

ABWR Technology and Construction Experiences

October 27, 2009

Hitachi-GE Nuclear Energy, Ltd.

Masaharu HANYU

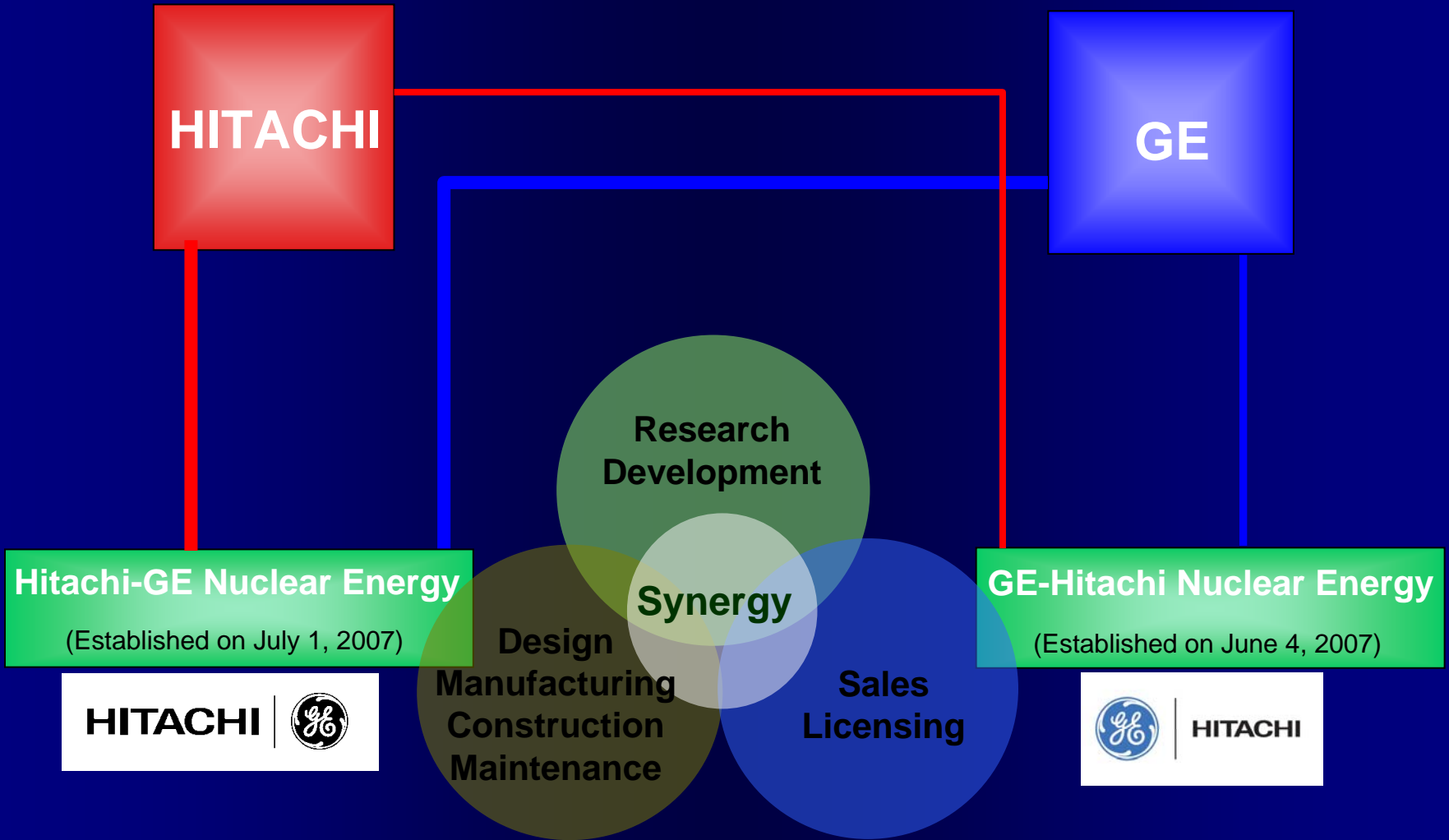
President & Representative Director



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3. Realizing **Reliable NPP in Shorter Period**
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5. Continuous Construction of NPP
6. Our Business for the world
7. for the Future

1. Introduction



Promote our Core Technology BWR

2. ABWR Features




ABWR Features



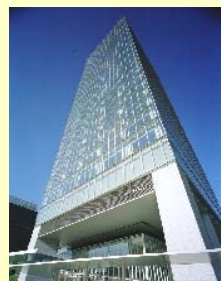
3. Realizing **Reliable NPP** in **Shorter Period** - our Back-bone



Hitachi-GE Nuclear Energy, Ltd.



Hitachi Works



Tokyo Office


R/D site



Energy and Environmental
Systems Lab.




Hitachi Research
Lab.




Mechanical Engineering
Research Lab.


Works




Rinkai Factory




Thermal Power Systems
div.




Electrical Systems div.



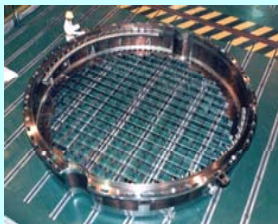
Information & Control
System div.




Babcock-Hitachi K.K.




Hitachi Plant
Technologies, Ltd.




Inner Structure




Turbine




Generator



Central Control Panel
Hitachi, Ltd.



RPV



Internal Pump

3. Realizing **Reliable NPP** in **Shorter Period**

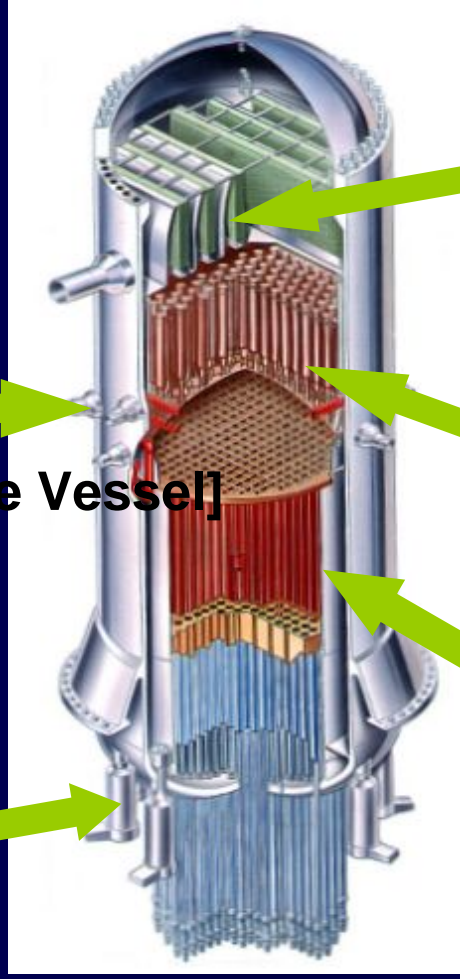


- High quality equipments

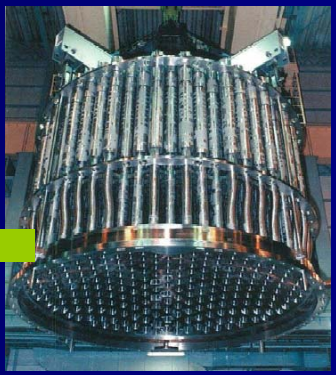
Advanced technology & skilled technician
produce High quality equipments



RPV
[Reactor Pressure Vessel]



Steam Dryer



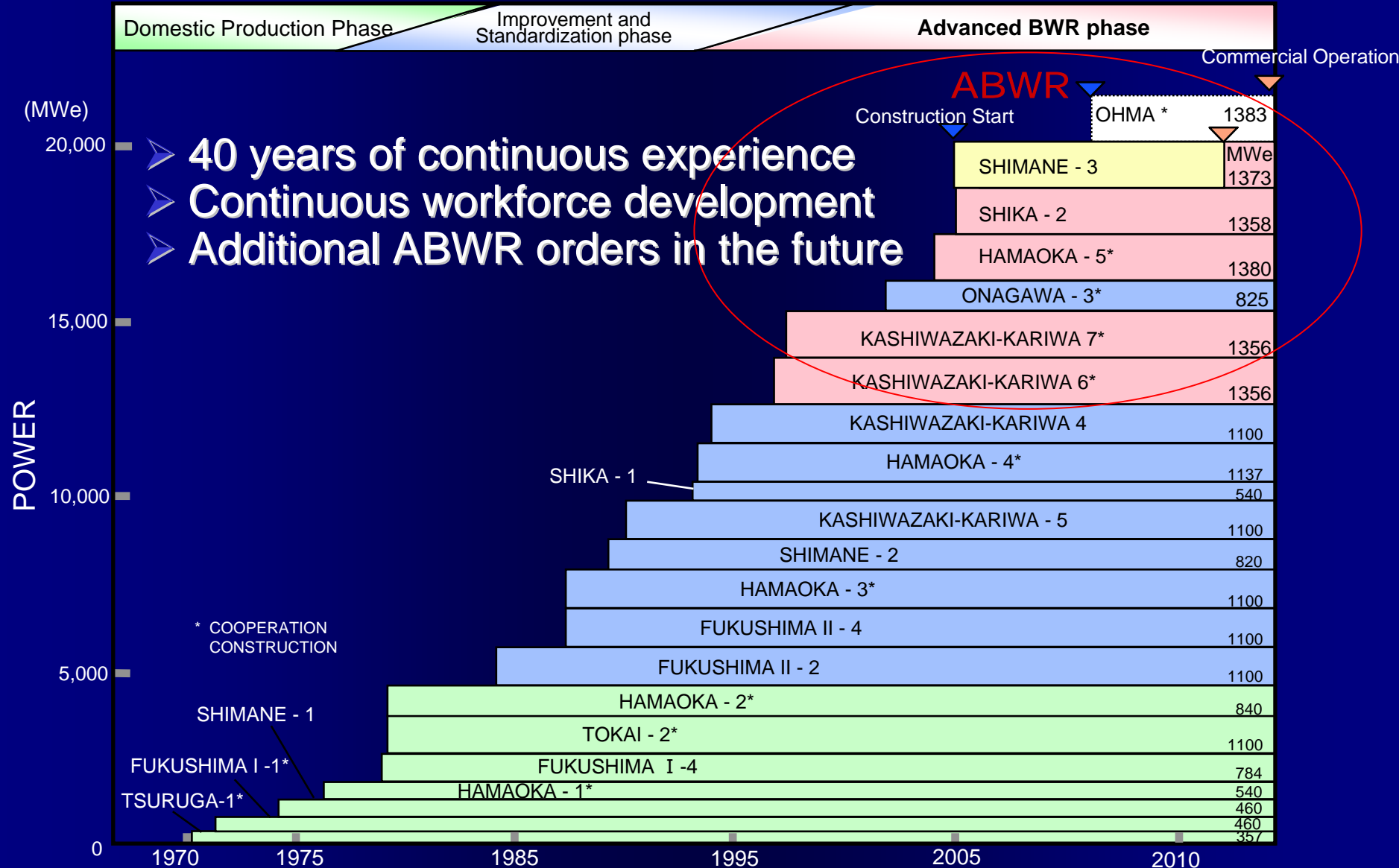
Steam Separator



Shroud

RIP
[Reactor Internal Pump]

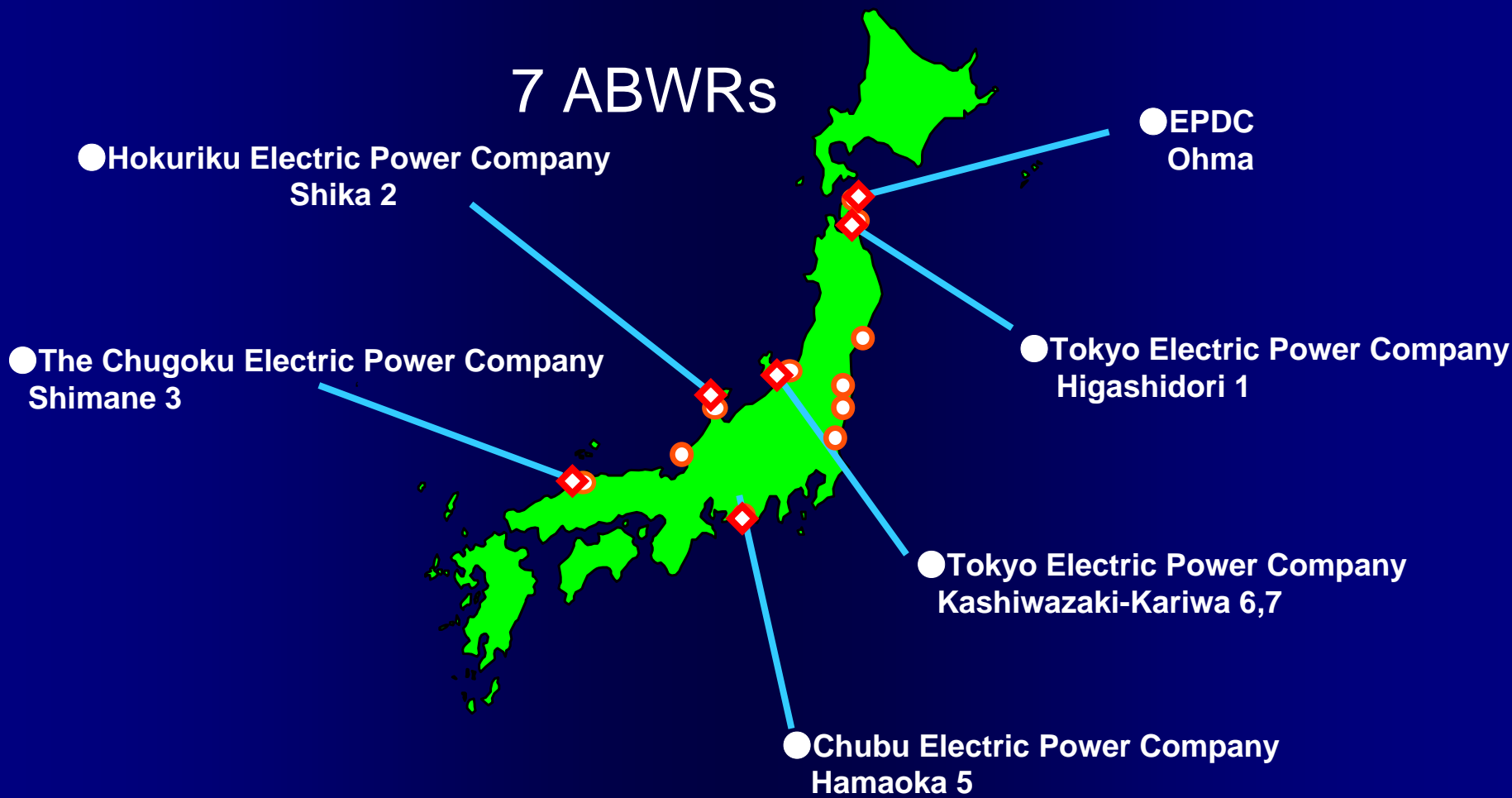
4. Construction & Module Experience - NPP construction by HGNE



4. Construction & Module Experience

- We concern **ALL ABWR NPPs**

Hitachi: 19 plants in operation	[4 ABWR]	Japan: 53 plants in operation (30 BWRs, 23 PWRs)	
22	2 plants under construction [2 ABWR]	56	3 plants under const. (2 BWRs, 1 PWR)
	1 plants under licensing [1 ABWR]		



4. Construction & Module Experience

- Development of construction method

● 1st Generation

1985

Open-Top Construction
with Tower Crane

Tower Crane



Large Crawler Crane



● 2nd Generation

1990

Large Crawler Crane for
Block/Modular Construction

Modular Construction



● 3rd Generation (ABWR)

- Expanded Open-Top&Parallel Construction
- Expanded Block/Modular Construction

2000

Module Factory



● 4th Generation (ABWR)

- Dedicated Module Factory
- Hybrid Module and Block/Module's Enlargement
- Ubiquitous Technology for Logistics and Progress Control

4. Construction & Module Experience - Modularization Method

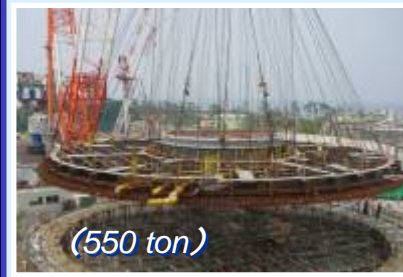
Upper Drywell Module



RPV



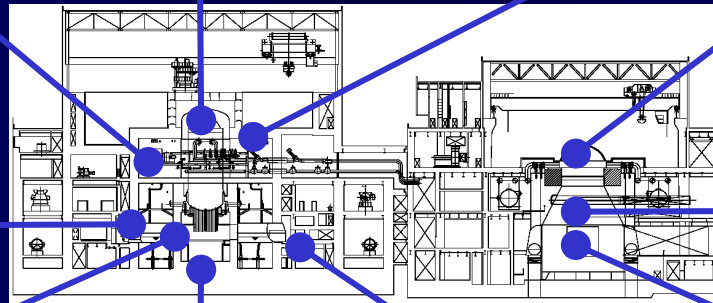
RCCV Top Slab



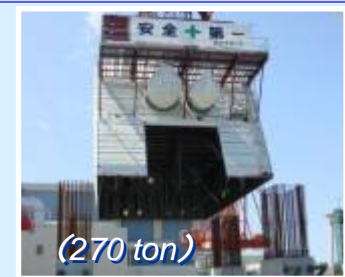
Stator



RCCV Lower Liner Module



Upper Condenser Module



RPV Pedestal Module



Base Mat Module



HPU Module

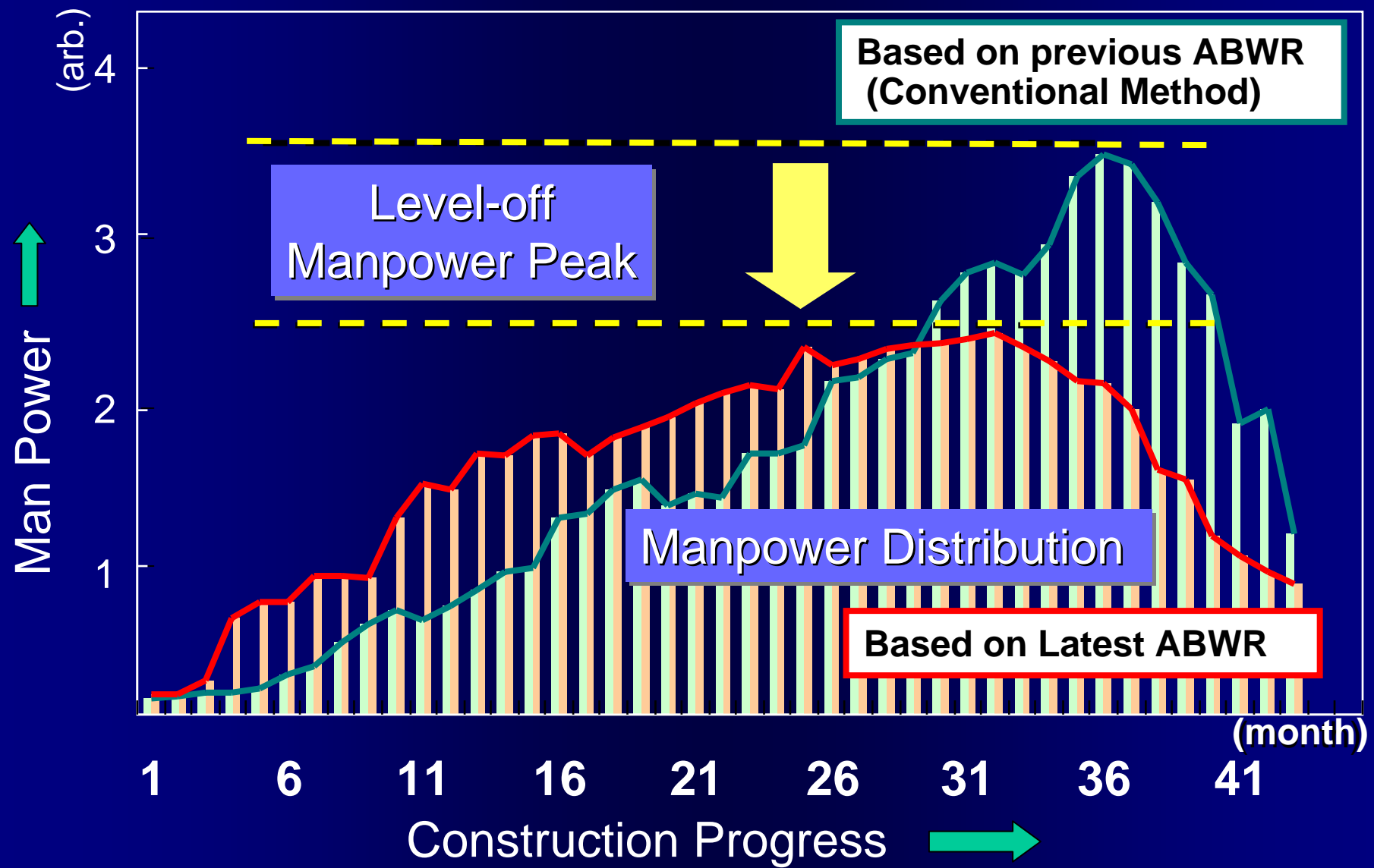


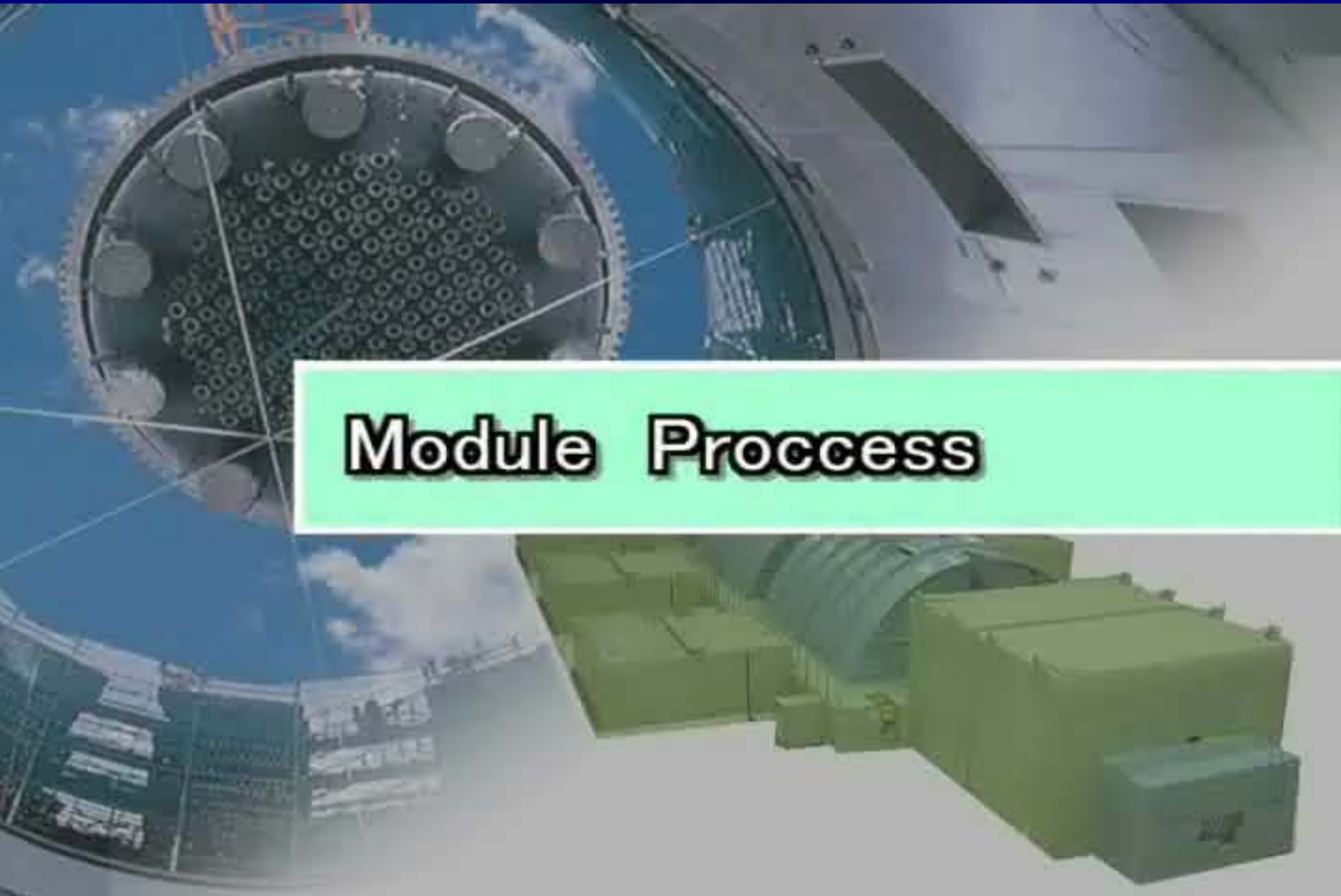
Lower Condensor Unit



4. Construction & Module Experience

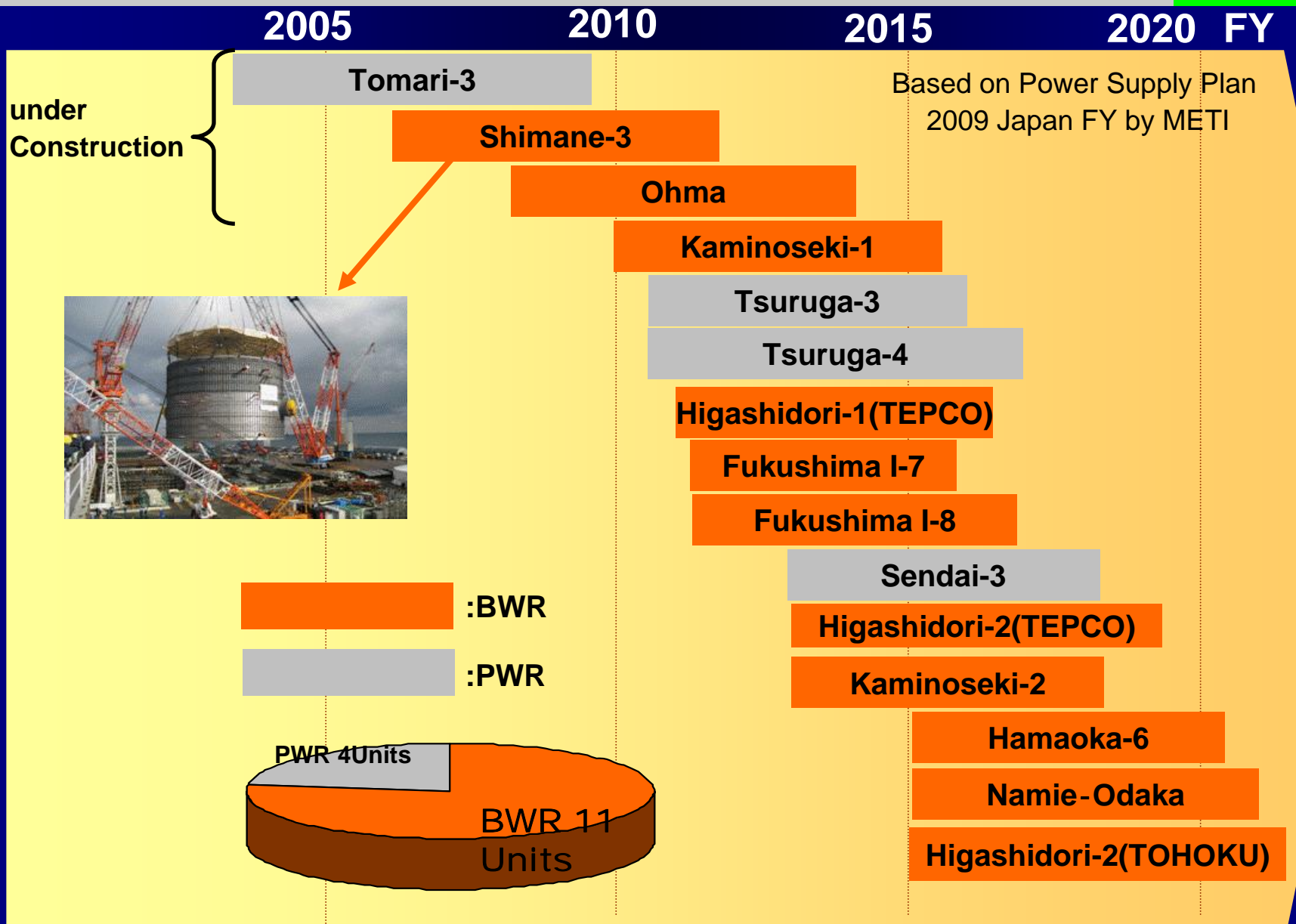
-Manpower Peak Reduction Effort





Module Process

5. Continuous Construction of NPP



6. Our Business for the world

【China】

- growing rapidly
- 9GW (11 NPPs) ⇒ 70GW by 2020
- the governmental policy on PWR ⇒ variable types of NPP

【Canada】

- new CANDU : 10 NPPs~

【EU】

- re-establishing policy
- Finland & Switzerland

【USA】

- New 30NPPs (BWR:11NPPs by 6utilities)
- ABWR/ESBWR by HGNE & GEH

【India】

- GEH contracted with indian company of one of the biggest in the country

【Vietnam】

- Team JAPAN

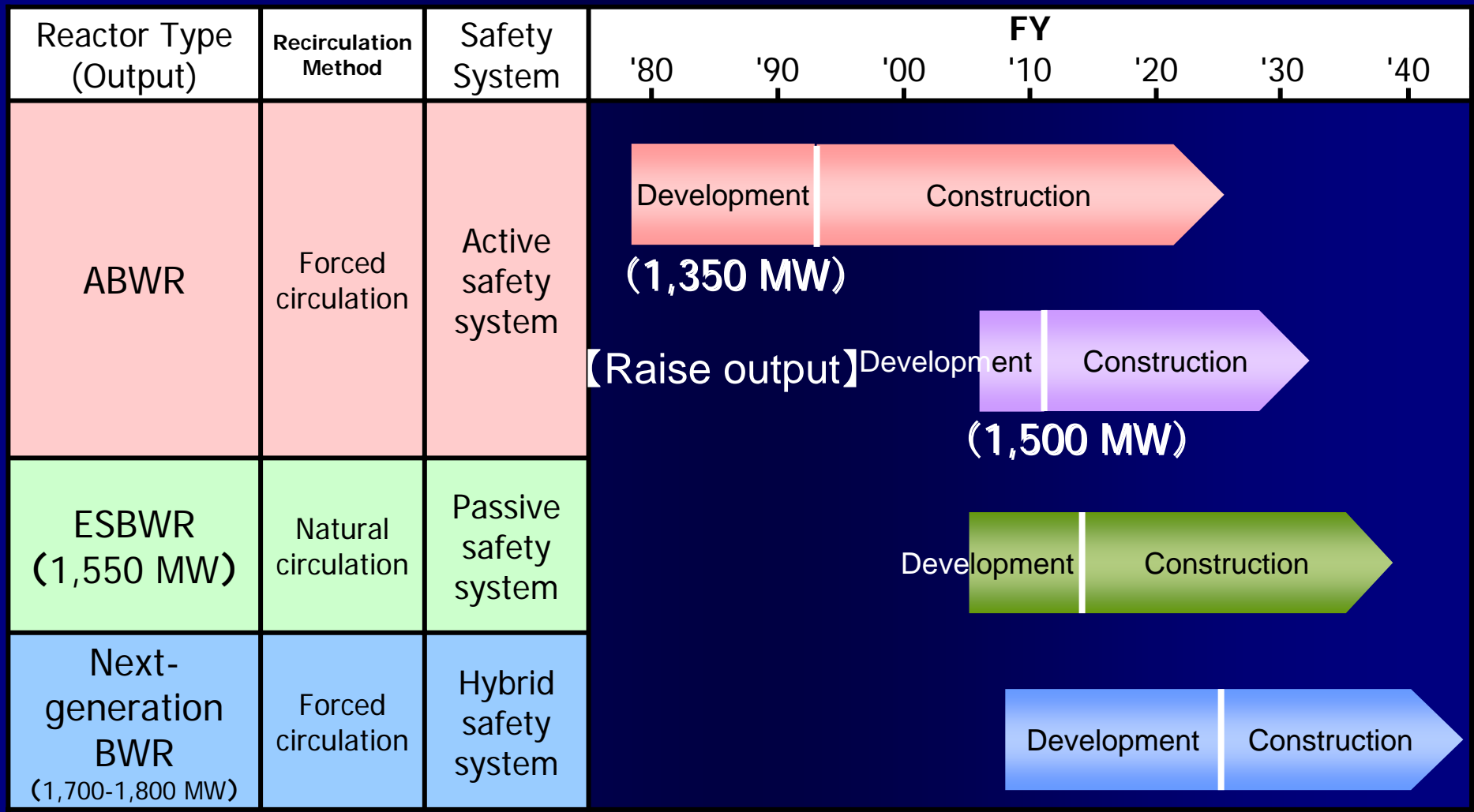
【UAE】

- 4 NPPs (op. by May 2017), ⇒ upto 8~10 NPPs
- proposal of the short construction period

【Thailand】

- seminars
- cooperation for F/S of EGAT/B&R

7. For the future - Development of BWR NPP



- ABWR is the only “Advanced “ LWR design which has operating experiences.
- Ready to market with proven design, licensed both in Japan and US, and detail design package is available.
- Advanced construction technology has been developed and demonstrated through continuous construction experiences.
- The most advanced construction technology is applied to the plant now under construction, and more plants in the near future.
- Hope that ABWR will be introduced into world wide market.

Thank you for your attention

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Oct. 27, 2009

Masaharu HANYU,
President & Representative Director,
Hitachi-GE Nuclear Energy, Ltd.



HITACHI

