SOFT COORDINATION AMONG BILATERAL COOPERATION AND THE IAEA ASSISTANCE

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Vienna, January 2012
National Policies on Nuclear Power

2006
• Strategy on Peaceful Utilization of Atomic Energy up to 2020

2007
• Planning for National Electricity Development for the Period of 2006-2015 with Vision up to 2025 (Master Plan VI)
• Strategy for National Energy Development up to 2020 with Vision up to 2050

2008
• Atomic Energy Law

2009
• Resolution No. 41/2009/NQ-QH12 by the National Assembly on the Investment Policy of the Ninh Thuan Nuclear Power Project

2010
• Planning Orientation on Nuclear Power Development in Vietnam up to 2030

2011
• Planning for National Electricity Development for the Period of 2011-2020 with Vision up to 2030 (Master Plan VII)
NP Development Projection (1)

Domestic capacity share

Import: 6.6%
Nuclear: 6.6%
Renew: 6.6%
Gas: 6.6%
Coal: 6.6%
Hydro: 6.6%

Domestic production share

Import: 10.1%
Nuclear: 10.1%
Renew: 10.1%
Gas: 10.1%
Coal: 10.1%
Hydro: 10.1%

Source: Planning for National Electricity Development for the Period of 2011-2020 with Consideration up to 2030
NP Development Projection (2)

2020: Ninh Thuan NP Project

1st Unit  1,000 MW

2030

8 units
Capacity: ~9,500 MW
Production: ~70 bil. kWh
Ninh Thuan Nuclear Power Project

- **Ninh Thuan NPP Project**
  - **Ninh Thuan 1**: Phuoc Dinh
    - 2 x 1,000 MWe
  - **Ninh Thuan 2**: Vinh Hai
    - 2 x 1,000 MWe
  - COD:
    - Ninh Thuan 1: **2020-2021**
    - Ninh Thuan 2: **2021-2022**
- Investment Owner: **E VN**
- Technology: **Advanced & proven (LWR)**
- Cooling: **Sea water**
- Fuel: **Imported**
Projected timeline for the 1st NPP

- 2/2011: Selection of consultant for FS
- 3/2011-7/2013: FS & Site Approval Dossier
- 12/2014: Start Construction
- 12/2020: Commissioning of 1st Unit
National Planning for HRD

• **Approved:** 8/2010
• **Total Investment:** 3,000 bil. VND (~150 mil. USD)
• **For nuclear power projects**
  - **Each year:** 240 engineers, bachelors, 35 masters and PhDs (including 20 foreign-trained engineers, bachelors, 15 masters and PhDs)
  - **Up to 2020:** 2,400 engineers, 350 masters and PhD specialized in nuclear power (including 200 engineers, 150 masters and PhD trained abroad)
• **For other applications of atomic energy**
  - **Each year:** 65 engineers and bachelors, 35 masters and PhDs (including 30 foreign-trained engineers, bachelors, 17 masters and PhDs)
  - **Up to 2020:** 650 engineers, 250 masters, PhDs (including 150 engineers, 100 masters and PhDs trained abroad)
Responsibilities of Main Stakeholders

Preparation of Pre-FS & FS Report: EVN (future owner/operator)

FS Approval: Prime Minister *(with assistance from National Evaluation Committee, chaired by Minister of Planning & Investment)*

Construction:
- Licensing: Ministry of Science & Technology
- Construction Monitoring: EVN

Operation:
- Commissioning Licensing: Ministry of Industry & Trade
- Operation Licensing: Ministry of Industry & Trade
Management System

Prime Minister

National Nuclear Safety Committee

Ministry of Science and Technology
- VARANS
- VAEA
- VINATOM

Office of the Government

Ministry of Industry and Trade

Ministry of Construction

Committee on Science; Technology & Environment

Ninh Thuan People's Committee

Ministries of Planning & Investment, Finance, Natural Resources & Environment, Defence; Public Security; Foreign Affairs; Information & Communications; State Bank

State Steering Committee of the Ninh Thuan NPP Project (NEPIO)
The detailed responsibilities & tasks of subcommittees are provided in the Prime Minister’s Decision No. 93/QĐ-TTg dated Jan. 17, 2011.
Recent events

- **10/2010**: Official signing of the **Vietnam-Russia Agreement on the Construction of Ninh Thuan 1 NPP**
- **10/2010**: Vietnam Government decided to construct Ninh Thuan 2 NPP with Japan
- **04/2011**: Establishment of the **Ninh Thuan Nuclear Power Project Management Board** (EVN NPB) under Vietnam Electricity (EVN)
- **09/2011**: Official signing of the EVN-JAPC (Japan) **Consulting Contract** of 18 months on Site Approval Dossier Development & FS of the Ninh Thuan 2 NPP
- **11/2011**: Official signing of the EVN-Consortium of E4 Group (Russia) **Consulting Contract** of 18 months on Site Approval Dossier Development & FS of the Ninh Thuan 1 NPP
- **11/2011**: Official signing of **Vietnam-Russia Agreement on Credit Support by the Russian Federation for the Construction of Ninh Thuan 1 NPP**
After Fukushima

- **16 March 2011**: MOST established the Working Group, led by the Deputy Minister to analyse the event and disseminate verified and reliable information to media and public.
- **March 2011**: Representative of National Assembly said “no change” in the decision of Ninh Thuan NPP Project.
- Response from Government in General Session of National Assembly:
  - Emphasize the priority of nuclear safety
  - Ninh Thuan NPP will use advanced & proven technology
  - Siting activities take into account earthquake, tsunami & other factors to the safety of NPP
  - Recalled about the preparation activities for the NPP Project
  - Government will report to the National Assembly about the preparation of Ninh Thuan NPP Project
- Vietnam continues active cooperation with IAEA, vendor countries & other to develop the nuclear infrastructure for the NPP Project.
MAIN CONTENTS

I. Nuclear Power Programme of Vietnam

II. Management System & Recent Events

III. International Cooperation

IV. Integrated Master Plan

V. Lessons learned

Cooperation with Russia

• 3/2010: MOET-ROSATOM MoU on the plan of professional training in atomic energy industry

• 10/2011: MOET-ROSATOM MoU on the establish the Atomic Energy Information Center in Hanoi

• 11/2011: Agreement on Credit Support by the Russian Federation for the Construction of Ninh Thuan 1 NPP

• Other bilateral cooperation: VARANS-Rostechnadzor, VAST & VINATOM-JINR (Dubna),...
Cooperation with Japan

• Various MOU between Vietnam and Japan counterparts on HRD
• Long & successful history of cooperation in HRD in the field of atomic energy (with MEXT, METI, JAIF, JAEA, JAERI, RADA, nuclear companies)

• Regional cooperation: FNCA, ANENT,...
• Multilateral cooperation: Assistance by EU for VARANS,...
• Bilateral cooperation: USA (MOST/VINATOM-DOE on fuel conversion of Da Lat Research Reactor, VARANS-US NRC...), France (VARANS-ASN,...), Korea (VARANS-KINS, VINATOM-KAERI...), Canada (VINATOM-AECL,..) India, China, ...
IAEA Assistance

• **TC Projects**
  – Cycle 2009-2011: 03 TC Projects related to nuclear infrastructure development (in total: 7 national TC Projects & 41 regional/interregional TC projects)
    • **VIE/9/011** on “Improving the Capability for Site Characterization and Evaluation of New Nuclear Installations”
    • **VIE/9/013** on “Strengthening the Technical Capacity of the Radiation and Nuclear Safety Regulatory Body”
    • **VIE/4/015** on “Developing Nuclear Power Infrastructure”
  – Cycle 2012-2013: 5 TC Projects related to nuclear energy
  • Regional Cooperation Agreement (RCA), Regional Cooperation Projects (RAS) & other funding
  • Extra budget for VIE/4/015 in 2011: 557,500 USD (from US PUI)
  • Type of assistance: Workshop, review meeting, training course, expert mission, scientific visit, fellowship, purchase of equipments
IRRS (Integrated Regulatory Review Service) Mission:
- Vietnamese counterpart: Vietnam Agency for Radiation and Nuclear Safety (VARANS, under TC Project VIE/9/013)
- Date: September 2009

INIR (Integrated Nuclear Infrastructure Review) Mission:
- Date: December 2009

INIR Conclusion:
- Vietnam has achieved Milestone 1 and is implementing activities to achieve Milestone 2
- 12 Recommendations & 22 Suggestions
Establishment of IMP


- **May 2011**: Finalization of IMP

**Basis:**
- National strategy & master planning for atomic energy utilization & master plan for the development of nuclear power
- Domestic needs for nuclear infrastructure development
- IAEA’s guidance; INIR & IRRS recommendations & suggestions

**Content of IMP**

1. Significance and scope of the IMP
2. Updated progress to recommendations & suggestions made by the INIR and IRRS Missions
3. Overall project management activities: Annual review meeting; assignment of field senior advisor,...
4. Integrated activities table: All activities of TCs, bilateral co-operations,...
**Objectives of IMP**

To integrate projects, activities related to the development of nuclear power infrastructure in Vietnam: Support of IAEA; Governmental funding; Bilateral, multilateral partnerships with vendor countries & others

- To focus the effort in nuclear power infrastructure development in order to finish 19 issues for Phase 2 and suggestions by INIR & IRRS, especially at critical issues
- To avoid overlap and maximize the benefit of assistance for Vietnam from different sources

To give relevant stakeholders an opportunity to communicate, cooperate and coordinate in a same language – IAEA’s guidance on nuclear power infrastructure

To achieve Milestone 2 and prepare an adequate infrastructure for the successful implementation of the Ninh Thuan Nuclear Power Project
Mechanism of IMP

- Domestic projects (Gov. funding)
- Bilateral/Multilateral cooperation
- IAEA assistance (TC, extra fund, ...)
- INIR & IRRS suggestions
- National needs (focus on critical issues)
- 19 issues (mostly Phase 2)

IMP
(living document)

Achievement of Milestone 2
Focus of IMP

1. Legal & regulatory framework for the introduction of nuclear power
2. Finalization of the FS for the first two nuclear power units
3. Strengthening the Regulatory Body and developing licensing procedures
4. Siting and preparation for site approval process
5. Preparation of the Preliminary Safety Analysis Report & Environmental Impact Assessment (EIA)
6. Human Resource Development, including staff-training programme; Nuclear Engineering Education and Training Centre; capacity building for decision making and ownership; competence and expertise of Technical Support Organizations (TSOs)
7. Emergency response and preparedness
8. Project management and implementation scenarios
9. Public communication on the nuclear power programme
10. Radioactive waste and spent fuel management for the two first NPPs
11. Planning for the commissioning of the two first NPPs in 2020/21
### Infrastructure Issue 3: Management

<table>
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<tr>
<th>No</th>
<th>Action</th>
<th>Responsible/Counterparts</th>
<th>Project Date</th>
<th>Status</th>
<th>Comments</th>
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<tbody>
<tr>
<td>02</td>
<td>SV (Group Training) for NPP Project Management - 7 persons x 2 weeks</td>
<td>VAEA, EVN, TSOs</td>
<td>VIE/4/015 3Q, 2011</td>
<td>Completed</td>
<td>In Russia, good experiences &amp; knowledge of NPP preparation</td>
</tr>
<tr>
<td>03</td>
<td>1 FE on NPP Project management</td>
<td>VAEA, EVN</td>
<td>VIE/4/015 4Q, 2011</td>
<td>Postponed</td>
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**Type of action:** Workshop (WS), review meeting (RM), training course (TC), expert mission (EM), scientific visit (SV), fellowship (FE), purchase of equipments
Preliminary results of 2011

Profits from IMP

- Better coordination and planning of TC activities
- Better effectiveness of TC activities: Focus on current critical issues
- Broader involvement of stakeholders
- Total numbers of activities from TC Projects:

<table>
<thead>
<tr>
<th>2011 activities</th>
<th>EM</th>
<th>SV</th>
<th>FE</th>
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<tbody>
<tr>
<td>16 missions</td>
<td>19</td>
<td></td>
<td>18</td>
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Scientific & consultant visits: 33 turns

- Russia, 22
- Austria, 10
- Czech, 1
- IAEA, 17
- Japan, 7
- Expert Missions: 50 turns
- Russia, 7
- IAEA, 17
- Russia, 22
- Austria, 10
- Czech, 1
- Others, 7
- Spain, 4
- France, 2
- UK, 3
- USA, 3
- Rumani, 2
Planning for 2012

TC Project on Developing Nuclear Infrastructure

- **TC Project**
  - Phase I: 2009-2011 (VIE4015)
  - Phase II: 2012-2013 (VIE2010)

- **Principle**
  - Activities for 2012-2013 are mainly extracted from the Integrated Master Plan
  - Focus on critical issues

- **Financing**
  - Core: Essential activities
  - Footnote A: Other activities

- **Activities in 2012**
  - 14 Expert Missions; 2 Scientific Visits; 1 Fellowship; Purchase of computer codes
  - Acquisition of complete set of IAEA’s guidances

- **Principal events**
  - NEPIO Seminar (April 2012)
  - Self-evaluation of national infrastructure (mid 2012)
  - Integrated Nuclear Infrastructure Review (INIR) Mission (end of 2012)
Conclusion

- The effectiveness of IMP in coordinating assistance & cooperation for infrastructure development has been proven through the higher intensity of activities, broader participations by stakeholders & positive feedback from participants.
- IMP should be continuously revised in accordance with the national strategy & recent developments of the nuclear power programme.
- A closer coordination between stakeholders of the nuclear power programme is essential to the success of the IMP.
- Guidance & assistance from IAEA are effective & important to newcomers.
Lessons learned

- Broad range of activities that fall under the framework of IMP
- The need to avoid parallel activities that may decrease effectiveness of the events
- The need of continuous communication & cooperation between involving parties (counterpart of TC projects, host organizations of activities, managing organizations of other bilateral/multilateral cooperation projects)
- The need of communication between IAEA, experts and counterpart (before and after Expert Mission)
- Intensity of TC activities: From 9-12/2011 in average 1 Expert Mission for each 2 weeks
- Delay of Fellowship acceptance: Lack of pre-communication with host organizations, administrative procedure
Thank you for your attention!

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