Milo KUNESHKA*

ALBANIAN NATIONAL NUCLEAR PROGRAM RELATED TO THE GLOBAL TRENDS AND PERSPECTIVES IN SOUTH-EAST EUROPE

ENERGY DEMAND

The increasing demand on electricity is a long-term and worldwide issue, as well as a challenge to be successfully faced.

Based on the National Strategy on Energy, in Albania needs for energy are continuously growing. Over the last 10 years, there has been a 70% increase in demand for energy.

Electricity demand and supply in Albania:

Year	2002	2003	2004	2005	2006	2007	2008	2009
Production (GWh)	3204	4974	5467	5409	5516	2933	3770	5221
Import (GWh)	2072	937	567	365	633	2828	2417	1425
Consumption (GWh)	5276	5911	6034	5774	6149	5761	6187	6646

THE GENERATING SOURCES OF ELECTRICITY IN ALBANIA

Being Albania a Mediterranean country, with important natural resources, benefiting of a climate consisting in hot and dry summers, with mild and wet winters, there are different natural sources of electricity generation like:

Water,
Fossils (coal, hydrocarbons),
Renewable (wind, sun, biomass)

Albania is, for the moment, benefiting only from its hydropower plants to get electricity.

It is a strategic need to diversify the electricity generation portfolio

* National Nuclear Agency of Albania, Tirana

WATER

Albania is a country with a good potential in water. Almost all the local electricity production is based on hydropower plants (more than 98%). The actual installed capacity is around 1500 MW (mostly in the north).

Up to now only about 35% of the water potential is used to produce electricity.

Albania, depending on the yearly weather situation, in order to meet the demand, is obliged to buy electricity form the regional market.

SMALL HYDRO POWER PLANTS

Number of licenses approved by the government:	~ 90
Installed capacity:	~ 800 MW
Forecasted energy:	~ 3 200 MWh
Forecasted investments:	~ 750 Mln Euro
Timetable:	In the coming years

SOLAR RADIATION

Albania has good potentials related to this source.

– an average solar radiation of about 1500 KWh/m^2 year,

– a maximal radiation of about 2200 KWh/m^2 year

There are some shown interests to develop projects on photovoltaic, of a certain entity.

Actually it is undergoing a common project between the Albanian government and the UNPD, related to the study "Global Solar Water Heating" with an objective to install during 5 years, 75 000 m^2 of solar panel for sanitary hot water.

WIND

There are some first undergoing projects on wind farms. 6 licenses are already issued by the Albanian authorized institution. Preliminary studies on the wind regime are foreseen, as part of the projects.

Biomass

Up to date there is only one project, licensed by the authorized Albanian institution, related to the electricity generation using biomass.

FOSSILS

Albania may also use oil, gas and coal to produce energy. There is one new thermo power plant fueled by oil/gas (97 MW), not yet in operation.

No more coal fueled thermo power plants in operation, due to previous and not good experiences. There are some shown interests for new generation technologies fueled by coal, but till now no concrete developments.

ELECTRICITY IN ALBANIA

The electricity supply is a very important security, economic, social, environmental and political issue.

The questions related to the growing demand for electricity, have to be considered, both, in a national and international scale.

The electricity supply in Albania, in the coming years, will be programmed and guaranteed, considering issues and concerns, in both national and international scale.

Albania aims to:

– Increase the supply security;
– Diversify the electricity sources;
– Define real electricity prices;
– Operate into the regional electricity market;
– Connect the country to the regional networks;
– Become an environmentally friendly country.

WHY THE NUCLEAR IN ALBANIA?

The continuous electricity supply of the country is an important target derived from the Strategy of National Security.

Based on the National Strategy on Energy, the demand on electricity is continuously growing.

The Albanian government aims to become an exporter country on electricity, being strongly convinced on the strategic importance of the diversification of electricity sources of generation.

The water can not be the only source of a sustainable electricity generation, due to the weather and climate adversities.

The fossil sources of electricity (coal, hydrocarbons) inevitably will generate greenhouse gases and release them in atmosphere.

The strategic and long term target, to become Albania an environmentally friendly country, obligatorily includes choices on environmentally friendly sources of the electricity generation.

Based on all these considerations and reasons the Albanian government considers the safe and secure nuclear fission, as a real and reasonable alternative, to be seriously taken into consideration.

Based on all these reasons, the Albanian government has already launched the National Nuclear Program.

In support of the National Nuclear Program, the National Nuclear Agency has been established.

LEGISLATIVE AND GOVERNMENT ACTS

January 20, 2010: *Decision Nr. 23 of the Council of Ministers "On the establishment of the National Nuclear Agency".*

The mission of the National Nuclear Agency is to prepare, to take care and to follow up the development of the National Nuclear Program, which will be approved by the Council of Ministers.

THE NATIONAL NUCLEAR AGENCY

The main objectives of the Agency are:
– Draft and update the National Nuclear Program;
– Draft the complete legal framework related to the National Nuclear Program;
– Draft the regulatory framework related to the National Nuclear Program;
– Coordinate and follow up all measures to be taken, in order to build up all needed infrastructures, as well as professional and technical capacities;
– Coordinate and follow up all needed studies related to site (s) selection (s);
– Inform and collaborate with stakeholders and groups of interest, as well as with neighbor countries during different and consecutive stages of the National Nuclear Program etc…

GENERAL CONSIDERATIONS, DIFFERENT SOURCES OF ELECTRICITY

Based on credible evaluations and studies carried out by distinguish international specialized institutions, it results that:

Sources of electricity generation like solar radiation, wind, tides and waves, by their intrinsic nature, cannot provide either continuous base-load power, or peak-load power when needed.

Based on their variable and diffuse nature, generally the mentioned sources cannot be connected alone to the grid, without reliable duplicate sources. This fundamental peculiarity has to be seriously taken into consideration, especially when deciding about the electricity supply.

Based on economic and feasibility studies, these sources cannot directly be applied as alternatives for coal and nuclear fueled power plants.

Differences make certain countries with particular weather, climate, geological and morphological favorable conditions.

NUCLEAR RENAISSANCE

Related to the International Atomic Energy Agency (IAEA), up to December 2010, there were 441 nuclear reactors all over the world (30 countries) and 63 new reactors under construction.

In 2009, 2558 TWh were generated from nuclear reactors, that was 13–14% of global world's demand.

Year	New reactors connected	Rectors shutdown	Reactors in construction	Initiated construction new capacity (GW)
2004	5	2	2	1.3
2005	4	2	3	2.9
2006	4	5	4	3.3
2007	3	0	7	6.5
2008	0	1	10	10.5
2009	2	2	12	13.1
2010	5	1	15	14.9