HUMAN RESOURCE DEVELOPMENT FOR NINH THUAN NPP 1 PROJECT

November 2014

Organization and Human Resource Department Vietnam Electricity



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NINH THUAN NPP PROJECT: BRIEF OVERVIEW



Ninh Thuan Nuclear Power Project



- Ninh Thuan 1:
- Site: Phuoc Dinh commune
- 2 x 1,000 Mwe
- Investment Owner/Operator: EVN
- Technology: Advanced & proven (LWR)
- Cooling: **Sea water**
 - Ninh Thuan 2
- Site: Vinh Hai comu Ninh Hai DistNinhThuan.
- Capacity: approx 2 x 1000 MW



EVN Organization Chart



Vice President Operation Vice President Business Vice President
Power Generation
Investment (North & North
Central)

Organization &

Human Resource

Dept.

Vice President
Power Generation
Investment (South & South
Central) and Networks

Vice President Nuclear Power Construction Investment Vice President Economics & Finance, & IT

Technical & Operational Dept.

Safety Dept. General Affairs Dept.

Science -Technology & Environment Dept. Business Dept.

Power Market Dept.

Affairs Corporate Planning t. Dept.

Legal Dept.

Investment Management Dept.

Procurement Management Dept.

Construction Management Dept. Telecom & IT Dept.

Inspection Dept.

Public Relation Dept.

Financial & Accounting Dept.

International Relation Dept.

Capital Investment Dept.

Dependent Units

Hoa Binh Hydropower Company
Ialy HydropPower Company
Tri An Hydropower Company
Tuyen Quang Hydropower Company
Se San Hydropower Development Company.
Nghi Son 1 Thernal Power Company
Son La Hydropower Company
Son La Hydropower Project Management Board.
Hydropower Project Management Board No. 4
Ninh Thuan Nuclear Power Project Management
Board

Electric Power Trading Company
National Load Dispatch Center
Center of Power Electric Information
Information Technology Center
EVN Building Operation and Investment
Management Board
Electric Power University
Ho Chi Minh City Electric Power College
Central Electric Power College
Electric Vocational College

One Member Limited Comapies

Power Generation Corporation 1
Power Generation Corporation 2
Power Generation Corporation 3
National Power Transmission Corporation
Northern Power Corporation
Central Power Corporation
Southern Power Corporation
Hanoi City Power Power Corporation
Ho Chi Minh City Power Corporation

Joint-Stock Companies

Central Area Electrical Mechanical JSC. Thu Duc Electrical Mechanical JSC. Power Engineering JSC.

Dong Anh Electrical Equipment Manufacturing JSC.

Power Engineering Consulting JSC. No.1 Power Engineering Consulting JSC. No.2 Power Engineering Consulting JSC. No.3 Power Engineering Consulting JSC. No.4 EVN Finance JSC.

Affiliates

Vinh Tan 3 Energy JSC.
Thuan Binh Wind Power JSC.
An Binh Commercial Joint Stock Bank
An Binh Security JSC.
Global Insurance JSC.
Saigon Vina Real Estate JSC.
Central Power Real Estate JSC.
Vietnam Electricity Power Investment
& Construction JSC.



EVNNPB Organization Chart (Current)

Director

Deputy Director

Deputy Director

Finance and Accounting

Deputy Director

<u>Organization & Personnel</u>

Administration Dept.

Economic and Planning

Dept.

Technical Dept.

International Relation Dept. Dept.

Nuclear Safety and Regulatory Construction Management Dept.

Hanoi Rep. Office





WORKFORCE PLANNING



EVNNPB Organization Chart (at peak time-plan)

Total: 400 staff

DIRECTOR GENETAL (1) **DEPUTY DIRECTOR GENERALS (5)**

Administration Dept. (30)

Organization and Personnel Dept. (10)

Finance and Accounting Dept. (10)

Technical Dept. (40)

Economic - Planning Dept. (15)

International Relation Dept. (10)

Public Relation Dept. (15)

Material and Equipment Dept. (15)

Construction Management Dept. (20)

Nuclear Safety and Regulation Dept. (15)

Quality Assurance and Quality Control Dept. (15)

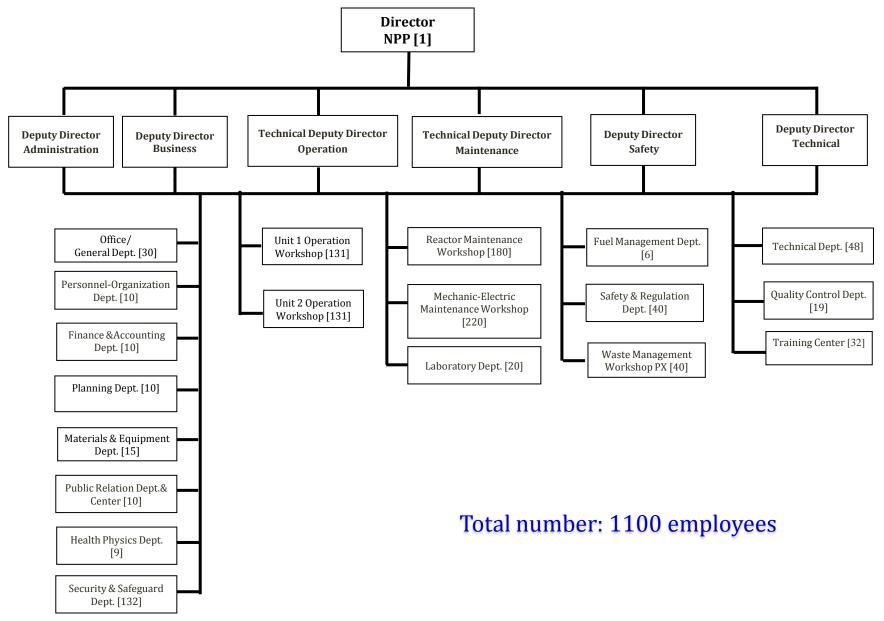
HR Management and Development Dept. (10)

Hanoi Office (15)

Pre-Generation Board (180)



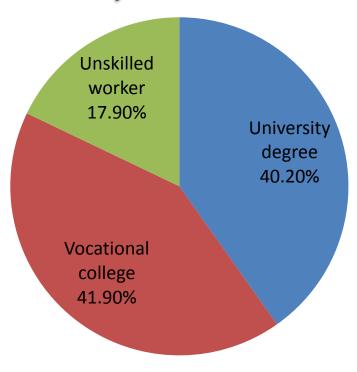
Organization Chart of Ninh Thuan NPP (2x1000MW) (Plan)

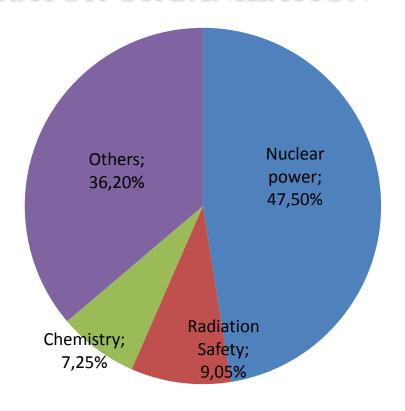




WORKFORCE IN THE OPERATOR ORGANIZATION







University degree disciplines



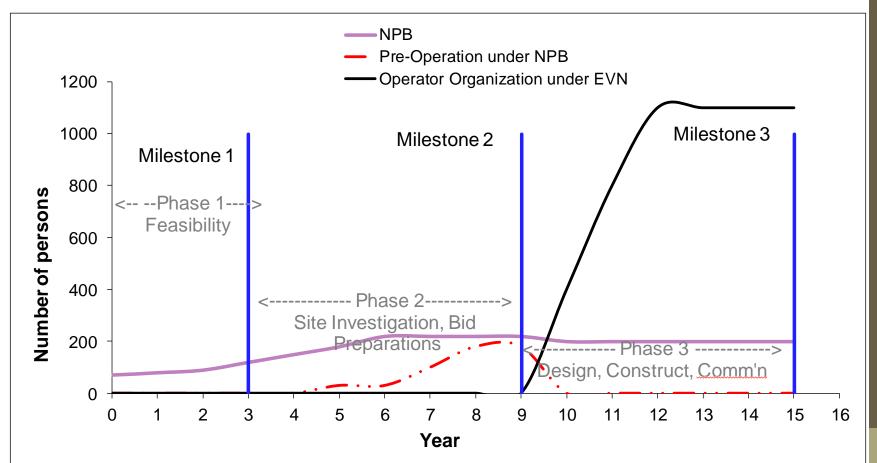


Education requirement

	Quantity	Place	Field of study
University degree	442		
	282	Russia	Nuclear-related fields
	160	Vietnam	Electric, mechanic, automation, IT
Vocational training	461	Vietnam	Electric, mechanic, chemistry
Unskilled worker	197		
Total	1100		



Staffing Schedule

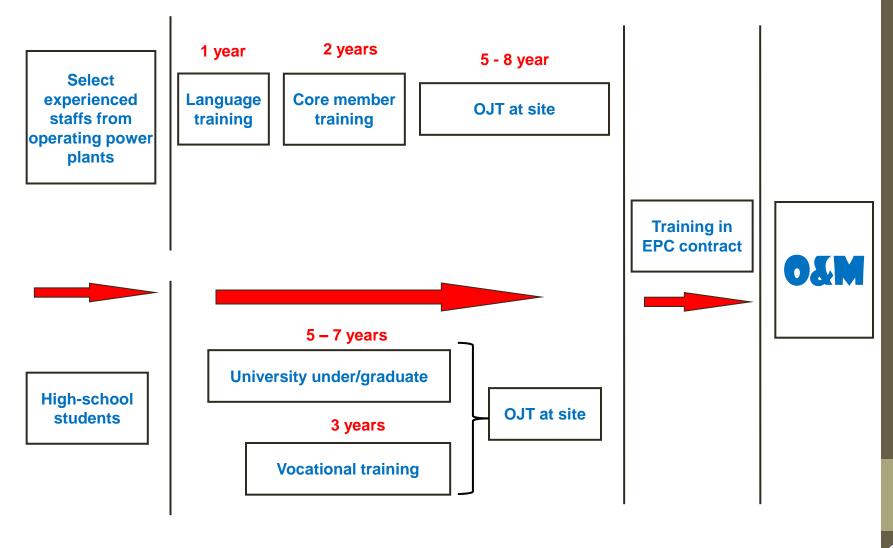




EDUCATION AND TRAINING



Education and Training flow chart





Attract excellent students



- Annually, EVN organize a trip to Ninh Thuan and adjacent provinces to attract new students apply to study nuclear.
- Target to: final grade of high school
- Contents:
 - Nuclear and Nuclear safety
 - Ninh Thuan NPP project
 - Scholarship scheme to study nuclear in Russia
 - Committment



University Education in Russia

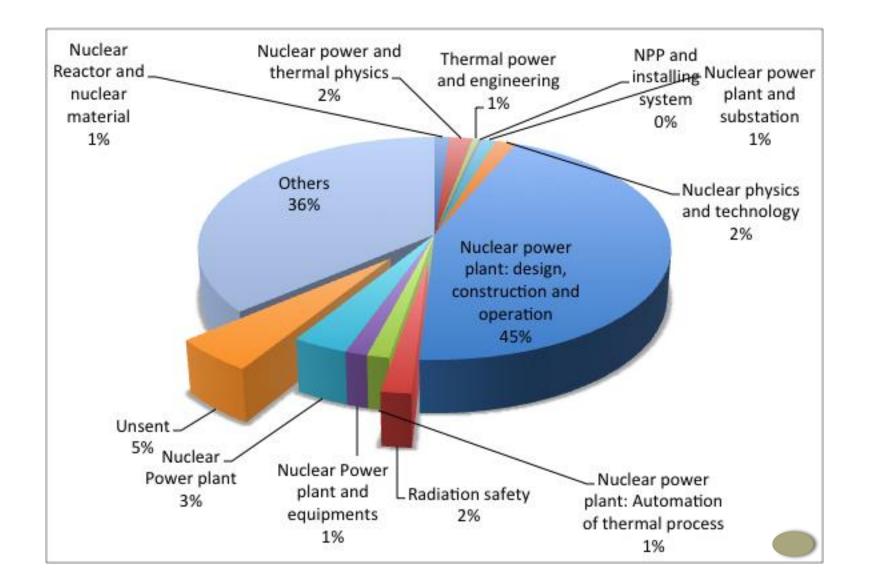
Year of sending	Quantity	Major – University (Country)	Degree	Year of graduate
2006	9	Nuclear Power – MPEI (Rus.)	MSc	2013
2007	5	Nuclear Power – MPEI (Rus.)	MSc	2014
2008	11	Nuclear Power – MPEI (Rus.)	MSc	2015
2009	4	Nuclear Power – MPEI (Rus.)	MSc	2016
2010 (MOET)	20	NDD and Instal MEDIII (Dus.)	Specialist	2017
2011 (MOET)	51	NPP and Instal. – MEPHI (Rus.)	Specialist	2018
2012 (MOET)	39	NPP and Instal. – MEPHI (Rus.)	Specialist	2019
2013 (MOET)	60	Nuclear related specialties (Rus.)	Specialist	2020
2014 (MOET)	65	Nuclear related specialties (Rus.)	Specialist	2021
Total	264			
Study halt	4			
Training need	22			



Various disciplines for NPP

SPECIALTIES	Number of students
Nuclear Reactor and nuclear material	5
Nuclear power and thermal physics	8
Thermal power and engineering	2
NPP and installing system	1
Nuclear power plant and substation	5
Nuclear physics and technology	7
Nuclear power plant: design, construction and operation	197
Radiation safety	8
Nuclear power plant: Automation of thermal process	6
Nuclear Power plant and equipments	6
Nuclear Power plant	15
TOTAL	260







Follow-up activities for newly graduated students

Translating technical documents and standards(from English and Russian languages)

Project managemen t training at NPP sites

Start working

2 months

1 year

1,5 years

2 years

Training on Vietnamese legal documents related to the project managemen t, technical norms and standards

OJT in thermal power plant construction sites



Training Plan (1)

#	Targeted audience	Training contents	Duration	No. of trainees	Venue
Ι	General training course				
1	All staffs related to the project	Nuclear Power Basics	1 month	750	Vietnam
II	Training for managers, consulting firms				
	Management personnel of EVNNPB, EVN and consulting firms	Knowledge relates to nuclear power project management	1/2 month	70	Oversea
3	Staff of technical department and construction management department of EVNNPB	Provide knowledge on thermal power, on the job training at the thermal power project management board	3 months	20	Vietnam
4	EVNNPB staff	Advanced training on project managemet (minimum 50%OJT)	3 months	40	Oversea
5	Consulting firms, staff of EVNNPB	Training design consultant, supervision consultant (minimum 50% OJT)	6 months	10	Oversea



Training Plan (2)

#	Targeted audience	Training contents	Duration	No. of trainees	Venue
III	I Training for O&M (EPC contract)				
IV	Training for EVN's University and colleges*				
10	Lecturers	Professional courses and/or research at universities	3 months	30	Oversea
11	Lecturers	Master/PhD on nuclear related fields	2-3 years	6	Oversea



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Short-term training

Place	Quantity	Contents	Targeted group
Vietnam	1599	Basics knowledge related on nuclear power and NPPs	Project staff, stakeholders
Japan	312	Basics, Legal, Safety, site selection, FS, planning, project management, licensing	Various from project staff to higher level
Korea	22	NPP project management	Project staff and EVN HO
France	20	Introduction to NPP	Managers
Russia	37	Nuclear Island, HR	Project staff and EVN HO



RISK MANAGEMENT



Risk Analysis

Risk 1: Shortage in required manpower for the project

- Experienced and competent persons donot choose to work for the project.
- Outstanding students don't choose to follow nuclear power fields. Or the university could not supply adequate students for the project to recruit.

Risk 2: Recruited personnel or the trained staffs are not competent enough to meet the work requirement

- Wrong competency definition of certain position.
- Could not attract well-experienced staffs to work for the project or outstanding students to follow nuclear field.

Risk 3: The workforce plan and training plan is not appropriate

- No experience in workforce and training planning for a NPP project.
- Changes in national policy or legal framework; changes in the project (technology, schedule...)

Risk 4: Training oversea is not as efficient as needed

- Language constrain
- · Cultural shock and cultural difference
- Change in the mood of trainees
- Limited information provided because of the sensitivity of the nuclear power field



Risk Mitigation

Risk 1: Shortage in required manpower for the project

- The policy and mechanism to give more incentives to people working and studying nuclear power should have clear guideline for implementation.
- Increase public communication about nuclear power to get public acceptance and awareness on nuclear power.

Risk 2: Recruited personnel or the trained staffs are not competent enough to meet the work requirement

- Close cooperation with vendor to review and revise the competency description for each position.
- Regular monitoring and evaluating the training efficiency.
- Focus on OJT.
- Develop Knowledge Management system.

Risk 3: The workforce plan and training plan is not appropriate

- Regular review and revise the manpower and training plan in response to changes of the project.
- Close cooperation with EPC contractor during project implementation.

Risk 4: Training oversea is not as efficient as needed

- Adequate language training for trainees to study oversea.
- Introduction of the destination country culture should be given to the trainees.
- Carefully select trainees with good attitude (eg. eager for discovering new technology, for being promoted...)
- Detailed training program should be discussed and agreed with the contractor.



REQUEST FOR FURTHER SUPPORT FROM ROSATOM



Conclusion

EVN need further support from Rosatom to:

- Determine specific specialization of the students studying in Russia to assure that we will have the right number of the right person for the Ninh Thuan NPP No 1.
- Determine training plan for project management staff in preparation for coming construction period. OJT is required so we need to cooperate with specific similar technology NPP construction site in Russia
- Determine further detail for the training plan for: managerial staff, O&M (key staffs, technician etc).



THANK YOU FOR YOUR ATTENTION!

