Nuclear Power Project Development in Thailand

Nateekool Kriangchaiporn
Head of Nuclear Reactor Section
Electricity Generating Authority of Thailand (EGAT)

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1. Fuel Diversification
   - Reduce fuel dependence on Natural Gas
   - Increase the fuel mixed proportion for Clean Coal Technology
   - Higher proportion of Imported Power from Neighboring Countries
   - Improved Renewable Energy Sources Percentage in fuel mix
   - **Nuclear Power Plant Projects at the end of PDP2015**

2. Appropriate Reserve Margin at above 15 percent of peak power demand

3. Power System Infrastructure Investment Projects
   - Transmission and Distribution Infrastructure to support the development of AEC and GMS power integration
   - Development of Smart Grid Technology to optimize the integration of Renewable Energy Sources

4. Integration with EEDP and AEDP
Organizations involved in Nuclear Energy

Government (Prime Minister)

- Ministry of Science and Technology
  - Office of Atoms for Peace (OAP)
  - Thailand Institute of Nuclear Technology (TINT)

- Thai Atomic Energy Commission

- Ministry of Energy

- National Energy Policy Council (NEPC)
  - Energy Policy and Planning Office (EPPO)
  - Electricity Generating Authority of Thailand (EGAT)

University
  - Chulalongkorn University
• Electricity Generating Authority of Thailand (EGAT) responsible for the first nuclear power station
  • Project planning, Site selection, Feasibility study, Project implementation, Construction and Operation
NPP included in PDP 2007

“GO NUCLEAR”

Thailand

First nuclear power plant project

PRE-PROJECT

Feasibility Study

CONSTRUCTION

Commissioning

OPERATION OF THE FIRST NUCLEAR POWER PLANT

Project Approval

FCD

2007

2020

2023

2030

2035
Energy Economics and Financing

Reactor Technology
- safety and technical matters
- economics
- performance and reliability
- Fuel Cycle and Waste Management

Site and Environmental Study
- IAEA Guidelines, US. NRC regulations
- Safety and Engineering Aspects, Environmental Aspects, Cost Estimate.

Human Resources Development and Management Aspects
Requirements for the study

- Unit size of 1,000 – 1,400 MW
- Generation III, III+
- LWR

Scope of Study
- Technical and Safety
  Concentrate on beyond design basis accident analysis
  - Extreme natural events
  - Loss of safety functions
  - Severe accident management
- Economics
- Performance and Reliability
The requirements that govern siting of nuclear installation are:

- Effects of external events (natural and man-induced) such as:
  - *Earthquakes and surface faulting*
  - *Geotechnical hazards*
  - *Meteorological events*
  - *Flooding*
  - *Aircraft crash*
  - *Chemical explosions*

- Effects of the installation on site environment and population such as:
  - *Population Distribution and Density*
  - *Land and water use*
  - *Ecology*

- Other important considerations such as:
  - *Water adequacy*
  - *Foundation Strata*
  - *Cost Estimate*
19 Nuclear Infrastructure Issues

INIR Mission (Integrated Nuclear Infrastructure Review) December 2010

“Thailand can make a knowledgeable decision on the introduction of nuclear power.”
• **Lessons learned from Fukushima Accident**
  - NPP Technical and Safety Review
  - NPP Site Selection Review
  - Emergency Preparedness and Response Plan

• **Infrastructure Preparation**
  - Laws and regulations for nuclear power plant

• **Human resources development**

• **Public communication, education and participation**
In-House Training

- General NPP Seminar
- Fundamental NPP Course
- Diploma program

Oversea Training

- Advanced Training Course
- Seminars, workshops, and trainings from IAEA and nuclear power countries
The site visit were organized for various stakeholders such as:

- Government Official
- Local community leader
- Religious leader
- Teacher and student
Public Communication Activities

SCHOOL AND UNIVERSITY
- Brochure, handbooks, posters, painting book
- Radio Program
- TV Documentary
- Multimedia
- E-learning
- Webpage
- Social Network
Education Program

Cooperate with Science Education Center, Srinakharinwirot University to develop energy curriculums including nuclear energy
Cooperate with Department of Non-Formal Education and Institute for the Promotion of Teaching Science and Technology to develop energy curriculums including nuclear energy.
Nuclear Exhibition
Key Issues for Achievement

National Position
- Government direction & commitment

Infrastructure Preparation
- Regulations for nuclear power
- Public acceptance
- Human Resource Development
THANK YOU FOR YOUR ATTENTION