NUCLEAR Energy in Japan David Boilley





Electricity before 11-3-11

- 10 electricity power compagnies
 o 9 compagnies operating NPP
- 54 nuclear reactors (24 PWR- 30 BWR)
- No electric connection with neighbours
- Half of the country at 50 Hz and another half at 60 Hz

After 11-3-11

- 14 reactors stopped by the earthquake
- 6th of May 11: prime minister stops Hamaoka NPP
- All nuclear reactors stopped on 5th of May 12
- 2 reactors restarted in July 12 that will stop again in Sept 13

Juin	Juil.	Août	Sept.	Oct.	Nov.	Déc.	Jan.	Fév.	Mars	Avril	Mai	Juin	Juil.
11	11	11	11	11	11	11	12	12	12	12	12	12	12
36,8 %	33,9 %	26,4 %	20,6 %	18,5 %	20,1 %	15,2 %	10,3 %	6,1%	4,2%	2,1%	0,3%	0%	2,9%

Consequences

- 8 electricity power Co operating NPP are in the red
- Reduction of the consumption
- Utilisation of the thermal power plant usually used for the peaks.

Short term future

- New Nuclear Regulatory Agency in Sept. 12
- New safety rules: 8th of July 2013
 - None of the reactor satisfies them
 - Grace period of 5 years for the PWR
- Application for restart for 12 reactors
 - 5 applications already rejected
- Many initiatives for green energy

Mid-term future

- At least 1/3 of the NPPs will never restart
 - 17 reactors are more than 30 years old
 - 13 have flammable cables
 - Active sismic faults
 - Local opposition...
 - One company might bankrupt
- New construction frozen
- Reprocessing and FBR kept
 - Failures
 - Proliferation
- Electricity market will be completely open in 2016

TEPCO's CO2 emissions

esult of CO2 emission and CO2 emission factor

		Result (FY)									
		1990	2008	2009	2010	2011	2012	Comparison to previous fiscal			
emission		0.380	0.332	0.324	0.374	0.463	0.406	-12%			
factor	kg-CO ₂ /kvvn		(0.418)*	(0.384)*	(0.375)*	(0.464)*	(0.525)*	(+14%)			
emission	10,000 t-CO ₂	8,360	9,590	9,070	10,970	12,420	10,910	-12%			
			(12,070)*	(10,750)*	(10,990)*	(12,440)*	(14,120)*	(+14%)			
ectricity sales	100 million kWh	2,199	2,890	2,802	2,934	2,682	2,690	+0.3%			
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alue before reflecting Kyoto mechanism credits, etc. based on the "Act on Promotion of Global Warming ountermeasures"

Consequences in Korea

- 23 nuclear reactors 29% of the electricity production
- Corruption:
 - fake performance certificates
- Energy crisis during summer 2013:
 - 6 nuclear reactors over 23 stopped
 - Heat wave during the summer
 - Failure of 2 coal plants