

Status and Perspectives of the National Nuclear Power Infrastructure Development in Vietnam

1. Nuclear Power Program in Vietnam
2. Status of the National Nuclear Power
Structure Development in Vietnam
3. Perspective of the National Nuclear
Power Infrastructure
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1. NUCLEAR POWER PROGRAM IN VIETNAM

National Strategies, policies, Planning, Projects for Atomic Power programs

Strategy of peaceful Utilization of Atomic Energy up to 2020
(Approved by the Prime Minister in 2006)

Development of both radiation application & Nuclear power with objective to put 1st nuclear power Unit into operation in 2020 while developing the sustainable infrastructure for long term Nuclear power program

MASTER PLANNING FOR PEACEFULL DEVELOPMENT AND UTILIZATION OF ATOMIC ENERGY UP TO 2020 (Approved by Prime Minister in 2010)

Detailed Planning in Agriculture (2010)

Detailed Planning in medicine (2011)

Detailed Planning in Industry (2011)

Detailed Planning in Geo, Science and Environment (2011)

Master Planning for Nuclear Power Development (2010)

Master Planning on Human Resource Development (2010)

Planning on Disposal Site (2010)

Projects on Capacity building on security (2011)

Project on Capacity building R&D& TSO (2012)

Project on information & communication (2013)

RESOLUTION BY THE NATIONAL ASSEMBLY ON INVESTMENT POLICY IN NINH THUAN NUCLEAR POWER PROJECT (25/11/2009)

- ▶ Decided to invest in Ninh thuan Nuclear power projects with 02 Plants in the first phase)
- ▶ Ninh thuan 1 NPP: Phuoc Dinh village, Ninh Thuan province.
- ▶ Capacity 02 unit x 1000 MW
- ▶ Ninh thuan 2 NPP : Vinh Hai village, Ninh thuan province
- ▶ Capacity 02 Unit x 1000 MW

In the second phase, capacity will be doubled

POWER SHARE BY 2030

- ▶ Planning for national electricity development for period 2011 - 2020 with consideration up to 2030 (Master Plan VII approved by Prime Minister in 2011)
- ▶ Power Output: 97,24 bill KWH (2010), estimated 330 bill KWH (2020), estimated 695 bill KWH (2030)
- ▶ Hydro power: 29%, 20%, 9% in 2010, 2020, 2030 respectively
- ▶ Thermal power: 19%, 47%, 56% respectively
- ▶ Gas : 46%, 24%, 14% respectively
- ▶ Import: 6%, 3 %, 4 % respectively
- ▶ Nuclear 2%, 10 % (in 2020, 2030 respectively)

Component projects of Ninh thuan Nuclear power project

EVN:

construction of Ninh thuan Nuclear Power Plant 1&2

Public Relation Center on Site

Physical infrastructure for the construction of NPP and
Operation Complex

Training & development of HR for Ninh thuan NPP

Local Authorities:

Site clearance & resettlement

Ministry of Science & Technology (MOST):

Nuclear Science & Technology Center, Public information & Communication

Ministry of Industry & Trade (MOIT):

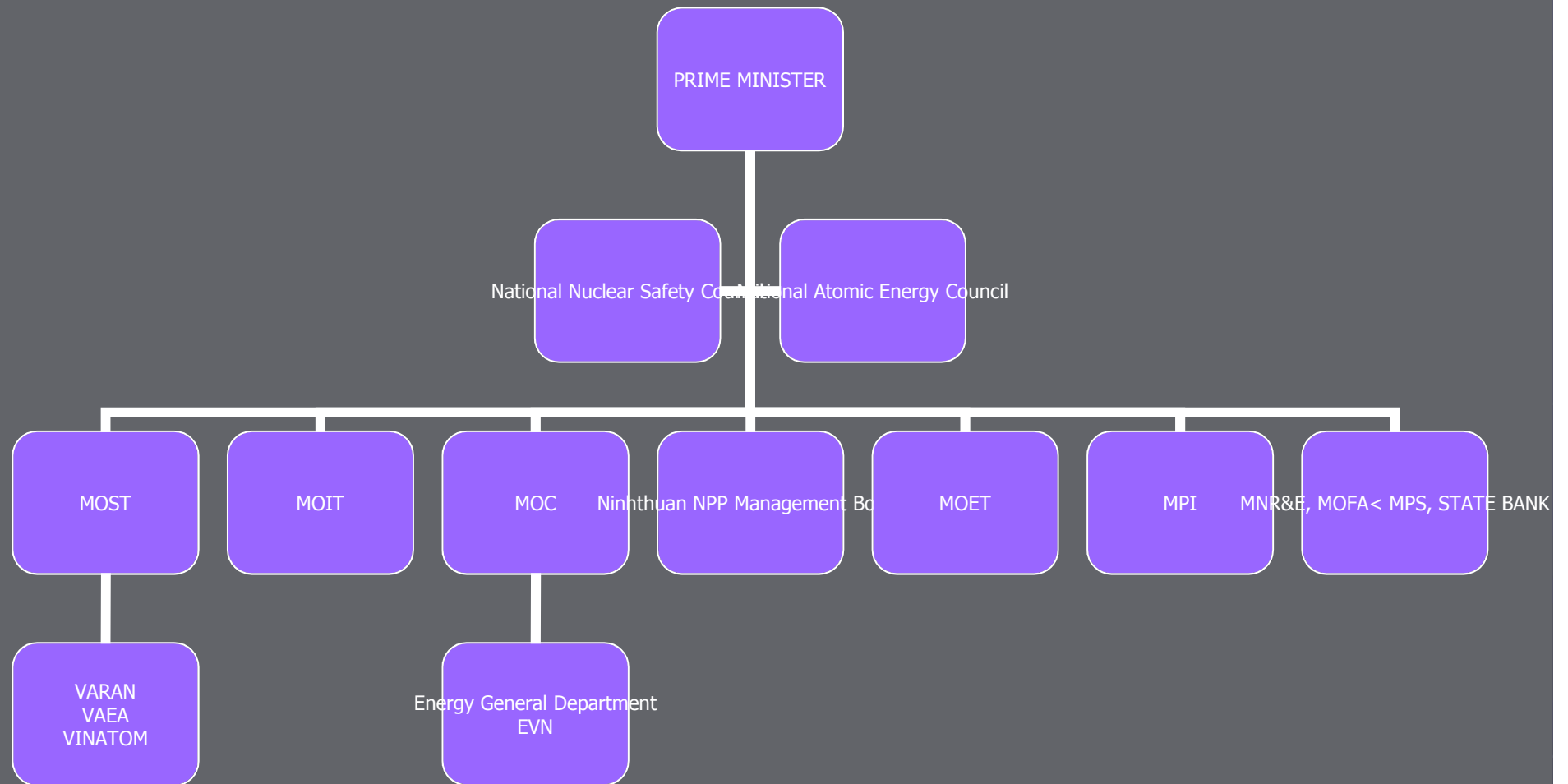
Project for development of Nuclear power supporting industry

2. STATUS OF NNP INFRASTRUCTURE DEVELOPMENT IN VIETNAM

- ▶ Vietnam is in Phase II of developing nuclear infrastructure
(Based on the IAEA Guidance on Development of NNP Infrastructure)

KEY AGENCIES/ORGANIZATIONS IN VIETNAM

NPP



ESTABLISHMENT OF RELATED COUNCIL & COMMITTEE

- ▶ Establishment of National Council for Nuclear Safety
- ▶ (4/2010)
- ▶ Establishment of State Steering Committee of Ninh thuan Nuclear Power Projects (5/2-10)
- ▶ Establishment of National Steering Committee on HRD in Atomic Energy (6/2011)
- ▶ Establishment of National Atomic Energy Council (5/2013)

LEGAL FRAMEWORK

- ▶ Atomic Energy Law 2008, to be amended
- ▶ List of Legal documents to be promulgated up to 2020 approved by Prime Minister (2/2013)
- ▶ Participated in most of related International Instruments:

Non – proliferation Treaty (NPT), Convention on Early Notification of Nuclear Accident, Convention on Assistance in Case of Nuclear Accident or Radiological Emergency, Comprehensive Nuclear Test Ban Treaty (CTBT), Additional Protocol (AP), Convention on Nuclear Safety (CNS), Convention of Physical Protection of Nuclear Materials, Joint Convention on Safety of Spent Fuel Management and the Safety of Radioactive Wastes Management

INTERNATIONAL COOPERATION

► COOPERATION WITH IAEA

Technical cooperation project on developing nuclear power infrastructure (since 2009)

Integrated work Plan for building nuclear power infrastructure in Vietnam since 2011

Integrated Nuclear Infrastructure Review (INIR 2009/ 2012, follow – up in 2014)

INTERNATIONAL COOPERATION

► INIR 2009

Vietnam Achieved Milestone 1 and numerous activities of Phase II are under implementation.

12 Recommendations and 22 suggestions put forth

INIR 2012:

A lot of work need to be done to complete the Phase II. 07 Key areas, 42 Recommendations, 12 suggestion and 02 good practices put forth

INTERNATIONAL COOPERATION

► Follow UP INIR 11/2014

Vietnam continues to make progress on national nuclear power infrastructure. Vietnam has completed 6/42 Recommendation from INIR 2012 in areas of Electrical Grid, Stakeholders Involvement, Site and supporting facilities, Environmental protection industrial involvement

03 Key activities to be paid attention

- Approval of Master Plan for Infrastructure Development (the Plan approved by Prime Minister in 12/2014, Decision No 2041/QDD TTg
- Approval of Feasibility Study (FS)
- Enactment of Amendment to Atomic Energy Law

INTERNATIONAL COOPERATION

- ▶ **With vendor countries (Russia, Japan) to build NPP 1&2**
 - Intergovernmental Agreement between Vietnam & Russia on the construction of Ninh thuan NPP 1 (10/2010)
 - Intergovernmental Agreement between Vietnam & Japan on the Construction of Ninh thuan NPP 2 (1/2011)
 - Intergovernmental Agreement between Vietnam & Russia on Credit loan for the construction of NPP 1 (11/2011)

INTERNATIONAL COOPERATION

- ▶ With experienced countries in Nuclear Power development: USA, EU, France, Republic of Korea....

Agreement on Atomic Energy with India (1986),
Korea(1996), China (2000), Russia(2002),
Argentina(2011), France (2009), Japan(2011), USA
(2014)

Cooperation with Russia, USA, IAEA in complete conversion
of HEU to LEU for Dalat Research Reactor (2013)

HUMAN RESOURCE DEVELOPMENT

► Education & Training Responsibility

MOST: Implementation of domestic/overseas training for staff of state management organizations, regulatory bodies, TSO, R&D

MOET: Implementation of plan for domestic/overseas undergraduate and graduate program in nuclear disciplines under Scheme 1558

EVN: Implementation of domestic/overseas training for staff after recruitment, implementation of non – degree education

PUBLIC INFORMATION AND COMMUNICATION

- ▶ Approval of national project on Public Information and communication (Project number 370)
- ▶ Numerous activities held

- ▶ FS and Site Approval Dossier for NPP1 & 2 were basically completed and being appraised by relevant organizations before being submitted to Prime Minister for approval
- ▶ Master Plan for Developing National Nuclear Power Infrastructure up to 2020 was approved by Prime Minister in 12/2014

3. PROSPECT OF NNP

INFRASTRUCTURE DEVELOPMENT

Implementation of Master Plan

Overall objectives: Developing comprehensively the national Nuclear Power infrastructure in accordance with IAEA Guidance and Vietnam condition, meeting the requirement for constructing and operating Ninh thuan NPP safely, secured and effectively.

Specific objectives: Developing legislative & regulatory framework, mechanism, policy for nuclear power

Training and developing the HR in terms of structure, quantity, quality for state management, technical support, research, construction and operation of NPP

Ensure physical infrastructure for state management, research and training, environmental radiation monitoring and warning, nuclear and radiological incident response in project phases

Meeting requirement on approval of Site Assessment and FS for Ninh thuan NPP, ensure necessary infrastructure for the construction of NPP

MASTER PLAN

- ▶ 12 Approved Projects/ Tasks for Nuclear Power to be continued up to 2020
- ▶ 19 additional Projects/ tasks for nuclear power infrastructure up to 2020

MASTER PLAN

- ▶ **MOST:**
- ▶ Plan for developing legal and regulatory documents related to Nuclear program 2013-2020
- ▶ Planning for national environmental radiation monitoring and warning Network 2020
- ▶ Project Enhancing Capacity of R&D and Technical support for development of safe and secured atomic energy application
- ▶ Project Public Information & Communication for Nuclear Program up to 2020
- ▶ Plan, roadmap for participating in international Treaties, Convention in Nuclear field
- ▶ **MOET**
- ▶ National Scheme on Training and developing HR
- ▶ **MOIT:**
- ▶ Planning for nuclear power development up to 2030
- ▶ **MOC**
- ▶ Planning for site of storage and disposal of radioactive wastes up to 2030, vision up to 2050
- ▶ **MOST, MOIT, Ninh thuan province, EVN:**
- ▶ Master plan for implementation of NPP

CONCLUSION

- ▶ Since the National Assembly's Resolution No 41 on Investment in Ninh Thuan NPP 2009, Vietnam has been conducting numerous activities for nuclear power infrastructure development and currently in Phase II as assessed by IAEA.
- ▶ In coming time, Vietnam continues developing the National Nuclear Power Infrastructure comprehensively in accordance with IAEA's Guidance and Vietnam's conditions, with a view to implement the NPP safely, securely and effectively through implementing newly approved Master Plan (in particular HRD, Legal, Regulatory framework, preparatory activities for the projects)
- ▶ Nuclear power infrastructure development is challenging for new comers like Vietnam. Therefore, its has to get unified efforts of all Vietnamese agencies, institutions, organizations and effectively, timely receive international support of IAEA and nuclear states

▶ THANK YOU FOR YOUR ATTENTION