



EVN **NPB**



NUCLEAR POWER PLANT DEVELOPMENT IN VIETNAM

Project activities and challenges

Mr. Tran Trong Phat
Jakarta, June 16th, 2011



VIETNAM

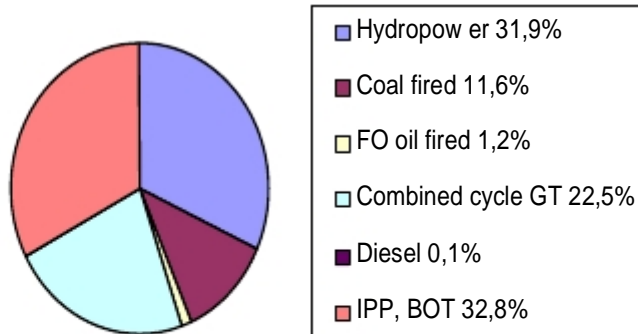
Major indicators

Area: 333,688 km²;
Population: 85,8 millions (2009);
Power consumption: 84.8 billion kWh(2009) ~ 988 kWh per capita;
The country has different kind of natural resources but their reserves very limited;
Estimated power shortage of approx. 128 billion kWh in 2020.

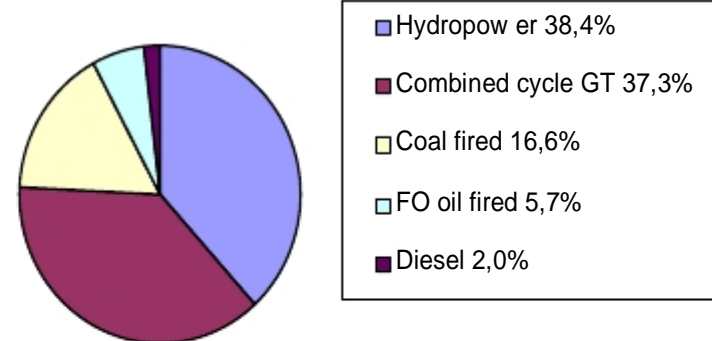
Nuclear Power become a solution for

National Energy Security;
Increasing Power Demand;
Environmental Protection;
Science & Technology Development.

Structure of power production 2009



Structure of installed capacity in 2009



HISTORY & DEVELOPMENT

National Atomic Energy Program

Development
of legislative system

Human Resource
Development Program

FS
&
Bidding of the 1st reactor

Commercial
Operation
~4,000MW
2022 2030

Nov. 25th
2009

2012

2020

1960-1970

1980

1996

2008

Present
2010

Basic
Studies
for NPP
project

Atomic
Energy
Law

Oversea
& Domestic
Education
Program

Nuclear
Reactor
&
Research
facilities

Radioactivity
Research &
Management
Entities

National Assembly's
Approval

Country
Commitment (IAEA)

MILESTONE #3

MILESTONE #2

MILESTONE #1

25.11.2009-NAV approved investment report of Ninhthuan NPP



NPP PROJECTS

Project Title: “Ninh Thuan Nuclear Power Plant”

Investment owner: EVN.

Plants: in Ninh Thuan province.

1st plant: Ninh Thuan 1

Capacity: 2 x 1000 MW

Commercial operation date: 2020

2nd plant: Ninh Thuan 2

Capacity: 2 x 1000 MW

Commercial operation date: 2021

Roadmap



NPP TECHNOLOGY

Typical figures for the first 4 units approved by National Assembly's Approval:

Light Water Reactor (BWR or PWR)

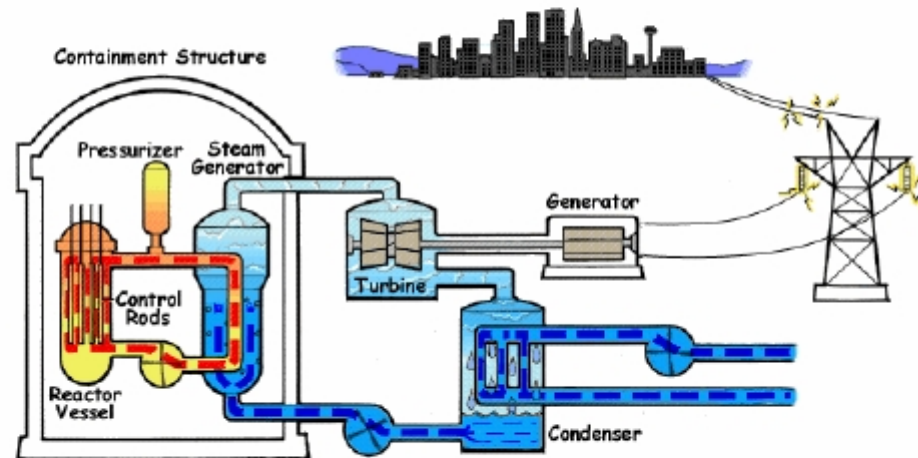
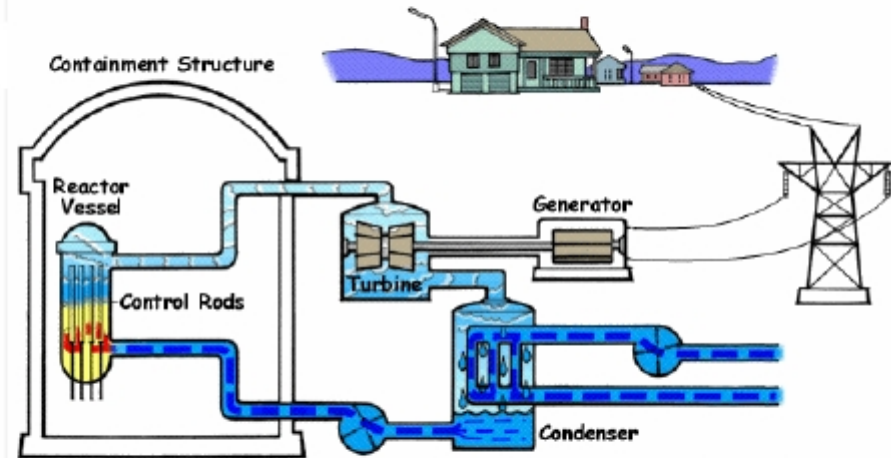
Capacity of approx. 1000MW per unit

Cooling: sea water

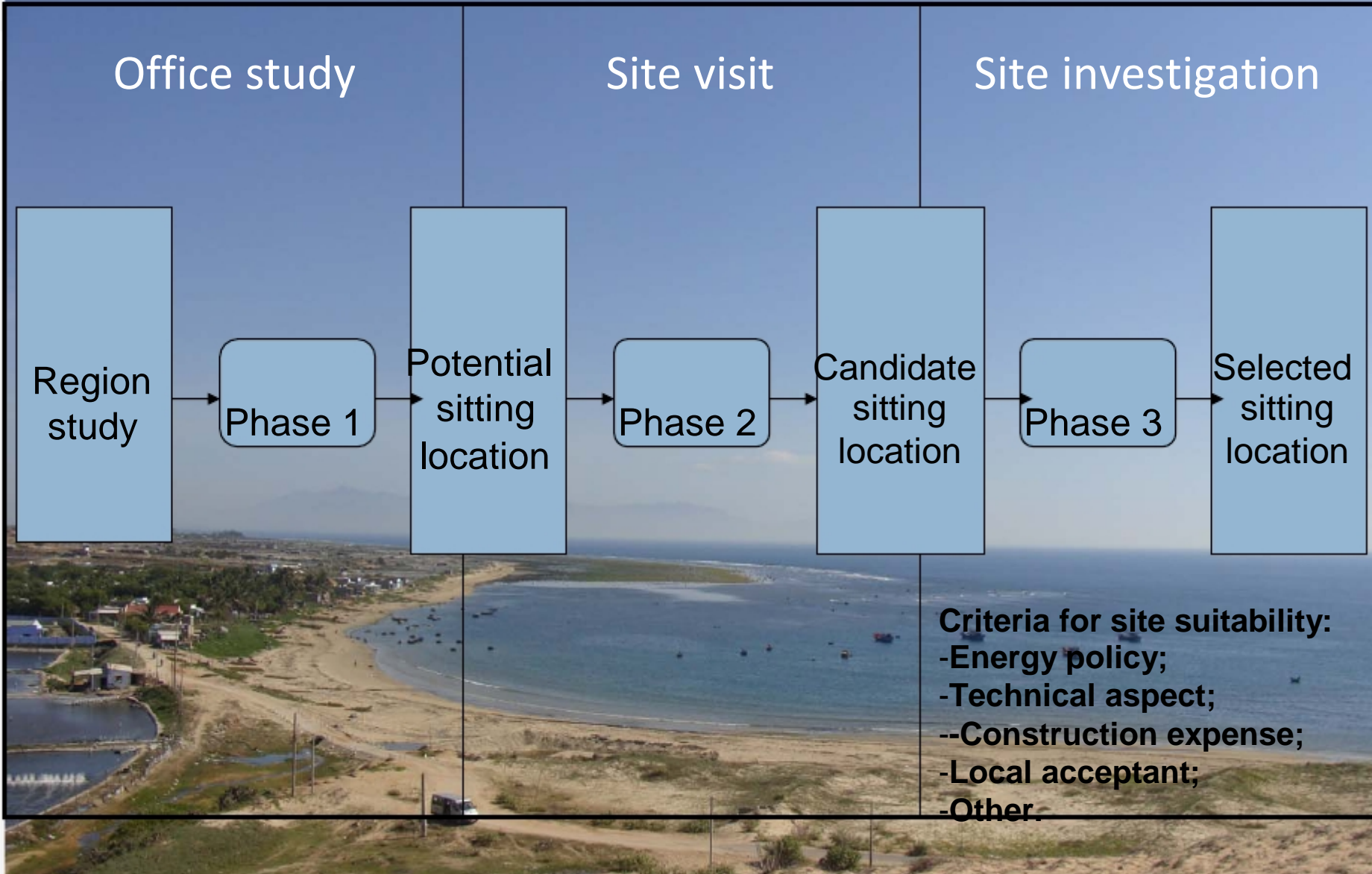
Life time: 60 years

Modern, proven technology

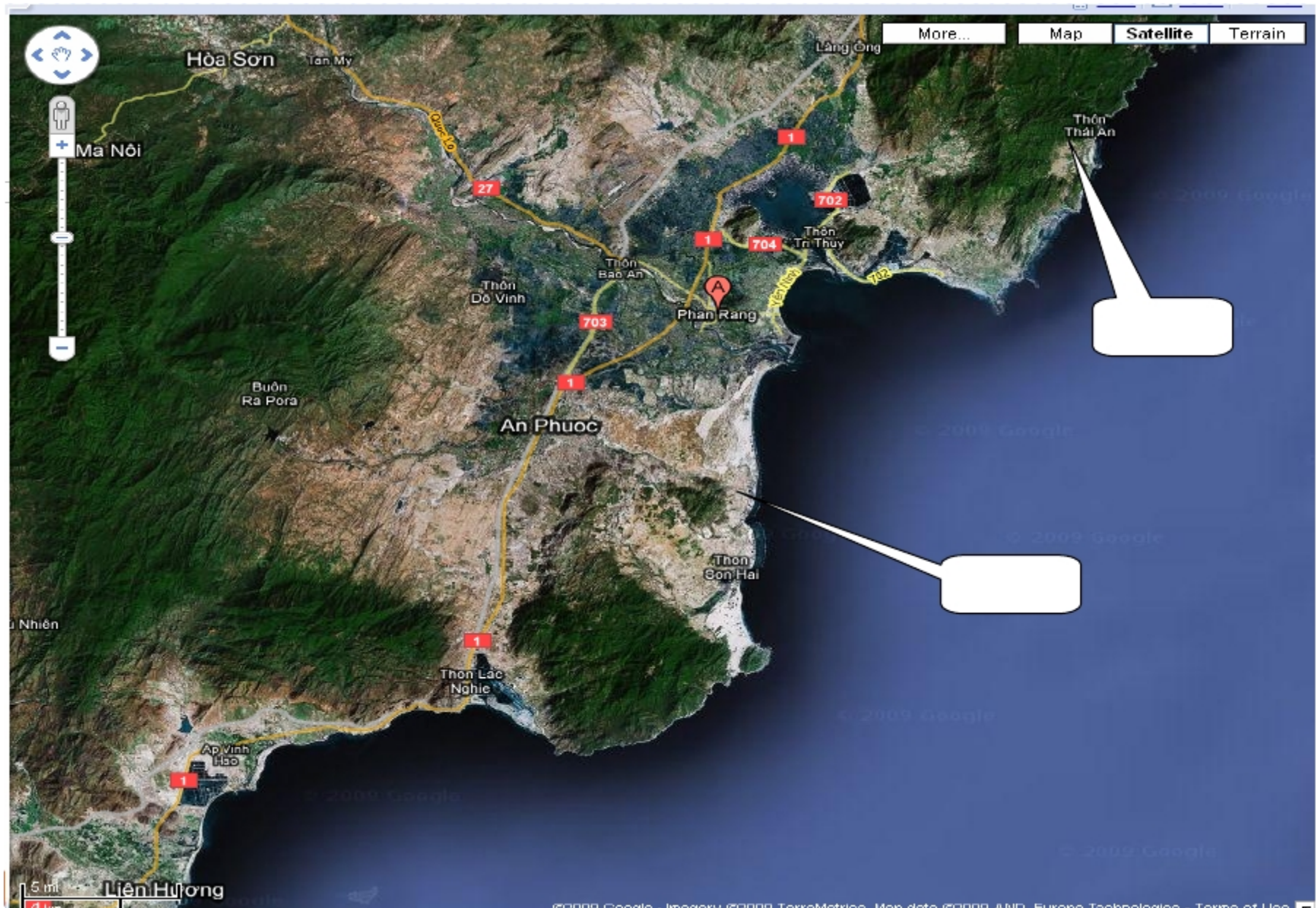
Potential vendors: nuclear power developed countries.



Procedure of site selection



NINHTHUAN NPP SITE MAP



NUCLEAR POWER DEVELOPMENT

Potential sites (8 sites)

2020: The first commercial Nuclear power Reactor

2025

8000MW Nuclear power make up about 8% of total national electricity capability

2030: 15000MWe Nuclear power - 10% of total national electricity capability



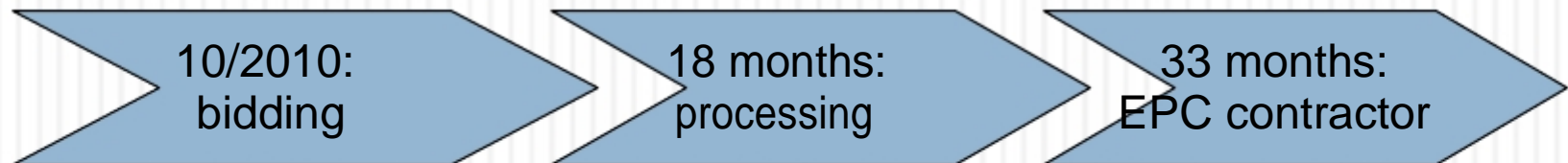
NinhThuan NPP 1: activities

Selection of FS Consultant and project management consultant for EVN;

The main Consultant should be experienced in LWR Technology;

Bid evaluation for FS consultant in process;

Roadmap to construction:



Activities (cont.d)

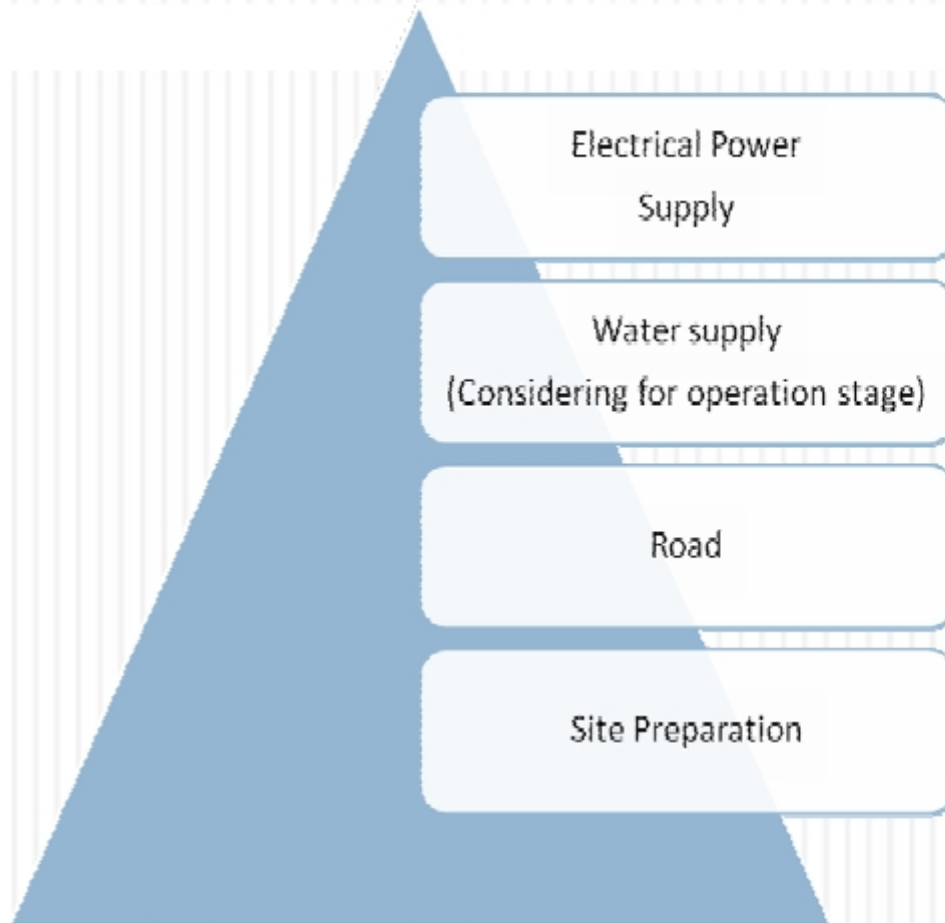
According to Master Plan approved by Government, EVN takes responsibility for 03 Sub-Projects:

Infrastructure Project to serve
NPPs Construction

PR Center

Human Resources (Cooperation
with MOET)

INFRASTRUCTURE



FS will be done by Local
Consultant company;

PECC4: responsible;

Duration: 10 months.

PR CENTER

PR Center will be placed in Phan Rang – Thap Cham City;

Covering an area of 2 hectares in square;

Contractors are mainly local companies.



HUMAN RESOURCES



A project for HR preparation has been approved by Prime Minister (national program) and will be implemented for nuclear industry with total investment ~ VND 3,000 billion;

EVN program;

Engineers will be sent to abroad or trained in domestic universities in different fields of NPP.

EVN HUMAN RESOURCE PROGRAM

Training: (currently)

Tertiary education: 29 engineers are being trained in Russia, 02 engineers trained in France.

Short courses: Hundreds of engineers have been trained not only in Vietnam but also abroad.

Planning:

Tertiary level: About 70 engineers will be trained in Russia each year.

Short courses: Trainees continue to be trained in Project management, Technology, etc.

CHALLENGES

Infrastructure:

Legislative aspect: Atomic energy law has been approved. It is required to develop and promulgate secondary legal documents including NPP standards;
Management aspect: Insufficiency of high qualified technical-financial experts for such complicated and large scope project.

Education & Training

Vietnam has not any capable training facilities for nuclear power. Universities and Colleges just launch nuclear power engineering training from now on.

SUMMARY

Viet Nam: different kind of natural energy resources. However, their reserves very limited;

- Country considers nuclear power as an option of energy supply for a long time (1980);
- Since 1996, setting up plan for site selection of nuclear power plants.
- Aimed to operate first NPP by 2020:
 - => Established law on atomic energy & master plan(2008);
 - => Approved investment report by National Assembly, 25th Nov., 2009 for construction 1st NPP under basic energy demand scenario:

SUMMARY

- + Technology: advanced and proven LWR;
- + Location: Phuoc dinh & Vinh Hai (Ninh thuan province), meeting requirements (social, meteorological, geological, geophysical etc.);
- => Staff training;
- => Established National nuclear safety council and steering committee for implementation nuclear energy program in 2010.
- Existing challenges for nuclear development in Vietnam.



THANK YOU!

phatevn@gmail.com

phattt.nrpb@evn.com.vn

