

# **2012 Taiwan Technical Study Tour**

30 September to 3 October 2012

Taipei, Kaohsiung

# Day One

1. Nuclear-2 (Kuosheng), Taipei
2. High Speed Rail Technology,  
Kaohsiung

# Day 1 - Taipei

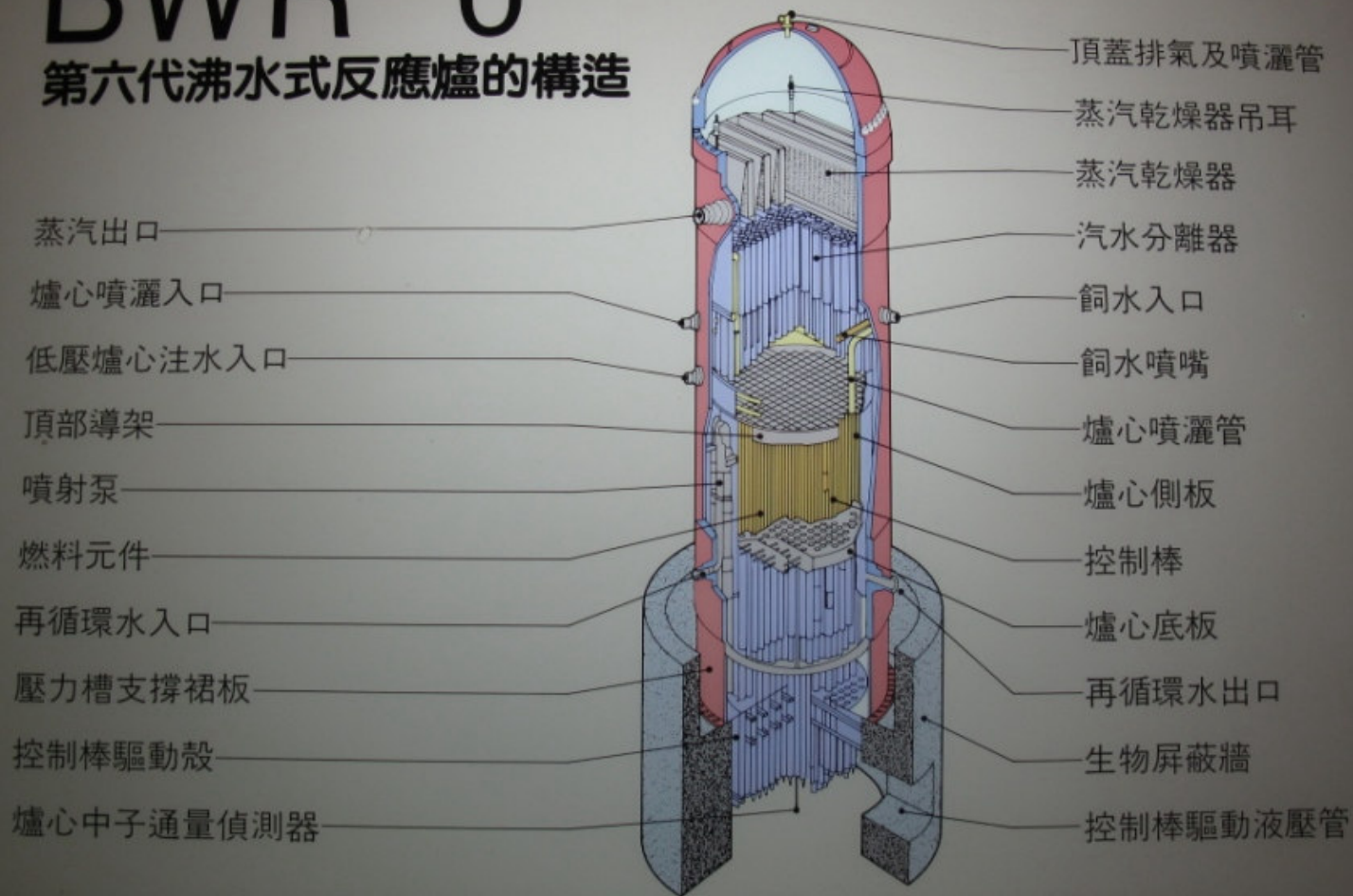
- Nuclear-2 (Kuosheng), is a boiling water reactor (BWR), which belongs to the same family as those in Fukushima.
- Nuke-2 is a BMW-6/Mark-III, which represents the latest design of BWR-X series and is the same design as Fukushima-Unit 6, the one that survived the tsunami without a scratch.

# LP Turbine (900MW)



# BWR-6

## 第六代沸水式反應爐的構造



歡迎貴賓  
蒞臨台電核二廠

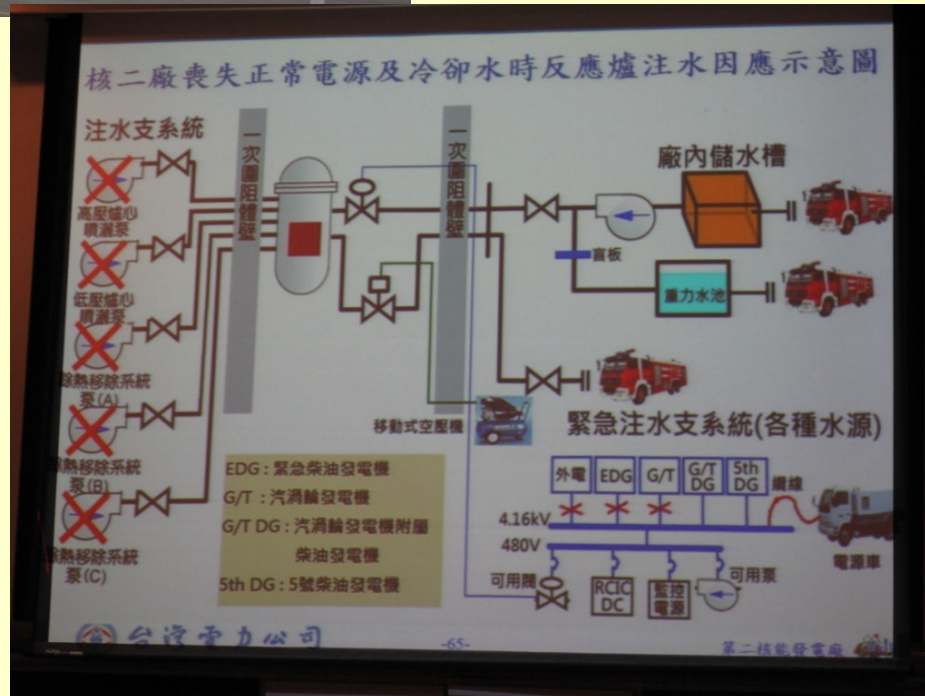


台電電力公司

核二廠

第二核廠











**HKIE** THE HONG KONG  
INSTITUTION OF ENGINEERS  
香港工程師學會  
Mechanical, Marine, Naval Architecture & Chemical Division  
機械、船務、海峽及化工學部

**HKIE** THE HONG KONG  
INSTITUTION OF ENGINEERS  
香港工程師學會  
Nuclear Division  
核子學部

**HKARMS** 香港風險管理與安全協會  
Hong Kong Association of  
Risk Management and Safety

香港核學會  
Hong Kong  
Nuclear Society

**2012 Taiwan Technical Study Tour**

**2012台灣技術考察團**



# Simulator Control Panel



- Unlike the 4 units destroyed at Fukushima, Nuke-2 has a "Mark III containment" with a 1.5m thick concrete, steel reinforced containment wall that is similar to those commonly found in PWR but is thinner.
- After passing through the air lock, we visited the refueling floor area and were only meters from the reactor vessel.





- The radioactivity there was measured 0.00. There were probably less than 50 people in Hong Kong have ever visited the refueling floor of a full-power BWR.
- Now there are 19 more!

# Outlook of Nuclear-2 (Kuosheng)



## Cooling water outlet at the left

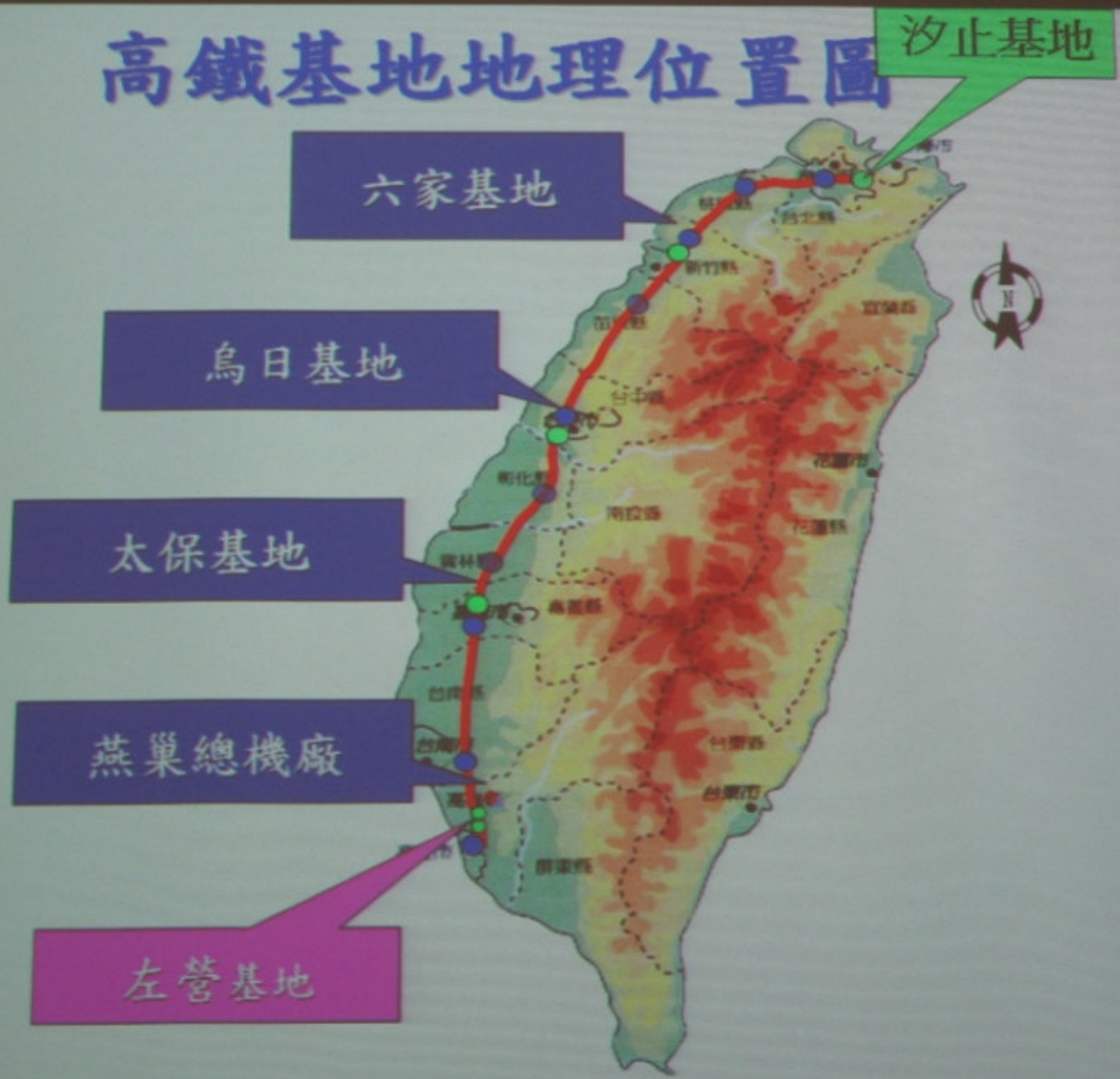




# High Speed Rail Technology.



# 高鐵基地地理位置圖





台灣高鐵左營基地  
列車維修簡介



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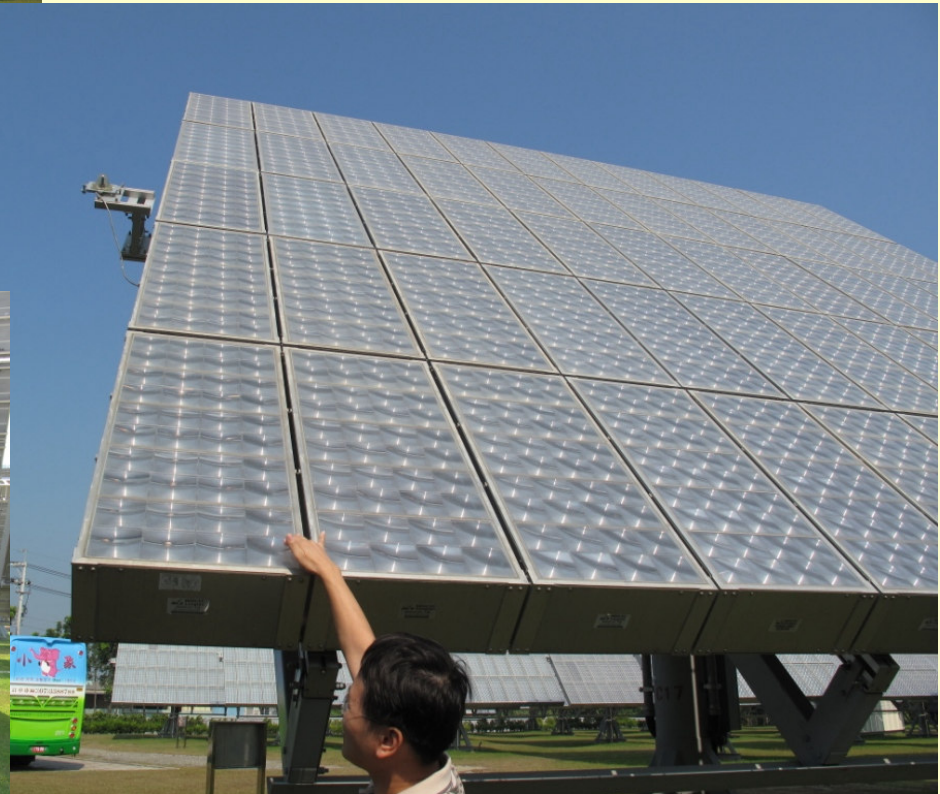


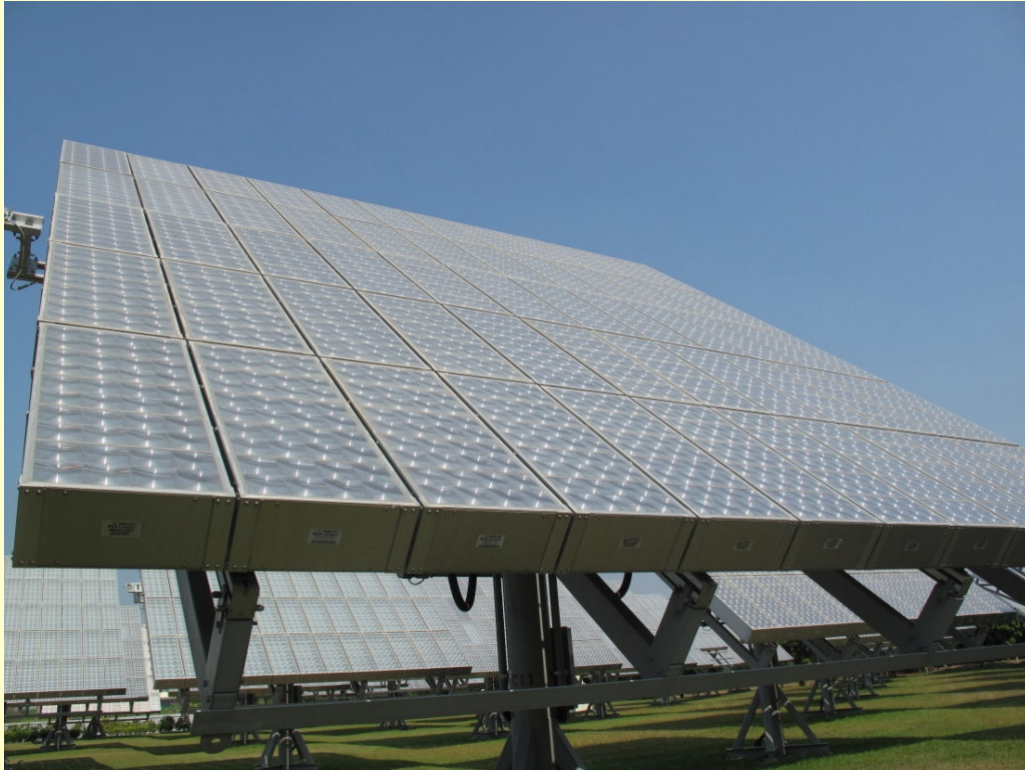


# Day 2 at Kaohsiung

- Solar Power Plant
- Fire from Soil
- Nuclear-3 (Maanshan)
- Wind Turbine

# 1,300 KW Plant







# Fire from Soil





# Nuclear-3 (Maanshan)

- Nuclear-3 (Maanshan) is a pressurized water reactor (PWR), a design that is very similar to Daya Bay.
- Most PWRs have a unique feature -- a massive cylindrical concrete structure with a dome shape top.
- The reactor and steam generators are housed inside the big PWR containment.

# Nuclear-3 (Maanshan)

- Once a PWR has finished refueling outage, the containment will be locked shut and entry is only allowed under emergency situation.
- Nuke-3, same as Daya Bay, has three steam generator loops, hence their name of a three-loop design. Many PWRs have two loops, and some have four-loops.





# 台電電力系統圖 及核能電廠分佈

核一廠(金山)  
(BWR - 636 MWe x 2)

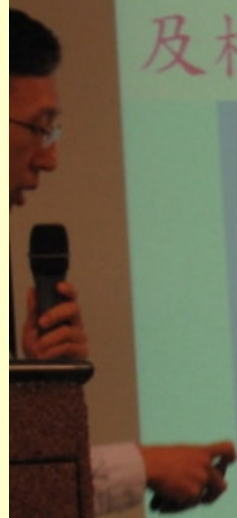
核二廠(關西)  
(BWR - 985 MWe x 2)

龍門核電廠  
(ABWR - 1350 MWe x 2 建造中)

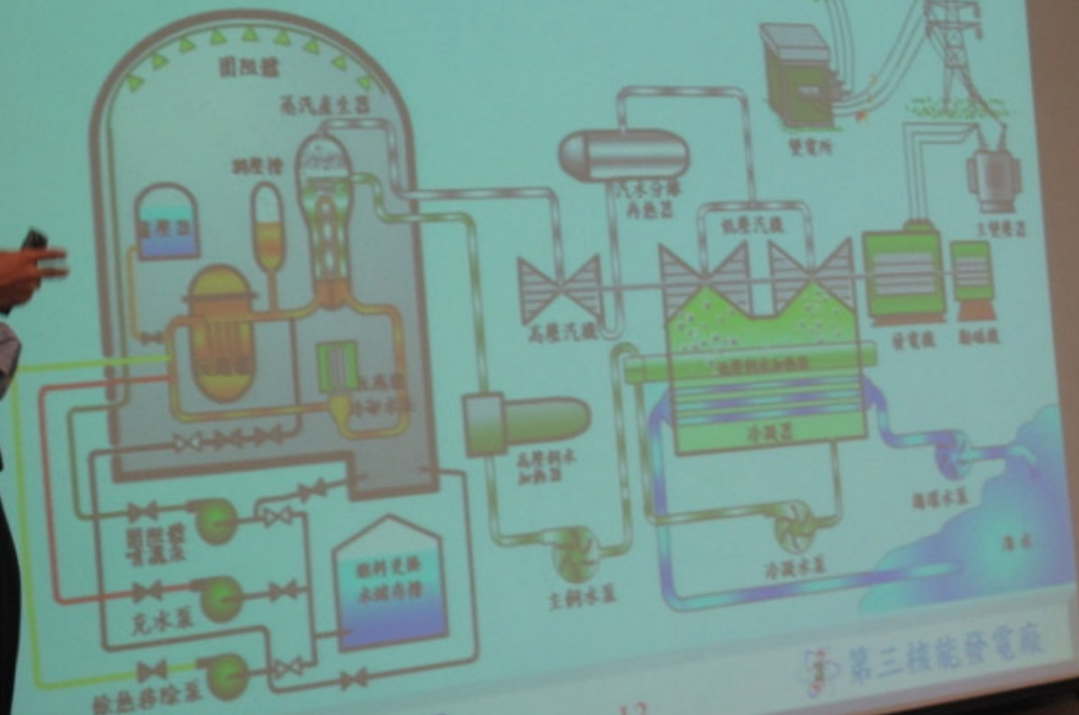
核三廠(馬鞍山)  
(PWR - 951 MWe x 2)



第三核能發電廠



# 核三廠發變電流程圖



台灣電力公司

第三核能發電廠



# 反應爐壓力槽及燃料元件

反應爐槽  
高 1230 公分  
直徑 380 公分

控制棒  
52 組

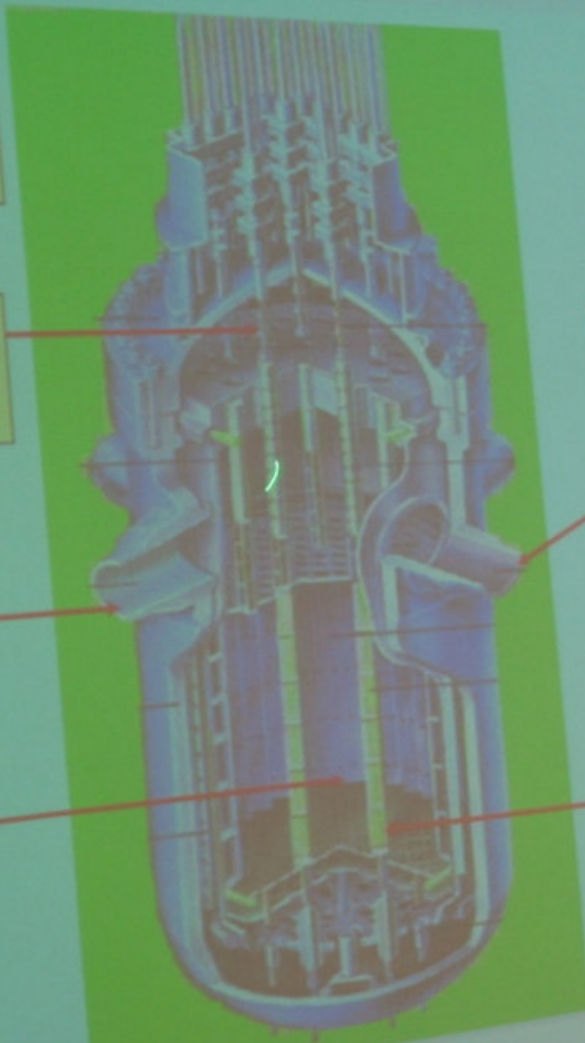
主要冷卻劑  
入口噴嘴  
3 迴路

爐心

主要冷卻劑  
出口噴嘴  
3 迴路

燃料仔棒  
264 根

燃料元件  
高 365.8 公分  
寬 21.4 公分  
157 組



第三核能發電廠



### 疏散前置作業

民生物資

集結收容

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# Wind Turbines at Nuke-3



# Solar Plant at Nuke -3



END

