

ELECTRICITY SECURITY OF SUPPLY CHALLENGES

IN THE ENERGY COMMUNITY

- topics for discussion -

17th PHLG Meeting
30 -31 May 2006
Zagreb, Croatia

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PURPOSE

- To outline the legal provisions which each Party has in place in case of shortages
- To identify potential Security of Supply challenges, when possible for the winter of 2006/2007

LIMITATIONS

- Serious analysis would ask for system adequacy studies from the Parties or TSOs
- Therefore, just a general overview of the potential challenges is given here based on the know-how of the Secretariat staff

LEGAL PROVISIONS

- Legal basis regarding prevention and management of shortages of electricity vary from country to country
- Majority adopted Transmission Grid Codes, which include issues of system planning and operation
- Unclear: up to which extent TSOs have actually in place operational procedures when a shortage occur

GENERAL REMARKS

- Security of electricity supply should be put in the context of a liberalised market and citizens' expectations
- TSOs not only to coordinate among themselves, but also policy makers, generators, traders, consumers and regulators
- Operational challenges:
 - increasingly liberalised and competitive market in the South East Europe,
 - generation adequacy across the region in relation to transmission network capability
- Infrastructural challenges:
 - development of new transmission interconnections may contribute to security of supply only if there are market based incentives for generators to invest in new generation capacities and demand side's proper response

CONSUMPTION (in 2005)

- Consumption per country between 5TWh/year and 55TWh/year
- Increase between 2% and 8%; average 3.4% (average in the main UCTE block 1.3%)
- Low consumption season starts in April and lasts till October, except in Greece (summer peak)

GENERATION

- Thermal, hydro and nuclear
- Albania: almost exclusively hydro generation
- Dry season in hydrological terms starts in June and lasts till October

EXPORT/IMPORT

- Regular importing countries and regular exporting ones
- Maximum import in winter season, except in Greece (summer)
- Import due to lack of own generation capacity or economic favourability

UCTE SYSTEM ADEQUACY FORECAST 2006-2015 (December 2005)

- Setting out a power balance forecast for the interconnected European power system
- Remarks on security of electricity supply in the South East Europe
- The South East Europe is segmented into three different blocks:
 - Romania+Bulgaria
 - JIEL+Greece, and
 - the main UCTE block
- Cross border flows inside the South East Europe and with the Central Europe that already improved in 2004 thanks to the reconnection of the two UCTE zones will be of utmost importance for the reliability of the region
- If the generation investments foreseen are not realised, major parts of South East Europe will be in a weak position concerning generation adequacy
- Currently, import from Romania+Bulgaria block, both of which have an existing export capability, help to balance the situation
- This situation might change if Units 3 and 4 of the NPP Kozloduy are shut down in 2006 as agreed with the European Union as pre-condition for accessing the EU

ALBANIA

- In 2005, residential consumption of electricity rose by 8% from the previous year
- No new generation power plant since 1986
- Major electricity crisis since the summer of 2000
- Almost exclusively hydro generation
- Lack of adequate interconnection lines (one 400 kV and two 220 kV lines)
- In the first 6 months of 2005 Albania had its export-import balances around zero
- Due to serious droughts its imports were constantly increasing starting from July 2005
- Due to insufficient transmission network capacities and insufficient offered energy in the region in these months, serious load shedding was introduced in the last quarter of 2005 (cca 20% in Oct and Nov)
- Solidarity in the crisis by neighbouring FYROM, which
 - transferred some of the electricity it imports from Greece to Albania, and
 - released more water from the Lake Ohrid into the Black Drin River in Albania to boost hydro generation in Albania
- The changes to this situation can not come soon enough, most probably by 2008, if at all

NPP KOZLODUY

- Originally, the NPP Kozloduy contained 6 pressurized water reactors with 6 generating units of 3760 MW
- The VVER-440 Model V230 is used for the Units 1-4, and the VVER-1000 for the Units 5-6
- In operation: 1974 (Unit 1), 1975 (Unit 2), 1981 (Unit 3), 1982 (Unit 4), 1988 (Unit 5), and 1993 (Unit 6)
- The VVER-440 Model 230 has been considered as dangerous. Under a 1993 agreement between the European Commission and the Bulgarian government, the Units 1-2 were taken off-line at the end of 2002
- The Units 3-4 are scheduled to be taken off-line at the end of 2006, immediately before the planned date for Bulgaria's accession to the European Union
- Yearly export of Bulgaria amounts to approximately 6-8TWh/year
- The Units 3 and 4 have nominal power of 440 MW each (880 MW combined). Rough approximation results with about 7TWh/year of a base load electricity that these two units generate during the year
- It means that by taking these two units off-line, Bulgaria would satisfy its own demand, but without any export (assuming there are no other units available to cover this drop up)
- Having this amount of electricity taken off-line, importing countries should ask for another generating source, which would probably lead to additional increase of electricity price in the South East Europe