Second Meeting of the Technical Working Group for Small and Medium-sized or Modular Reactor (TWG-SMR)

South Africa presentation

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Presented by Mr Zukile Zibi
Department of Mineral Resources and Energy
Outline of the Presentation

• Overview of the Energy Mandate & Policy
• South Africa’s Energy Plans
• Possible Nuclear Deployments
• Status of the PBMR project
Overview of the Energy Mandate & Policy (1/2)

• The Energy mandate of the DMRE is to ensure energy security, promotion of environmentally-friendly energy carriers and access to affordable and reliable energy for all South Africans.

• DMRE governs, regulates and guides energy sector using various legislative instruments. One of the key legislative instruments to highlight is the National Energy Act (Act No. 34 of 2008):
  
  • To ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors;
  • to provide for energy planning, increased generation and consumption of renewable energies, contingency energy supply, holding of strategic energy feedstocks and carriers, adequate investment in, appropriate upkeep and access to energy infrastructure;
  • to provide measures for the furnishing of certain data and information regarding energy demand, supply and generation; to establish an institution to be responsible for promotion of efficient generation and consumption of energy and energy research
Overview of the Energy Mandate & Policy (2/2)

- Nuclear focus (for the benefit of the TWG-SMR), the Nuclear Energy Policy of 2008 (NEP2008) is of relevance.

- Key NEP2008 Government objectives include:
  - Promote nuclear energy as an important electricity supply option
  - Establish national industrial capability for the design, manufacture and construction of energy systems
  - Contribute to national programme of social and economic transformation, growth and development
  - Attainment of global leadership and self-sufficiency in the nuclear energy sector in the long term
  - Promote energy security for SA
  - Reduction of greenhouse gas emissions
  - Skills development related to nuclear energy
South Africa’s Energy Plans

- Established by the National Energy Act (Act No. 34 of 2008), energy planning contained in two key documents:
South Africa’s Energy Plans


The Energy Planning Framework considers all energy carriers, all technology options and all key national policy imperatives and proposes an energy mix and policy recommendations which ensures that the energy sector can help achieve these in the most optimal manner.
South Africa’s Energy Plans

• Approved Integrated Resource Plan 2010:
South Africa’s Energy Plans
Possible nuclear deployments

• Draft Integrated Resource Plan update 2018 (selected results):

Figure 17: Installed Capacity (GW) for the No RE Annual Build Rate (IRP1), Median-growth (IRP3), Market-linked Gas Price (IRP5), Carbon Budget (IRP6) and Carbon Budget plus Market-linked Gas Price (IRP7) Scenarios
Status of PBMR project

• Locally manufactured PBMR laboratory-scale fuel has been and is still undergoing irradiation testing (accident and PIE) at the INL research reactor (ATR) from 2009. Detailed fuel failure test mechanisms on-going done in phases (AGR-2 planned for completion in September 2019).

• September 2010 Cabinet decided that the PBMR project be scaled down and put into “care and maintenance” mode.

• In about 2016 Eskom initiated AHTR design work based on PBMR design and fuel lessons, funding constraints have limited further work recently with project on hold.
Thank you!!

Questions ??