

## **Bulgarian Academy of Sciences report on Belene NPP project: Its prognoses don't deserve credit**

<http://www.factor.bg/bg/articles/mneniya/lacheni-tsarvuli/doklada-na-ban-za-aets-belene-prognozikoito-ne-zasluzhavat-doverie-vtora-chast>

Dr. Georgi Kaschiev

### **Prognoses of BAS towards the regional power market**

After substantial reviewing the trends in Europe, the authors analyse the Balkan region. They note, there is a number of factors, which shape the prognostication to very conditional and many countries yet don't create energy strategies after 2030. Greece for example doesn't have such power strategy (probably it is a big disadvantage), it has RES development strategy, Power efficiency Strategy and Power Lines Network Map only. It was found that there are not integrated power development prognoses for the region till 2040 (I am asking, is there a need for that?). Despite this the authors with a big courage undertake this task, creating own methodological approach, developing 3 scenarios for each country etc. I would say, it was bubbling a meaningless work, since the results should be mistaken with plus-minus infinity, as one of my university professors said.

Unfortunately in the report for most countries concerned is missing information, which energy projects are examined and assessed. There is only data for so called moderate (basic) scenario, that doesn't enable a comprehensive analysis. It is not evident, that the authors examined the options for gas plants construction, regarding the completion of planned cross-border gas lines or figured the possibilities for great losses minimising during transmission and distribution or towards energy efficiency increasing. It is pointed out, that after 2007 the power consumption in the region (besides Turkey) remains constant and the population in the region (besides Turkey) would decline. But BAS confidently foresees consumption increase and a huge power shortage in the region.

Even through a quick read one-sided evaluations, speculations by particular facts and **results manipulation** for some of the bigger countries are evident. Concerning the moderate scenario I would give the following examples (probably they are not an exception).

**Turkey:** with installed energy powers over 74000 MWe totally this country is the biggest electric power producer (262 bln. KWh in 2015) in the region and it needs a minimal import (appr. 1,5%). It shares borders with Bulgaria and Greece, as because of technical grounds there exist limitations for export in Turkey — up to 500 MWe from Bulgaria and to 350 MWe from Greece (p.231). It shows, that in near future there is no possibility for a great export to Turkey.

The authors underestimate the plans of Turkey in the field of electric power generation. In the frames of moderate scenario according to BAS NPP Akkuyu ( **4800 MWe**) **would be put into operation after 2035**. This is a **groundless statement** (it rises the question: who are the authors?), leading to distorted results because the putting into operation deadlines for the 4 blocs at this moment are **2023- 2025** (<http://www.world-nuclear.org>). Even with some delay the preparation works started in 2017 and actual construction works start is envisaged for March this year.

The authors underestimate the RES development, as for 9 years (2006-2015) **the total installed powers of RES in Turkey increased from 13234 MWe to 31694 MWe — an average annual growth of 2051 MWe** (<http://www.irena.org>). Only for 2016 the installed capacity of wind generators increased by 1363 MWe, amounting 6081 MWe (<http://www.wwindea.org>).

It gives the impression that all scenarios till 2030 state a great import decline of Turkey. But to 2040, depending from authors rich imagination, the prognosed shortage would be between 0 and 226 bln. KWh.

I will give an example from the near past. In 1996-1997 a need for current export to Turkey emerged, which generated unrealistic expectations, that it is a long term trend, increasing even and even with the time. Counting on it, the National Electricity Company (NEC) built a second power line to Turkey (for more than 50 mln. \$). Not so long after that the shortage there was met up and in April 2003 the import from Bulgaria was completely terminated. In the following years this reiterated many times- there were periods of steady export of about 300-400 MWe, but the ESO/Electricity system organizer data now show power transmission in both directions.

On the basis of the above I think, that in foreseeable future is groundless and very risky to create plans for a tremendous power export to Turkey.

**Greece:** The installed power amount to total 19200 MWe, there is chronic power shortage, which in last years goes almost to 20%. It is to note the prognoses for putting into operation/ phasing out of power diverge strongly in the 3 scenarios available, as the pessimistic prevailed (incl. towards foreign countries). In the first one it is prognosticated till 2030 the installed powers to increase by 4816 MWe, in the second they will decline by 279 MWe and in the third the installed powers decline by 2256 MWe. I don't know why BAS expects such behaviour of Greece —to stay passively, tolerating so great decline of its energy powers. Besides, there are built with a rapid tempo RES- plants- for 9 years ( 2006-2015) **the total installed capacity of RES plants in Greece increased from 3912 MWe to 8189 MWe, i.e. average annual growth of 474 MWe** (<http://www.irena.org>).