

# Current Status of Nuclear Power in Japan

World Nuclear Association Symposium  
September 5, 2019

**Akihito UETAKE**

Senior Managing Director  
JAPAN ATOMIC INDUSTRIAL FORUM, INC. (JAIF)



# JAPAN ATOMIC INDUSTRIAL FORUM, INC. (JAIF)

- Established in March 1956
- Chairman: Takashi IMAI  
(Honorary Chairman, NIPPON KEIDANREN)
- JAIF'S Members: 400 members (as of Jun. 2019)
- Mission: 原子力の平和利用(エネルギー、放射線利用)の推進
- Major Activities
  - ✓ Promotion of regional and public understanding
  - ✓ Promotion of international cooperation
  - ✓ Promotion of human resources securing and training



- After the completion of removal at Unit 4 in December 2014, preparation at Units 1 through 3 is underway

▼ Units 1 & 2

▼ Unit 3

▼ Unit 4

Removal of rubble &  
Decontamination

Installation of  
fuel removal facility

Fuel removal

Storage &  
Transportation

**Unit 1**

**Unit 2**

**Unit 3**



- Removal of rubble started (Jan. 2018)

- The opening formed in the front chamber (Jun. 2018)
- Preparatory work on the refueling floor (Since Jul. 2018)

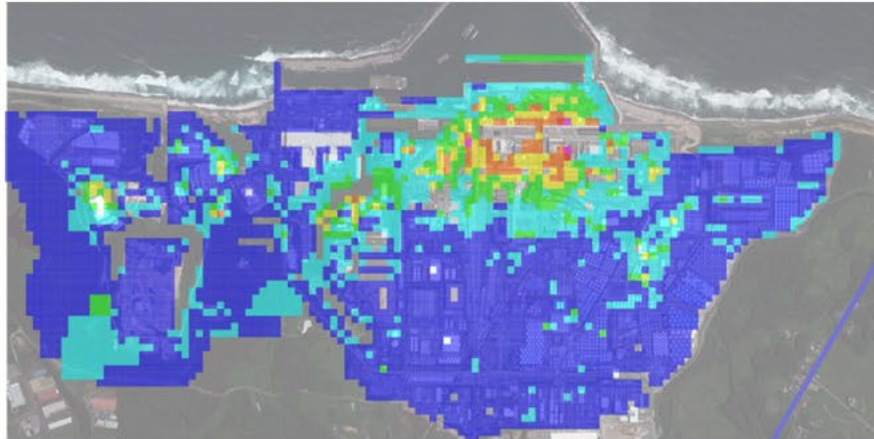
- Installation of the fuel removal cover was completed (Feb. 2018)
- Final stage for starting removal (As of late Mar. 2019)



- As a result of radiation reduction measure, workers don't have to wear full-face respirators or half-face respirators anymore in most parts of the site.

## Distribution of dose level

: Area below  $5\mu\text{Sv/h}$  (Feb. 2018)



Area where people should work in protective gears



Area where people can work in general uniforms



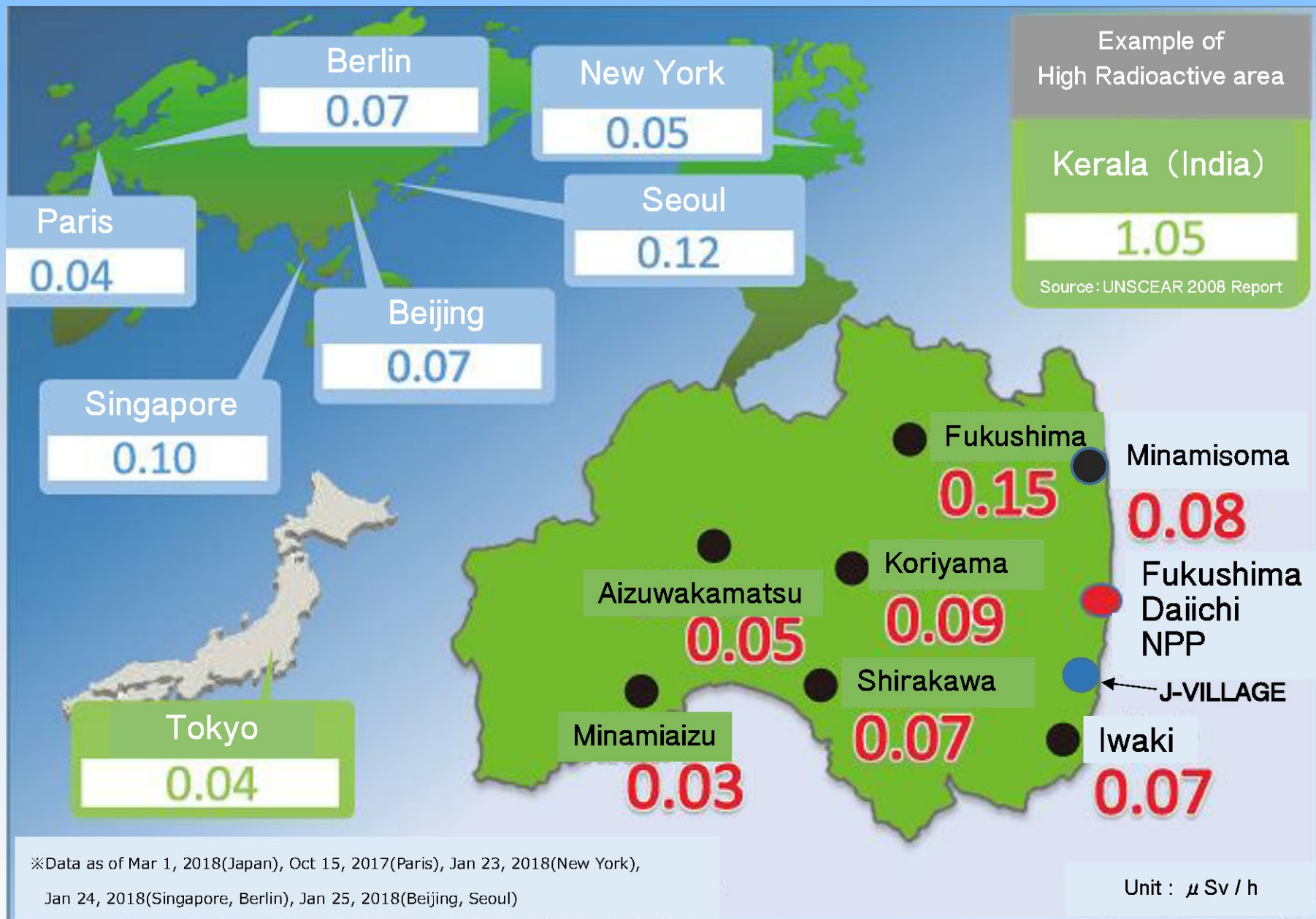
【96% of the site】

## Zoning on the site (May 2018)



## Site touring by cabinet members (Dec. 2018)











# J-Village



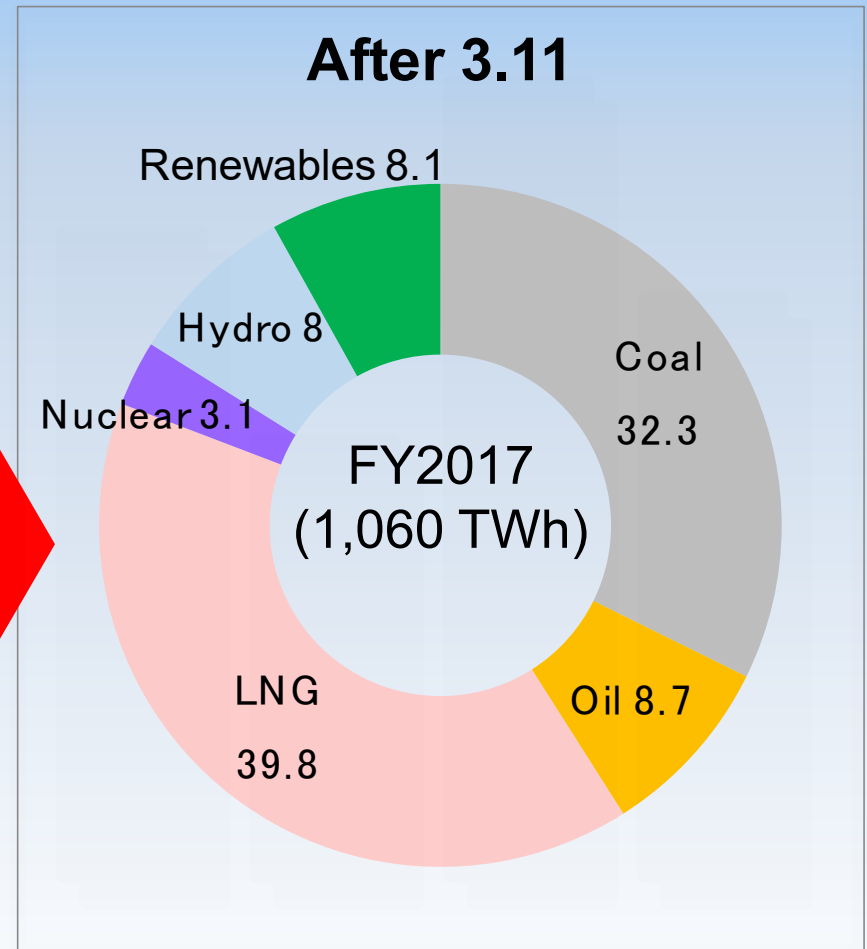
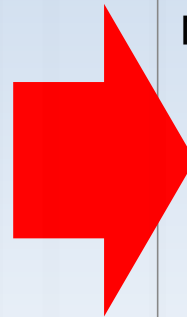
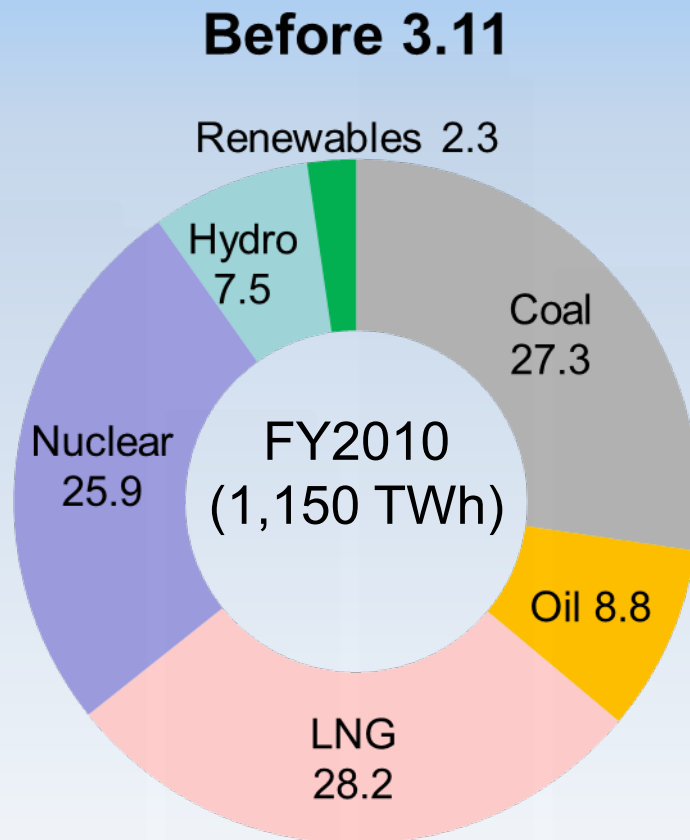
A multi-purpose sports complex partially re-opened in 2018 summer (fully open in 2019), featuring a stadium, 7 natural turf pitches, all-weather football practice field, 400m track field, accommodation, banquet hall, fitness club, convention facilities and others.

(URL: <https://j-village.jp/>)

Source: Fukushima Pref.

# Electricity Generation by Energy Source

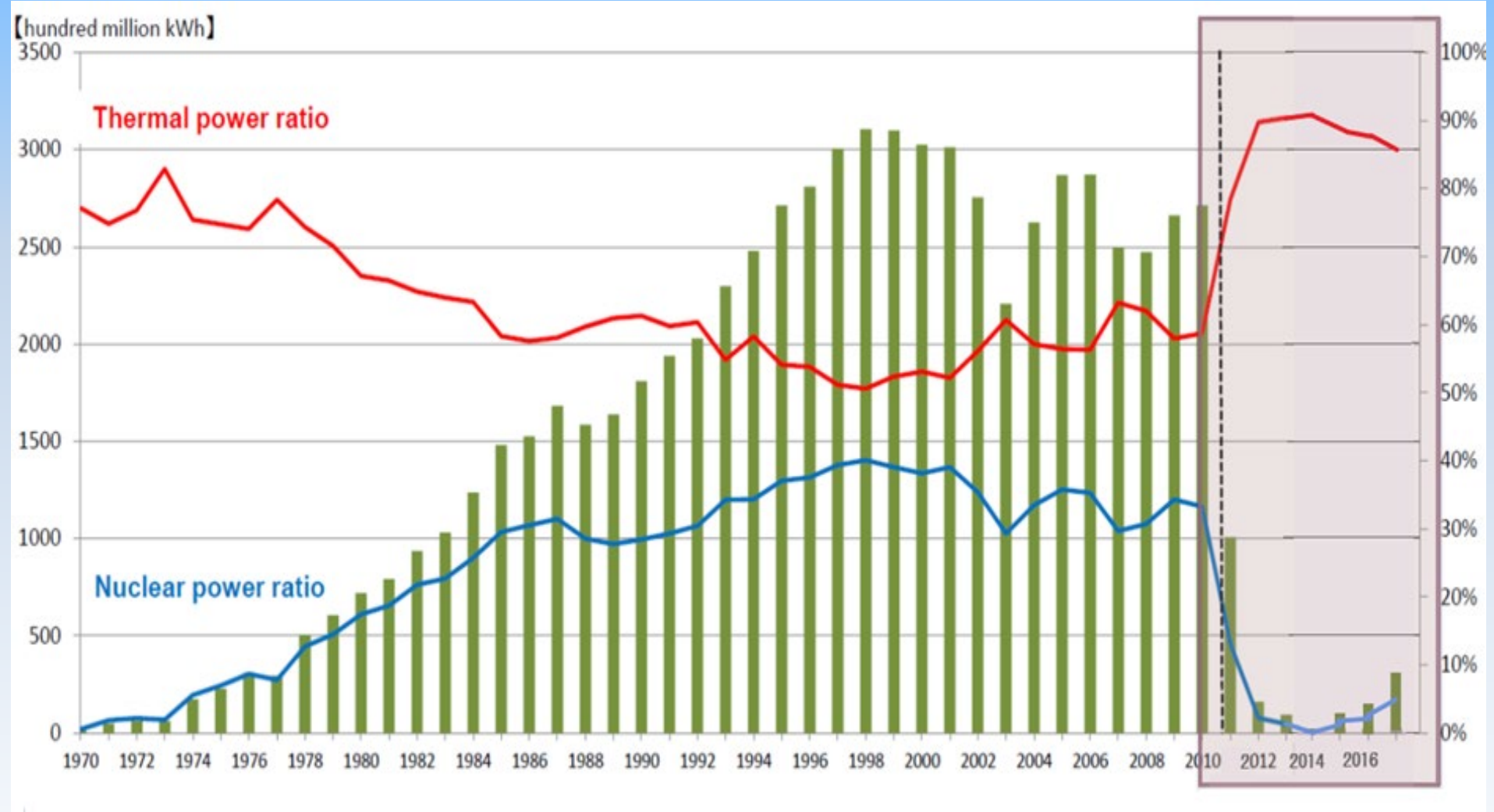
Growing dependence on **fossil fuel** due to nuclear shut-down



Source: METI



# Changes of Nuclear Power Generation Output in Japan



Source: ANRE & METI, Sep 2015  
Updated by JICC

# Target of GHG Reduction and Electricity Generation

## GHGs emissions reduction

Paris agreement commitment (by 2030)

▲ **26%** compared with 2013

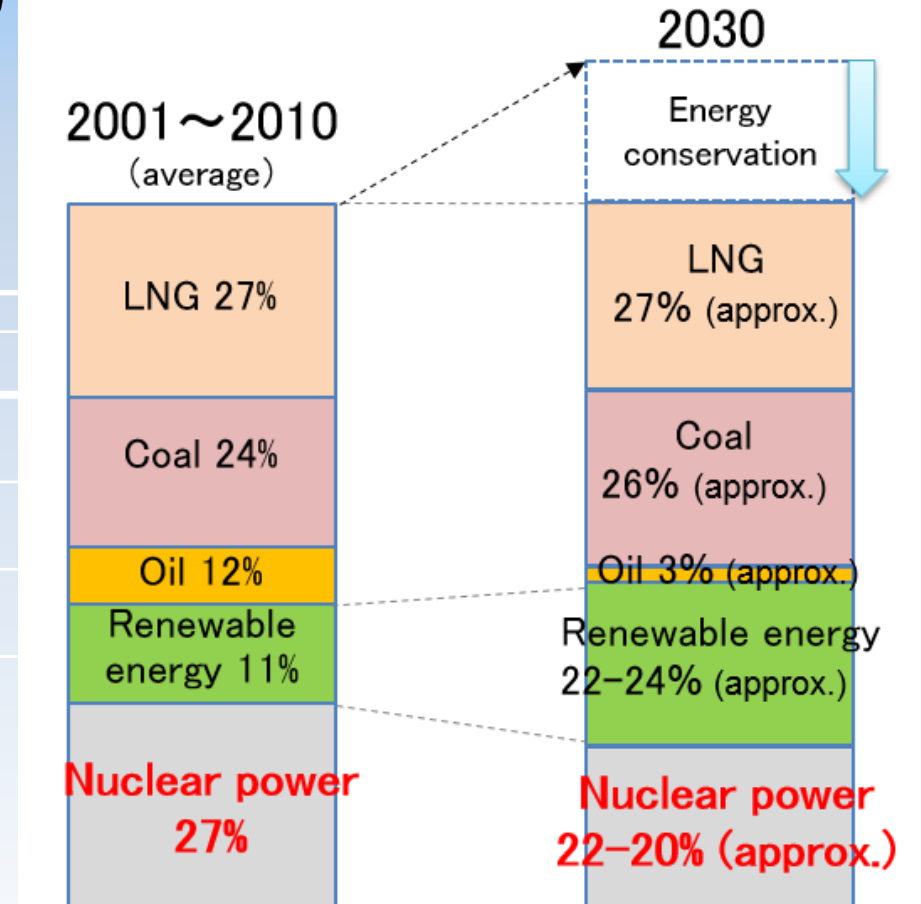
Long-term strategy (by 2050)

▲ **80%**

	2010	2013	2030
<b>Nuclear</b>	<b>29%</b>	<b>1%</b>	<b>20~22%</b>
<b>Renewable*</b>	<b>10%</b>	<b>11%</b>	<b>22~24%</b>
<b>Thermal</b>	<b>61%</b>	<b>88%</b>	<b>56%</b>

\* Geothermal 1.7~4.6 %  
Biomass 3.7~4.6 %  
Wind 1.7 %  
Solar 7.0 %  
Hydro 8.8~9.2 %

The 5<sup>th</sup> Strategic Energy Plan (SEP) (July 3, 2018)  
“Long-term Energy Supply and Demand Outlook”



【Source】 The 11<sup>th</sup> Long-term Energy Supply and Demand Outlook Subcommittee, Advisory Committee for Natural Resources and Energy, METI

# Nuclear Power Plants in Japan

## In Operation

9 reactors 

## Passed NRA Review for the Permission for Changes in Reactor Installation

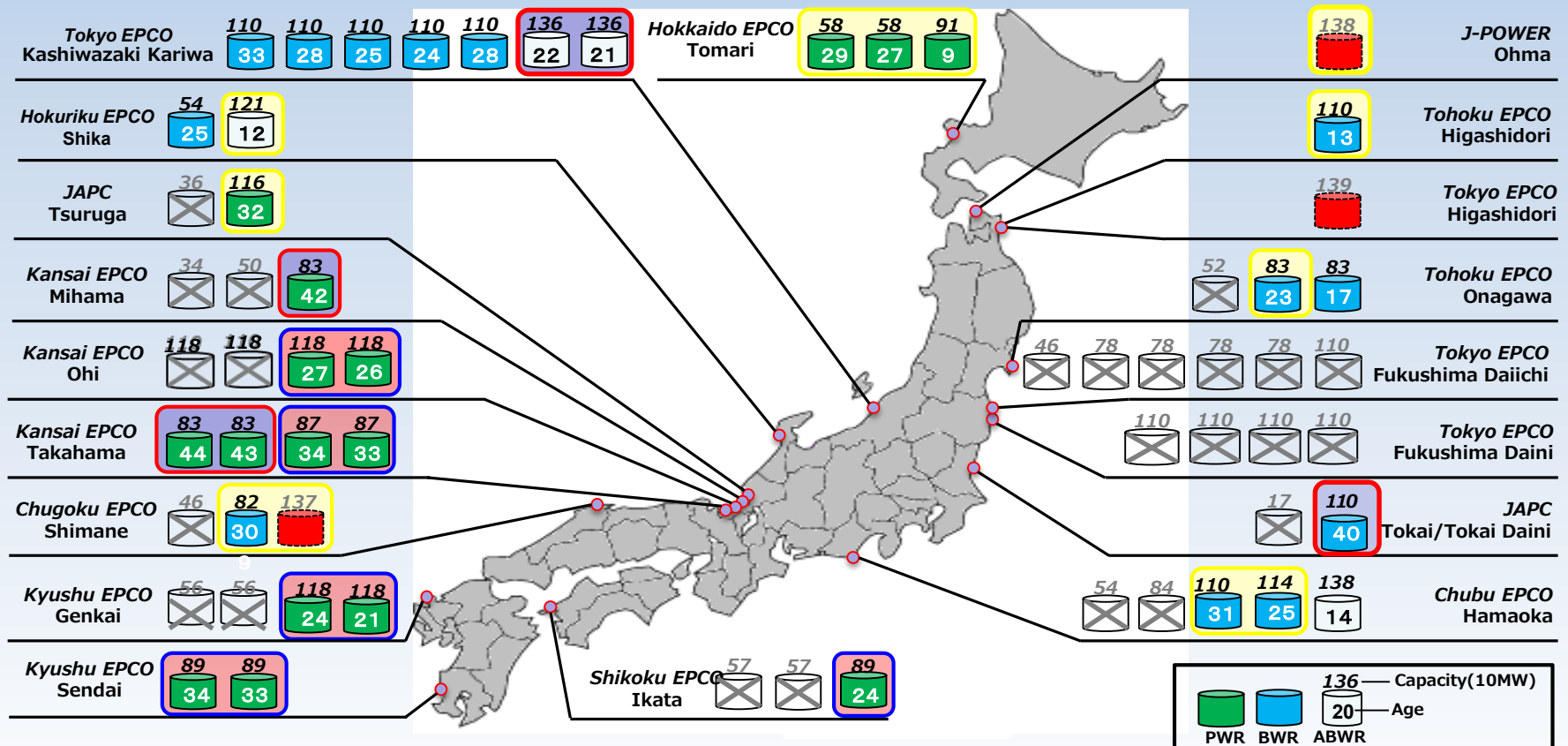
6 reactors 

## Under NRA Review

12 reactors 

## already decided to Decommission

24 reactors 

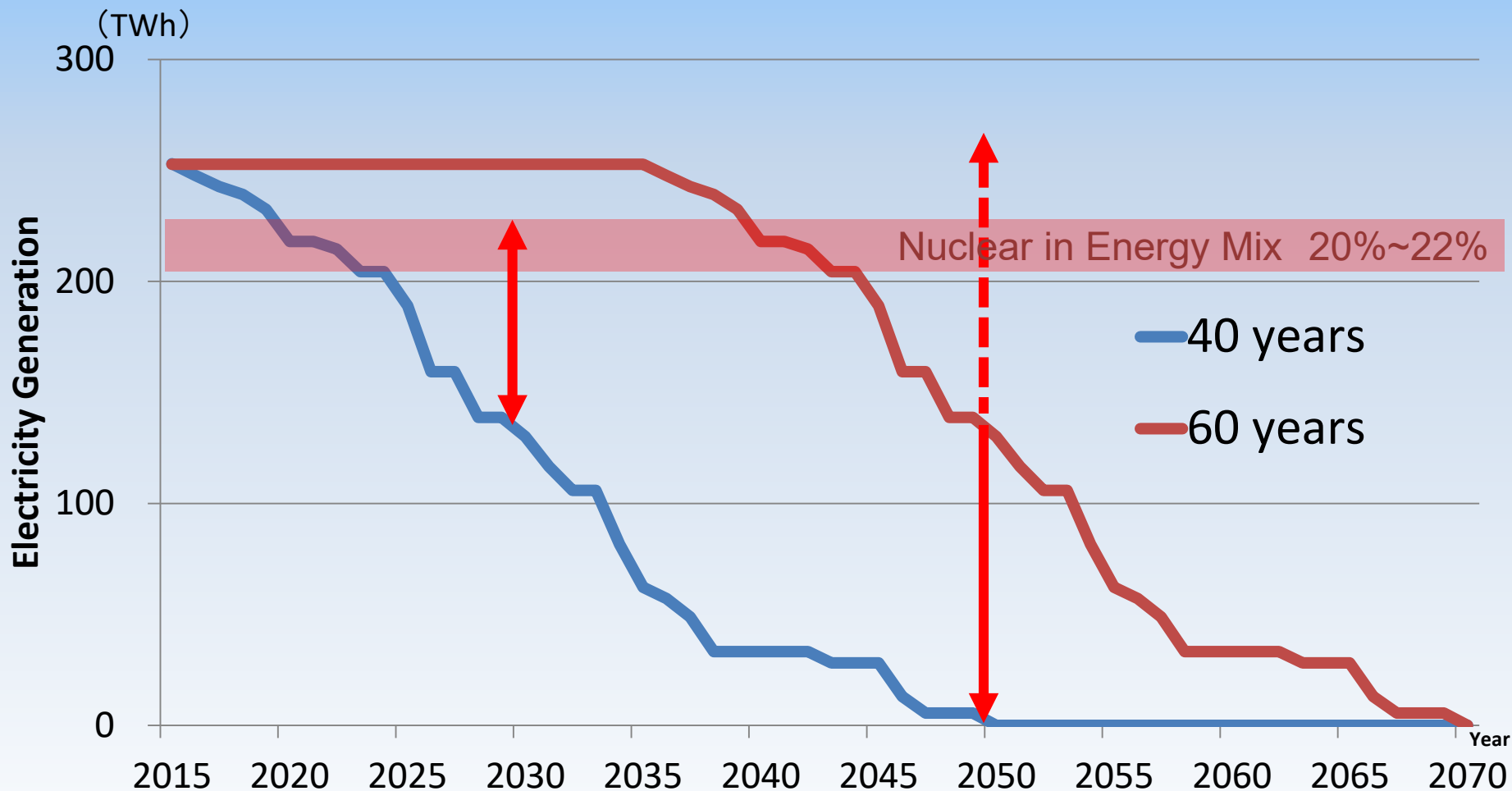


\*As of August 23, 2019

Source: METI & JAIF



# Life Extension & Decommissioning



Complied by JAIF

# Challenges

---

## □ 新增設・リプレースに向けて

### (1) Industry's Effort

### (2) Government Support

- Energy Policy への反映（エネルギー基本計画）
- 電力自由化との整合性（長期投資回収措置）

### (3) Public Support

**Thank you  
for your attention.**

Akihito UETAKE  
[www.jaif.or.jp/en/](http://www.jaif.or.jp/en/)



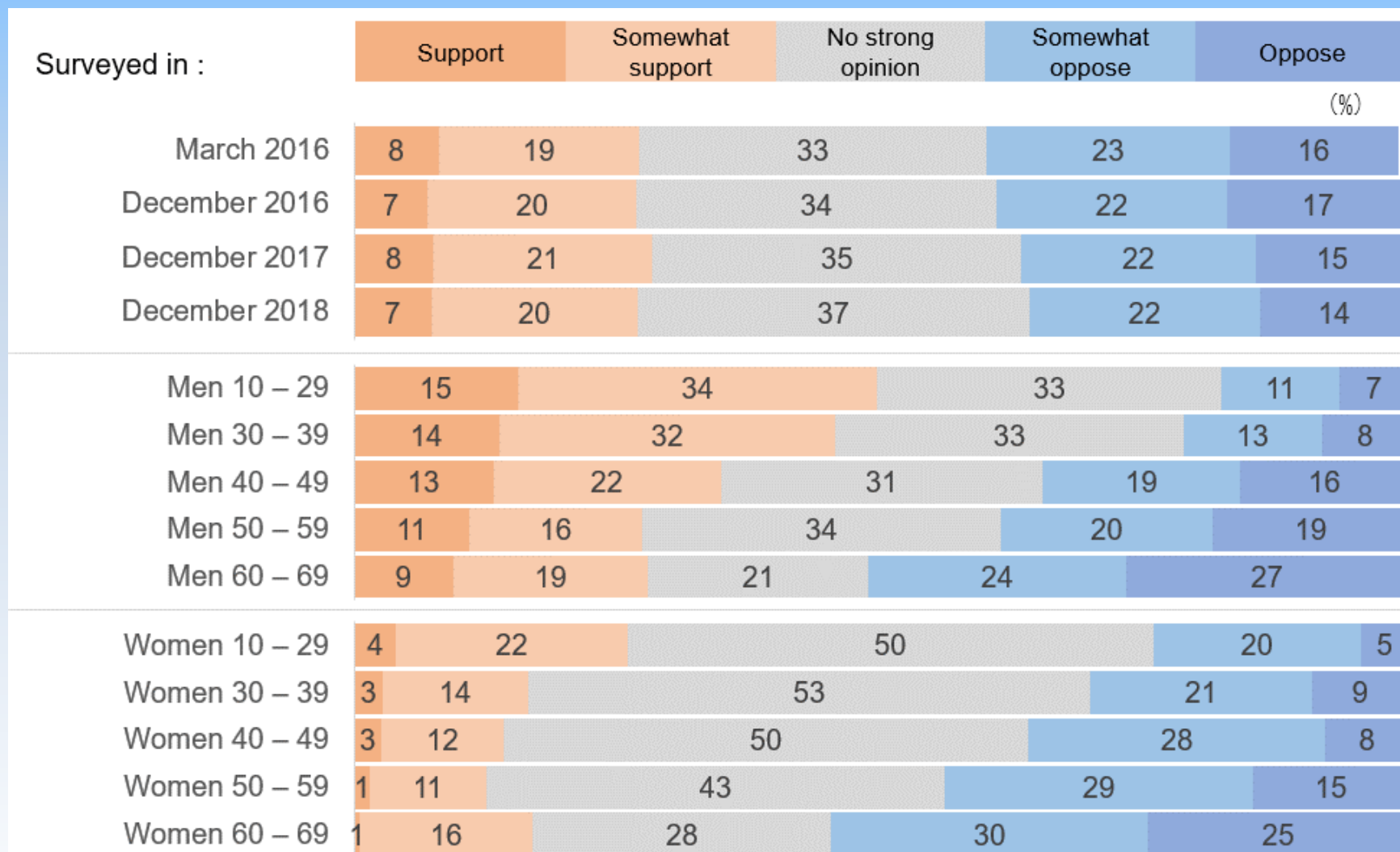


# Nuclear Power Awareness Survey

## On Utilization of Nuclear Power

Area covered: Japan nationwide (Major metropolitan cities)

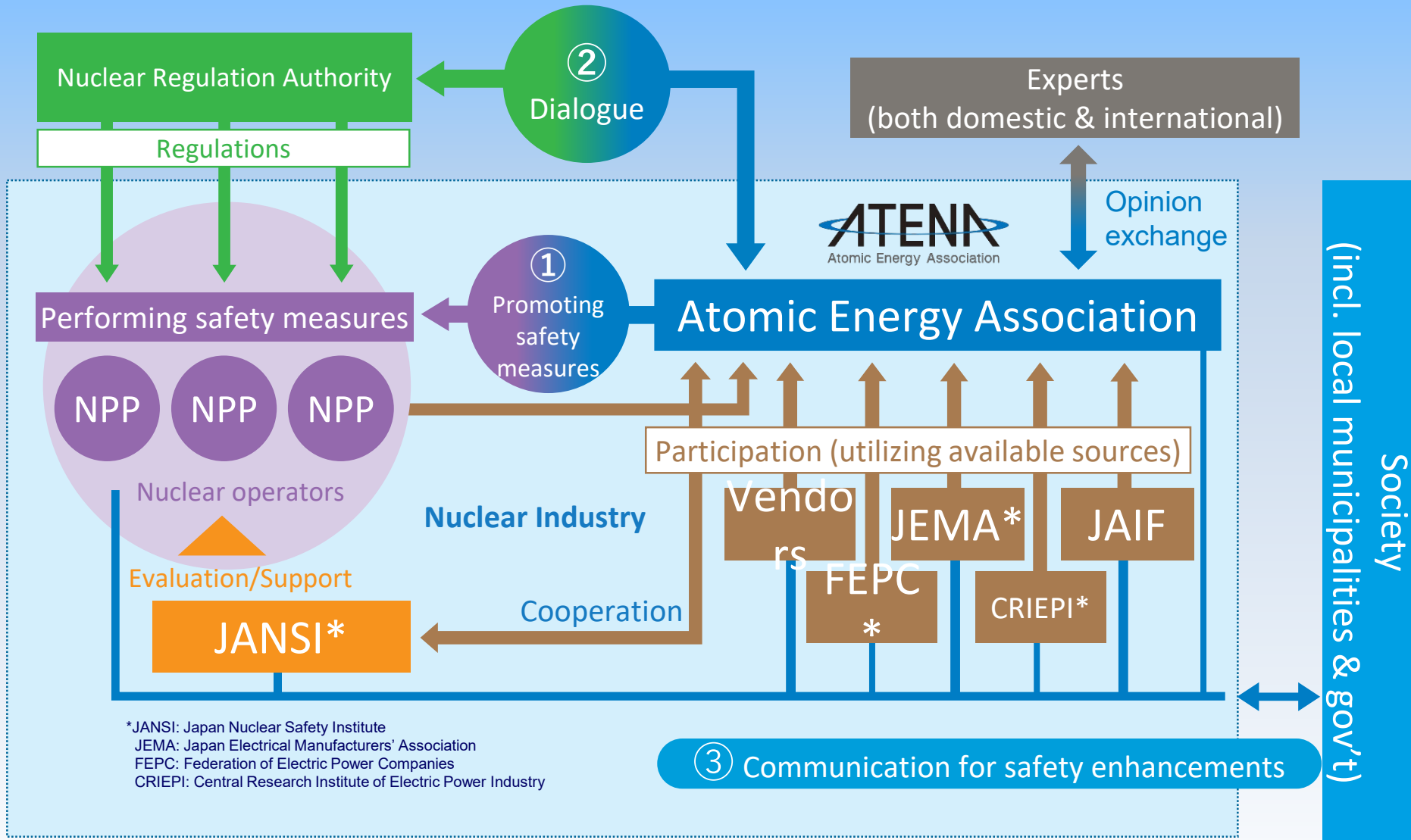
Target: Adults aged 18-69 Sample size: 3,800 Method: Internet survey



Source: Nuclear Power Awareness Survey conducted by JAIF (Dec., 2018)



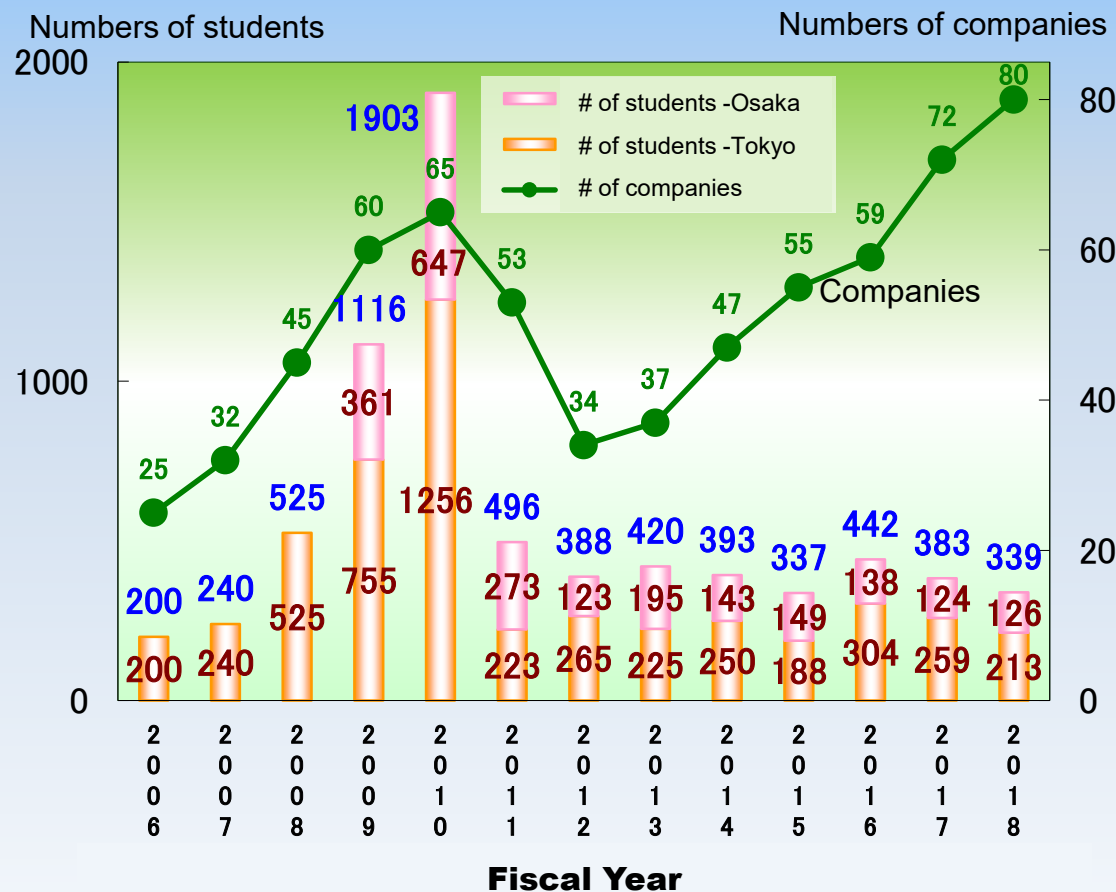
# Atomic Energy Association (ATENA)



Source: ATENA HP



# Decreasing Students' Interest and Increasing Manpower Needs



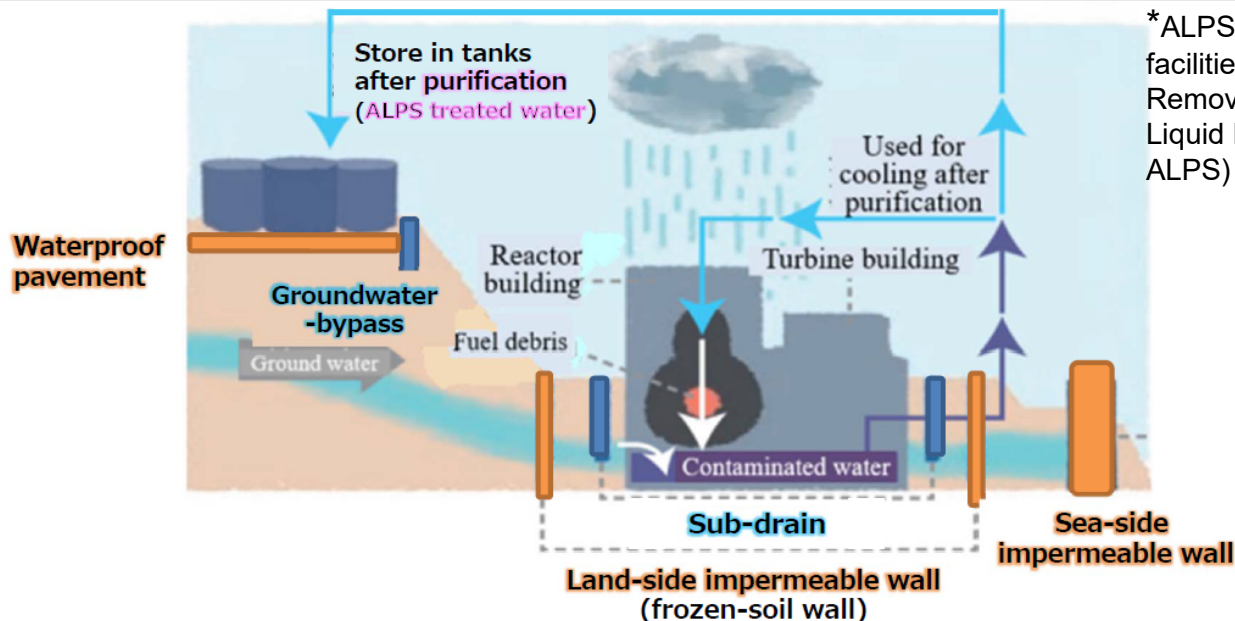
## ＜人材育成における課題＞

- ✓ 現場の活用（稼働プラントによる実機体感研修など）
- ✓ 若年層、社会からの原子力に対する支持、理解の獲得
- ✓ 産官学連携の深化（ニーズや課題を共有し、最適化を図りながら戦略的に取り組む）



# Overview of Water Management

- ◇ Contaminated water is generated by groundwater and rainwater which are flowing inside the unit 1 to Unit 4 buildings of the NPS.
- ◇ Comprehensive set of countermeasures have taken by the TEPCO and GOJ:
  - ✓ To reduce the rate of arising contaminated water; 490 m<sup>3</sup> (FY2015) → 170 m<sup>3</sup> (FY2018)
  - ✓ To prevent the leakage of contaminated water from the buildings;  
→ Water level inside the buildings has been maintained at levels lower than groundwater outside
  - ✓ To purify the contaminated water from the buildings (“ALPS treated water”)
  - ✓ To safely store the “ALPS treated water” which was purified by several purification equipment to remove most of the radionuclides except Tritium



\*ALPS stands for Multiple facilities including a Multi-nuclide Removal Facility (Advanced Liquid Processing System = ALPS)

# 食品中の放射性物質の基準値

## Reference Values for Cesium Concentration in Foods

[Unit: Bq/kg]

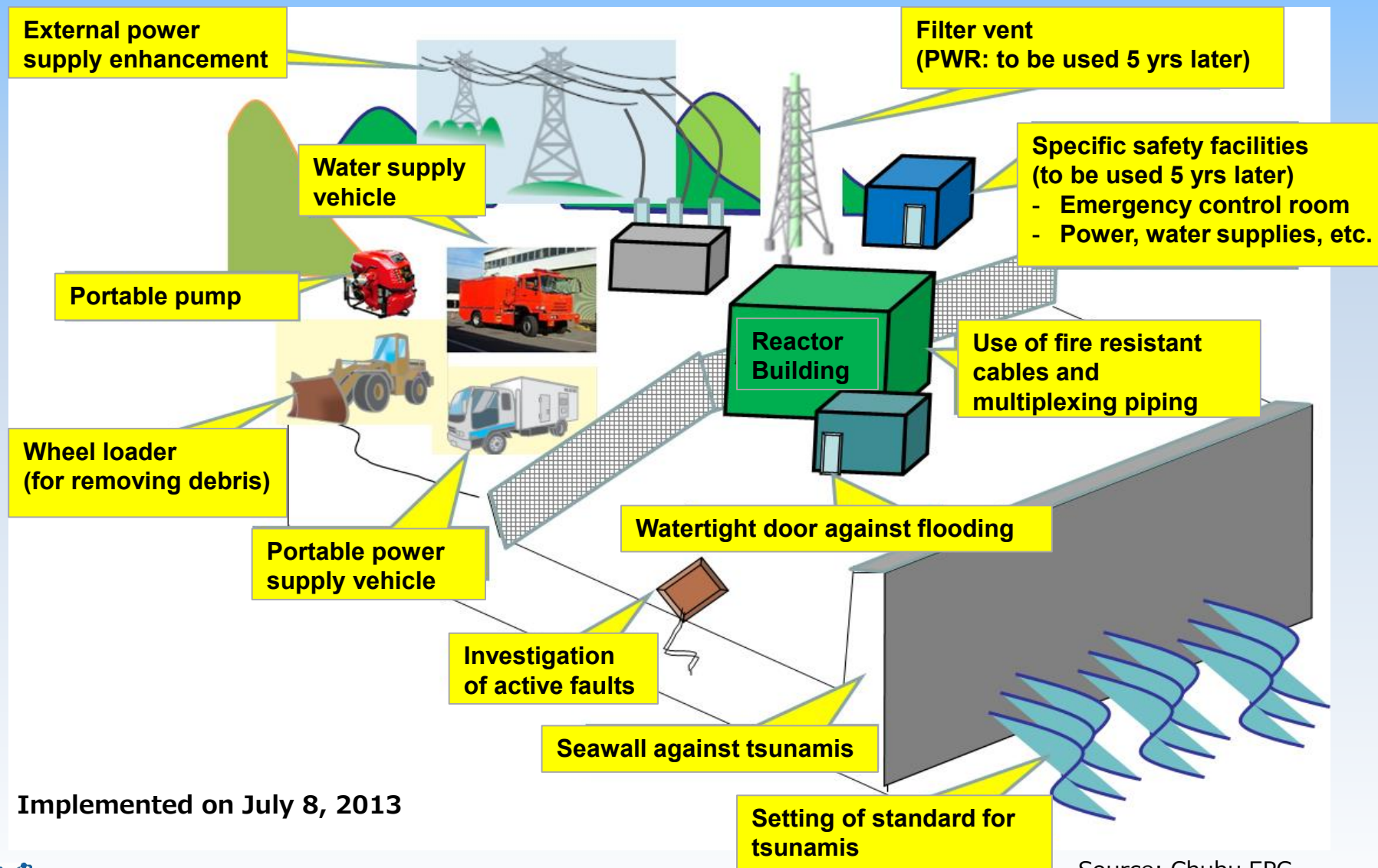
	Japan (2012.4-)	Codex Alimentarius Commission※	EU (Products distributed within the EU)	U.S.A.
Drinking water	10	1000	1000	1200
Milk	50	1000	1000	1200
General food	100	1000	1250	1200
Baby food	50	1000	400	1200

Note: As seen in the next slide, the assumptions for calculating reference values vary; thus the reference values can be quite different and are not directly comparable.

※ An intergovernmental organization issuing international food standards (Codex Standards), established in 1963 by the Food and Agriculture Organization and the World Health Organization (WHO) of the United Nations.

Source: Basic Information on Radiation Risk, Cabinet Office, Et Al. (February 2016)

# Improved Safety Measures



Source: Chubu EPC