Some activities related to nuclear supply chains in Vietnam

Dang Chi Dung

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4. Planning for local industrial involvement and the supply chain for new NPP construction
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Country overview

- Area: 330.096 Km²
- Population: 92 million
- Density: 279 pop/km²
- GDP: 204 billion USD
- GDP per capita: 2200 USD
- Electric power consumption: 1,558 KWh per capita.
- (as of 2015)
National strategies, policies, planning, projects for the applications of atomic energy and nuclear power development

**Strategy on Peaceful Utilization of Atomic Energy up to 2020**
*(Decision by the Prime Minister in 2006):*
Development of both radiation applications & nuclear power with the objective to put the first nuclear power unit into operation in 2020 while developing the sustainable infrastructure for the long-term nuclear power programme

**Master Planning for the Peaceful Development and Utilization of Atomic Energy**
up to 2020 (approved by PM in 2010)

- Detailed Planning in Agriculture (2010)
- Detailed Planning in Medicine (2011)
- Detailed Planning in Industry (2011)
- Detailed Planning in Geo. Sci. & Environment (2011)
- Master Planning on HRD (2010)
- Master Planning on Disposal Site (2010)
- Planning on Capacity Building of Security (2011)
- Project on Capacity Building of R&D & TSO (2012)
- Project on Info & Communication (2013)
Nuclear Development Policy

01/2006
• Strategy on Peaceful Utilization of Atomic Energy up to 2020

07/2007
• National Power Development Plan during the period 2006-2015 with vision to 2025 (Master Plan VI)

12/2007
• National Energy Development Strategy of Vietnam up to 2020, with vision to 2050.

06/2010
• Oriented Planning for Nuclear Power Development in Vietnam up to 2030

07/2011
• National Power Development Plan for the period 2011-2020, with vision to 2030 (Master Plan VII)

03/2016
• Revised National Power Development Plan for the period 2011-2020, with vision to 2030 (Master Plan VII)
Planning for National Electricity Development for the Period of 2011-2020 with Consideration up to 2030 (Master Planning VII, approved by Prime Minister in 2011)

2010
97.25 bil. kWh

2020
~330 bil. kWh

2030
~695 bil. kWh
Ninh Thuan Nuclear Power Project

- **Ninh Thuan 1**: Phuoc Dinh, Ninh Thuan
  - Capacity: 2 units x 1,000 Mwe
  - Vendor: Russia
- **Ninh Thuan 2**: Vinh Hai, Ninh Thuan
  - Capacity: 2 units x 1,000 Mwe
  - Vendor: Japan

Submits to the Prime Minister a SFDs and FS of Ninh Thuan 1 Project; The FS of Ninh Thuan 2 has been supplemented and finalized by the international consultant and submitted to EVN for verification.
State organizations involved in the nuclear power programme

• Ministry of Science and Technology
  (*state management on atomic energy*)
  – Vietnam Atomic Energy Agency (VAEA): Policy, promotion of development, utilization and R&D of atomic energy;
  – Vietnam Atomic Energy Institute (VINATOM): R&D organization
• Ministry of Industry and Trade
  – General Directorate of Energy: state management of energy
• Vietnam Electricity (*state-owned enterprise*): investment owner of Ninh Thuan Nuclear Power Project
• Other ministries involving in the nuclear power programme: MONRE, MOC, MOET, etc.
Key Agencies/Organizations in Vietnam Nuclear Power Programme

Prime Minister

National Nuclear Safety Council

- Ministry of Science and Technology
  - VAEA
  - VARANS
  - VINATOM

- Ministry of Industry and Trade
  - General Directorate of Energy
- Vietnam Electricity (Utility)

National Atomic Energy Council

- Ministry of Construction
- Ninh Thuan People’s Committee
- Ministry of Education and Training
- Ministries of Planning & Investment, Finance, Natural Resources & Environment, Defence; Public Security; Foreign Affairs; Information & Communications; State Bank

Ninh Thuan Nuclear Power Project Management Board
The planning for local industrial involvement and the supply chain for new NPP construction has been approval oriented development planning in Vietnam until 2030 pursuant to Decision No.906/QD-TTg dated June 17, 2014 of The Prime Minister of Vietnam as following:

- To 2015:
  - Participation of domestic industry: planning, construction, mechanisms and policies to promote and prepare for the capacity of domestic industries to participate in supplying materials, equipment, construction, installation, project management, supervision and quality control of nuclear power plants.
Planning for local industrial involvement and the supply chain for new NPP construction

• To 2020:
  ✓ Participation of domestic industry: To organize the domestic industry engaged in supplying materials, equipment, construction, installation, transportation over weight and over size equipment with the contract value from 20% to 30% of total construction value.

• To 2030:
  ✓ Participation of domestic industry: the domestic industry to participate in the construction of nuclear power plants with the contract value from 30% to 40% of the total construction value.
  ✓ The step by step program for local industrial involvement and supply chain is on-going finished based on the successful experience from other countries such as: Japan, Korea, China … and shall be approved by relevant Ministries.
Preparation for NPP in Vietnam

**Owner Requirements**

**Project Implementation**

**Technical Standards/Guidelines**

1. State Standards
2. Industry Standards
3. Construction Standards
4. International Standards
5. IAEA Guides

**Construction Law No. 16/2003/QH11**
- Decree 1. 112/2009/ND-CP
  - Circulars
- Decree 2. 114/2010/ND-CP
  - Circulars
- Decree 3. 12/2009/ND-CP
- Decree 4. 49/2008/ND-CP
- Decree 5. 15/2012/ND-CP
- Decree 6. 83/2009/ND-CP
- Decree 7. 23/2009/ND-CP
- Decree 8. 64/2012/ND-CP

**Tender Law No. 61/2005/QH11**
- Decree 1. 85/2009/ND-CP
  - Circulars
- Decree 2. 48/2010/ND-CP
- Decree 3. 68/2012/ND-CP

**Electricity Law No. 28/2004/QH11**
- Decree 1. 105/2005/ND-CP
  - Circulars
- Decree 2. 106/2005/ND-CP
- Decree 3. 70/2010/ND-CP

**Atomic Energy Law No. 18/2008/QH12**
- Decree 1. 07/2010/ND-CP
  - Circulars
- Decree 2. 70/2010/ND-CP

**Environmental Law No. 52/2005/QH11**
- Decree 1. 80/2006/ND-CP
  - Circulars
- Decree 2. 29/2011/ND-CP

**Regulatory Body (MOST, MOIT)**
- Committees (SSC, NSC)
- Council for Nuclear Safety (NCNS)

**Resolution of national assembly 49/2010/QH12**

**Law on Standard and Technical Code No. 68/2006/QH11**

**Law on Fire Prevention and Fire Fighting No. 27/2001/QH10**
Procurement for NPP project

- Current regulations on procurement, quality management and CFSI (counterfeit, fraudulent and suspect items)
  - Procurement law
  - Construction law
  - Decrees on implementation the Procurement Law and Construction Law
  - Circulars on specific guidelines to execute the Procurement Law and Construction Law
  - Corporate rules and regulations.
Procurement for NPP project

- Major procurement scheme

  - International Competitive Bidding (ICB)
  - Limited Competitive Bidding (LCB)
  - Shopping
  - Repeat Order
  - Direct Contracting
Procurement for NPP project

• Evaluation of Bids

Procurement Plan

Invitation for Bids
- Preparation of Bidding Documents
- Issuance of Bidding Documents

Evaluation of Bids
- Submission of Bids and Bid Opening
- Evaluation of Bids
- Evaluation of Bids
- Approval of Bid Results

Contract Award
- Negotiation
- Contract Signing

Contract Implementation
Direct contracting procedure

Packages procured through direct contracting

- Procurement Plan
  - Estimated Cost
  - Request for Proposal (RFP)

- Issuance of RFP to selected bidder
- Submission of Proposal
- Evaluation of Proposal
- Negotiation and Contract Signing

Approved

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EPC contract form and its clauses related to CFSI

• EPC contract form is in accordance with FIDIC’s EPC contract sample
  1. The main contractor must submit a list of suppliers to get approval by the client
  2. Equipment and materials must have clear, legitimate origin. The origins of equipment and materials are manufactured, produced, processed, assembled, etc.
  3. In case of equipment/materials are not manufactured by the main contractor, the main contractor must provide the authorized permit/license issued by the OEM for the package
  4. The main contractor must have a quality management system in compliance with ISO standards or similar national standards.
  5. The main contractor shall undertake development and execution of a quality certification program according to ISO 9001, which must be approved by the client.
6. The quality system of the main contractor shall be inspected and supervised by the client periodically.

7. Testing clause:

• Testing and inspection in production process: the Client has right to witness, check, inspect testing in the construction process. The main contractor must provide the client with list of workshops of different equipment in the supply chain and provide useful information for the inspection. Expenses incurred due to inspections oversea of the client will be born by the contractor.

• The client can reject acceptance of any equipment or materials that are determined that there does not comply with the contract and immediately notice the contractor of that rejection.
Conclusions

1. Legal regulations on CFSIs in nuclear power area are not available
2. Legal regulations on CFSIs in industrial areas are spreading and not comprehensive and systematic
3. Corporate rules are basically in accordance with FIDIC’s guidelines and international practices.
4. Vietnam has no practical experiences in nuclear power procurement activities and CFSI prevention, detection, control and management.
   - Awareness of CFSI related issues should be increased.
   - There should be specific IAEA’s guidelines on how to prevent, detect, handle, control and manage CFSI in NPP projects, special recommendations and advises for newcomer countries like Vietnam.
   - How to develop an EPC contract with terms and conditions to reduce CFSI related risks and protecting project owners when dealing with EPC contractor.
Thank you for your attention!