

INPRO Dialogue Forum

**“International Collaboration on Innovations to Support
Globally Sustainable Nuclear Energy Systems”**

**Institutional arrangements in support of a sustainable
nuclear energy program in Albania**

Vienna, 18-21 November 2014

Albania - general information

According to the UN Population Division Historical Data and Projections, the population in Albania is expected to stay relatively stable until 2040. After an initial increase from around 3 million of inhabitants in 2010, reaching 3.3 million in 2025, the population is expected to decrease to 3.18 million by 2040.

The total final energy demand is expected to increase by 2.5 times between 2010 and 2040, or at an average annual increase rate of 3.2%.

The largest increase is expected in services, from 158.9 Ktoe in 2010 to 606.6 Ktoe, by an average annual increase of 4.6%. The industry is also expected to expand, leading to an increase in industrial energy demand by 3.6 times or 4.4%/yr. (1Ktoe = 11630000 kWh)

The industry will increase its share in the total final energy demand from 20.4% to 29.2%; services from 8.1% in 2010 to 12.3% in 2040. Although the final energy demand in transportation sectors will almost triple by 2040, its share in the total final energy demand is expected to decrease from 40.8% to 35.7%. The share of household is also expected to decrease from 25.0% at present to 19.6% in 2040.

Albania - general information

In 2008 the Albanian government declared its intention to consider the nuclear based electricity generation.

In 2010 has been established the National Nuclear Agency, in order to explore, advise the government, coordinate drafting of the nuclear program and promote it.

Institutional collaborations: Domestic, International

A two years National Project with IAEA – TCEU, “Supporting a Safe and Sustainable Electricity Supply” has been activated in 2012 and successfully concluded in 2013. The Final Report has been highly appreciated from the institutions.

Competition scenario (will be part of the Strategy on Energy) It assumes free competition between electricity supply options, taking into account their earliest availability. This scenario assumes that natural gas will be available in the region from 2018. **The earliest year for a nuclear power plant is estimated to be beyond 2028;**

Regional collaboration - Analysis of the energy/electricity system

The Report of the International Monetary Fund (October 2014), related to the countries of the Balkan Peninsula, considers the state-of-the-art of the economical and financial problems and, among others, suggests that:

....An important issue, taking into account the reality, may be a common energy system, in order to face the shocks and challenges of the market in a long-term prospective. (almost all these countries have similar sources in energy and electricity generation).

Considering official data, it results that, at a regional level (Albania, Kosovo, Macedonia, Serbia and Montenegro), the need for the import of electricity is almost a constant (around 20% of the annual electricity needs).

Overall installed capacity in the region is expected to increase by 2.3 times during 2010-2040 period. Although the region is expected to increase its system reserve from a negative value in 2010, to around 13% by 2040, the share of intermittent renewable would remain high (50% of the total installed power). Hydro capacities are expected to increase from the current level of 2.5 GW to 5.5 GW.

Regional collaboration - Analysis of the energy/electricity system

Hydro. It will continue to dominate the regional generation portfolio. Different analysis show that the hydro potential available in the region is competitive and should be significantly developed in the future. But the climate dependence has to be seriously considered!!!

Coal. It results the most competitive (non-renewable) option in Kosovo, Serbia and Macedonia. It is used in Montenegro. No more use in Albania. But the environmental issues have to be taken into account in the future!!!

Oil. There are three oil fired thermo power plants in Serbia. No more in Macedonia and Albania (decommissioned). None in Montenegro and Kosovo.

Environmental policies will play a key role in the selection of future electricity generation options – Countries under consideration presently do not have obligation to reduce GHG emissions. Introduction of a region-wide environmental regulation policy framework or emission mitigation strategies are expected to significantly influence competitiveness of different generation options.

Regional collaboration

The idea of a Regional Project has been:

- considered from 2011,
- launched in September 2012 in Tirana, during a workshop organized by IAEA,
- elaborated latter during another workshop in Paris (November 2012).

A first workshop, organized by IAEA in Skopje (September 2013), was dedicated to this topic.

The project aims to consider different real opportunities of collaboration in the Balkan Region (Albania, Macedonia, Montenegro, Kosovo etc..) in the frame of electricity generation, taking into consideration even the nuclear power. The initiative aims to consider, as well, opportunities of having a **multidimensional collaboration** related to the nuclear power.

Collaborations based on:

Memorandum of Understanding as a starting form of institutional collaborations;
Bilateral and multilateral governmental agreements

Regional collaboration

Objectives:

- have a common nuclear program (if feasible) and/or collaboration in the energy system,
- have a long-term (if feasible) multidimensional collaboration (specialized ministries, institutions, universities, research institutes, etc..)

Challenges, scenarios:

- No country will, at the end, join the project (economical and/or financial and/or political affected decisions);
- One country will continue with the nuclear option –neighbors etc..
- Two countries will join the project – clear long term and multidiscipline legal agreements, institutional agreements;
- More countries will join the project - clear long term and multidiscipline legal agreements, institutional agreements;
- How to approach in the regional market????

All these challenges have to be faced and solved. **Better together!**

Regional collaboration – R&D, new technologies

Objectives:

- Collaboration between universities to share curricula, have common courses, support human resources necessities, in the frame of a (regional) nuclear project;
- Collaboration between specialized institutions in the region, to carry out common feasibility studies related to energy/electricity, update and upgrade knowledge on new technologies related to nuclear power, legal and regulatory framework, waste treatment, environment protection, etc..
- Collaboration, in case of a nuclear option (single country, regional project), to share opinions related to the technologies to be used, site selections, public information (domestic and neighbors), etc.;
- Small and Medium Size Reactors.

Challenges:

- To be taken into account the situation in our region, related to the drain brain problem, due to the international job market best offers, differentiated requests for different disciplines etc.;
- Previous experiences (“Baltic” regional project, Slovenia - Croatia etc..)

Regional collaboration - Challenges

In countries like Albania, with similar recent history developments and reforms are going on, but the gap has been huge and needs time to be filled.

Challenges to be faced : **economical, socio-political, legal** etc..

If a country has, in a long term prospective, attested needs to cover the gap between the demand and the supply, it is one of the **strongest obligations** for the country to look after new sources of electricity generation. It is, as well, **a right!**

If the nuclear power results an option, then it turns to be of a fundamental importance:

- Domestic coordination and collaboration, establishing all needed specialized structures; **not so easy, but “conditio sine qua non”!**
- International collaboration and support: **indispensable, inevitable!**

Long-term concerns, persistence and continuity are needed to develop a nuclear program, besides perplexities, difficulties etc.. **To be, from the beginning aware of such challenges!**

Regional collaboration - Challenges

The Balkan region has different challenges to be faced:

- Changes toward a **free and open economical and financial market** (post – communist developments);
- **Ethnic, religious and demographic** problems, cause of armed conflicts;
- **Political**, essential and inherent part of transition, ongoing democratic processes.

In case of a regional nuclear project (long-term and multidimensional concerns), how will it resist to expected, multiple dynamic changes and developments like:

- Energy demand;
- Economical;
- Political;
- Social?

International collaboration - INPRO/IAEA support

Once a country is looking after a nuclear power option, it becomes ineluctable the necessity for international collaborations, in order to provide all needed information, experiences, etc., in **support of knowledgeable decisions**.

A nuclear program may suffer (previous worldwide experiences), from fluctuating political decisions in time (in the country, but even in other countries; Italy etc..).

Being the fulfillment of a nuclear power program a **zigzagged uphill path**, especially for small and developing countries, the support of IAEA's specialized structures, are of a great importance.

Respecting its Statute, IAEA **having not the right to intervene**, may/can **suggest**.
The ways of support, through official channels, often results **very efficient!**
The Albanian experience with IAEA (politicians refer to IAEA suggestions)

The **properly chosen IAEA's support(s)** may have a fundamental role (previous experiences) in countries like Albania, giving life to long-term and sound projects.
People's wisdom and far-sight, as well as the long-term interest of the country have to overcome politicians' whims and short-sight.

International collaboration - INPRO/IAEA support

More attention to the “Small Developing Countries Cases (SDCC)” on nuclear. What happens now? Not rarely during the events, the attention is drawn to the already “Launched and/or Developed Countries Cases”.

Proposals/Challenges:

- Organization of events, focused on the SDCC, or, provide sufficient space to them.
- Constitute “Working groups” with representatives of INPRO/IAEA and SDCC and organization of periodic consulting and technical meetings;
- Financial support, through Technical Cooperation Division and/or extra funds, to regional and/or sub-regional projects devoted to SDCC.

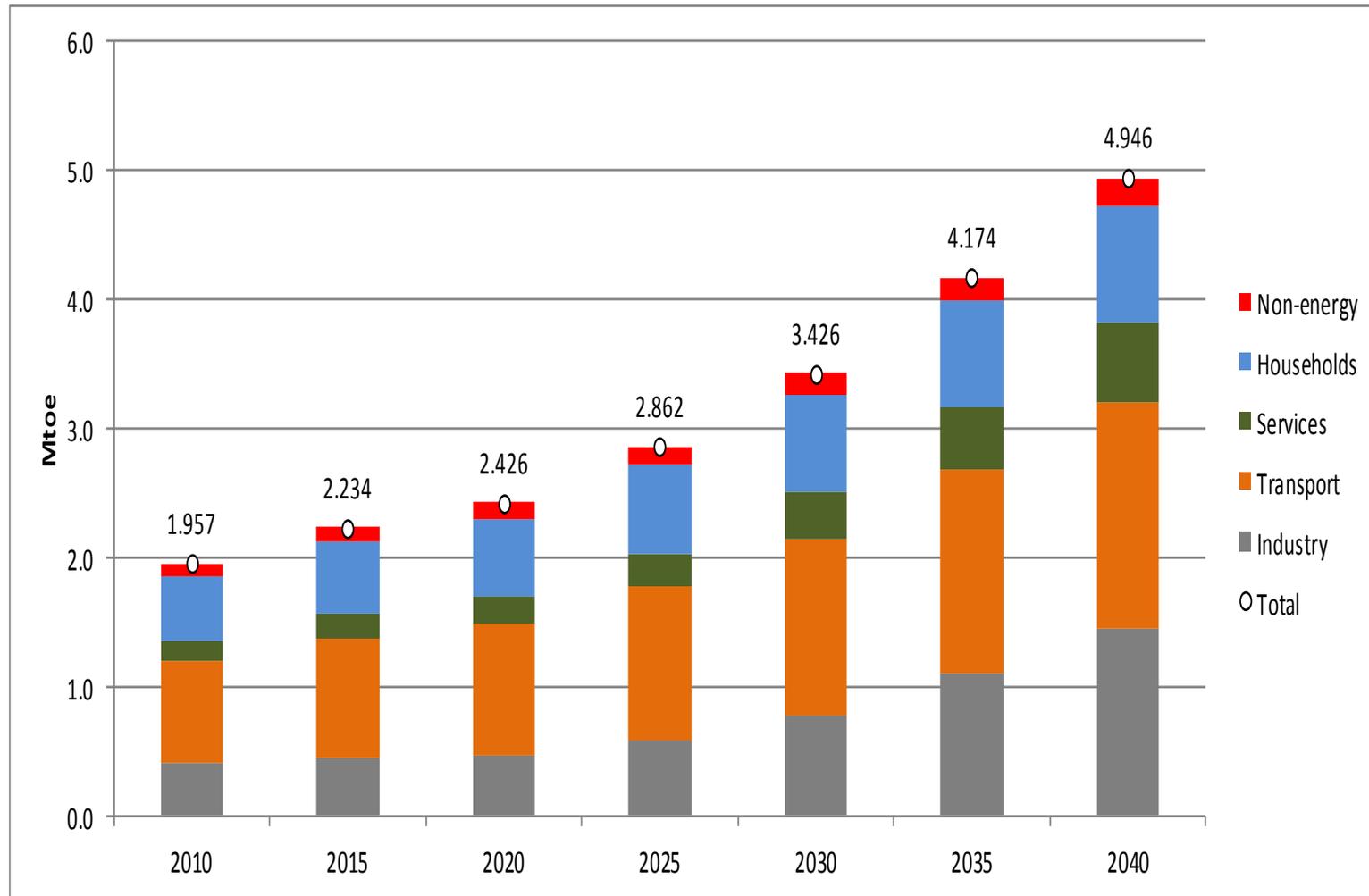
What more and how to do?

We have to think about!

It has to be object of present and further discussions and find solutions!

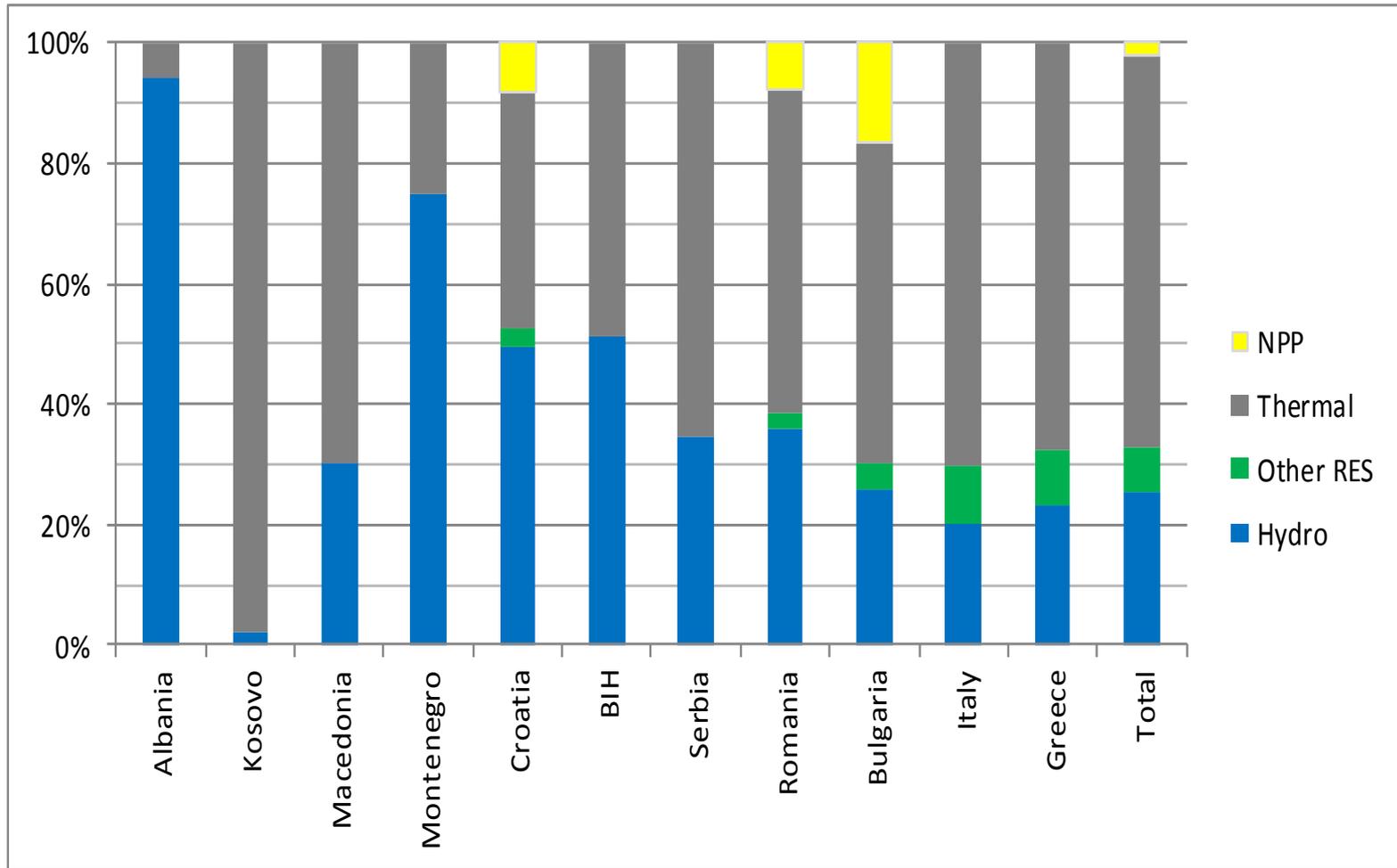
Thank you!

Total final energy demand by sectors in Albania until 2040



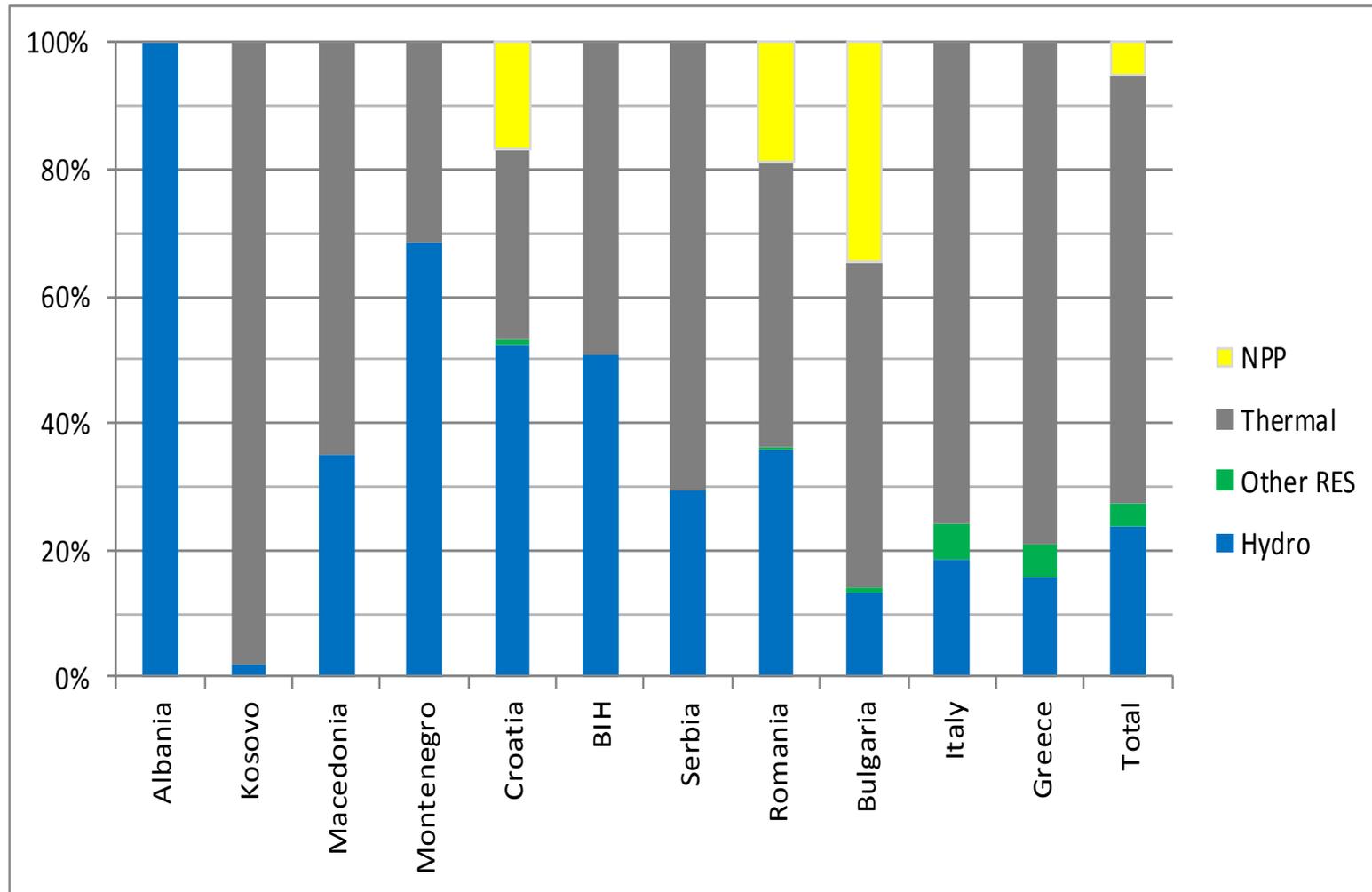
Structure of installed capacities in power systems in SEE in 2010

(Source: European Network of Transmission System Operators for Electricity (ENTSO-E))

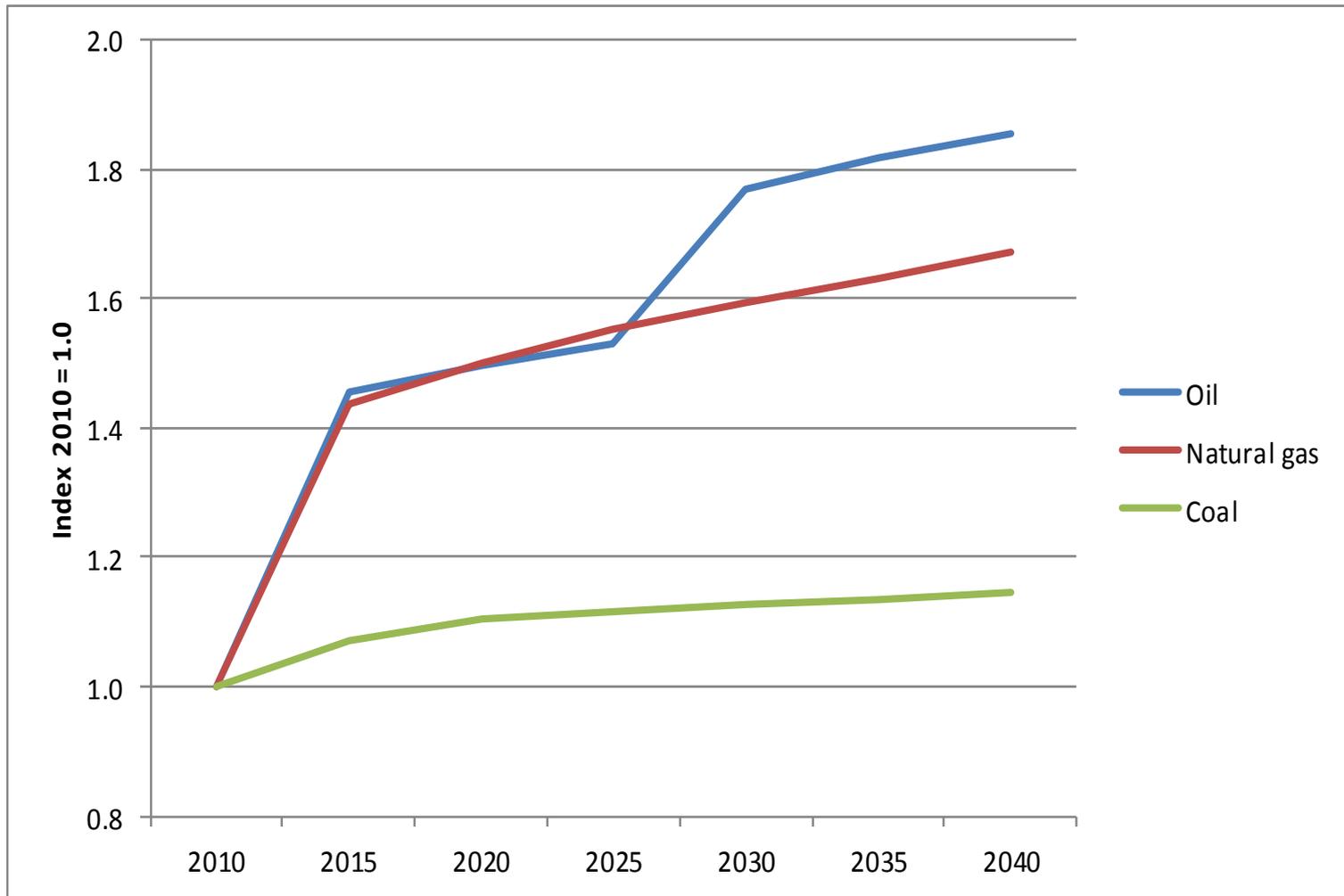


Structure of electricity production in SEE in 2010

(Source: ENTSO-E)



Fossil fuel prices (based on IEA World Energy Outlook 2012)



Energy supply options and possible energy infrastructure projects in Albania and neighbouring countries

