



Nuclear Energy in the European Energy Mix

In 18 European countries

- there are approx. 200 NPP with installed net capacity of roughly 170 000 MW

In Bulgaria

- Kozloduy NPP - 6 units with installed capacity of 3760 MW
- U1&2 shutdown in 2002
- U3&4 shutdown in 2006
- U5&6 in operation

Total 141 reactor-years operational experience

- Belene NPP - 2 units under construction with installed capacity of 2000 MW

www.belene-npp.com
Energy for the Future



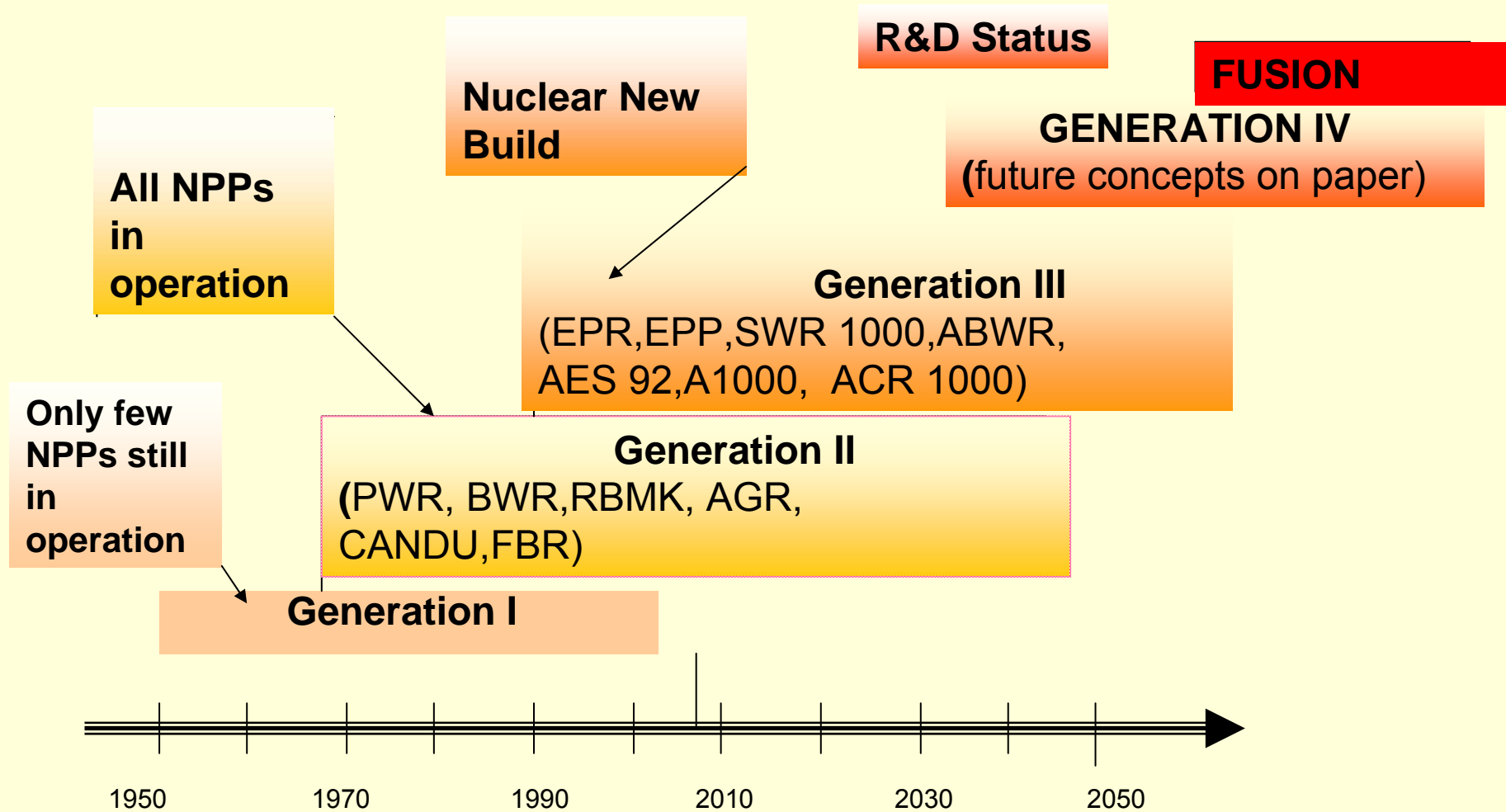


Decision Fundamentals Summary

- **Environment:**
 - Generation of electricity with nuclear power is virtually carbon free.
 - There are no emissions that cause acid rain and photochemical air pollution.
 - The overall impact on the environment is very low.
 - The amount of fuel required by nuclear power plants is comparatively small.
- **Economic:**
 - Nuclear power plants provide electricity at low cost.
 - Uranium for nuclear fuel is available from stable and diverse sources.
 - Nuclear generation strengthens security of energy supply.
 - The nuclear sector provides highly skilled jobs that add value to the overall employment market.
- **Technical:**
 - Safety remains the overriding priority of the nuclear industry.
 - Reliable base load electricity production.
 - The nuclear industry manages its waste safely and responsibly.

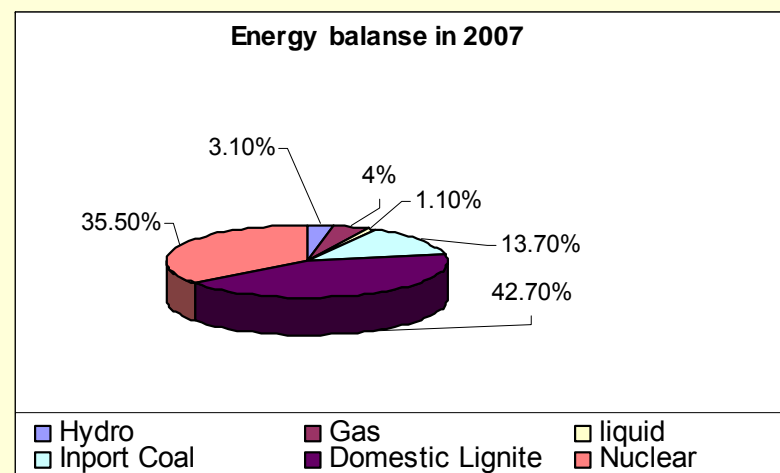
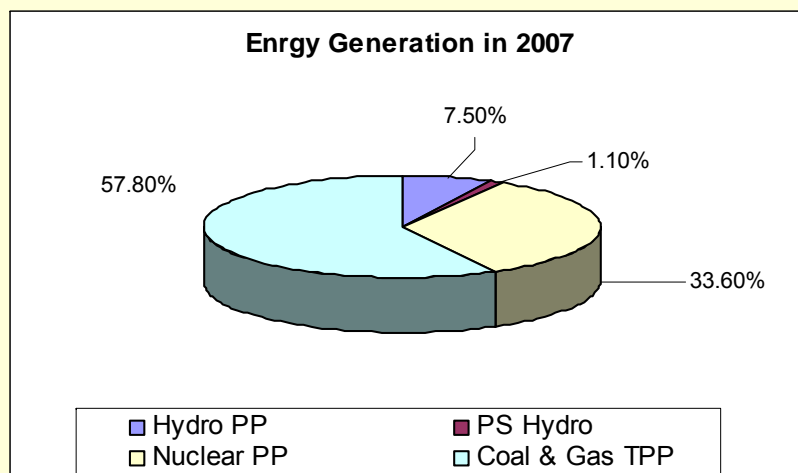


NUCLEAR TECHNOLOGY IN CONTINUOUS DEVELOPMENT





ELECTRICITY PRODUCTION IN 2007

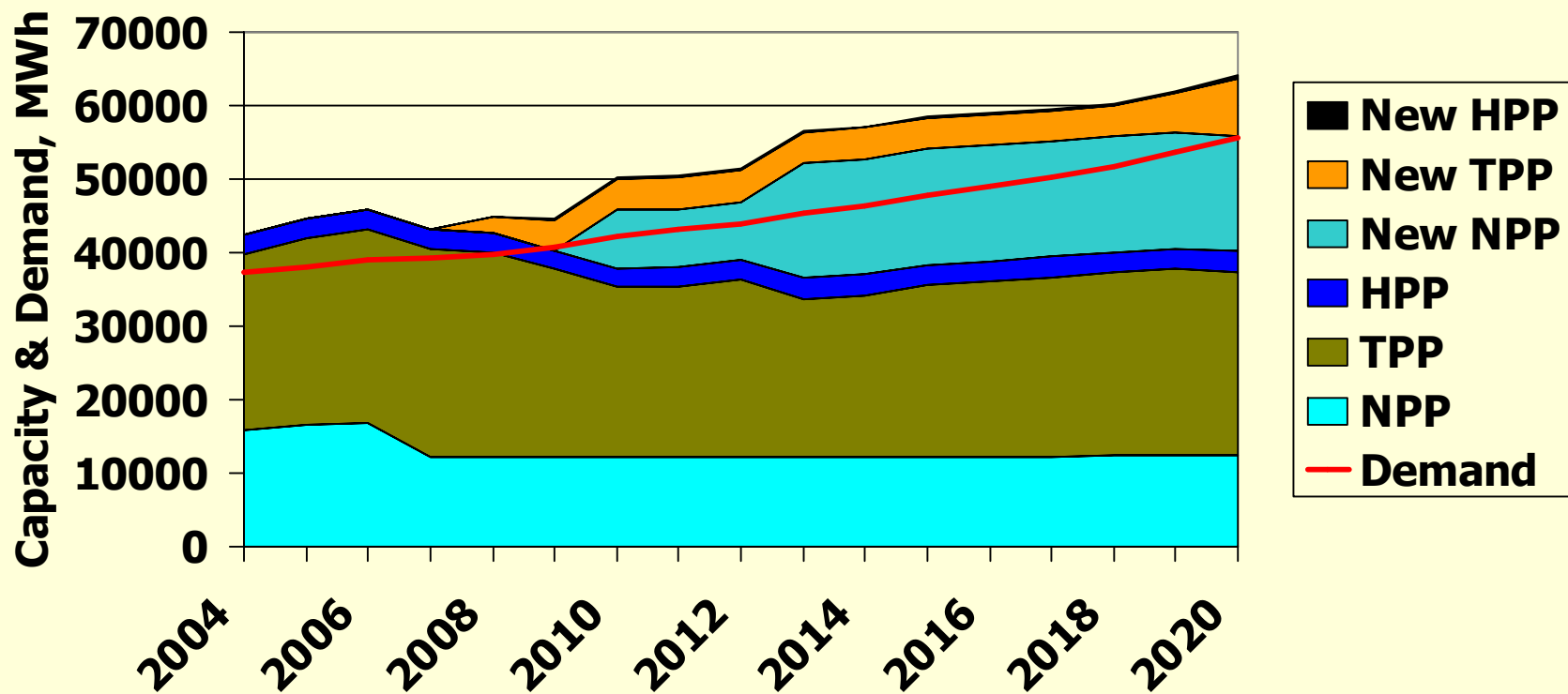


- **Electricity Generation –43 597.3 GWh**
- **–Total Carbon Free –43.5 %**
- **- Nuclear Power –33.6%**
- **–Imported Coal and Gas Fired –13.3%**

During the past several years, the Kozloduy NPP has provided more than 44% of the total annual electricity generation in the country (with the maximum of 47.36%, reached in 2002) with all six units of the plant in operation. This percentage decreased to 40% with the shutdown of Units 1 and 2 on 31 December 2002 and to 34% with the shutdown of Units 3 and 4 on 31 December 2006, respectively.



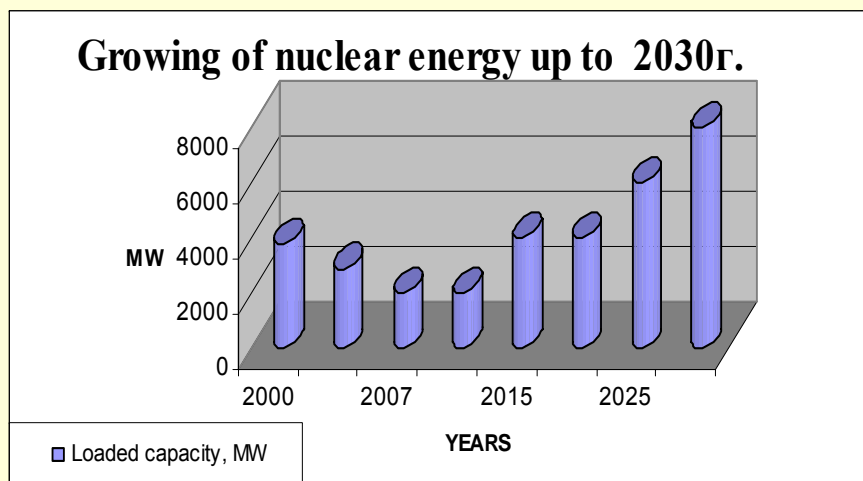
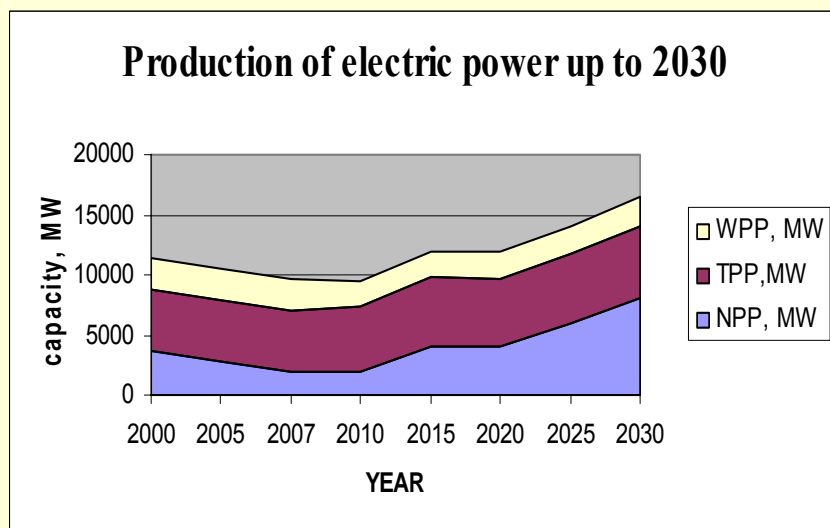
NEC Least Cost Plan 2004-2020





NEW ENERGY STRATEGY OF BULGARIA

- **NPP KOZLODUY Units 7&8 2021-2023 year**
- **NPP BELENE Units 3&4 2028-2030 year**





NUCLEAR POWER PROFILE IN 2008

- **Kozloduy NPP**
- Reactor type WWER 6 units
- Units 1&2 Shutdown in 2002
- Units 3&4 Shutdown in 2006
- Units 5&6 In operation
- Power 2000 MW(e)
- Reactor years
operational experience 141
- Status Operational license
- Additional Information: www.kznpp.org

- **Belene NPP**
- Reactor type PWR
BBEP-1000/B466
- Plant supplier ASE, AREVA NP
- Contract type key term
- Reactor thermal power 3012 MW
- Electrical output 1049 MW
- Design life time 60 years
- Additional Information: www.belene-npp.com



State Enterprise “Radioactive Waste” Division “Kozloduy”

Processed RAW 1500 m³
Capacity 21420 m³
Status Operational license for 3 years

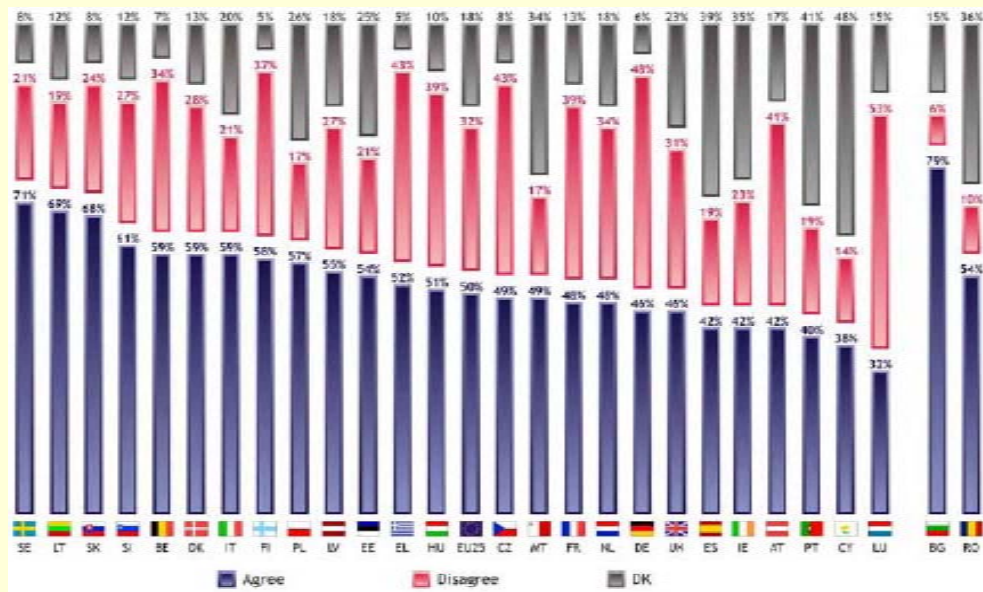
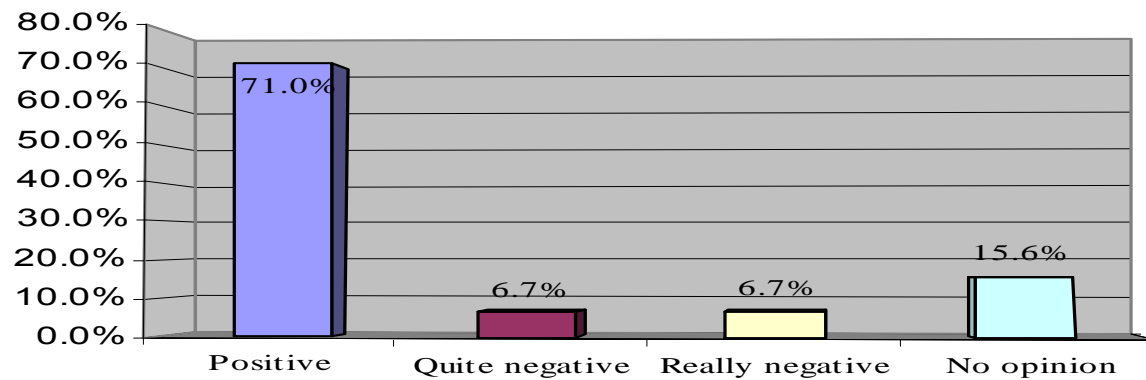
Division “Novi Han”

Capacity 600 m³
Status Operational license for 3 years
Additional Information: www.dprao.bg/

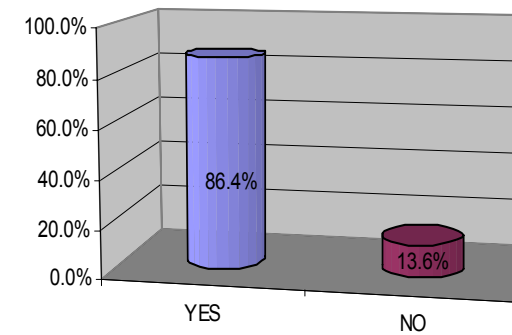


PUBLIC ACCEPTANCE

What is your position to restart NNP Belene project



Do you accept Nuclear Power?







BELENE NPP GENERAL DATA

- **Reactor type** PWR
- **Plant supplier** ASE, AREVA NP, Siemens
- **Reactor thermal power** 3012 MW
- **Electric output** 1060 MW
- **Capacity factor** 90 %
- **Design Service Life** 60 years



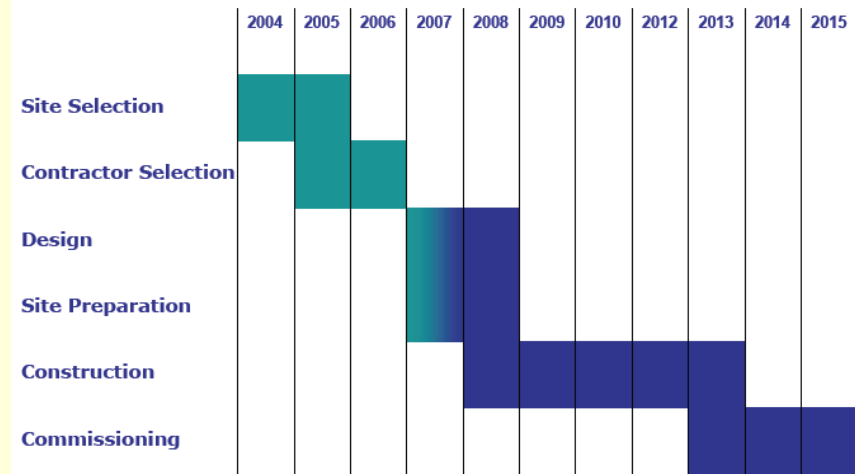


BELENE NPP

Licensing Status

- **Pre-project Phase**
 - Data Gathering **2002-2003**
 - Feasibility Study **2003-2004**
 - Environmental Impact Assessment **2003-2004**
 - EIA Approval **November 2004**
 - Public Hearings **2004-2005**
- **Site Selection Phase**
 - Site Selection Application **August 2004**
 - Site Selection Permit **December 2004**
 - Site Selection Phase **2004-2006**
 - Site Approval Order **December 2006**
- **Design Phase**
 - Design Application **October 2005**
 - Design Permit **May 2007**
 - Design Phase **2007-**

Project Schedule





BELENE NPP Project status

Design Certification

- VVER AES 92 Design has successfully passed all the steps of the analysis of compliance vs European Utility Requirements for LWR Plants for 1998-2006
- VVER AES 92 Design was certified in April 2007





NUCLEAR FUEL CYCLE

- **Experience in the Fuel Cycle Activities**

- QC during Fabrication
- Operation
- Interim SF Storage
- SF Transport



- **SF Management Strategy**

- **Short term**

- SF storage in the in-containment spent fuel pools

- **Medium and Long Term**

- Return the SF for reprocessing in the country of origin
- Interim SF storage in DSFSF at the site is foreseen also



RW Storage and Disposal Facilities

- **Existing RW Processing and Storage facilities**
 - at Kozloduy Site for LLW and ILW operational and decommissioning waste from NPP
 - at Novi Han Site – RAW from other nuclear application
- **National RW Strategy approved by the Government in 2004**
 - Near Surface Disposal Facility for LLW and ILW in 2015
- **National RW Disposal Facility**
 - Conceptual Design Phase – 2006-2007
 - Site selection 2006-2008
 - Environmental Impact Assessment Report 2009-2014
 - Planned Commissioning in 2015
- **Future RW Processing and Storage Facilities**
 - at Belene Site for LLW and ILW operational and decommissioning waste from NPP



RW MAGEMENT AND DECOMMISSIONING FUNDS

- **RW RW Management Fund and Decommissioning Fund established in 1995**
- **Real functioning of the Funds started in 1999 after approval of the corresponding Regulations**
- **National Electric Company and later Kozloduy NPP started payments since 1999**
- **Total Nuclear Funds Amount - 1 064 MBGN till the 31-st of August 2008.**