkan and Western European countries with gas from the Caspian Sea Region via Turkey and Greece to Southern Italy transit through Albania. (TAP project, IGI Project)

Option D: Supply of Albania with LNG through the LNG Terminals on the Adriatic seaside in Fieri Region

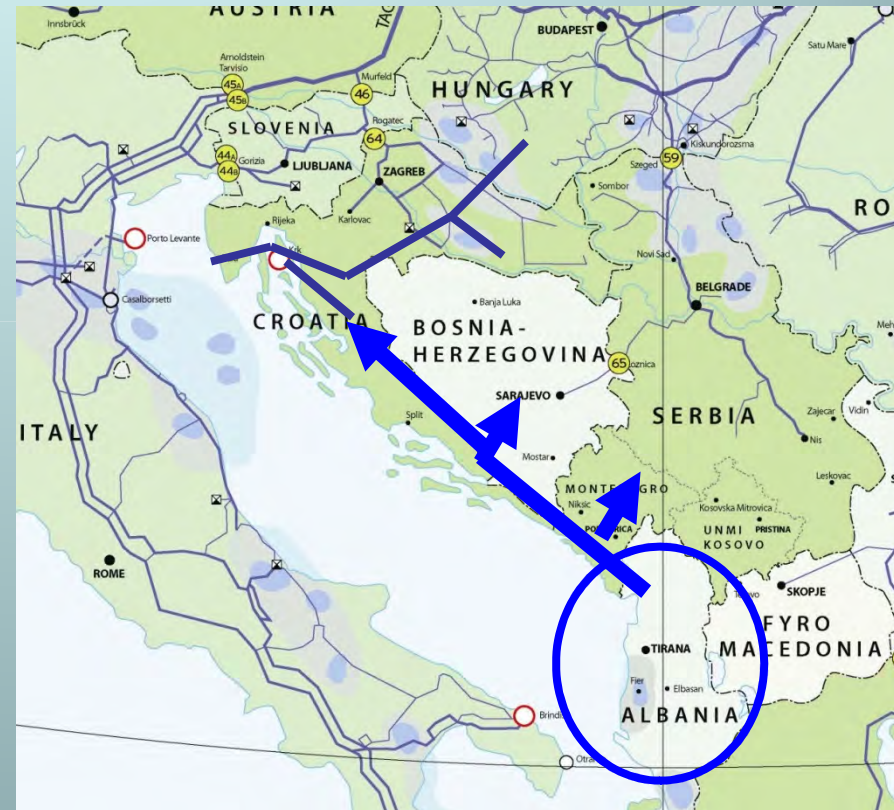


The Ionian – Adriatic gas Pipeline (IAP - Project)

Signing of Ministerial Declaration for the IAP Project, Zagreb 25 September 2007. Joint Declaration of B&H, Tirana on 11.12.2008.

Benefits of IAP:

- ◆ Creates the preconditions of gasification of Albania and Montenegro (about 400 km)
- ◆ Facilitates the gasification of South Croatia and a significant part of Bosnia and Herzegovina.
- ◆ Enables diversified supply
- ◆ Enables the access to Croatian and Albanian underground gas storage facilities.
- ◆ Enables the future interconnection with Greek and FYROM gas network.
- ◆ Enables significant transit and thereby profit to Albania, Montenegro and Croatia.
- ◆ Activates the economy of the whole region.



New developments with TAP Project

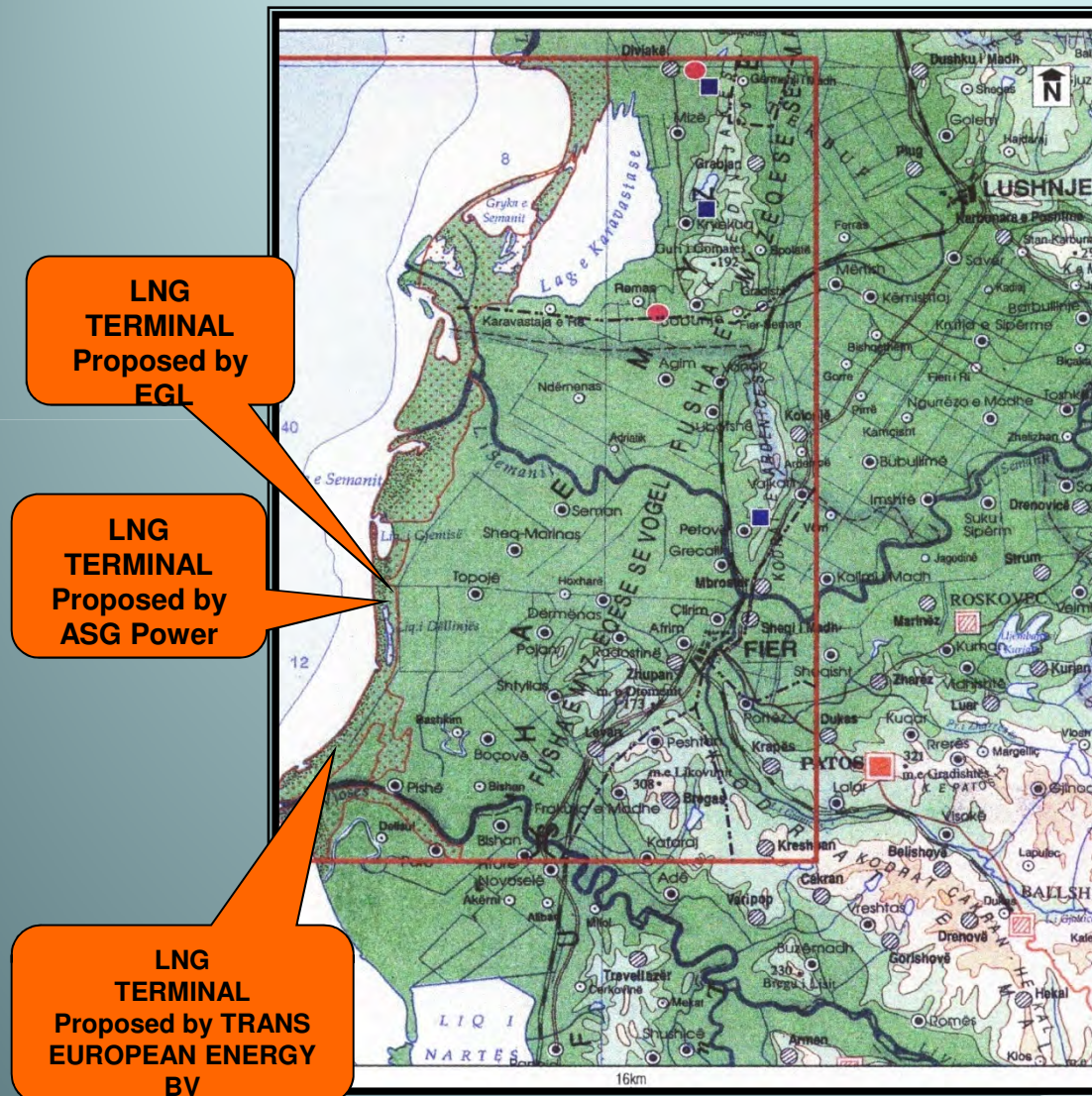
- The Trans Adriatic Pipeline (TAP) is a project being promoted by the Swiss Elektrizitats-Gesellschaft Laufenburg (EGL).

- **EGL signed an agreement in February 2008 with Norway's StatoilHydro to establish a 50/50 joint venture to build and operate the TAP. On 20 May 2010 E On Rhurgas is the new shareholder of TAP Project.**

- The project through a separate spur line along the Balkan coast towards Croatia (the Ionian-Adriatic-Pipeline) –promote the development of a broader regional gas market in SEE.



Proposed LNG Terminal projects, Fieri Region



- **Decision of the Council of Ministers no. 731, 01.11.2006** "On the approval of the study "For the possibilities of construction of the liquefied natural gas (LNG) terminals and respective infrastructure, on the Fieri District seaside".
- **Decision of the Albanian National Council of Territory Regulation, No. 1, date 01. 03.2007** "For the approval of the study for the placement of the liquefied natural gas terminals and their respective infrastructure on the Fieri District seaside".

LNG Terminal project of the “Trans European Energy BV” sh.a.

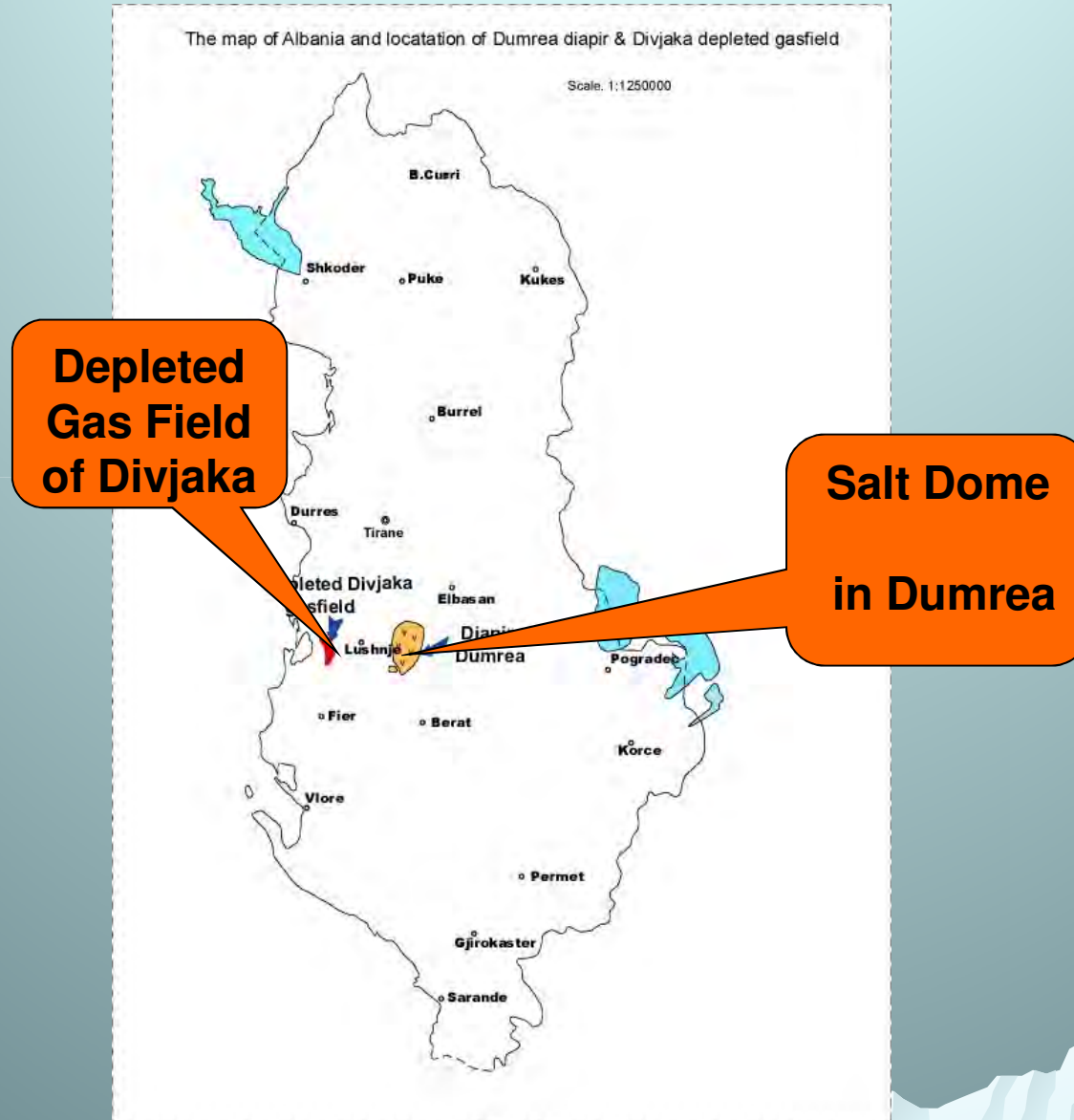
- The Contract of the Permit to the company “Trans European Energy BV” sh.a. for construction of the LNG Terminal on the Fieri District seaside, is signed on 02 December 2008, in Tirana and is approved by the Council of Ministers.
- The LNG Terminal will have the capacity about 8 BCM/year, equal to more than 6 million ton natural gas per year.
- The LNG Terminal will be capable to unloads ships with capacity up to 140.000 m³. On the plant will be instalated two cryogenic storage tanks with net capacity 140.000 m³, each of them.

Underground Gas Storage in Albania

- ◆ Albania has several suitable sites for gas storage, including, a **salt dome in Dumrea** (up to 2 bcm) and **the depleted Divjaka gas field** (up to 1 bcm).
- ◆ Based on a preliminary feasibility study, presented on the 3rd Gas Forum in Ljubljana, **the possible UGS at Dumre Salt Dome could have the cheapest cost for gas storage (76\$/Mcm)**
- ◆ **Is possible the cooperation between Albania and Greece for using of UGS In Dumrea Salt Dome.**
- ◆ By connecting these gas storage into regional gas network (including Energy Community Ring), Albania could provide regional storage facilities for other Balkan countries.
- ◆ **Therefore the design of underground gas deposits is a project of regional interest and with a particular importance for Albania.**

Location of possible underground gas storage.

Dumrea Salt Dome and Divjaka Depleted Gas Field



POSSIBLE CONNECTION OF ALBANIA WITH THE REGIONAL OIL PIPELINE NETWORK

- **The main project on the connection of Albania with the regional oil pipeline network is the project on the Trans Balkan Oil Pipeline, Albania - Macedonia - Bulgaria –(AMBO project).**
- **Concerning this project, the Trilateral Convention has already entered into force, as of 1 October 2007, which was approved by Law No. 9778, dated 16.07.2007, “On the ratification of the Trilateral Convention between the Republic of Albania, Republic of Bulgaria and the Republic of Macedonia, on the Trans Balkan Oil Pipeline system”**
- **The proposed oil pipeline will have a capacity of 750 000 crude oil barrels a day (around 37 million tons a year) and the total investment (for all of its length) for this project will be around 1,75 billion USD.**
- **However, being of a regional strategic character, its progress is surely connected with the geopolitical developments in the region and further.**

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VI.- INSTITUTIONAL RELATIONS ON REGIONAL COOPERATIONS

TO SUPPORT THE DEVELOPING OF THE ENERGY SECTOR AND THE REGIONAL ENERGY INTEGRATION LBANIA HAS SIGNED:

- “The Agreement between the Council of Ministers of the Republic of Albania and the **Republic of Italy** concerning **the development and integration of electrical and natural gas systems**”, signed in Tirana, on 10.03.2009.
- The Agreement between the Council of Ministers of the Republic of Albania and the **Republic of Greece**, “**On cooperation in the energy field**”, approved by DCM No 710, dated 18.10.2006, “On the approval of the Agreement, between the Council of Ministers of the Republic of Albania and the Republic of Greece, on cooperation in the energy field”.
- **Memorandum of Understanding** between the Ministry of Energy and Mines of the **Republic of Kosovo** and the Ministry of Economy, trade and Energy of the Republic of Albania, **on cooperation in the energy field**, signed in Pristina, on 09.09.2008.
- “**The Ministerial Declaration on the Ionian – Adriatic Gas Pipeline Project**”, between **Croatia, Montenegro and Albania**, signed in Zagreb (Croatia) on 25 September 2008. **Bosnia&Herzegovina** joined this Ministerial Declaration on 11 December 2008, during the Ministerial Meeting of the Energy Community Treaty, which was held in Tirana.

CONCLUSIONS

- Reforming and empowering of Albania energy sector with the purpose of securing the energy supply for customers and a sustainable growth for of economy.
- The main objective of the GoA is to create a stimulating and attractive environment for investments on the development of the energy sector in Albania!
- Diversification, Modernization and Regional Integration of the Energy Infrastructure, are Albania's strategic priorities in its energy cooperation, and an important orientation for a successful development of the energy sector in Albania and the whole region.

CONCLUSIONS

- Improving of the neighboring and regional cooperation is the most successful way to develop local and regional energy sector and to establish an integrated energy market over South East Europe.
- Preparation of the necessary legal and institutional framework of energy sector referred to the provisions of the Energy Community Treaty (EU Directive), as a key issue.
- There are in place a lot of prospects for the linking of the country with existing regional energy networks and the future gas infrastructure of the Energy Community.

CONCLUSIONS

- Further developing of the maritime petroleum transport to guarantee a secure supply of the market with lower cost for the consumers.
- Developing of the underground gas storage capacities and LNG terminals, in parallel with gas pipeline projects development, is another objective of Albania towards its gasification.
- The integration of Albania in the European gas market is one of the most important objective of the GoA.



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sdhima@mete.gov.al

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