

The State of Nuclear Power in SE Europe

Present and Future Trends

Panagiotis Deriziotis
Senior Research Associate (IENE)



Workshop Organized by the
Institute of Energy for South East Europe (IENE)
The Nuclear Option for SE Europe: A Critical Appraisal
Sofia, May 19th 2009

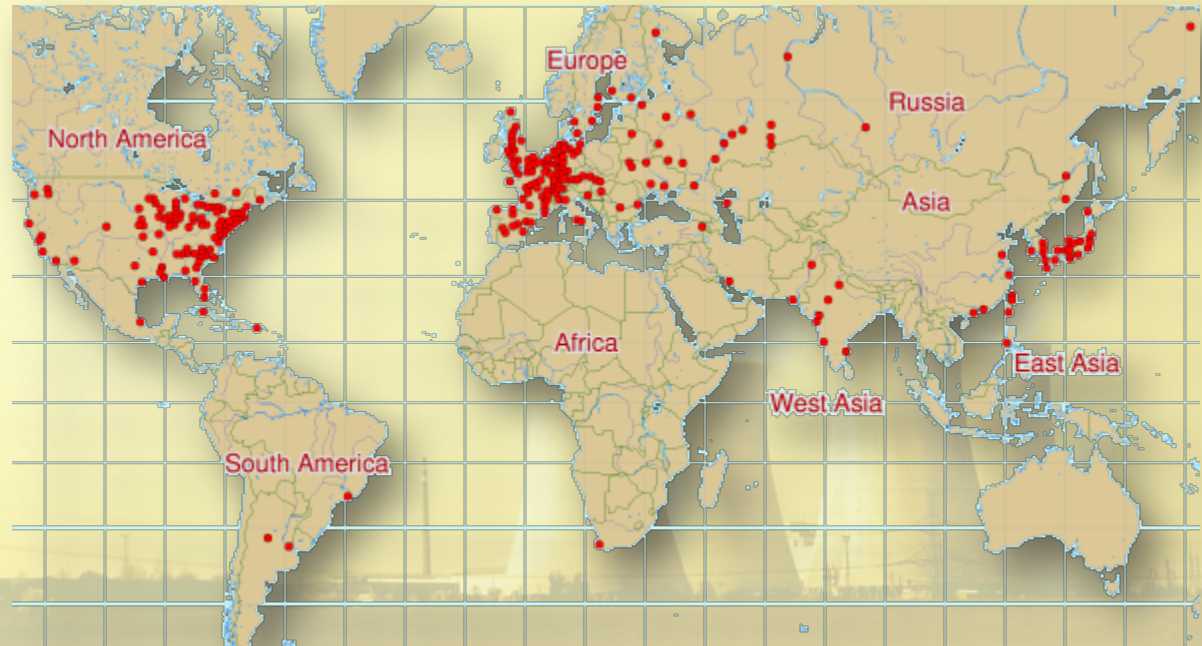


IENE: SE Europe Energy Outlook

- Economic and Political Background
- Country Overviews
- Sectorial Analysis
- Energy interconnections, Energy Security
- Environmental Considerations

Nuclear Power around the world

- more than 400 nuclear power reactors
- 30 countries
- Total installed capacity of 370GWe
- 15% of the world's electricity



Nuclear Power in the European Union

- In total 145 nuclear power units

| | # | MWe |
|-----------|----|--------|
| - France | 59 | 63,260 |
| - Germany | 17 | 20,470 |
| - Sweden | 10 | 8,958 |

- Total installed capacity 131.5 GWe
- Nuclear energy provides 30% of the electricity generated in EU-27
- Russia and Ukraine have 46 units in operation with an installed capacity of 34.9 GWe



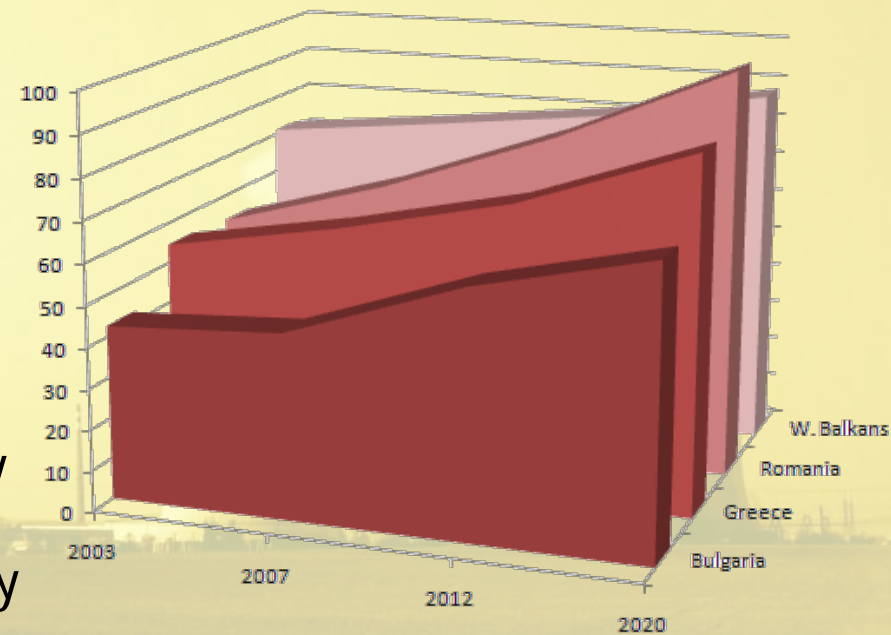
Nuclear Power in South-East Europe

- 5 units currently in operation in the region
 - 2 in Bulgaria (4 units decommissioned)
 - 2 in Romania
 - 1 in Slovenia
- installed capacity of about 4 GWe
- Share of Nuclear power in Electricity production
 - 30% in Bulgaria
 - 18 % in Romania
 - 40% in Slovenia



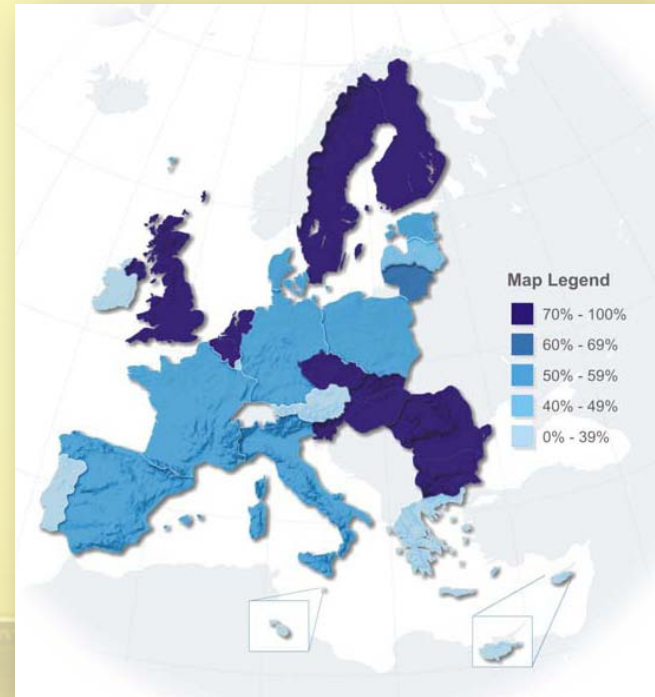
Regional Electricity Demand Growth

- Strong economic growth boosts electricity demand
- Net Exporters
 - Bulgaria
 - Romania
- Net Importers
 - Greece
 - Western Balkans
 - Turkey (in 2010)
- The region demand is dominated by Turkey's increase by 8% p.a.
- For the rest of the region Electricity demand growth is about 2.5 - 3%



Public Opinion Towards Nuclear Power

- Bulgaria, Romania : public largely supports nuclear energy
- the share of nuclear energy should be increased,
 - 24% in Bulgaria, 23% in Romania, 13% Slovenia, 5% Greece
- advantages of nuclear power outweigh the risks
 - 48% in Bulgaria, 34% Slovenia, 28% in Romania, 13% in Greece
- Public acceptance low in Albania, Croatia, Greece and Turkey.



Future Plans in South-East Europe

- The construction of 4 new units is progressing:
 - 2 in Belene, Bulgaria
(2 x 1000MW VVER-1000 reactors)
 - 2 in Cernavodă, Romania
(2 x 740 MW CANDU reactors)
- Albania is considering the nuclear option
 - possible cooperation with Croatia for the construction of a 1500MW power station
- Turkey has launched a tender for building 5,000 MW of NPPs by 2020.
 - Akkuyu
 - Sinop
- Croatia & Slovenia



Key Issues

- Public Acceptability & Licensing
- Safety concerns & Waste Disposal
- Climate Change
- Contribution to the Energy Mix
- Security of Energy Supply