



VII UNIT OF KOZLODUY NPP A REAL OPTION

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- Decree №288/28.05.90 of the Council of Ministers – stops the financing and construction of Belene NPP
- Contract №130/15.04.91r – Committee of Energy and Energoproject
- “Analysis of the possibility to construct one unit at Kozloduy NPP site by using the equipment supplied for Belene NPP”

OPTIONS

Three options:

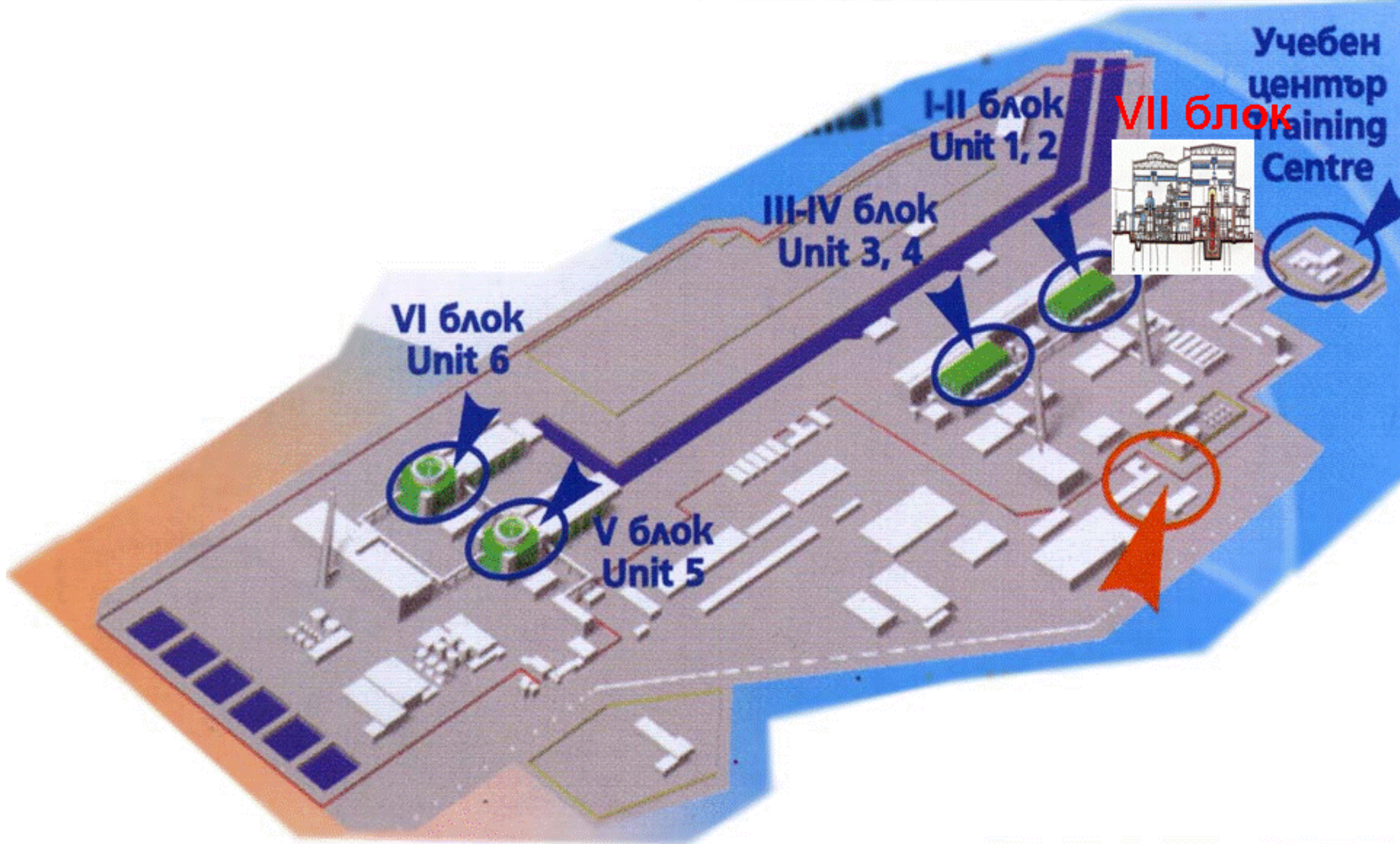
- 1-7 units in operation
- 3-7 units in operation
- 5-7 units in operation

SITES

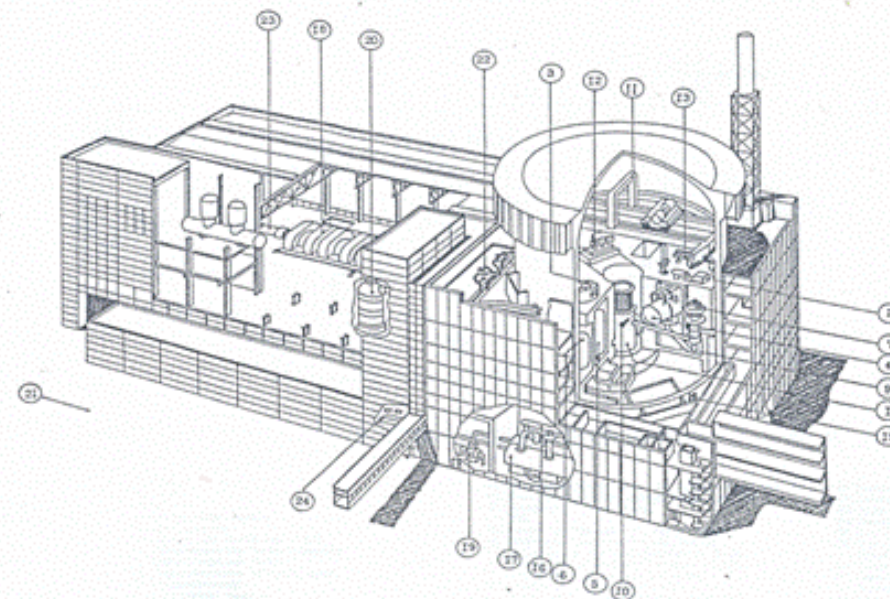
Three sites:

- North of the open air switch gear
- North East of the NPP – between the open air switch gear and the Pumping station
- East of the NPP / I,II units/

7 unit site



7 UNIT SITE



MAIN PROBLEMS:

- Technical water supply.
- The power grid and its interconnections with the European grid.

Technical water supply:

- After shutdown of units 1 thru 4 the pumping station has been operating with 1/2 of its capacity.
- The cold and hot canals are operating with 1/2 of their nominal flow.
- A reserve hot canal has been built.
- A project for a reserve cold canal has been developed.

The commissioning of one more unit will increase the load of the hydro equipment by ***1/3*** ***and their design capacity will not be reached!***

The canals



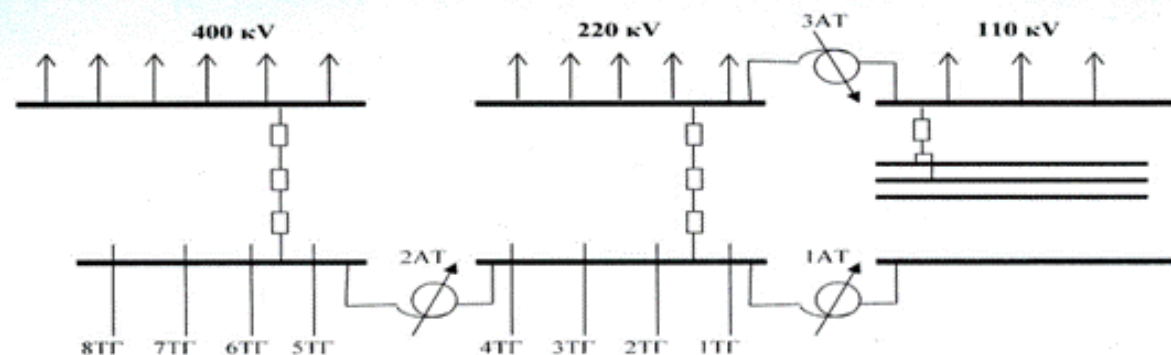
THE POWER GRID



OPEN AIR SWITCH AIR



OPEN AIR SWITCH GEAR KOZLODUY



- After the shut down of units 1 and 2 there is room to connect a capacity of 880 MW to the 220 kV open air switch gear.
- After the shut down of units 3 and 4 the same capacity can get connected to the 400 kV open air switch gear.

There are no problems whatsoever to connect over 1700 MW of generating capacity.

Advantages of the site

Exogenous factors:

- Public opinion.
- The site is licensed.
- The town infrastructure is in place .
- The road infrastructure is in place and transportation is organized.
- The port is in operation.
- Qualified working force available.
- Environmental monitoring available.
- The transmission network is available.
- Construction facilities are available

Advantages of the site

Internal factors:

- High and low voltage switch gear available.
- Sewer system available.
- Telephone exchange and computer network available.
- Radiation and environmental site control.
- Emergency center and emergency planning.
- Spent fuel repository.
- Physical protection available.

Advantages of the site

- Training center and simulators.
- Administrative and ancillary facilities.
- Storage facilities and on site transportation.
- Metrology and maintenance.
- Testing center and site control.
- Health service.
- Fire department.
- Archives.

Advantages of the site

Possibility to use the available buildings and the systems of units 1 and 2

- Water treatment facility.
- Nitrogen-Oxygen and compressor station – Nitrogen and compressed air.
- electrolysing plant - hydrogen.
- Pumping station – technical water.
- Diesel station.

Water treatment and pumping station



Advantages of the site

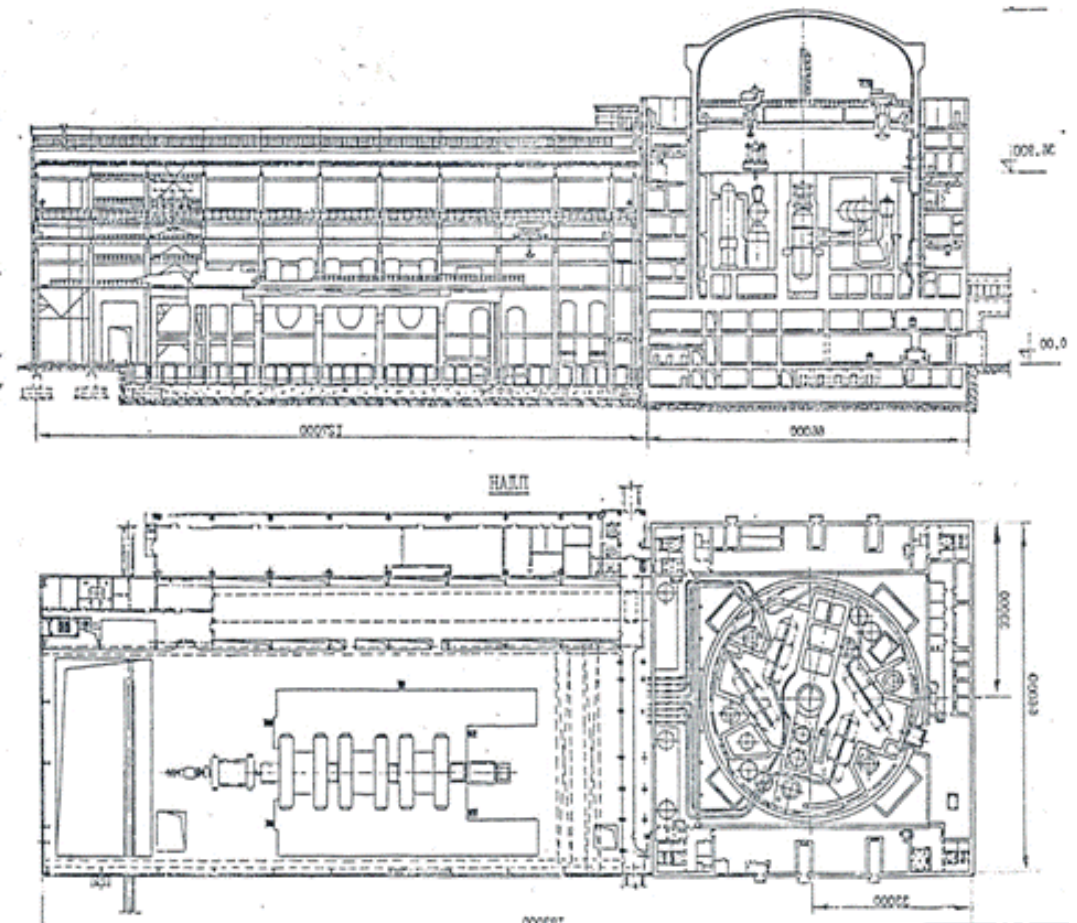
- Transformer site
- Turbine hall 1 and 2 units.
- Steam generators auxiliary system.
- Heating facility.
- Oil storage facility.
- workshops, a cantine, stores etc.

Transformer site



Conclusions

- The site is perfect for the construction of a new unit of Kozloduy NPP*



Conclusion

Using the available facilities at the site of Kozloduy NPP:

- The funds needed for the construction of the new unit will be half the amount needed constructing any new nuclear facility.
- The timeframe needed for the construction and commissioning of the new unit will be twice shorter than usual.

Conclusion

If units 3 and 4 are put back into operation they will ensure the financing of the new 7th unit allowing the Bulgarian energy sector to remain stable and efficient for many years to come!

Thank you for your attention!

*Rasho Parvanov
Head of the "Operations" division
units 1-4 Kozloduy NPP*