NINH THUAN NUCLEAR POWER PROJECTS MANAGEMENT BOARD

PLANNING OF WORKFORCE TRAINING FOR NINHTHUAN NUCLEAR POWER PLANT PROJECTS IN VIETNAM

November, 2011

Table of Contents

Overview of NinhThuan Nuclear Power Plant Projects in Vietnam.

- Project title: NinhThuan Nuclear Power Plant Projects
- Capacity: Approx 2x2x1000 MW
- Investment owner: Vietnam Electricity (EVN).
- Sites: NinhThuan province.

Overview of NinhThuan Nuclear Power Plant Projects in Vietnam.

SITES

- **1st plant: Ninh Thuan 1**
  - ✓ Site: Phuoc Dinh comu – Ninh Phuoc Dist - NinhThuan.
  - ✓ Capacity: approx **2 x 1000 MW**
  - ✓ Commercial operation date: 2020
- **2nd plant: Ninh Thuan 2**
  - ✓ Site: Vinh Hai comu – Ninh Hai Dist – NinhThuan.
  - ✓ Capacity: approx **2 x 1000 MW**
  - ✓ Commercial operation date: 2020

Workforce Planning for EVN's NPP

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PMB	100	180	240	300	250	250	200	200	200	200
NPP1								800	**1100**	**1100**
NPP2								800	**1100**	**1100**
Total	**100**	**180**	**240**	**300**	**250**	**250**	**200**	**1800**	**2400**	**2400**

Expected demand for manpower training for nuclear power plant

Level	Post graduate	Undergr aduate	College/ Intermediate	More than high school	Total
NPP 1 (Russia)	250	223	429	198	1100
NPP 2 (Japan)		473	429	198	1100
Standby (50%)	*125*	*460*			*585*
Total	375	1156	858	396	2785

Note:
- As percentage following Russian experience
- For the NPP that uses Japanese technology, it's assumed that it's not necessary to require post-graduate.
- 50% back up for university and post university since the other majors can be taken from the available manpower in university of Vietnam

Expected training demand for specialized university and post-university

	Specialized training/ Qualification	NPP	Post graduate	Graduate	Year starts training (at the latest)							Training venue
					2012	2013	2014	2015	2016	2017	2018	
1	Nuclear Power Plants and Installations	Russia	**168+*84***	**79+*40***	168	*84*	79	*40*				Post graduate: oversea, Graduate: in Vietnam + oversea
		Japan		**247+*124***			247	*124*				In Vietnam
2	Thermal Power Plants	Russia	**0**	**18**	0		18					In Vietnam
3	Automatic Systems of Data Processing and Management	Russia	**18+*9***	**0**	18	*9*	0					Post graduate : In Vietnam +oversea
4	Human and Environmental Radiation Safety	Russia	**18+*9***	**18+*9***	18	*9*	18	*9*				Post graduate : oversea, Graduate : In Vietnam +oversea
		Japan		36+*18*								In Vietnam
5	Automatics and Management	Russia	**32+*16***	**0**	32	*16*	0					Post graduate : In Vietnam +oversea
6	Chemical Technology of Inorganic Materials	Russia	**3+*2***	**43+*22***	3	*2*	43	*22*				Post graduate : oversea, Graduate : In Vietnam +oversea
		Japan		**46+*23***			46	*23*				In Vietnam
7	Energy, Electrical Engineering, Electromachinery and Installations	Russia	**8+*4***	**24**	8	*4*	24					Post graduate : In Vietnam +oversea Graduate : Local
8	Technical Operations and Maintenance of Electrical and Electromechanical Equipment	Russia	**0**	**18**	0		18					In Vietnam
9	Information Technology and Computer Engineering	Russia	**0**	**5**	0		5					In Vietnam
10	Electrical Power Engineering	Russia	**3+*2***	**18**	3	*2*	18					In Vietnam

Balancing annual training demand for university and post-university (new major, not yet popular or majors that require high qualification)

	Specialized training/ Qualification	Total number required	Year starts training/Quantity										Training venue/note
			Before 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
	MASTER TRAINING OVERSEA												
1	Nuclear Power Plants and Installations	***168+84***											Russia
	Trained		29										*EVN sent to train in Russia*
	Need more training				139	*84*							(the number of people sent by MoET in 2010+2011 is not calculated since they do not have commitment with EVN)
4	Human and Environmental Radiation Safety	***18+9***											Russia
	Trained		0										
	Need more training				18	*9*							
6	Chemical Technology of Inorganic Materials	***3+2***											Russia
	Trained		0										
	Need more training				3	*2*							
	TOTAL:												
	UNIVERSITY TRAINING IN VIETNAM + MASTER OVERSEA												
3	Automatic Systems of Data Processing and Management	***18+9***								18	*9*		Students who graduated in Vietnam should learn Russian in 1 year
5	Automatics and Management	***32+16***								32	*16*		
7	Energy, Electrical Engineering, Electromachinery and Installations	***8+4***								8	*4*		
	UNIVERSITY TRAINING IN VIETNAM + OVERSEA												
1	Nuclear Power Plants and Installations	***79+40***					79	*40*					Need to study foreign language when studying in Vietnam

Balancing annual training demand for university and post-university (cont.)
(new major, not yet popular or majors that require high qualification)

	Specialized training/ Qualification	**Total number required**										**Training venue/note**
			Before 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
4	Human and Environmental Radiation Safety	***18+9***					18	*9*					
6	Chemical Technology of Inorganic Materials	***43+22***					43	*22*					
	UNIVERSITY TRAINING IN VIETNAM												
1	Nuclear Power Plants and Installations	***247+124***											
	Trained			58	60								Training in EPU
	Need more training					65	63	*124*					
4	Human and Environmental Radiation Safety	***36+18***					36	*18*					Training in local universities
6	Chemical Technology of Inorganic Materials	***46+23***					46	*23*					Training in local universities

Training for the lecturers specializing in nuclear power for the Electricity Power University (minimum demand in period 2010 – 2015)

#	Speciality	Qualification		Note
		Doctor	Master/BA/Engineer	
1	Nuclear physics and nuclear engineering	2	2	
2	Reactor physics, reactor kinetics and reactor control	1	1	
3	Nuclear power plant and technology and equipment system	1	1	
4	Heat transfers and thermodynamics in reactor	2	2	
5	Nuclear fuel and radioactive waste	1	1	
6	Nuclear and radiation safety	2	2	
Total		**9**	**9**	

Trân trọng cảm ơn!
Thank You for your attention!