UPDATED SECURITY OF SUPPLY STATEMENT OF THE REPUBLIC OF ALBANIA

PREPARED BY THE MINISTRY OF THE ECONOMY, TRADE AND ENERGY IN COOPERATION WITH ERE AND TSO.

Tirana, May 2009
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1. Electricity

In this chapter the key electricity market participants and their responsibilities relating to security of supply are analyzed first, and then followed by the presentation of the regulatory framework for electricity production, transmission and distribution investments. Public Service Obligation is treated with special attention. This is then followed by description of existing and planned production capacities, incentives for new production capacities construction, existing and planned electricity network capacities, with particular reflection on the cross-border transmission capacities and transmission network access and management. Finally there is a presentation of achievements and planned projects, to satisfy electricity demand needs in the Albanian power system.

1.1. Key Market Participants and their Responsibilities

The Albanian Energy Regulatory Authority (ERE, hereinafter Regulator), is an independent, public entity that establishes and conducts the regulatory duties of energy activities in keeping with the Law on Power Sector Nr 9072 date 22.05.2003, amended, and the law Nr. 9946, date 30.06.2008 “For the natural gas sector”. The Regulator was first established in 1995 by the Law nr. 7962 date 13.07.1995 “On energy” and the Law nr. 7970 date 20.07.1995 “On the regulation of the electricity sector”. Actually based on two primary laws, ERE has the obligation to monitor and develop the market of electricity and gas in Albania.

Based on the proposal of the ERE, the GoA with the Decision Nr. 338 date 19.03.2008, approved the Electricity Market Model.

The Albanian Market Model outlines the responsibilities and relationships among the market participants and the Energy Regulatory Entity (ERE).

The Albanian Market Model is characterized by bilateral contracts of electricity between and among market participants where except the generation, transmission and distribution functions is created and the function of the Wholesale Public Supplier (WPS) and the function of the Retail Public Supply (RPS). The Wholesale Public Supply license holder remain with KESH, the Retail Public Supply license is awarded to the Distribution System Operator.

According to the model, the Wholesale Public Supplier is responsible for buying electricity for regulated and open market, based on the electricity demand forecast of the Tariff Customers prepared and submitted by the Retail Public Supplier, and for selling it to the DSO (RPS), at regulated price.

The responsibilities and functions of Distribution System Operator with regards to electricity distribution services include two principal activities:
• Owns, operates, maintains, and expands the distribution system, including meters, and provides interconnection service to Eligible Customers and Small Power Producers;
• Purchases electricity required to cover losses in the distribution system (technical and non-technical)

The responsibilities and functions of the DSO with regards to Retail Public Supply include:
• Purchases from Wholesale Public Supplier and resells to Tariff customers;
• Performs billing and collection;
• Provides tariff customers load forecast.

The new structure has been constructed based on the request of Albanian Market Model and during of 2008 was realised their consolidation as well as the preparation of the DSO privatisation.

According to the Power Sector Law (Article 41) and Transmission Grid Code (Chapters 2, 3 and 4), the Transmission System Operator is, among others, responsible for the development and expansion of the transmission system and for managing any transit of electricity between foreign systems, using Albanian electricity network.

The Transmission System Operator shall provide for integrated management and reliable operation of the transmission system; maintenance of the transmission system sites and facilities in accordance with the technical and operation safety requirements; transmission system development in accordance with the long-term forecasts and electric power sector development plans; maintenance and development of the transmission auxiliary items.

The Transmission System Operator performs also the electricity market operator functions according to other by-legal acts in the power sector.

1.2. REGULATORY FRAMEWORK FOR ELECTRICITY PRODUCTION, TRANSMISSION AND DISTRIBUTION INVESTMENTS


There are 6 adopted tariff methodologies relating to the Albanian power system: 1) Electricity transmission tariff calculation methodology, 2) Electricity distribution
tariff calculation methodology 3) Electricity public generation tariff calculation methodology, 4) Methodology for sales to captive customers, 5) Methodology for setting the unique electricity price from the new hydro power plant with installed capacity less than 15 MW, given in concession; 6) Methodology for setting the electricity price for the licensee generating electricity from the hydro power plant with installed capacity less than 15 MW.

According to the Power Sector Law (Article 48), within the month of January of each year, the Regulator shall establish and publish the level of annual consumption as well as other requirements when a customer may get the status of eligible customer.

On the respect of the market opening objective, as a request of the Albanian Government policy on power sector development and a request of the Energy Community Treaty, the ERE through the Decision Nr: 77 date 14.12.2007, has decided to give the eligible status to all non household customers.

1.3. PUBLIC SERVICE OBLIGATIONS

The activities of electricity generation, electricity transmission, electricity distribution, and supply of electricity to tariff (captive) customers, organization of the electricity market and operation of electricity system shall be carried out as public services.

In imposing and enforcing licensees’ public service obligations, the Regulator may consider obligations in relation to:

a. security of supply;
b. regularity, quality and price of supplies,
c. use of indigenous energy sources;
d. efficient utilization of fuels and energy;
e. environmental protection; and
f. protection of the citizens’ health, life and property.

No licensee shall have a public service obligation to provide electric service in an area in which it is not providing service on the effective date of Power Sector Law number 9072 date 22.05.2003, except as may be required by regulations adopted by the Regulator that provide for a fair allocation of the additional costs of providing such service between those customers seeking such service and existing customers of the licensee.

The costs incurred by any licensee under public service obligations shall be recognised as justified pursuant to Articles 27 and 28 of the Power Sector Law number 9072 date 22.05.2003.
1.4. PRODUCTION CAPACITIES

In the Albanian power system 100% the electricity is generated by hydro power plants. The most important is the Drin River Cascade with three hydro power plants, which produce over 88% of total electricity generation. There is only one thermal power plant (TPP Fier) in the Albanian power system, but it is with old technology and low efficiency. Since April 2007 TPP Fier is out of operation.

Figure 1. Generation in GWh during years 1990 - 2008

Figure 2. Generation in % during years 1990 - 2008
1.4.1. Existing Power Plants

Installed generation capacity in the Albanian power system is 1,446 MW; Its composition is shown in Table below.

**Table 1. List of available power plants**

<table>
<thead>
<tr>
<th>Drin River Cascade (1350 MW)</th>
<th>Type of power plant (HPP)</th>
<th>Fuel</th>
<th>Capacity (MW)</th>
<th>Year of Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fierza</td>
<td>-</td>
<td>4 x 125 MW</td>
<td>1978</td>
<td></td>
</tr>
<tr>
<td>Komani</td>
<td>-</td>
<td>4 x 150 MW</td>
<td>1985</td>
<td></td>
</tr>
<tr>
<td>Vau Deja</td>
<td>-</td>
<td>5 x 50 MW</td>
<td>1971</td>
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</table>

<table>
<thead>
<tr>
<th>Mat River Cascade (49 MW)</th>
<th>Type of power plant (HPP)</th>
<th>Fuel</th>
<th>Capacity (MW)</th>
<th>Year of Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulez</td>
<td>-</td>
<td>4 x 6.25 MW</td>
<td>1957</td>
<td></td>
</tr>
<tr>
<td>Shkopet</td>
<td>-</td>
<td>2 x 12 MW</td>
<td>1963</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bistrica River Cascade (27.5 MW)</th>
<th>Type of power plant (HPP)</th>
<th>Fuel</th>
<th>Capacity (MW)</th>
<th>Year of Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bistrica 1</td>
<td>-</td>
<td>3 x 7.5 MW</td>
<td>1966</td>
<td></td>
</tr>
<tr>
<td>Bistrica 2</td>
<td>-</td>
<td>1 x 5 MW</td>
<td>1967</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other HPP's (19.5 MW)</th>
<th>Type of power plant (HPP)</th>
<th>Fuel</th>
<th>Capacity (MW)</th>
<th>Year of Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selita</td>
<td>-</td>
<td>5 MW</td>
<td>1951</td>
<td></td>
</tr>
<tr>
<td>Bogova</td>
<td>-</td>
<td>2.5 MW</td>
<td>1975</td>
<td></td>
</tr>
<tr>
<td>Gjanci</td>
<td>-</td>
<td>3 MW</td>
<td>1980</td>
<td></td>
</tr>
<tr>
<td>Smokthina</td>
<td>-</td>
<td>9 MW</td>
<td>1970</td>
<td></td>
</tr>
</tbody>
</table>

The average age of hydro power plants in Albania is over 35 years. The last one that was built is HPP Komani in 1985.

1.4.2. Operational Security

100 % of installed generation capacity is in hydro power plants, and the most important is the Drin River Cascade, which produced over 88% of total electricity generation. The demand of electricity is much higher than domestic generation, which means that Albania is one of net importer countries in the region. In 2007 the utility has imported more than 50% of its consumption and also has made 17 % load shedding. The hydrological situation was improved in 2008, but we continued to import 40% of our consumption. In 2009 the situation was improved totally and we are supplying normally our consumers and the import is only 12 % of our consumption.

![Figure 3. Trend of generation, supply, and load shedding in GWh (1981 - 2008) and trend for 2009](image)
1.4.3. Construction of New Production Capacities

Based on the Power Sector Law Nr. 9072 date 22.05.2003 and the Law “On Concession” Nr. 9663, date 13.12.2006, the construction of new generating capacities is subject of concession from the Government of Albania and licensing issue from the Regulator.

During the period 2009-2015, the generation capacity is planned to increase from the actual value of 1,446 MW to 2,225 MW. This plan includes construction of new thermal capacities. Some of new hydro capacities are included also in this plan as good options for the generation expansion to long term prospect.

An important generation project is the construction of new combined cycle thermal power plant in Vlora, which is in the process of commissioning. It is expected to be operational in July 2009 and will add about 700 GWh/year of domestic production. The new HPPs are to come in the medium term: HPP Ashta (Drin River Cascade) HPP Kalivac (Vjosa River Cascade) as well as HPPs of Devolli River Cascade. HPP Kalivaci is under implementation but HPP Ashta and HPP in Devolli Cascade are in starting process.

Table 2. List of new power plants under construction

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Capacity (MW)</th>
<th>Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vlora</td>
<td>CCGT</td>
<td>97</td>
<td>Gas oil</td>
</tr>
<tr>
<td>Devolli</td>
<td>Hydro res.</td>
<td>320</td>
<td>Hydro</td>
</tr>
<tr>
<td>Kalivaci</td>
<td>Hydro res</td>
<td>93</td>
<td>Hydro</td>
</tr>
</tbody>
</table>
Ashta | Hydro res. | 48 | Hydro

As it is known by now, Albania has a very good potential and feasibility of hydro resources, mostly in the Drin, Vjosa and Devoll river cascades. It is aimed to integrate and maximally utilise the energy potential of the Vjosa Cascade (which can reach up to 495 MW) Devolli Cascade (up to 320 MW) and to complete the Drini Cascade (with Ashta and Skavica HPP 48 and 350 MW).

Moreover, there are a lot of small hydro potential capacities (up to 15 MW each) all over the country to be developed. For 2007, 2008 and beginning of 2009 the Government of has given in concessions more then 57 SHPPs, total installed capacities 216 MW and total annual electricity production 700 GWh;

1.4.4. Incentives for New Production Capacities (renewable energy sources)

Currently only hydropower makes a significant contribution to the energy consumption in Albania. However, the country has also significant potential for renewable resources in the form of wind, solar and biomass.

Incentives are granted with the objective of promoting the construction of new production capacities that use renewable energy sources (RES). The Law Nr. 8987, date 24.12.2002, on creating facilities for new power generation plants stipulates that the new power plants using RES shall be exempted from custom duties for all their equipment and machineries used for generation purpose.

Another incentive for all hydropower plants up to 15 MW, as a direct support for RES is to set a fix price of selling electricity, based on import price of previous year. This price has to be adjusted year by year with inflation index. The ERE has adopted a formula for determination of the price of energy produced by these sources. Based on law they can sell their production of electricity to KESH without respecting procurement law.

Based on Albanian legislation small hydro power plants are not obliged to pay water and land state property fees. These producers have a priority access for their connection to the power network.

Also a positive impact on promoting investments were created by some changes on the Power Sector Law No. 9072/2003, amended, that gives to the Council of Ministers the right to issue the authorization permits for the construction of the new generation capacities, RES included, that are not subject of the Concession law, followed by the CDM no. 1701, date 17.12.2008 on “ Regulation on Procedures for granting of the authorization for concession of Power Plants not
subject of concession “that establish the procedures and documents necessary for application, evaluation and granting of an authorization.

During the last years we have had a lot of requests for wind parks, and some of them are approved by Albanian authorities.

1.4.5. Energy Balancing Market

Energy balancing market in Albania is defined and led by the Transmission System Operator. Based on information and studies, the Transmission System Operator will prepare an annual balancing energy needs forecast and deliver such forecast to the Regulator and the market participants. The Albanian Power Corporation (KESH Gen) will offer this balancing energy to the Transmission System Operator under an annual contract for the KESH Gen offering balancing energy from existing hydro power units technically able to provide such services, at prices which do not exceed maximum regulated prices established by the Regulator for these services.

1.5. Transmission Network Capacities

The Transmission System Operator is the owner of all of the transmission assets in the Republic of Albania. The transmission system in Albania is composed of the 400, 220, 150 and 110 kV. The power system of Albania has 120.2 km of 400 kV lines, 1128 km of 220 kV lines, 34.4 km of 150 kV line and 1216.2 km of 110 kV lines. The main transmission network is composed of 220 kV and 400 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 to supply the distribution system. Part of this network is meshed and other part is radial. The system is interconnected with neighboring systems through the lines shown in Table 3.

Table 3: List of interconnection lines

<table>
<thead>
<tr>
<th>No</th>
<th>Name of Line</th>
<th>Type of Line</th>
<th>Voltage Level (kV)</th>
<th>Length (km)</th>
<th>Conductor Cross-section ACSR (mm²)</th>
<th>Current-carrying capacity Ambient Tem 20°C (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fierza - Prizreni (KO)</td>
<td>Single Circuit</td>
<td>220</td>
<td>26.3 (88.0)</td>
<td>400</td>
<td>854</td>
</tr>
<tr>
<td>2</td>
<td>Vau Deja - Podgorica (MN)</td>
<td>Single Circuit</td>
<td>220</td>
<td>44.7 (65.8)</td>
<td>360</td>
<td>730</td>
</tr>
<tr>
<td>3</td>
<td>Zemblak - Kardia (GR)</td>
<td>Single Circuit-Blinde Conductor</td>
<td>400</td>
<td>19.7 (87.5)</td>
<td>2x500</td>
<td>2x974</td>
</tr>
<tr>
<td>4</td>
<td>Biztrica1 - Myrtos</td>
<td>Single Circuit</td>
<td>150</td>
<td>34.4 (67.0)</td>
<td>175</td>
<td>560</td>
</tr>
</tbody>
</table>
Figure 4. The development of transmission lines 1955 - 2010

Transformation Capacity in Albanian Power System
The following list shows the Transformation Capacities in Albania Transmission System up to 2008.

1. 220/110 kV substation Fierza HPP 2 x 30 MVA
2. 220 kV substation Komani HPP
3. 220/110 kV substation Vau Dejes HPP 2 x 120 MVA
4. 220/110 kV substation Burreli 2 x 60 MVA
5. 220/110/35 kV substation Tirana 1
   220/20 kV 2 x 63 MVA
6. 220/110 kV substation Sharra
   220/35 kV 1 x 90 MVA
7. 220/110 kV substation Rrashbull 2 x 100 MVA
8. 220/110/35 kV substation Elbasan1 3 x 90 MVA
9. 400/220 kV substation Elbasan2 2 x 300 MVA
10. 400/110 kV substation Zemblak 1 x 150 MVA
11. 220/110/35 kV substation Fieri 3 x 120 MVA
12. 220/110/35 kV substation Babica 2 x 100 MVA
13. 110/150 kV substation Bistricha 1 1 x 40 MVA

The total installed capacity is: in 400 kV 750 MVA
The 220 kV and 400 kV are generally constructed with double bus-bars at 220 kV and 400 kV side. The 110 kV side in these substations is generally realized with single bus-bars.

**1.5.1. Current Status of Albania Interconnected Network**

Albanian transmission system is interconnected with neighbouring systems through four interconnection lines: 1) Fierza – Prizreni (KO); 2) Vau Deja – Podgorica (MN); 3) Zemblak – Kardia (GR); 4) Bistrica – Igumenice (GR). In a balanced situation of the Albanian system there is a permanent loop flow of about 120 MW from Greece to Kosovo entering into the Albanian network (through 400 kV Kardja - Zemblak line). Thus, in case when Albanian power system imports around 200 MW and looses the Greek interconnection line 400 kV
Kardja – Zemblak, the voltage profile in the Albanian network goes down from the North part to the South part. Therefore, there is no any 220 kV line overloaded (including the two interconnection lines), but the level of voltage in all of the South part of Albania is much lower then the UCTE requirements. There is no any risk for any voltage collapse. This case has no negative impact to the neighbouring transmission networks. The same situation may happen in case of lost 400 kV line Zemblak – Elbasan.

There are no problems in the main 220 kV network to operate according the (N-1) criterion. The 220 kV network which connects the main power plants in the North of Albania with the main load nodes in the centre of Albania is meshed and fulfils the (N-1) criterion without any problems. Anyhow, there is a big problem in the South of the Albanian network related to the 220 kV ring from Tirana and Elbasan to Fier. There is a loop in 220 kV network that connects 220 kV substations of Tirana, Elbasan, Fier, Rrashbull and Tirana. In case of missing 220 kV line Tirana – Rashbull or Elbasan – Fier, the network can not fulfil the (N-1) requirement. In this case, there is the overloading of some lines and the level of voltage in the South of Albania is very low. This case could create big problems in the south and this zone can suffer from blackouts for this reason. To have a secure operation of this loop, some protections are foreseen which automatically shed load to maintain the network in normal operation. In order to fulfil the (N-1) criterion and to increase the reliability of the Albanian network, the construction of new power plants is foreseen in the South part (TPP Vlora, HPP Kalivaci, HPPs on Devolli River, etc.), and in the meantime the reinforcement of the 220 kV network.

1.5.2. Electricity Network Planning and Development

Development plan of Albanian network includes new important projects; some of them will be important for Albania but also for the South East Europe region. The following projects are considered as medium term development ones, which will be in operation by the end of 2009 or in early 2010:

400 kV Connection Project, which is separated in three lots:
400 kV line Tirana – Podgorica: with length 154 km (125.5 km in Albanian side where 80 km will be double circuit and 28.5 km in Montenegrin side). The contract for the construction is signed. The overall construction period of the line is 24 months and its predicted to be commissioned for end 2009.

400/220/110 kV Tirana 2 Substation with 2x300 MVA 400/220 kV and 2x120 MVA 220/110 kV; the contract has been signed at the end of 2008 and the tentative completion is for the end of 2010.
400 kV Line Tirana2 – Elbasan2 with total length 48 km, the contract has been signed in February 2008 the tentative completion is around end 2009 or in early 2010.

Albanian National Dispatch Center. The contract for the implementation has been signed on September 2008. National Dispatch Center will be in operation by the end 2011.

Rehabilitation and Upgrading the existing 220/110 kV Substations. This project is for replacement of the Control – Monitoring – Protection and replacement of the primary equipment in 8 substations 220/110kV, this project is separated in three phases.

The first phase includes the supply and installation for rehabilitation of control, protection and monitoring of Tirana 1 and Elbasan 1, 220 kV Substations. This phase is under implementation.

The Second phase includes the supply and installation for rehabilitation of control, protection, monitoring and the primary equipments in 220 kV Fieri Substation and installation for rehabilitation of primary equipments in Tirana 1 and Elbasan 1 220 kV Substations. The contract has been signed we are waiting for the no-objection of the donor for the start of the implementation, tentative completion is beginning of 2011. The bid is in evaluation process.

The third phase includes the supply and installation for rehabilitation of control, protection, monitoring and the primary equipments in 400 kV Elbasan 2 Substation, 220 kV Substations of V. Deja, Fierza, and Burreli. This project is in the end of preparing the bid documents.

The Supply and Installation of Rehabilitation and Upgrade of V. Deja Transmission and Distribution, this project includes the rehabilitation of 220 kV V. Deja Substation, new 220/110/35 kV Koplik Substation and reinforcement of 110 kV lines in this region. The project is under implementation.

The reinforcement of 400/110 kV Zemblak Substation and development of 110 kV network in south part of Albania. This project is under study.

The construction of new 220/110 kV substations, in Komani and the development of 110 kV network in north-east part of Albania feasibility study is finished.

The possibility for construction of the new 400 kV tie line with Kosovo (Tirana2 – Kosovo B) with length about 235 km review of the feasibility study is finished. Albanian and Kosovo TSO’s has already signed the agreement regarding the implementation of this project.
The possibility for construction of the new 400 kV tie line with FYROM and DC Cable with Italy. Feasibility study is finished.

With the objectives which OST has estimated before we have to emphasize that the implementation schedule for all the mention project is in delay this due to the fact of the funding problems as well as problems related to the community affected.

### Table 4. Schedule for the implementation of the network development plan

<table>
<thead>
<tr>
<th>Name</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 400 kV line Eshcan–Perjorica including 110/230/110 kV Tirana 2 substation</td>
<td></td>
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<tr>
<td>1 procurement process</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2 implementation</td>
<td></td>
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<tr>
<td>3 completion</td>
<td></td>
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<tr>
<td>B Moza Power Plant CCGT 1x90 MW</td>
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<td></td>
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<td>2 implementation</td>
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<td>3 completion</td>
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<tr>
<td>C Upgrade of all 220/110 kV substations in Albanian Power system</td>
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<tr>
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<td>3 completion</td>
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<tr>
<td>D New National Dispatch and Control center</td>
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</tr>
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<td>1 procurement process</td>
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<tr>
<td>2 implementation</td>
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<tr>
<td>3 completion</td>
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</table>
Figure 6 Map of Albanian Power System
1.5.3. **Transmission Network Access and Control**

The regulation of transmission network operation is defined by the Law No. 9072, date 22/05/2003 “On the Power Sector” and its amendments as well as by Transmission Grid Code approved by ERE.

The Transmission System Code regulates:

- Terms and respective documentation to apply for the right to connect to the transmission system;
- Minimal technical and functional specifications to provide access and connection to the transmission system of generation installations, distribution companies, eligible customers as well as interconnection with other networks;
- Deadline for the Transmission System Operator to reply to the applicant;
- Criteria applied by the Transmission System Operator for the management from the Dispatching Centre to the available generation installations and use of interconnections;
- Way, extension, terms and conditions under which the Transmission System Operator, when dispatching generation installations, gives priority to those using electricity renewable resources; and
- Any other necessary details to regulate the functioning of the transmission system.

Having regard the New Market Model provision as well as DSO privatization process the Transmission Grid Code has been revised by the ERE in 2008. In relation to energy market development it has to be improved and updated further on.

Although TSO is not a member of UCTE, it is currently synchronously interconnected to UCTE System and, as result of this, it becomes part of UCTE. Therefore, due to this connection, operational relations arise with UCTE Members systems and risks, from these connections appear. TSO’s compliance and observance of the Operation Handbook and legal obligations of TSO against UCTE Members are necessary.

For these reasons there is signed an Agreement between TSO and UCTE, which lies down the rights and obligations of the Parties, as well as rules, conditions and prerequisites they shall fulfill:

The TSO recognizes that it has all financial means to meet the obligations under this agreement and to an eventually evaluation to become a full member of UCTE, within the agreement period of time.

The TSO also recognizes that it has the support of the relevant Albanian Authorities in relation with this agreement, its performance and compliance.
This agreement is considered as a temporary solution while final status of the TSO will be considered by the UCTE after the TSO fully meets obligations arising from this agreement.

### 1.6. **Electricity Generation, Import, Supply and Peak Load**

Electricity demand in Albania has been increased during last 12 years at an average rate of about 4%. The increase of demand is not associated with increase of generation capacities. During this period the peak load is increased as well. In last 22 years the peak occurs in winter season (December - January) during working days (Tuesday, Thursday) between 20:00 - 21:00.

The peak load in 2008 was 1350 MW (31 December 2008)

Albania needs to import electricity to cover the demand. The import of electricity is variable due to the composition of domestic production. Nearly 100% of installed generation capacity is in hydro power plants, and the most important is the Drin River Cascade, which produces over 88% of total electricity generation. During drought periods the production of electricity is decreased and it is necessary to import more electricity to cover the load. Constrains on the importing lines, oblige to make load shedding to take the balance in the system.

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**Figure 7.** Consumption in GWh covered by production inside Albania and import during 1990-2008 and trend for 2009
Figure 8. Albania peak load in MW during 1981-2008

Table 5. Electricity demand and peak load projections till year 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand (GWh)</th>
<th>Growth Rate (%)</th>
<th>Peak (MW)</th>
<th>Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>7040</td>
<td>2.6</td>
<td>1440</td>
<td>3.6</td>
</tr>
<tr>
<td>2010</td>
<td>7240</td>
<td>2.8</td>
<td>1480</td>
<td>2.8</td>
</tr>
<tr>
<td>2011</td>
<td>7450</td>
<td>2.9</td>
<td>1530</td>
<td>3.4</td>
</tr>
<tr>
<td>2012</td>
<td>7670</td>
<td>3.0</td>
<td>1575</td>
<td>2.9</td>
</tr>
<tr>
<td>2013</td>
<td>7940</td>
<td>3.5</td>
<td>1620</td>
<td>2.9</td>
</tr>
<tr>
<td>2014</td>
<td>8180</td>
<td>3.0</td>
<td>1670</td>
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<tr>
<td>2015</td>
<td>8430</td>
<td>3.1</td>
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<td>2016</td>
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<td>2020</td>
<td>9770</td>
<td>3.0</td>
<td>1990</td>
<td>3.1</td>
</tr>
</tbody>
</table>
1.7. Electricity Supply

Based on the Albanian Law on Power Sector Nr.9072 date 22.05.2003, amended, the Regulation of the criteria for issuing and withdrawing the status of eligible Customer, and the Decision of the Regulatory Board Nr. 93 date 21.12.2006 (Official Gazette nr. 152/2006), eligible customers in Albania in 2007 were the customers with annual consumption over 10 GWh, but after 1 of July 2008 all non house customers are eligible. Now in Albania there is only 1 eligible customer. All other customers are supplied by the Albanian Distribution System Operator sh.a.
2. NATURAL GAS.

Albania has huge oil in place reserves but natural gas reserves have been almost exploited and recoverable reserves seem very limited. The commercial production and consumption of natural gas in Albania started in 1960’s. Until the end of 2008, about 3.5 billion c. m. of natural gas were extracted from these gas fields and about 9.8 billion c. m. of associated gas were extracted from the oilfields resulting in a total of 13.3 billion c. m. of gas.

Actually natural gas sector activities in Albania are very limited. Domestic gas fields which are under the administration of “Albpetrol” s.a. (state owned company), are depleted and annual gas production has been decreased from 1 bcm in 1982 to 0.01 bcm actually. (Fig. 1). Gas which was used in the past mainly in industrial sector (not household sector) is currently used only for technological purposes in the oil production and refining (on site facilities) industry, while for space heating are used mainly electricity and LPG.

[Graph showing gas production in Albania 1980-2008 period]

Albania still remains not connected to the European gas network and no natural gas is imported in the country. Therefore, no gas market exists in Albania, at the moment.

2.1. Legal and Institutional Framework.

The legal framework for the natural gas exploration and production activities, is based on the Law no. 7746, date 28.7.1993 “The petroleum law. (Exploration
and Production)\)”, in which is presented the Policy of the Republic of Albania on the exploration and production activities for oil and natural gas. Meanwhile the fiscal system in the hydrocarbons sector (Exploration - Production), is based on the Law No. 9975, date 28.07.2008 “On national taxes” (the level of royalty is 10% ) and on the Law No.7811, date 12.04.1994 “On approval of Decree no.782, date 22.2.1994 “On the fiscal system in the hydrocarbons sector (Exploration - Production)\)”, changed.

As regard the existing legal framework for the transportation and trading of natural gas, it is based on the Law No. 8450, date 24.02.1999 “On refining, transportation and trading of oil, gas and their by-products”, changed. Refer to this law, the Albanian State defines the policy of the development of the activities in the refining field, transportation and that of marketing of oil and gas and their by-products. The state exercises its regulatory functions in conformity to the needs of the country, of national defence and public security respecting the principles of the market economy

Based on this law (Article 11), “The construction of the oil and gas pipelines for the import, export and transport of crude oil and natural gas is made on the Decision of the Council of Ministers”.

On 2008 the GoA, through the Ministry of Economy, Trade and Energy has prepared the new natural gas legislation, which has been approved by the Albanian Parliament (Law No. 9946, date 30.06.2008 “On the Natural Gas Sector”). The new gas law is based on the requirements of the Treaty establishing the Energy Community and in particular on the requirements of the Directive 2003/55/EC.

In this legislation (Law No. 9946, date 30.06.2008), the Ministry responsible for the energy sector (Ministry of Economy, Trade and Energy, hereinafter Ministry), is the highest governmental institution, which prepares gas sector development policy and gas legal, institutional and technical framework.

The Ministry supervises the implementation of the gas legislation and regulation in order to ensure gas market functioning as a unified and integrated market. The Ministry makes recommendations concerning tariff policy and gas tariffs, issues opinions on different documents related to the gas market and conduct expert task in gas sector.

The gas law authorizes the Albanian Energy Regulatory Body (ERE), to prepare and approve the regulation in energy sector, both electricity and gas areas.

According to this legislation several Transmission System Operator based on the approved regulations, will be responsible to organize transmission and balancing activities in the gas market, on a specified area.
In this legislation gas sector activity comprises of production, storage, transition, transmission, distribution, supply and trade of the natural gas.

Actually a Task Force is established by the GoA to prepare secondary legislation (institutional and technical regulation framework on the gas sector), which would enable participation of Albania in the regional gas network, interconnection projects.

The Task Force in cooperation with ERE and USAID (in the frame of a MoU) is in phase of starting the preparation of the secondary legislation for the institutional framework.

The Task Force is starting the cooperation with the DVGW (German Scientific and Technical Association for Gas and Water) and German Bank KfW, for the preparation of the secondary gas legislation regarding the technical rules framework.

2.2. Public Service Obligation.

According to the gas law (Law No. 9946, date 30.06.2008) the activities of transmission, distribution and supply of tariff customers with gas are considered public services.

Despite other activities of natural gas will be fully liberalized the GoA and ERE can adopt measures regarding the public service obligation, but on the other hand those measures have to be well-defined, transparent and non-discriminatory and controllable.

2.3. Gas Supply.

As mentioned above Albania actually doesn’t have a gas market developed, therefore no supply activities are performed in the country. However, the provisions of the gas law authorize the GoA and ERE to adopt general conditions for the gas supply of customers, both, tariff and eligible customers should such a market be created and established in the near future.

Albanian gas market, supply and demand are deeply out of balance. The demand is unusually high, whereas the supply is incapable of satisfying it. Local indigenous gas resources can not contribute significantly to the national primary energy balance. The existing middle and low pressure gas network (about 400km) is practically out of use. The GoA is preparing a specific plan for the development of gas sector and gas market in the country. In this plan are addressed a lot of issues from legal,
regulatory and institutional to the gas infrastructure and gas supply of the
country.
The “National Strategy of Energy, revised”, forecast for the gas consumption on
2020 will be about 1.5 to 1.8 bcm. The priority consumers will be:
- First priority, power generation sector and industrial consumers,
- Second priority, house holding and service sectors, which will use
the natural gas for heating,
- Third priority, house holding sector for using of natural gas for
cooking and hot water,

2.4. Potential Gas Networks Projects.

Based on the existing legal, institutional and technical framework on the gas
sector, Albania is working on the creation of the gas policy, establishment of
regulatory framework and infrastructure planning.

During last years the Ministry of Economy, Trade and Energy based on the Law
No. 9946, date 30.06.2008 “On the Natural Gas Sector” and referring to the Law
No. 8450, date 24.02.1999 “On refining, transportation and trading of oil, gas
and their by-products”, changed, and on the Decision of the Council of Ministers,
No 553, date 12.8 2004, “On the procedures and conditions for giving the
concessionary licenses for construction and operation of the refineries, oil
pipelines and gas pipelines” has treated and evaluated several proposal for
developing of natural gas infrastructure and its operation. (Fig. 2).

![Fig. 2. Potential Gas Networks Projects linking Albania with regional gas network.](image-url)
2.4.1. The Ionian Adriatic Gas Pipeline.  
(IAP Project)

On September 2007 an inter-ministerial declaration is signed in Zagreb, Croatia, between Albania, Monte Negro and Croatia, for the Ionian Adriatic gas Pipeline project. On January 2009, Bosnia & Herzegovina is joint on this Declaration.
- Length (km): About 400 km (Albanian Section about 170 km).
- Diameter (mm/inch): 700/28.
- Maximal Operating Pressure (bar): 80

IAP project, as part of Energy Community Gas Ring, will link Albania gas networks with Montenegro, Bosnia Herzegovina and Croatia network.

2.4.2. LNG Terminal on the Fieri District seaside.  
(Trans European Energy BV sh.a.)

Based on study “On the opportunities to construct LNG terminals in Albania and on the establishment of the relevant infrastructure in the Fier district coastline”, adopted by the Council of Ministers’ Decision No. 731, dated November 11, 2006, several projects presented by the companies ASG POWER and TRANS EUROPEAN ENERGY on the construction of Terminals for the LNG re-gasification in the Adriatic Sea seacoast (Fier District) were reviewed, as well as the Swiss company EGL project on the East-West gas pipeline (Trans Adriatic Pipeline), passing through Albania which will benefit from a LNG terminal built in the same area.

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. This Contract of Permit is approved by the Decision of the Council of Ministers no. 112, date 21.01.2009.
- The National Council of Territory Regulation (KRTRSSH) with the Decision no. 1, date 01.03.2007, has approved the area for construction of LNG Terminals on the seaside of the Fieri Region.
- The LNG Terminal will have the capacity about 8 BCM/year, equal to more than 6 million ton natural gas per year.
- The pressure of the pipe will be 120 bar (g) and the temperature about 1°C.
The LNG Terminal will be capable to unload ships with capacity up to 140,000 m$^3$. On the plant will be installed two cryogenic storage tanks with net capacity 140,000 m$^3$, each of them.

### 2.4.3. The Trans Adriatic Gas Pipeline. (TAP Project)

The Contract of the Permit is under negotiation with the TAP company.

The Trans Adriatic Pipeline will have a total length of about 520 kilometers, (201 km in Albania), including 115 kilometers offshore, on the Adriatic Sea bed. TAP’s highest elevation point will be 1800 meters in Albania’s mountains, while its lowest part offshore will be at 820 meters of depth. The onshore part of the pipeline will have a diameter of 48 inches (1.2 meters), designed for a gas-flow pressure of 100 Bar, while the diameter of its offshore segment will be 36 inches (0.9 meters.).

TAP will initially have a capacity of 10 billion cubic meters (bcm)/year, providing enough energy for as many as 3 million households. The pipeline’s transport capacity can be expanded to 20 bcm/year.

National Council of Territory Regulation (KRRTRSH) with the Decision no. 1, date 14.08.2008, has approved the trace of TAP project on the Albanian Territory and the linking with the Underground Gas Storage on the Dumre Region.

Referring to these proposal projects, main Interconnection Point within the Albania, will be the Interconnection Point between TAP Project, IAP Project and LNG Project, which will be an aggregated zone transit point near the city of Fieri.

### 2.4.4. Underground Gas Storage in Albania

Natural reservoirs constitute a very important element in gas transmission systems to cover peak demands and to balance the seasonal variations. 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). (Fig. 3).

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). By connecting these gas storage into regional gas
network (including Energy Community Ring), Albania could provide regional storage facilities for other Balkan countries.

Is possible the cooperation between Albania and Greece for using of UGS In Dumrea Salt Dome, therefore the design of underground gas deposits is a project of regional interest and with a particular importance for Albania.

![Map of Albania showing the location of possible underground gas storage. Dumrea Salt Dome and Divjaka Depleted Gas Field.](image)
3. Conclusions

This Security of Supply Statement presents Albania’s obligations on Energy Community Treaty implementation, so its scope is limited to security of electricity and natural gas supply, mostly related to the period 2009 -2012. This paper consists in two chapters: 1) Electricity and 2) Natural Gas.

In the first chapter the key electricity participants and their responsibilities are analyzed relating to the security of supply. This is followed by a presentation of the regulatory framework for electricity production, transmission and distribution investments. This is followed then by a description of existing and planned production capacities, existing and planned electricity network with particular reflection on the cross border transmission capacities, and transmission network access and control. Finally there is a presentation of achievement and plan project to satisfy electricity demand in Albania.

In the chapter of natural gas, firstly is presented existing situation in natural gas sector in the country. This is followed by the presentation of legal and institutional framework as well as public service obligations, referring to the new gas law (Law No. 9946, date 30.06.2008 “On the Natural Gas Sector”), than this is followed by a presentation of potential gas network projects and possible underground gas storages in Albania.

Finally it can be concluded that Albania regulatory Framework in the context of Security of Electricity Supply is completed, but for natural gas has to be completed within this year, through secondary legislation adopted by METE and ERE.

The responsibilities of key players in the power sector are defined, but for gas supply still has to be defined. Public Service Obligations of electricity supply are established but for gas supply have to be completed. Power system development plan is continuously under verification and upgrading, first of all having in focus necessity to balance hydro with thermal generation and monitoring proper use of hydro generation sources, particularly recognizing importance of the Drin River Cascade. Albania power system is not well connected to the neighboring systems while gas network is not developed.

A very important progress in this direction is the construction of the 400 kV HVL Elbasan (Albania) – Podgorica (Montenegro) which is predicted to be operational by the end of 2009 or beginning of 2010.

Albania own natural gas production is actually at insignificant levels but the country strategy looks forward to the diversification of the primary energy sources.

Albanian gas market is modest but Albania’s geographical position is very favourable for the main pipeline corridors aiming to supply European market via
south of Italy. Albania’s depleted natural gas field offer another advantage for the new corridors.

Albania has already passed the new gas low and is working for the completion of the secondary legislation.

The new law defines Ministry for Energy responsible for the policy and infrastructure development aspect while the regulation of the gas sector is the responsibility of the Albanian Energy Regulator.

Taking into consideration, unfavorable power generation system (100 % hydro basis, the New Vlora TPP is predicted to be operational un July 2009) and not enough interconnection capacities with neighbors as well as the lack of gas sources and gas network in the country, the energy sector (electricity and natural gas) actually is generally targeting a satisfactory level of security of supply.

Albania aims to have a good security of supply level without load shedding and interruptions all over the country in 2011.