



Barakah NPP(BNPP) Project in UAE



November, 2018

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1 Introduction of BNPP Project

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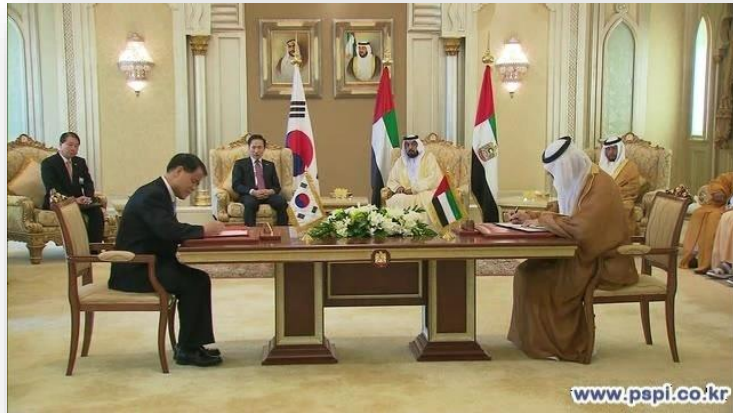
5 Closing Remarks



1

Introduction of BNPP Project

Prime Contract



Contract Date

Dec. 27, 2009

Owner/Contractor

ENEC / KEPCO

Scope

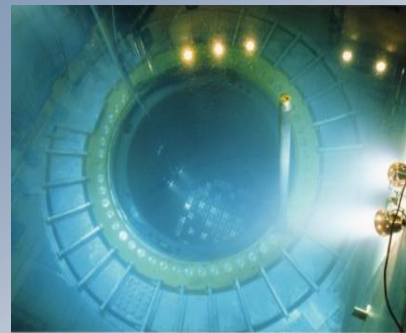
APR1400 x 4 Unit (5,600MW)
Nuclear Fuel (3 Cycles)
Operating Support Service

Ref. Plant

Shin-Kori 3&4 in Korea



APR1400 4Units



Fuel Supply

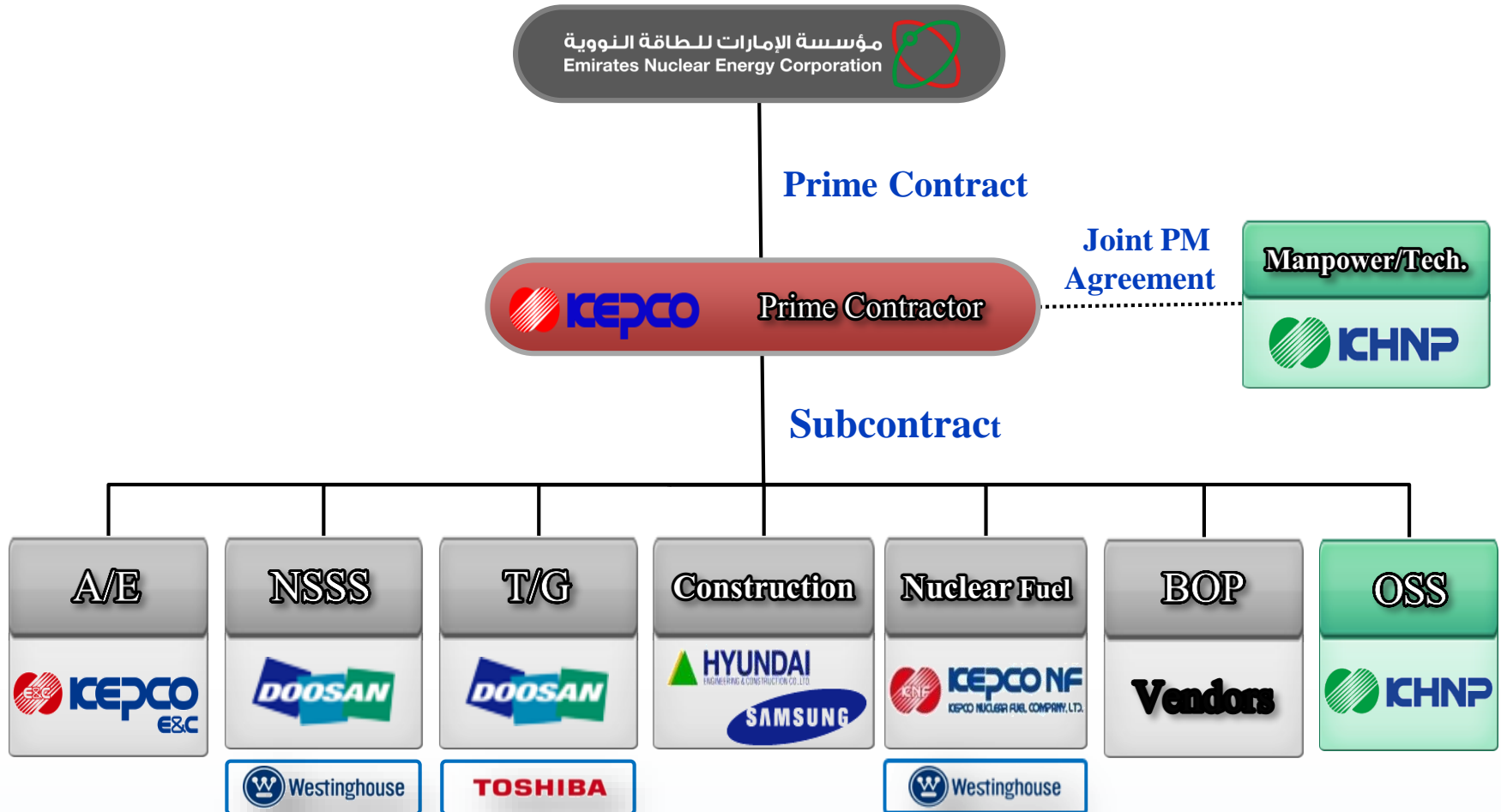


Simulator



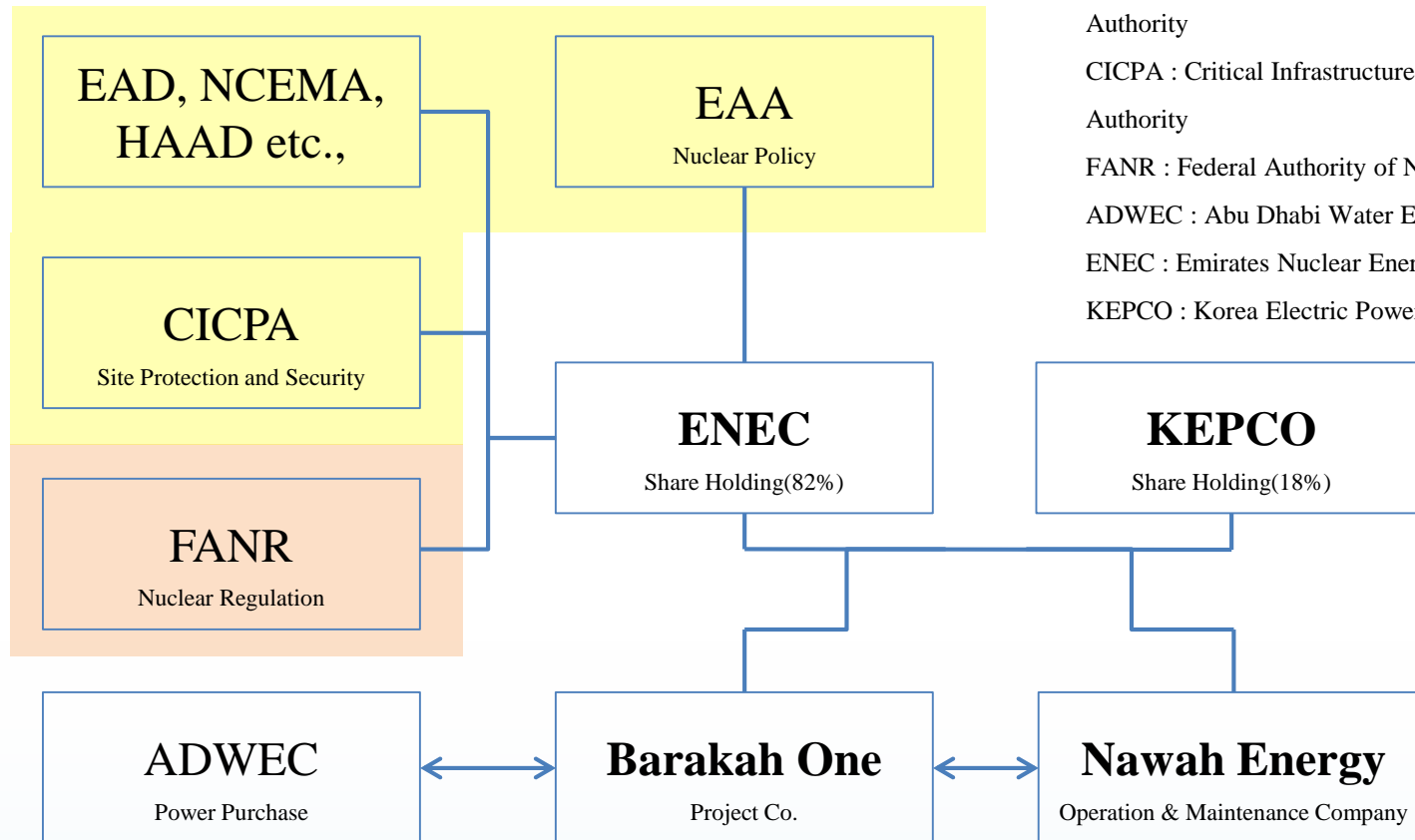
OSS

Structure of Consortium



UAE Government Sectors

- EAA : Executive Affairs Authority
- EAD : Environment Agency - Abu Dhabi
- HAAD : Health Authority – Abu Dhabi
- NCEMA : National Crisis and Emergency Management Authority
- CICPA : Critical Infrastructure and Coastal Protection Authority
- FANR : Federal Authority of Nuclear Regulation
- ADWEC : Abu Dhabi Water Electricity Company
- ENEC : Emirates Nuclear Energy Corporation
- KEPCO : Korea Electric Power Corporation





Project Status

Current Status

● **Overall Project Progress Rate (Unit 1~4) : 91 %** (As of Sep. 2018)

● **Status of Unit 1 (98%)**

- Initial Construction Work Completed
- Commissioning in the Final Stages
- Operational Readiness On going
- Commercial Operation in 2021 pending regulatory approval



Commissioning



Construction



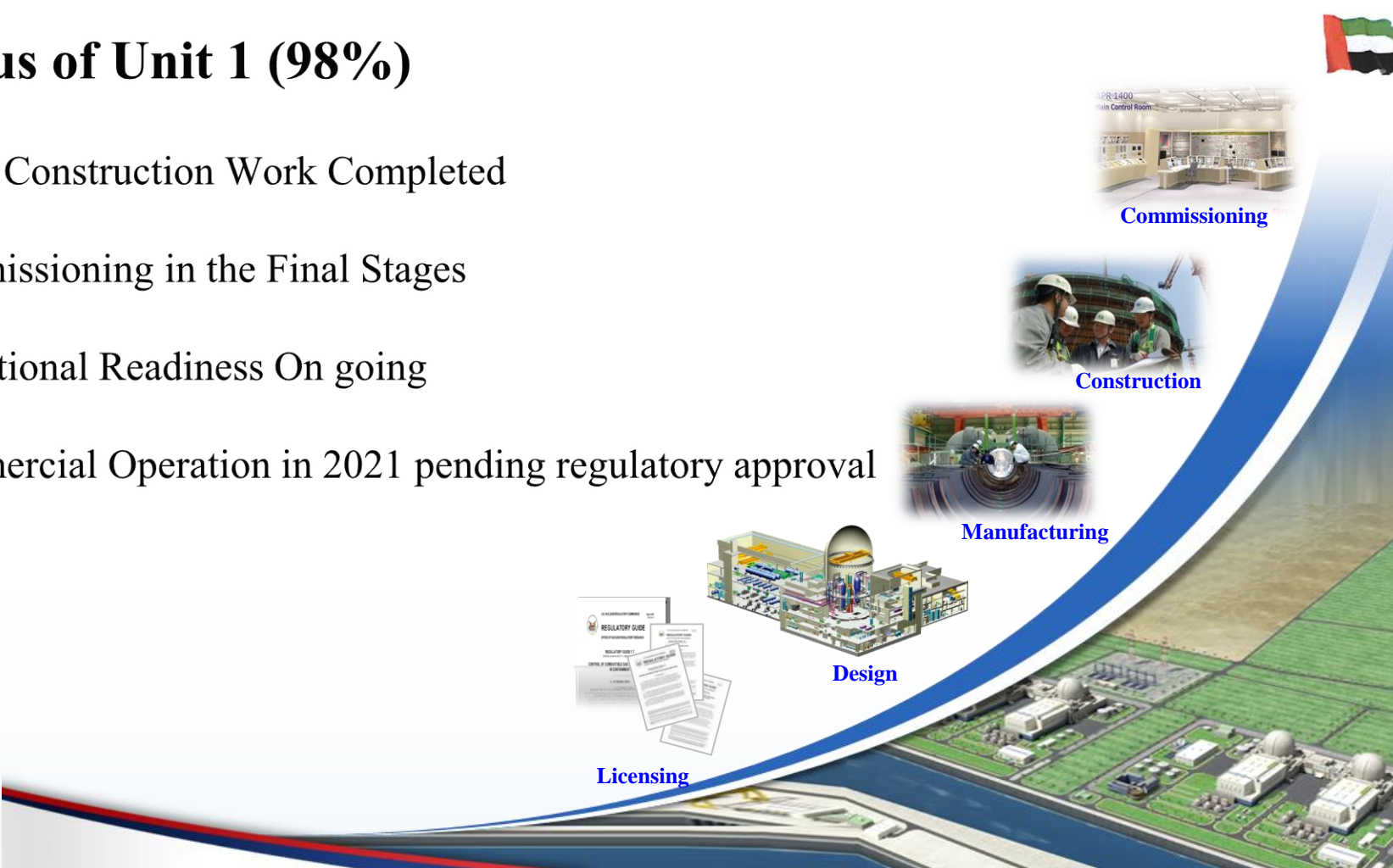
Manufacturing



Design



Licensing



Current Status

● Status of Unit 2 (95%)

- Commissioning in the Final Stages and Operational Readiness On going



Commissioning

● Status of Unit 3 (85%)

- Commissioning in the Final Stages (Cold Hydrostatic Test)



Construction

● Status of Unit 4 (77%)

- Construction and Commissioning in the Final Stages



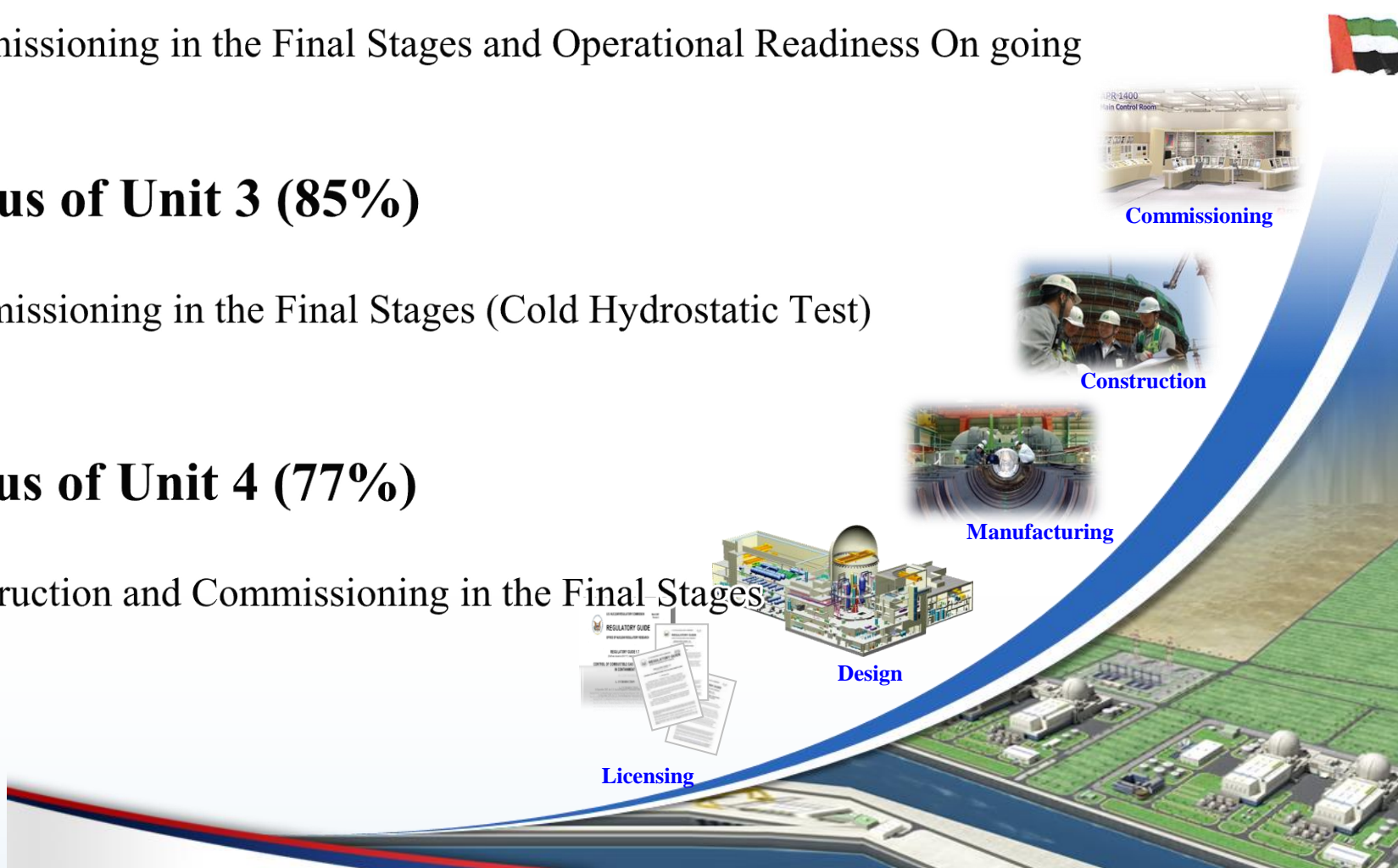
Manufacturing



Design



Licensing

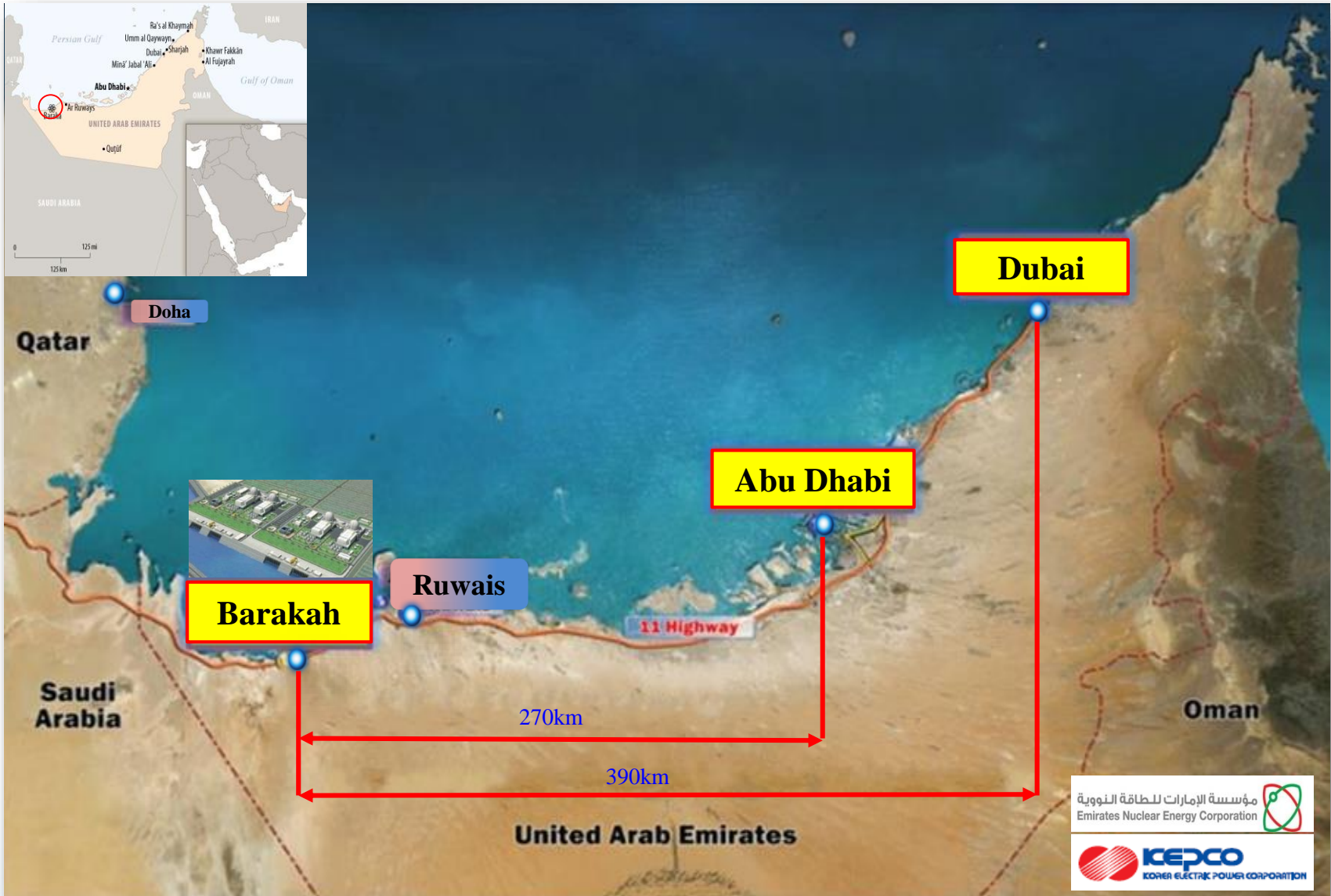




3

BNPP Project Challenges

Site Location



Midday Break in Summer

● UAE Labor Law(Federal Law No. 8 of 1980)



15 June - 15 September 2018
12:00 pm – 3:00 pm

❖ Working time should be modified for improving productivity and efficiency.

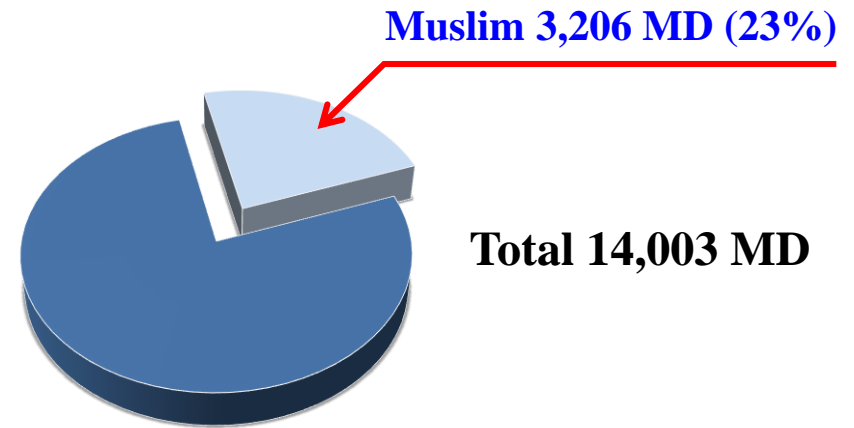
Description	Site Working Time	Office Working Time
Morning	05:30 ~ 12:00 (6.5 hrs)	06:00 ~ 12:00 (6.0 hrs)
Afternoon	15:00 ~ 18:30 (3.5 hrs)	14:00 ~ 18:00 (4.0 hrs)
Night / Overnight (2 shifts)	19:30 ~ 04:30(+1) (If necessary)	



Ramadan Month



[16 May ~ 15 June 2018]



[Muslim & Non Muslim Labor Status]

+ Working Schedule

Description	Non Muslim's Working Time	Muslim's Working Time
Morning	05:30 ~ 12:00 (6.5 hrs)	05:30 ~ 12:00 (6.5 hrs)
Afternoon	15:00 ~ 18:30 (3.5 hrs)	-
Night / Overnight (2 shifts)	19:30 ~ 04:30(+1) (If necessary)	-

Dust and Sandstorm



● Protection Measures



Microfilament netting



Watering



Tarpaulin Tent



Vinyl Packing



Vinyl Wrapping



Sand Blockages



Gravel Pavement



Vinyl Packing



Tent Covering



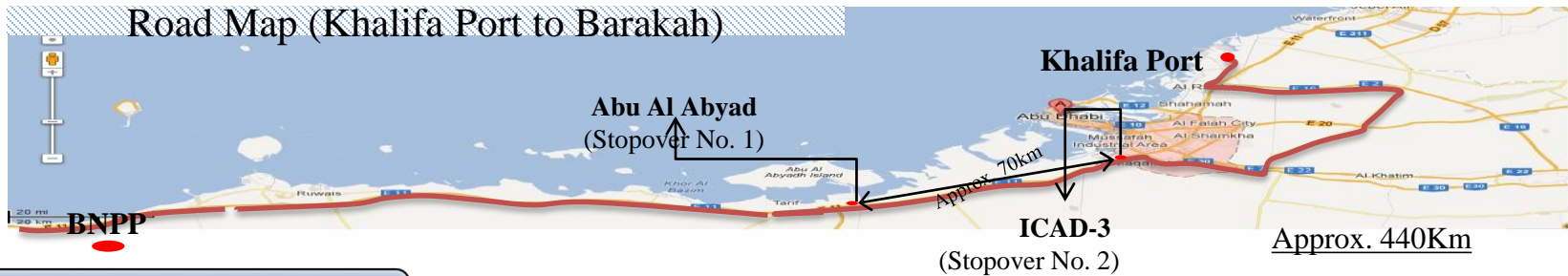
Temporary Ventilation

Logistics

Transport Route



Road Map (Khalifa Port to Barakah)



Transport Schedule





4

KHNP's Strengths

Efficient and Timely Delivery(1)

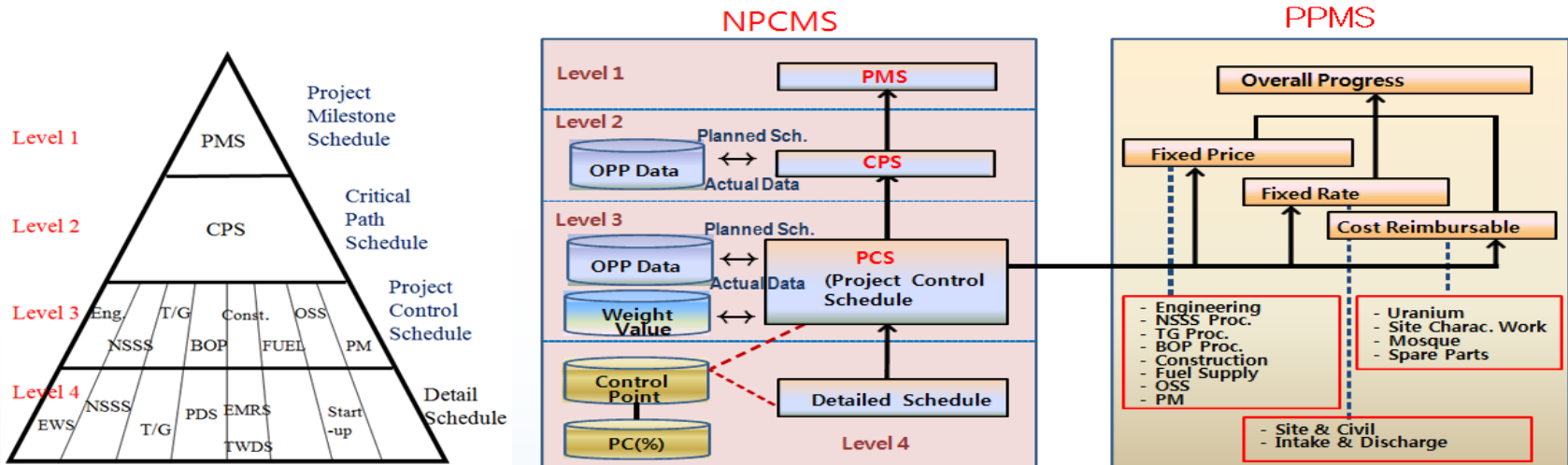
● Experienced and dedicated Personnel

● Procedures for Project Management

- Project Procedure Manual (PPM)
- Site Internal Procedure (SIP)
- Overseas Office Internal Procedures (NOIP, POIP)

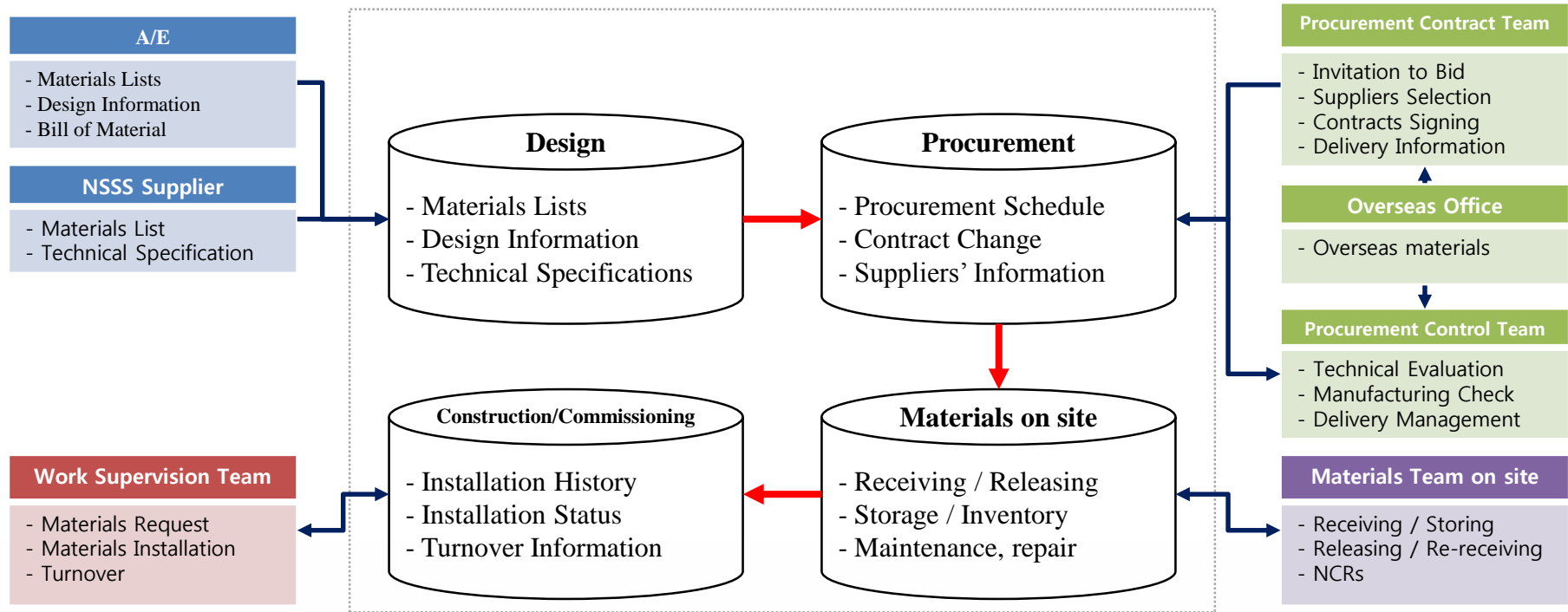


● Project Management System (NPCMS, PPMS)



Efficient and Timely Delivery(2)

Materials Management System



Efficient and Timely Delivery(3)

Document Control & Information Sharing System

BNPP BOK for Construction

Home

Integrated Search | Categorized Search | Statistical Search | Milestone Search | Hierarchical Search | Latest Knowledge Search | Q&A | Notice

User ID: Password: **LOGIN**

Integrated Search

Keyword: Search **Help** **Initial**

All Doc. No Title Organization
 Registered By Reference Doc Attachment

Period: -

Notice **Q&A**

Active X(8 Sheet) Installation File [26Sep2013]
 User Registration Application Form [17Sep2010]

Latest Knowledge (for two days) 419 Doc. Registered

- DNR-ZNR-ZKS-15-0081(Rev.4) 조치 요청
 15Sep2017 UAE NUCLEAR PROJECT DV
 2호기 연료계좌 관련 DNR 2건(DNR-ENA-EKS-17-0046, 47) 시정조치 요청

view (today/total) 4 / 50,248

E-Portal Internal External
 PPMS BNPP 1,2 BNPP 3,4
 HELP DESK

#155, Bujak-ro, Yangbuk-myeon, Gyeongju-si, Gyeongsangbuk-do, Korea
 Contact us : BNPPBOK@khnpp.co.kr / +82-54-704-5558

[BOK]

External Portal

Project Overview | **Procurement** | Sent/Received | Documents | Statistics

• NSSS • T/G • BOP

Login as Lee, Sun Woo **Logout**

Best of the Best!!
 A Great Nuclear Power Plant Model

Engineering Procurement Fuel Construction Project Mgt. OSS Others

Project Mgt.

Manages records of received/sent documents and deliverables required for the purpose of owner's project management.

Notice **Q&A**

- Create User Account
- Create Certificate

KEPCO
 KOREA HYDRO & NUCLEAR POWER CO., LTD.
 MQMS

[e-Portal(External Portal)]

External Portal

Project Overview | **Procurement** | Sent/Received | Documents | Statistics

• NSSS • T/G • BOP

Login as Lee, Sun Woo **Logout** | Licensing | Notice | Q&A

Board

Licensing

1&2 FSAR | 1&2 RAI | 3&4 FSAR | 3&4 RAI | 3&4 Specific Input

Project: ALL Document No. Title **Find**

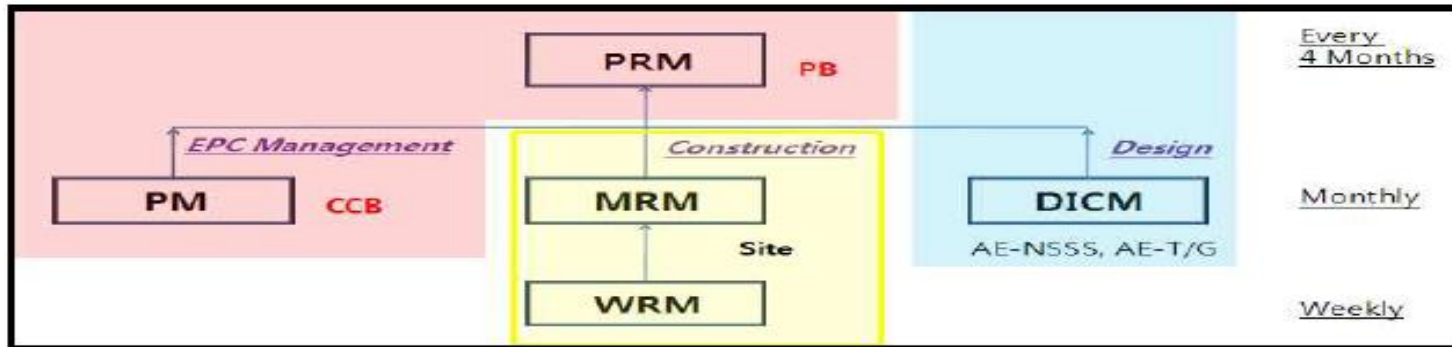
No	Project	Title	Chapter	Registered Date	Company	Registered by
1	BNPP1,2	U12_FSAR_RAI_Response_Tracking_Sheet (13Sep17)	Chapter 1	13SEP2017	KEPCO	Lee, Soo Rin
2	BNPP1,2	U12_FSAR_RAI_Response_Tracking_Sheet (13Sep17)	Chapter 1	13SEP2017	KEPCO	Lee, Soo Rin
3	BNPP1,2	Units 1&2 FSAR Chapter 7_Non-ECL_Oct. 2016	Chapter 7	17JAN2017	KEPCO	Lee, Soo Rin
4	BNPP1,2	Units 1&2 FSAR Chapter 6_Non-ECL_Oct. 2016	Chapter 6	17JAN2017	KEPCO	Lee, Soo Rin
5	BNPP1,2	Units 1&2 FSAR Chapter 4_Non-ECL_Oct. 2016	Chapter 4	17JAN2017	KEPCO	Lee, Soo Rin

Navigation: << >> | 1 | 2 | 3 | 4 | 5 | 6 | >>>

[Licensing Portal]

Efficient and Timely Delivery(4)

Regular Project Meeting

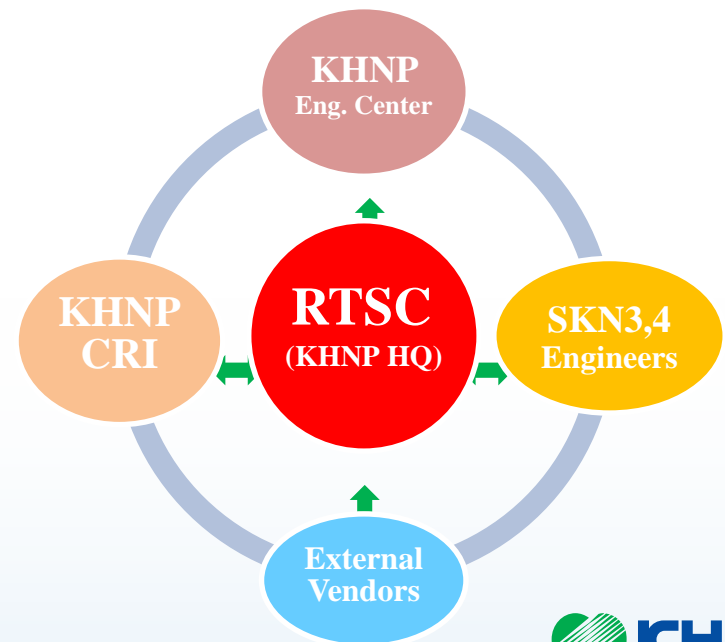


Reference Plant's Lessons Learned

Search Results for BNPP BOK for Construction:

No	Project	Doc. Title	Doc. No	Rev	Plan	Date	Organization	Registered by	Reference
1	BNPP 1.2	Lessons Lear: SKN3 RMWT Hydro Te	LL-2013-0001	00	000	Release	23Jan2013		
2	BNPP 1.2	Lessons Lear: Design Improvement of	LL-2013-0002	00	000	Release	23Jan2013		
3	BNPP 1.2	Lessons Lear: Site requirement chang	LL-2013-0003	00	000	Release	23Jan2013		
4	BNPP 1.2	Lessons Lear: Applying Regulatory Gu	LL-2013-0004	00	000	Release	23Jan2013		
5	BNPP 1.2	Lessons Lear: Butering material chan	LL-2013-0005	00	000	Release	23Jan2013		
6	BNPP 1.2	Lessons Lear: Design Change to 50 H	LL-2013-0006	00	000	Release	23Jan2013		
7	BNPP 1.2	Lessons Lear: App. of Reactor Vessel	LL-2013-0007	00	000	Release	23Jan2013		
8	BNPP 1.2	Lessons Lear: Quantity and Shape for	LL-2013-0008	00	000	Release	23Jan2013		
9	BNPP 1.2	Lessons Lear: Forging Material Desig	LL-2013-0009	00	000	Release	23Jan2013		
10	BNPP 1.2	Lessons Lear: SFHM design change 1	LL-2013-0010	00	000	Release	23Jan2013		
11	BNPP 1.2	Lessons Lear: PCT effect by the modif	LL-2013-0011	00	000	Release	23Jan2013		

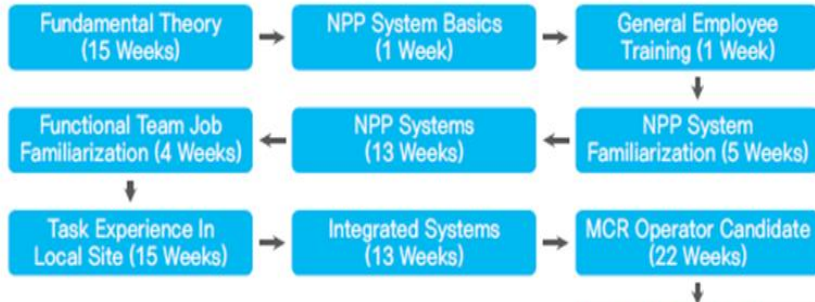
Remote Technical Support Center



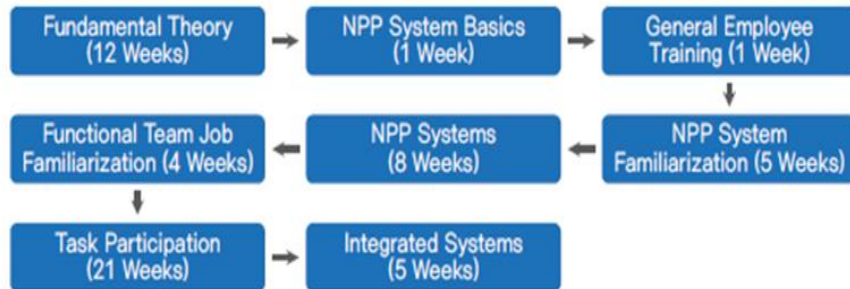
Owner Staff Training Program

Training and Qualification Programs of NPP Personnel (Based on SAT)

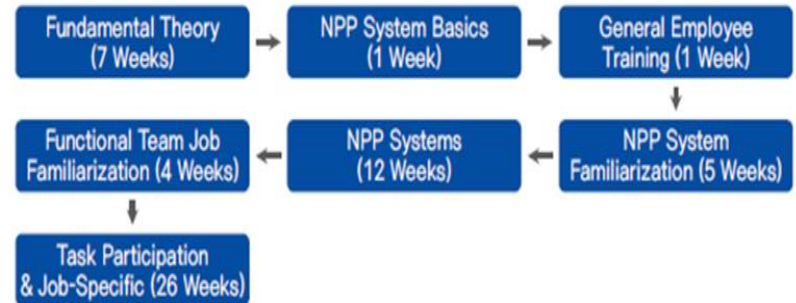
• MCR Operators (102 Weeks)



• Local Operators (57 Weeks)



• Engineers & Operation Support Personnel (56 Weeks)



※ Training Period of Emirati vs KHNP Staff

	(Emirati at Barakah)	(KHNP in Korea)
MCR Operators	102 Weeks	36 Weeks
Local Operators	57 Weeks	12 Weeks
Engineers	56 Weeks	14 Weeks



5

Closing Remarks

Summary

- **Over 40 years experience in NPP Construction**
- **Optimized Project Management**
- **Experienced and Qualified Personnel**
- **Proven Supply Chain Management**

The World's Best !



THINK SAFETY

Thank You

