

Korean Perspective of SDP

<KHNP(Korea Hydro & Nuclear Power) case>



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Content

I Standard Design Process

II KHNP Design Change Process

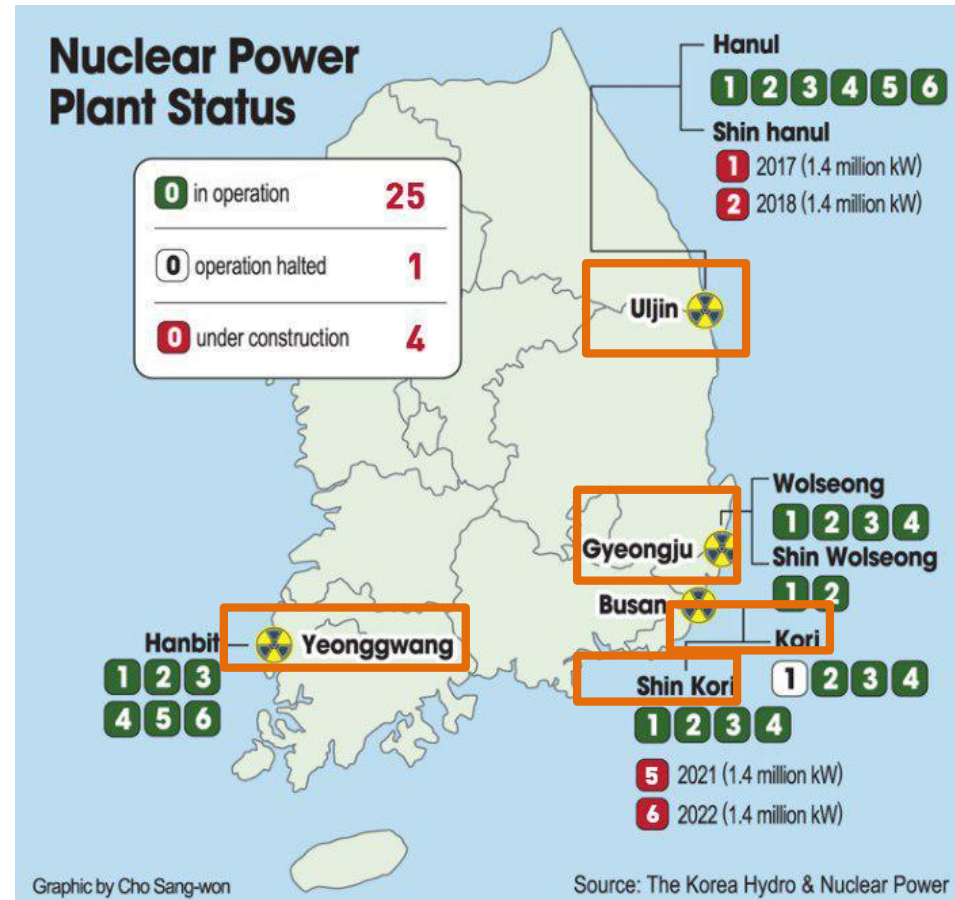
III KHNP's CM Software

➤ Total Application of CMIS to Korean NPPs

No.	Plant	Reactor Type
1	Shinhanul 1 - 2	APR-1400
	ShinKori 3 - 4	APR-1400
2	Shinkori 1 - 2	OPR-1000
	Shinwolsung 1 - 2	OPR-1000
	Hanul 3 - 6	KSNP
	Hanbit 3 - 6	KSNP
3	Hanul 1 - 2	PWR (Framatome)
	Hanbit 1 - 2	PWR (Westinghouse)
	Kori 2 - 4	PWR (Westinghouse)
4	Wolsung 1 - 4	CANDU

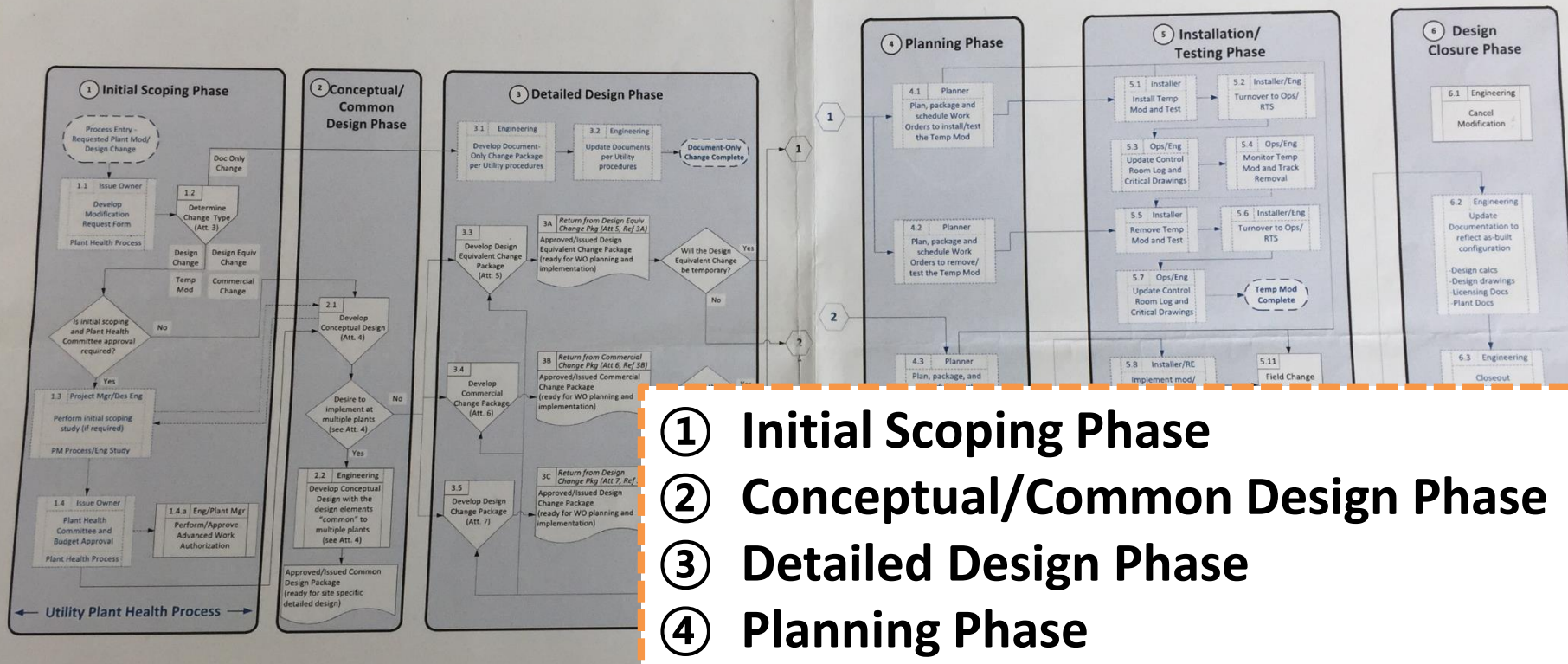


KHNP
KOREA HYDRO & NUCLEAR POWER CO., LTD



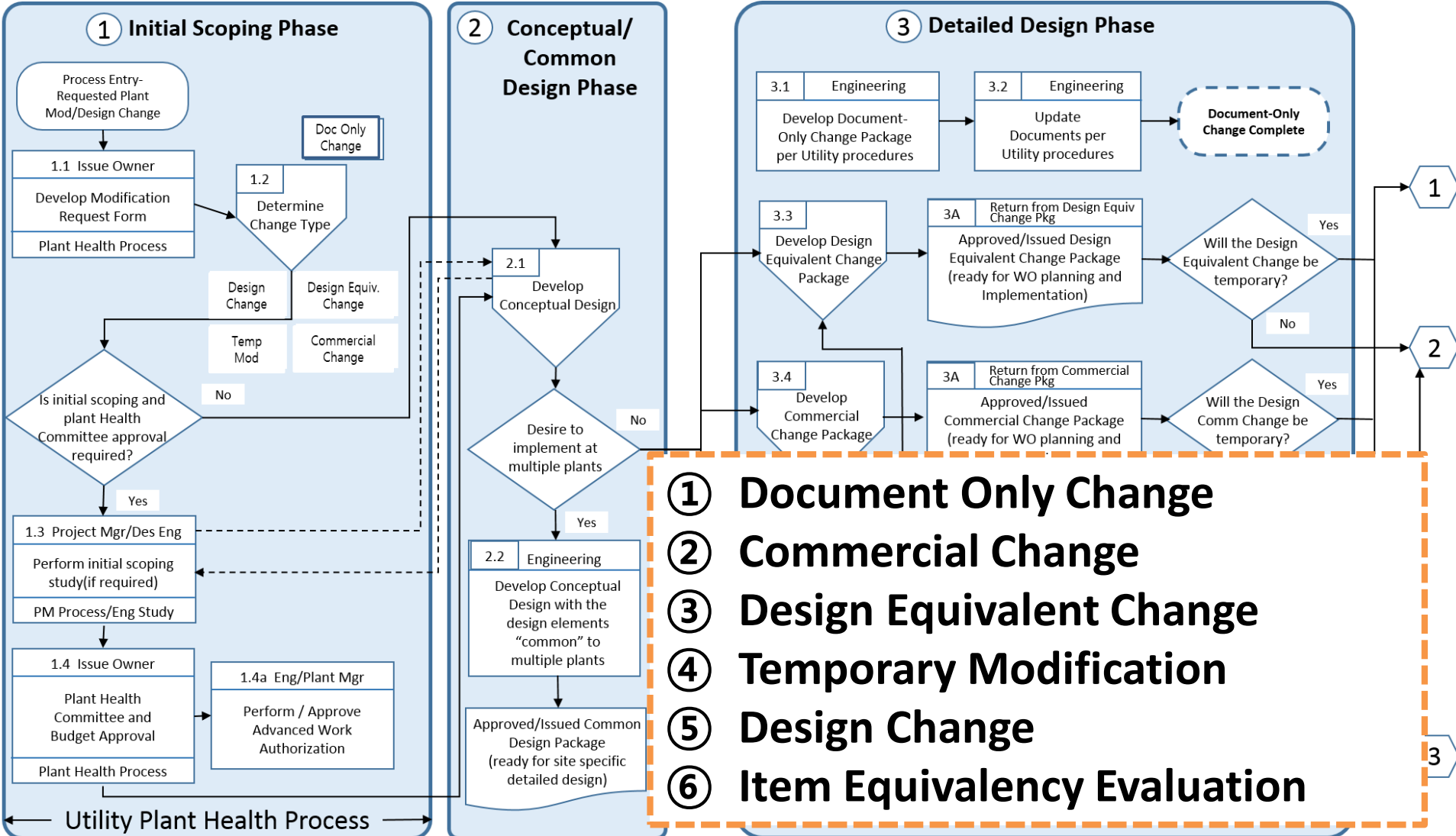
➤ Design Change Phases

IP-ENG-001 Attachment 2, Standard Design Process Flowchart



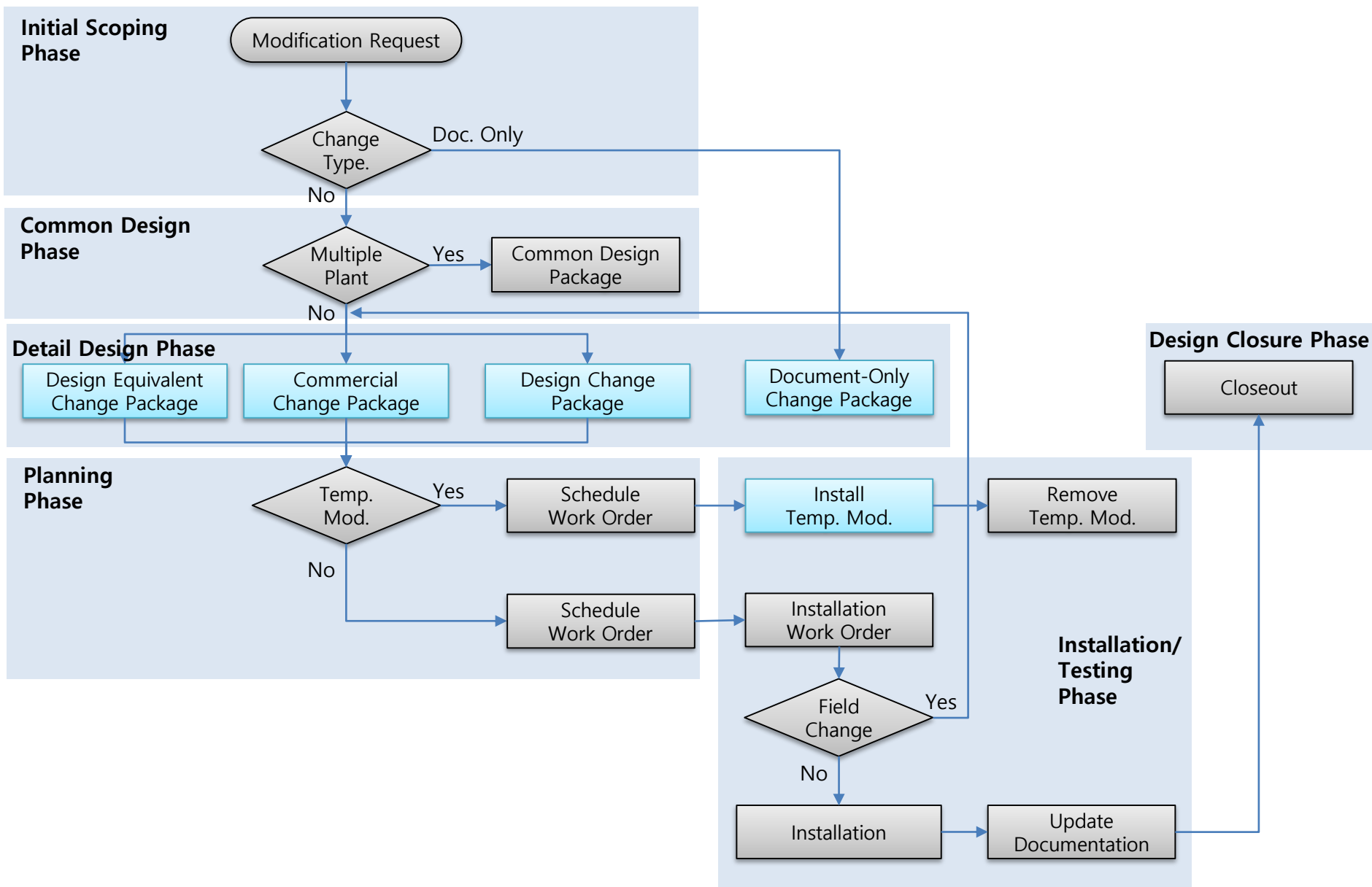
- ① Initial Scoping Phase
- ② Conceptual/Common Design Phase
- ③ Detailed Design Phase
- ④ Planning Phase
- ⑤ Installation / Testing Phase
- ⑥ Design Closure Phase

➤ Design Change Type



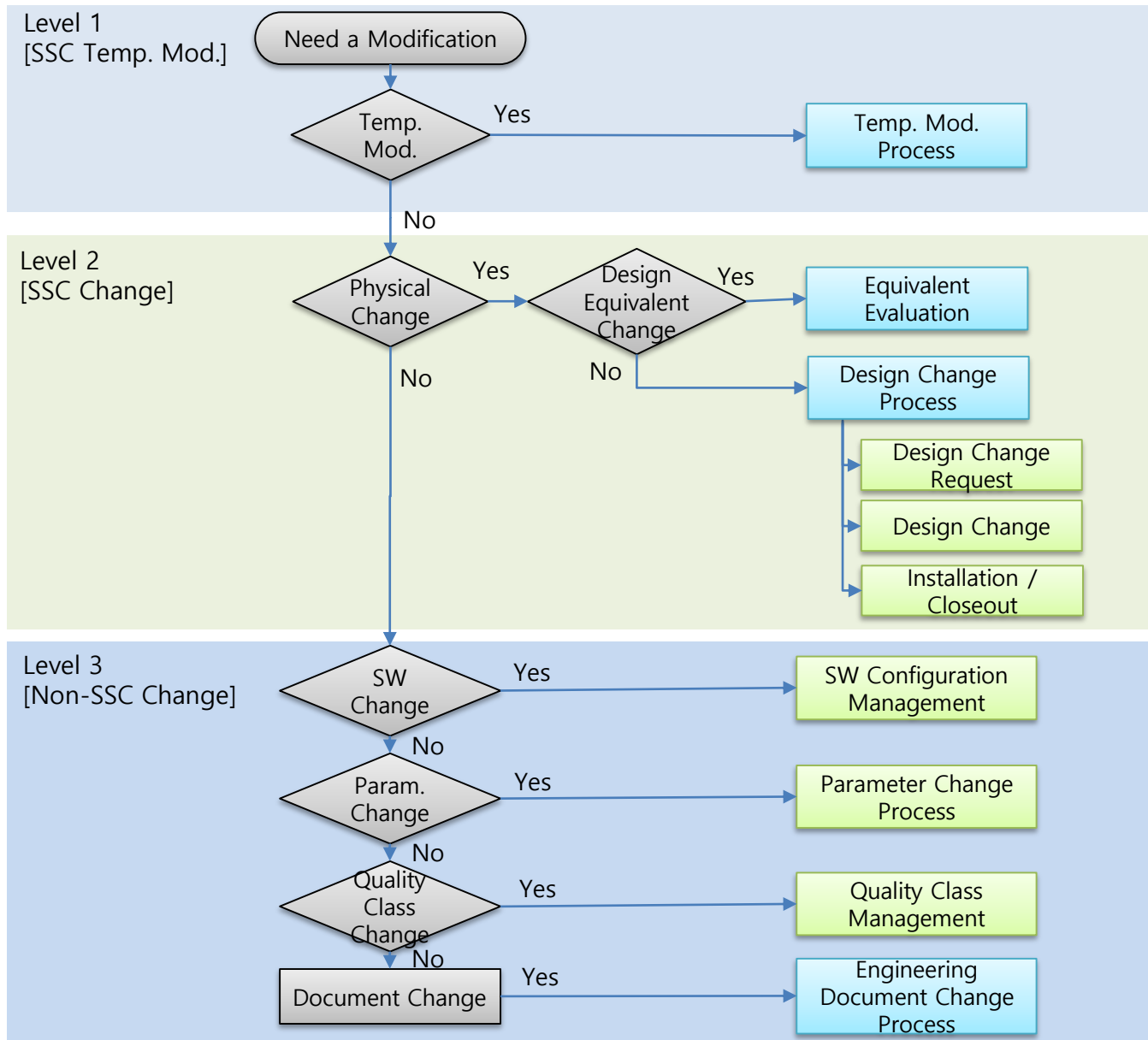
1.2 Summary of SDP Flowchart

I . Standard Design Process



2.1 KHNP's Design Change Process

II. KHNP Design Change Process



		KHNP	SDP
SSC Temp. Mod.	Temporary Modification		Temporary Modification
SSC Change	Equivalent Evaluation		Design Equivalent Change Item Equivalent Evaluation
			Commercial Change
	Design Change	Design Change Request	Design Change
		Design Change	
Installation/Closeout			
Non-SSC Change	SW Configuration Management		
	Parameter Change Process		
	Quality Class Management		
	Engineering Document Change		Document Only Change

- Promote/implement design sharing mechanism.
- Automate/streamline SDP Process Forms
- Flexible solution – Tailor to existing software
- Automated final records capture
- Output Key Performance Indicators to measure SDP effectiveness

- SSO (Single Sign On) for users
- Provides EC cloning capabilities
- Automatically creates reviews based upon results of the Design Attribute Review (DAR)
- Allows Stakeholders (other departments) to provide direct input to EC Sections
- Interfaces with existing Utility software to feed source data to SDP

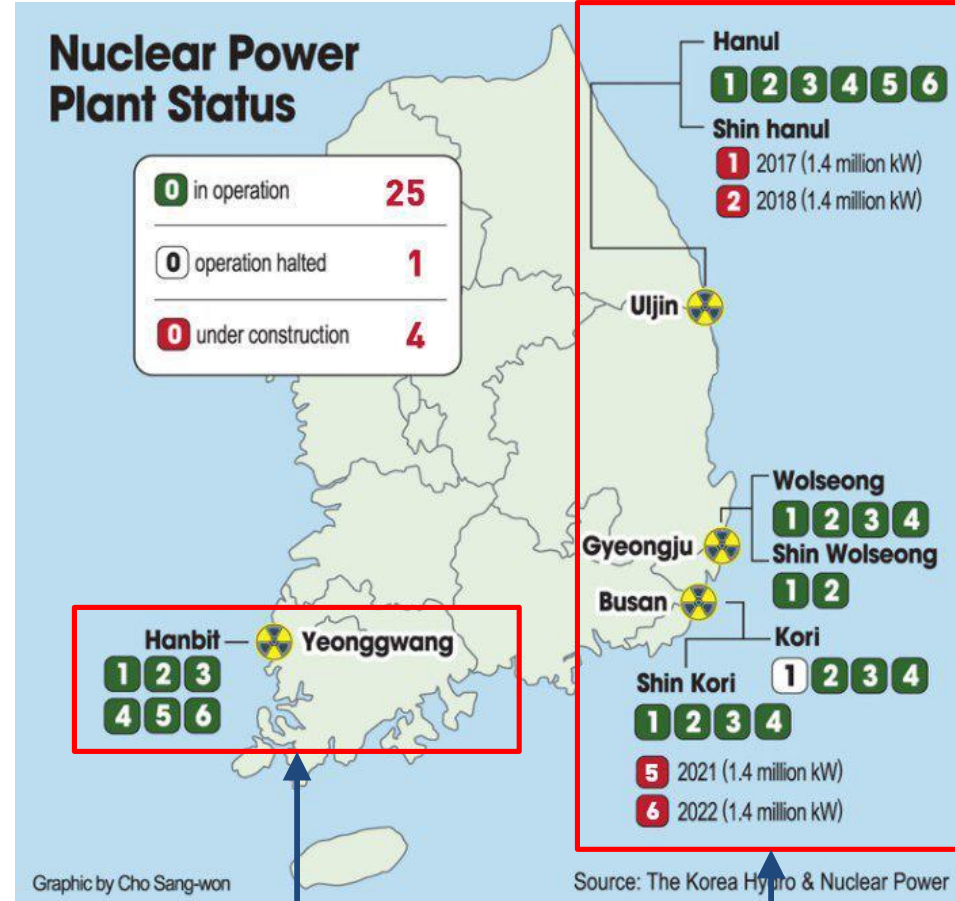
- Promote/implement design sharing mechanism.
- Automate/streamline SDP Process Forms (Electric Signature and workflow)
- Flexible solution – Tailor to existing software
- Automated final records capture (Upload to Document management server)
- Output *Key Performance Indicators* to measure SDP effectiveness

- SSO (Single Sign On) for users
- Provides EC cloning capabilities (Provide waiting list and cloning basic info.)
- Automatically creates reviews based upon results of the Design Attribute Review (DAR)
- Allows Stakeholders (other departments) to provide direct input to EC Sections
- Interfaces with existing Utility software to feed source data to SDP
- Integrated Solution for DBD management and FCI explorer

KHNP		SDP	
SSC Temp. Mod.	Temporary Modification	Temporary Modification	
SSC Change	Equivalent Evaluation	Design Equivalent Change Item Equivalent Evaluation	
		Commercial Change	
	Design Change	Design Change Request	Design Change
		Design Change	
Installation/Closeout			
Non-SSC Change	SW Configuration Management		
	Parameter Change Process		
	Quality Class Management		
	Engineering Document Change	Document Only Change	

➤ Total Application of CMIS to Korean NPPs

No.	Plant	Start Date (Design change Only)
1	Shinkori 1 - 2	2016.10
2	ShinKori 3 - 4	2018.01
	Shinwolsung 1 - 2	2018.01
	Hanul 3 - 6	2018.01
	Hanbit 3 - 6	2018.01
3	Hanul 1 - 2	(2018.01)2018.08
	Hanbit 1 - 2	(2018.01)2018.08
	Wolsung 1 - 4	(2018.01)2018.08
	Kori 2 - 4	(2018.01)2018.08
4	Shinhanul 1 - 2	(2018.01)2018.08



Total Application

➤ Improvements



Integrated Change Management Support(Design Change, Temporary Change, Document Change, SW Configuration Management etc.)

One-Stop services for Design change process



Provides Dashboard that Indicates Various Statistics

Various Technical Analysis



Digitalization of Entire Change Document Format

Minimization of Human Error



When Registering Documents, Linking Data and Assigning Approval Line can be done by "One-Step"

Easy to do change management



Systematic Drawings Version Control and Prevention of Simultaneous Design Change on the Same Drawing

Hard Version Management



CM Performance Indicators (related to ECs)



Integrate Equivalency Evaluation Process



Thank you!

