4-TH INTERNATIONAL NUCLEAR CONFERENCE
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CHALLENGES IN LICENSING AND REGULATING SMRs IN BULGARIA

LEGAL AND REGULATORY ASPECTS

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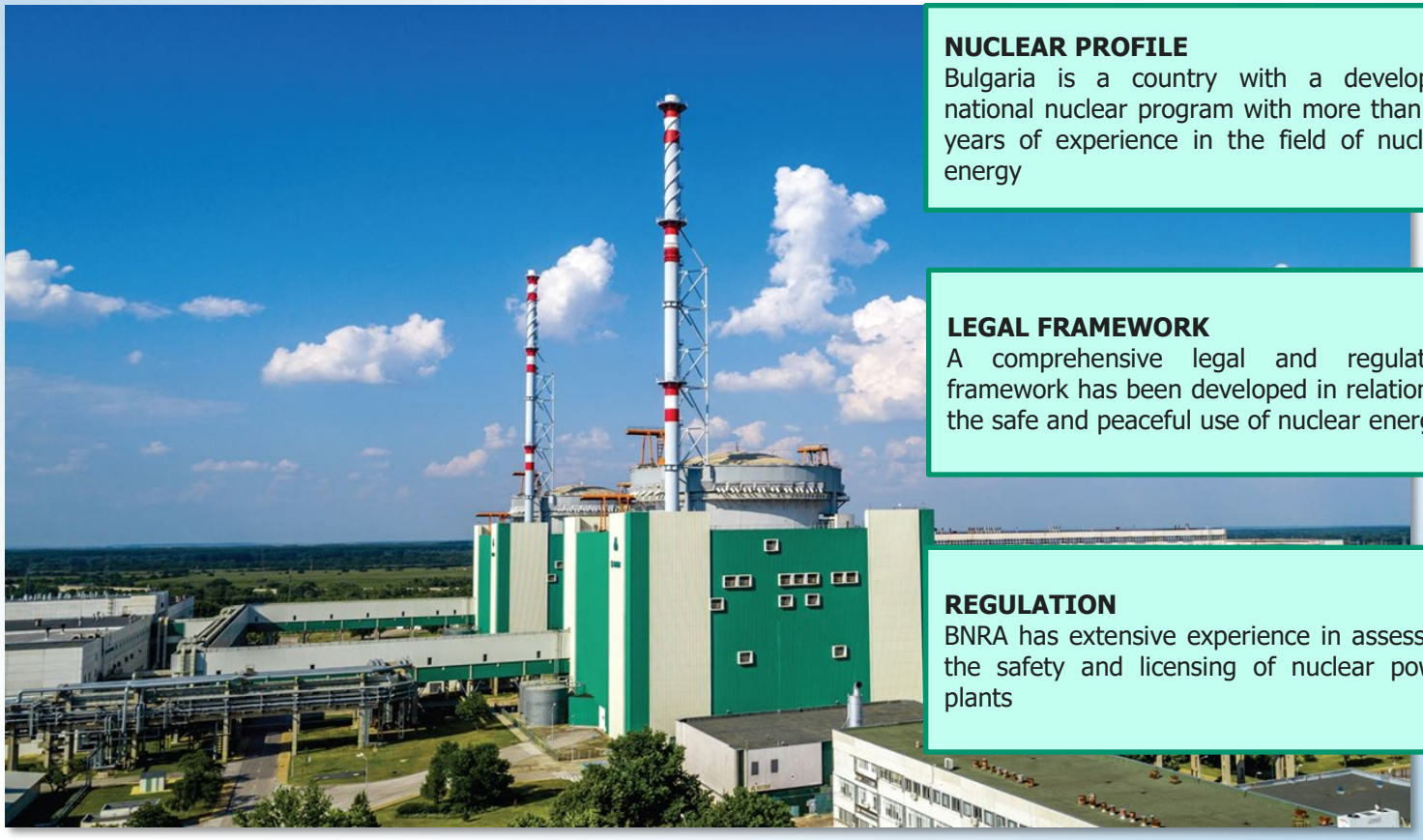
GENERAL OVERVIEW



NUCLEAR PROFILE
Bulgaria is a country with a developed national nuclear program with more than 50 years of experience in the field of nuclear energy

LEGAL FRAMEWORK
A comprehensive legal and regulatory framework has been developed in relation to the safe and peaceful use of nuclear energy

REGULATION
BNRA has extensive experience in assessing the safety and licensing of nuclear power plants

LEGAL INSTRUMENTS IN THE AREA OF USE OF NUCLEAR ENERGY AND SF AND RAW MANAGEMENENT

- **ACT ON THE SAFE USE OF NUCLEAR ENERGY (NUCLEAR ACT)**
  Adopted in 2002, last amended and supplemented in 2024

- **SECONDARY LEGISLATION INSTRUMENTS**
  - **19 Regulations on the application of the Nuclear Act**
  - **25 Regulatory Guides issued by BNRA**

- **OTHER RELATED PRIMARY LEGISLATION INSTRUMENTS**

LEGAL INSTRUMENTS IN THE AREA OF USE OF NUCLEAR ENERGY AND SF AND RAW MANAGEMENENT

- *The Republic of Bulgaria has a well-developed legislation in the nuclear field.*
- *At present it is suited for licensing and regulation of large scale light water reactors.*
- *The legal basis doesn't distinguish between large scale and small modular reactors.*
- *There is no pre-licensing phase in the legislation.*
- *The legal basis is also applicable for other nuclear facilities like National Disposal Facility and the Spent Nuclear Fuel Storages.*

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POLITICAL (PRE-LICENSING) PHASE

Political decision of the Council of Ministers for the construction of the respective facility on a motion by the Minister of Energy;

Decision of the Minister of Environment for the approval of the Environmental Impact Assessment Report

TECHNICAL PHASE

Licenses and permits are granted, amended, suspended, or revoked by the Chairperson of the BNRA

SITE SELECTION STAGE	permit for site selection and subsequent order for the approval of the selected site
DESIGN STAGE	design permit and subsequent order for the approval of the technical design of the facility
CONSTRUCTION STAGE	construction permit
COMMISSIONING STAGE	commissioning permit
OPERATIONAL STAGE	operational license
DECOMMISSIONING STAGE	decommissioning license
CLOSURE - FOR A DISPOSAL FACILITY	performed in the frame of the license for operation on the facility on the basis of a Facility Closure Plan

Other state bodies involved in the authorization process:

- Ministry of Energy
- Ministry of Environment and Waters
- Ministry of Regional Development and Public Works
- Ministry of Health
- Ministry of interior
- Energy and Water Regulatory Commission

REGULATION

- The role of the Regulator is to carry out a thorough assessment of the safety of the proposed technologies to ensure the Protection of human life, health and living conditions of present and future generations, and property against harmful impact of ionizing radiation.

- In the process of assessment, the Regulator also has to be convinced that every aspects of the SMR life cycle is addressed properly, including human and financial factors.

- Bulgarian regulatory frame is rather cooperative from the earliest stage of concept development.

TECHNOLOGY

- **BNRA is monitoring closely the development of new nuclear technologies especially the efforts in development of SMRs.**
- **BNRA notices the growing interest in deployment of SMRs including Bulgaria.**
- **Potential deployment - Once the basic design safety is confirmed and all national requirements for the safety of the particular application are met.**

BNRA ACTIVITIES

Over the past four years BNRA has taken a number of steps to assess the potential limitations to the implementation of new technologies from the point of view of Bulgaria's regulatory framework:

- ❑ **General overview of the offered technologies;**
- ❑ **Review of the national regulatory framework in the light of the available information on various projects;**
- ❑ **Review of safety assessment approaches of other regulators;**
- ❑ **Review of the spectrum of the international initiatives related to SMRs;**
- ❑ **Participation in the IAEA Nuclear Harmonization and Standardization Initiative (NHSI)**
- **Regulatory Track Working Group 2 on International Pre-licensing Regulatory Design Review;**
- ❑ **Participation in the discussion of the Safety Reference Levels for SMRs in WENRA.**

MAIN RESULTS OF THE REVIEW

- The existing regulatory framework is oriented towards light water reactors.
- Safety requirements in the current regulatory framework do not represent an obstacle to the implementation and effective regulation of projects based on light-water SMRs.
- In-depth knowledge of the specific technology by all project stakeholders is required to ensure that safety is not compromised.
- The large number of SMR technologies do not allow the thorough review and assessment of safety of all of them.
- Limited human resources do not allow BNRA to actively engage in all initiatives.

MAIN CONCLUSIONS

- A systematic approach to the problem is needed and BNRA is working on the conceptual assessment on the related issue.
- Development of specific competences of the BNRA experts is necessary.
- Regarding innovative designs the Regulation on Ensuring the Safety of Nuclear Power Plants has special provisions in Article 68 of the Regulation.
- Only the international cooperation can help us to address the challenges.

Participation in the Regulatory Track Working Group 2 on International Pre-licensing Regulatory Design Review under NHSI

- Active approach;
- Effective participation in the preparation of the technical documents.

BNRA CURRENT ACTIONS

- **Development of internal rules/procedures for evaluation of innovative projects;**
- **Creation of a basis for dialogue between the applicants and the regulator;**
- **Limitation of the subjectivity in defining and discussing the identified problems;**
- **In-depth discussion of identified issues;**
- **Early detection of showstoppers.**

FIRST STEP - Check for completeness of the list of the submitted documents

- **Review and assessment of the applicant's capacity**

SECOND STEP - Review an assessment in essence

- **Submission of sufficiently detailed conceptual description of the nuclear facility, which would allow:**
  - **to gain a thorough understanding of the safety concept and the key characteristics of the reference design;**
  - **to assess the adequacy of the proposed site acceptance criteria and the terms of reference for conducting preliminary studies;**
  - **to assess the adequacy of the activity management system established by the applicant.**

Plan for implementation of measures to ensure the licensing process

Self-assessment of the BNRA's readiness to license a project based on the requested technology

The self-assessment is aimed to evaluate:

- The availability of the necessary competence and capacity for the review and assessment of the documents submitted with the application and the documents expected as a result of the permitted activities;
- The applicability of the current regulatory framework and potential problems in its implementation that would hinder the assessment process;
- The necessary short-term and medium-term measures to resolve the identified problems, including:
  - partnership relationships with regulatory authorities that carried out regulatory assessment of the proposed technology;
  - requirement from the applicant of an expanded volume of supporting documentation, including those developed for other regulatory authorities;
  - provision of external technical support from organizations with the necessary competence.

SUMMARY

- The process of reviewing the conceptual description of the nuclear facility should reveal potential problems with its future licensing;
- Measures to overcome potential problems that are within the competence of the BNRA;
- The content of the nuclear facility's PSAR should, as a minimum, present the information from the content of the safety analysis at the site selection phase according to the IAEA document SSG-61[6].

BNRA

Thank you for your attention!