Extracts from Service Explanatory Handout Cabinet Office (Nuclear Disaster Management Bureau) March 2, 2023

Tentative translation

# **Current Status of Nuclear Emergency Preparedness Measures**

# March 2023

Cabinet Office (Nuclear Disaster Management Bureau)

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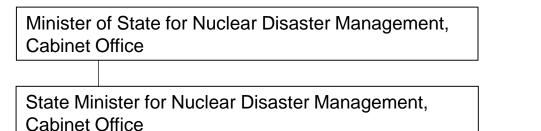
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# I. Service under Jurisdiction

### Organizational System of the Cabinet Office (Nuclear Disaster Management Bureau)



Parliamentary Vice-Minister for Nuclear Disaster Management, Cabinet Office

Established on October 14, 2014

Staff:

about

70

Director General for Nuclear Disaster Management

Deputy Director General for Nuclear Disaster Management (concurrent post)

Director for Management and Policy Planning (concurrent post)

Director for Strategy and International Affairs

Director for Emergency Preparedness and Response (concurrent post)

Director for Policy Coordination, Drill and Exercise \*

\* Some of the services of the former Office for Nuclear Regulation Organization, Cabinet Secretariat were transferred (April 1, 2016).

### Role of the Cabinet Office (Nuclear Disaster Management Bureau)

The role of the Cabinet Office (Nuclear Disaster Management Bureau), shown below, stays the same regardless of ordinary times or emergencies: To address **off-site nuclear disaster management measures** 

Cabinet Office (Nuclear Disaster Management Bureau)

- Department in charge of protective actions such as evacuation of residents off-site
- Response officers are the ones who actually carry out protective actions. They include officials of national government and local government organizations, including action organizations such as police and fire departments, or private enterprises.
  \* A Nuclear Disaster Countermeasure
  - \* The basic concept of protective action is based on the NRA Guide for Emergency Preparedness and Response (hereinafter the NRA EPR Guide) developed by the Nuclear Regulation Authority.

#### **Nuclear Regulation Authority (NRA)**

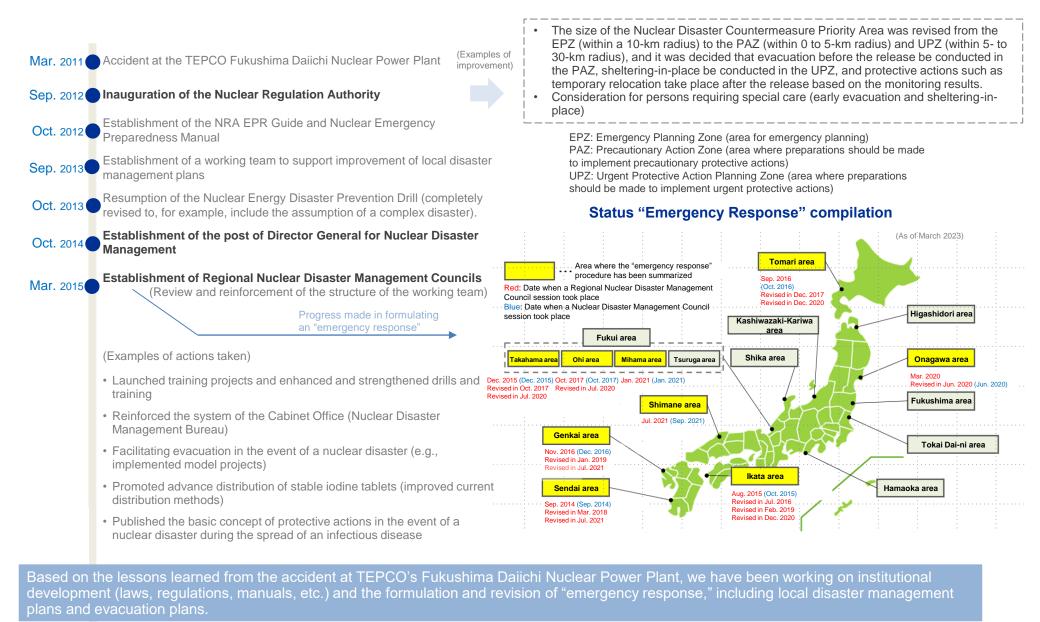
- As a highly independent Article 3 committee of the Ministry of the Environment, the NRA is primarily responsible for regulating the safety of nuclear power plants and other facilities (on-site) from a scientific and technical standpoint. \* The NRA conducts off-site monitoring (including measurement of radiation).
- It is mainly electric utilities that are responsible for handling accidents within nuclear power plants.

\* A Nuclear Disaster Countermeasure Priority Area is established for each facility.

Outside the nuclear power plant compound (off-site)

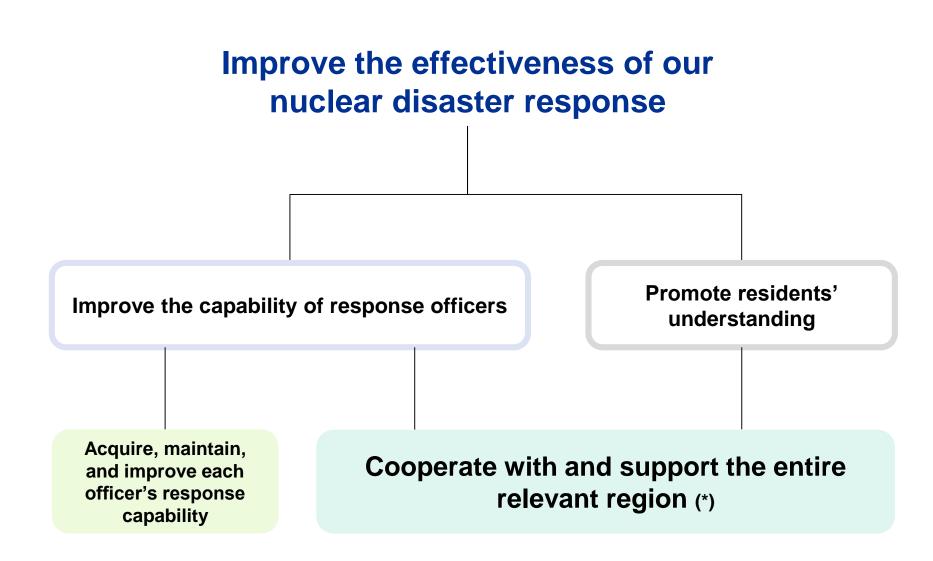
Within the nuclear power plant compound (on-site)

## **Progress to Date**



It is important to keep **improving the effectiveness** of our nuclear disaster response.

**Core Mission of the Cabinet Office (Nuclear Disaster Management Bureau)** 



(\*) Support for embodiment and enhancement of local disaster management plans and evacuation plans, as well as continuous improvement and review of "emergency response," are necessary conditions (prerequisites).

Improve resp capabilities	Acquire, maintain, and improve each officer's response capability	<ul> <li>Strengthen response capabilities</li> <li>Enhance and strengthen initiatives such as blind training and desk training for decision making.</li> <li>In addition, participate in or hold various kinds of drills and training such as the Nuclear Energy Disaster Prevention Drill jointly conducted by the national government, related local governments, and electricity utilities and disaster prevention training held by the related local governments, assuming a nuclear emergency situation based on the Act on Special Measures Concerning Nuclear Emergency Preparedness.</li> </ul>
response officers' ies	Cooperate with and support the entire relevant region	<ul> <li>Enhance and strengthen training and drills for the relevant local government personnel and relevant people on emergency preparedness</li> <li>Other cooperative support for the entire relevant region         <ul> <li>Promote the embodiment and enhancement of local disaster management plans and evacuation plans.</li> <li>Establish a "Regional Nuclear Disaster Management Council" in each of the 13 regions where nuclear power plants are located, and promote embodiment and enhancement of local disaster management of local disaster management plans and evacuation plans of relevant local governments, including responses to the novel coronavirus infection, based on lessons learned from the accident of TEPCO's Fukushima Daiichi Nuclear Power Plant.</li> <li>For those areas that the said embodiment and enhancement have been realized as a whole, each council should check the "emergency response" for their respective region and report it to the Nuclear Disaster Management Council (Chairman: Prime Minister) for approval.</li> </ul> </li> </ul>
Promote residents' understanding		<ul> <li>Diversify and upgrade the ways to communicate information to residents</li> <li>Diversify and upgrade ways to communicate information to residents in the relevant local governments.</li> <li>Conduct research and studies that can help to "promote residents' understanding," and collect and organize the knowledge.</li> </ul>

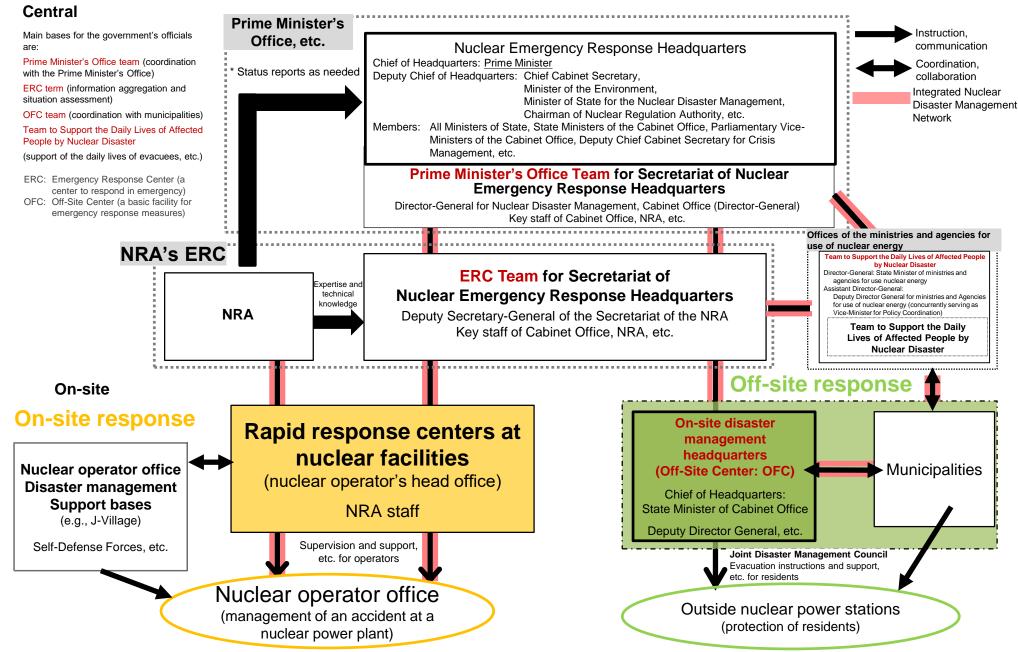
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### **Nuclear Emergency Preparedness Systems during Peace Times and Emergencies**

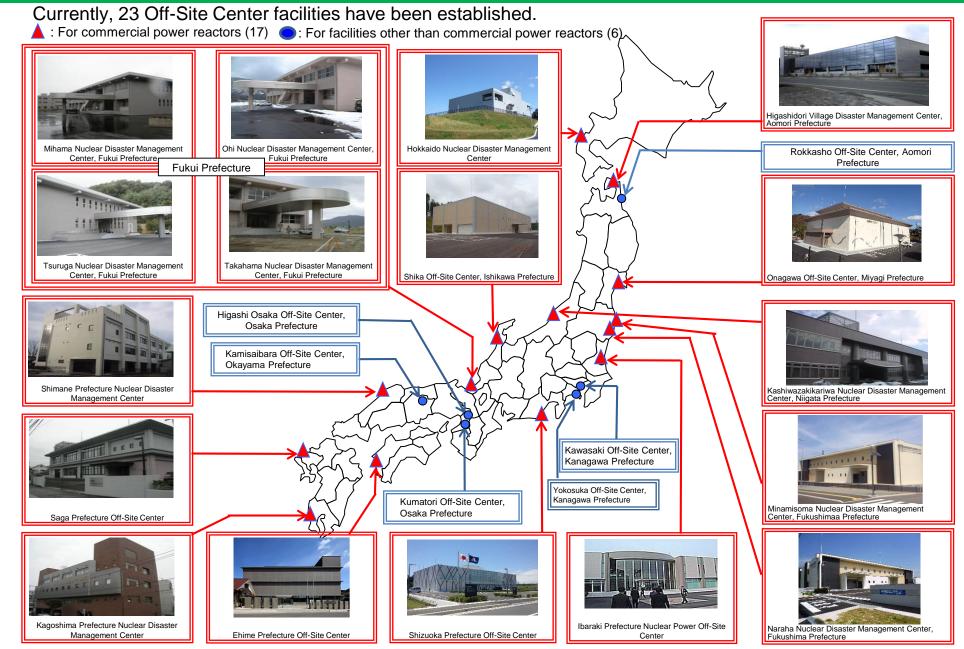
	Nuclear Emergency Management Council	(Article 3-3 of the Atomic Energy Basic Act)			
	* Standing committee				
	<ul> <li>Comprehensive coordination during ordinal times regarding nuclear emergency preparedness, including promotion of implementation of measures based on Nuclear Emergency Response policy</li> <li>O Overall coordination of long-term measures after the accident</li> </ul>				
	Council StructureChairman:Prime MinisterVice Chairman:Chief Cabinet Secretary, Minister of Minister of State for Nuclear Disast Cabinet Office Chairman of the Nuclear Regulatio	ter Management, Disaster Management, Cabinet Office and Director- General of Water and Atmosphere Environment on Authority, etc.			
	Members: All Ministers of State, State Minister Secretaries of the Cabinet Office, I Secretary for Crisis Management, o	Deputy Chief Cabinet			
	Nuclear Emergency Response Headquarters * Temporarily established at the Declaration of a Nuclear Emergency Situation	(Article 16 of the Act on Special Measures Concerning Nuclear Emergency Preparedness)			
,	O Comprehensive coordination of emergency res emergency situation	sponse measures and post-nuclear disaster measures pertaining to a nuclear			
(chocho la	the Environment or Parliamentary Vice-Minister of th	Deputy Secretariat General:net Secretary andinister: StateCouncilor of Disaster Management, Cabinet Minister, Cabinet Office			

**Ordinal Times** 

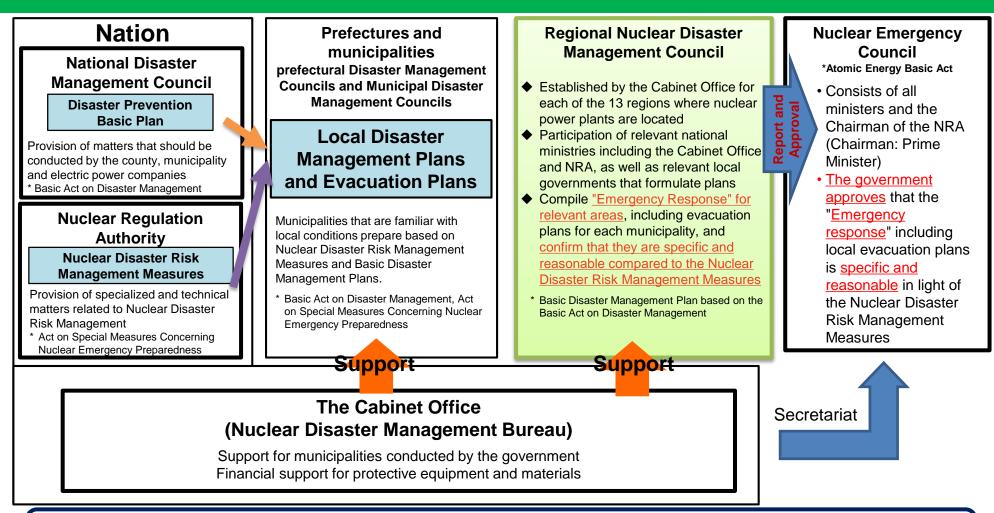
### [Reference] Crisis Management System in the Nuclear Emergency Situation



# [Reference] Off-Site Centers Around Japan



#### Formulation of Local Disaster Management and Evacuation Plans and Their Support Systems



#### Specifics on the government support for municipalities

- The government will be involved in the detail planning process from the beginning, take initiative and fully support local municipalities by solving local issues together such as securing evacuation sites, the means and routes, including consideration for persons requiring special care
- Materials required in emergencies will be provided through national grants and other means
- · Conduct support on a national level, including requests for cooperation from relevant private organizations
- <u>Continue to check and revise previously formulated plans</u>, and continue to make improvements and enhancements <u>based on the results from trainings</u>, etc.

# **Major Common Challenges in Planning**

### 1. Safe Evacuation of People Requiring Special Care

- The challenge is to ensure the safe evacuation of people requiring special care (such as hospital inpatients, residents at social welfare facilities, and homebound wounded and sick people) who require special means of transportation and evacuation sites, as it takes time to carry out evacuation. In particular, it is an urgent task to develop specific measures for each area when it comes to the area within a 5-km radius where immediate evacuation is required.
- The core task among response measures is to protect facilities that accommodate people requiring special care against radiation. It is also crucial to secure welfare vehicles as a means of transportation.

#### 2. Securing Means of Transportation (Buses)

◆ It is an urgent task to secure vehicles as a means of transportation by, for example, obtaining support from local bus companies.

#### 3. Evacuation when a Complex Disaster Strikes

The challenge is to secure evacuation shelters, vehicles for evacuation, and evacuation routes in the event of an earthquake, tsunami, heavy snowfall, or heavy rain.

#### 4. Advance Distribution of Stable Iodine Tablets

- Regarding advance distribution of stable iodine tables to residents within a 5-km radius, it is important to further improve the distribution ratio and reduce the workload of each local government required in distributing such tablets.
- Even within a 5- to 30-km radius, promoting appropriate advance distribution to residents who are expected to evacuate more smoothly by advance distribution is essential, considering how difficult it may be for people to receive emergency supplies.

#### 5. Development of the Acceptance System by Local Governments Receiving Evacuees

An opinion has been expressed about developing readiness on the part of the local governments that are located outside a 30-km radius and are supposed to receive evacuees. It is necessary to conduct disaster prevention drills that include communication and setting up of evacuation shelters, train local government personnel and residents, and provide information to them.

#### 6. Development of a System for Conducting Contamination Screening, Simple Decontamination, and Thyroid Dose Monitoring

It is necessary to develop a system for smooth contamination screening for residents (including development of materials and equipment, acquisition of personnel, and selection of places).

### **Overview of the FY2022 Nuclear Energy Disaster Prevention Drill**

km)

#### 1. Positioning and Purpose of the Drill

[Nuclear disaster preparedness drills based on Article 13-1, the Act on Special Measures Concerning Nuclear Emergency Preparedness]

- 1) To confirm the effectiveness of the disaster management system of the national government, local governments, and nuclear operators
- 2) To check the procedures established in the disaster management systems and manuals of the central government and local governments for cases of nuclear emergency
- 3) To verify the evacuation plan set forth in "Emergency Response in the Mihama Area"
- 4) Identify of lessons that can be learned from drill results and therefore improve emergency response
- 5) To acquire skill proficiency in personnel related to nuclear disaster management and promote the understanding of residents with respect to to nuclear disaster prevention

#### 2. Carried out on:

November 4, 5, and 6, 2022

#### 3. Nuclear power plant subject to drill

Kansai Electric Power Co., Ltd.'s Mihama Nuclear Power Plant

#### 4. Participating institutions

Government agencies: Cabinet Secretariat, Cabinet Office, Nuclear Regulation Authority, and other relevant ministries and agencies

Local governments: Fukui Prefecture, Mihama Town, Tsuruga City, Wakasa Town, Obama City, Minami-Echizen Town, Echizen City, Echizen town, Shiga Prefecture, Nagahama City, Takashima City, Gifu Prefecture, Ibigawa Town, and more.

Operator subject to drill: Kansai Electric Power Co., Ltd.

Related organizations: National Institutes for Quantum Radiological Science and Technology, Japan Atomic Energy Agency, etc.

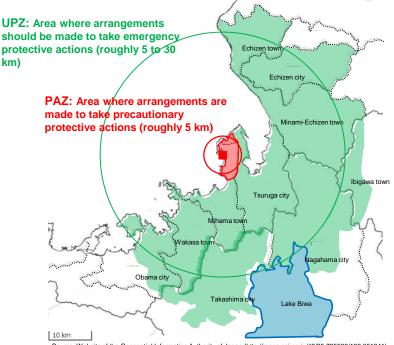
#### 5. Details of the drill

The following drill took place for a nuclear power plant based on the assumption that a combined natural and nuclear disaster occurred:

- (1) Establishment of a prompt initial response system
- (2) Decision-making on policies to implement protective action through coordination between the central government and local organizations
- (3) Evacuation of residents in and out of the prefecture, sheltering-in-place, etc.

#### 6. Special remarks

- · Confirm the effectiveness of wide-area evacuation of residents within and outside the prefecture using all possible means, such as action teams
- Pursue blind training that eliminates pre-made scenarios to the extent possible
- · Confirm new response procedures, such as transport of stable iodine tables from the national stockpile



Source: Website of the Geospatial Information Authority of Japan (http://maps.gsi.go.jp/#9/35.795538/136.051941) Prepared by the Cabinet Office (Nuclear Disaster Management Bureau) based on "Blank Maps," Geospatial Information Authority of Japan (http://maps.gsi.go.jp/#10/35.703032/135.964050)

#### [Roughly within a 5-km radius]

PAZ: Precautionary Action Zone (area where arrangements should be made to implement precautionary protective actions)

- ⇒ The area where people are preventively evacuated, etc. from the stage before radioactive materials are discharged in anticipation of a rapidly developing accident
- 1 city and 1 town (Mihama Town and Tsuruga City in Fukui Pref.) No. of residents: 848

#### [Roughly within a 5- to 30-km radius]

**UPZ: Urgent Protective Action Planning Zone (area where** arrangements should be made to take urgent protective actions)

⇒ The area in which arrangements for sheltering-in-place or temporary relocation should be made in view of the possibility of the accident spreading

5 cities and 5 towns

Fukui Pref.: Mihama Town, Tsuruga City, Wakasa Town, Obama City, Minami-Echizen Town, Echizen City, and Echizen Town

Shiga Pref.: Nagahama City and Takashima City

Gifu Pref .: Ibigawa Town

No. of residents: 278,044 Population: as of April 1, 2020

#### [Reference] Nuclear Energy Disaster Prevention Drill (Drill Records up to the Last Fiscal Year)

Conducted almost every year since the Act on Special Measures Concerning Nuclear Emergency Preparedness came into effect (December 1999)

	Fiscal year	Implementing prefectures	Electric power companies and power plants	Status of "emergency response" case compilation at the time of drill	
After the Fukushima	2022	Fukui, Shiga, Gifu	Mihama Power Station, Kansai Electric Power Co., Inc.	0	
	2021	Miyagi	Onagawa Nuclear Power Station, Tohoku Electric Power Co, Inc.	0	
	2019	Shimane, Tottori	Shimane Nuclear Power Station, Chugoku Electric Power Co., Inc.	×	
	2018	Fukui, Kyoto, Shiga	Ohi Power Station and Takahama Power Station, Kansai Electric Power Co., Inc.	0	
	2017	Saga, Nagasaki, Fukuoka	Genkai Nuclear Power Station, Kyushu Electric Power Co., Inc.	0	
nuclear	2016	Hokkaido	Tomari Power Station, Hokkaido Electric Power Co, Inc.	0	
plant	2015	Ehime	Ikata Power Station, Shikoku Electric Co., Inc.	0	
accident	2014	Ishikawa, Toyama	Shika Nuclear Power Station, Hokuriku Electric Power Company	×	
	2013	Kagoshima	Sendai Nuclear Power Station, Kyushu Electric Power Co., Inc.	×	
	2010	Shizuoka	Hamaoka Nuclear Power Station, Chubu Electric Power Co.		
	2009	Ibaraki	Tokai Dai-ni Power Station, the Japan Atomic Power Company		
ſ	2008	Fukushima	Fukushima Daiichi Nuclear Power Station, Tokyo Electric Power Company Holdings, Inc.	7	
	2007	Aomori	Reprocessing plant: Japan Nuclear Fuel Limited		
	2006	Ehime	Ikata Power Station, Shikoku Electric Co., Inc.	7	
	2005	Niigata	Kashiwazaki-Kariwa Nuclear Power Station, Tokyo Electric Power Company Holdings, Inc.		
	2003	Saga, Nagasaki	Genkai Nuclear Power Station, Kyushu Electric Power Co., Inc.	7	
	2002	Fukui	Ohi Power Station, Kansai Electric Power Co., Inc.		
	2001	Hokkaido	Tomari Power Station, Hokkaido Electric Power Co, Inc.		
	2000	Shimane	Shimane Nuclear Power Station, Chugoku Electric Power Co.		

\* In 2004, the drill was scheduled to take place in Niigata prefecture (Kashiwazaki Kariwa Nuclear Power Plant, TEPCO), but was cancelled due to the Central Niigata Prefecture Earthquake happening.

\* In 2020, the drill was scheduled to take place in Miyagi prefecture (Onagawa Nuclear Power Plant, Tohoku Electric Power), but was cancelled considering the situation related to the spread of the novel coronavirus, including the declaration of a state of emergency related to the novel coronavirus infection and the status of infection in the metropolitan region.

Changes in the content of the Nuclear Energy Disaster Prevention Drill before and after the nuclear accident

1) Scenario

- Before the nuclear power plant accident, there was no assumed response to the release of radioactive materials or the occurrence of a complex disaster combined with a natural disaster.
- After the accident, the above scenario (response to the release of radioactive materials and complex disaster combined with natural disaster) has been incorporated.
- 2) Resident evacuation
- Before the nuclear accident, evacuation plans did not include such specific matters as "to where" or "by how."
- After the nuclear accident, it was decided to include those details in the evacuation plan, and the Nuclear Energy Disaster Prevention Drill was used as an opportunity to demonstrate the plan (the resident evacuation drills after the accident became more specific than before it).

# II. References

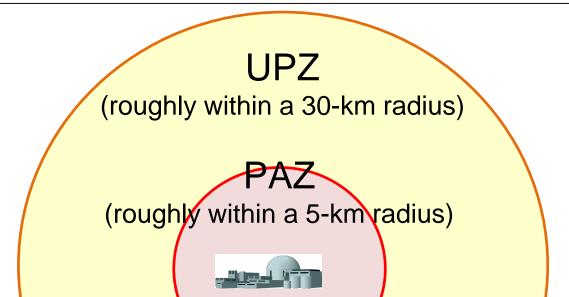
# • PAZ: Precautionary Action Zone (area where preparations should be made to implement precautionary protective actions)

Roughly within a 5-km radius of the nuclear facility (in the case of a power reactor) Evacuation or other measures will be taken on a precautionary basis as early as during the stage before radioactive materials are released.

# <u>UPZ: Urgent Protective Action Planning Zone (area where arrangements should be made to take urgent protective actions)</u>

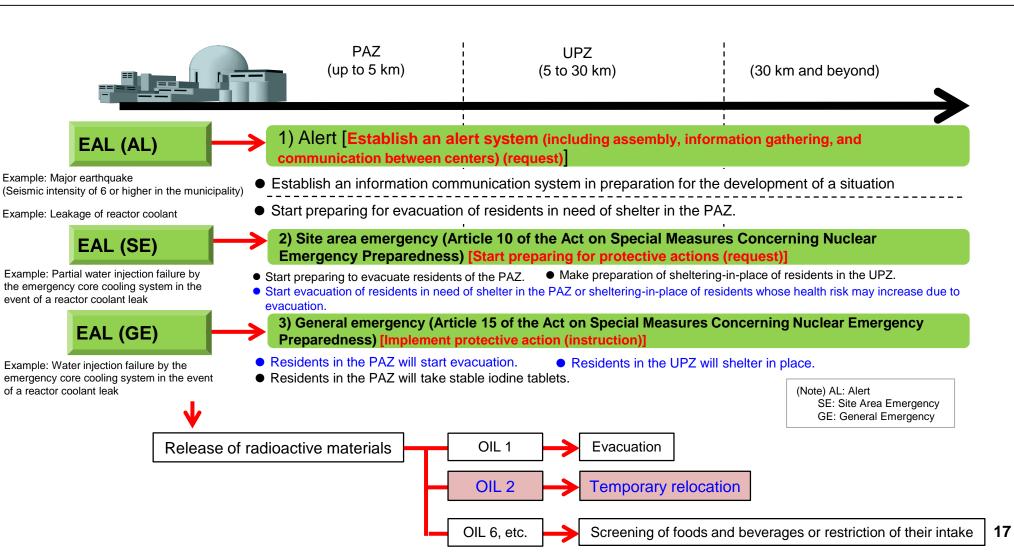
Area within an approximately 30-km radius outside PAZ (in the case of power reactors)

- In the event of a general emergency, residents should shelter in place during the stage before the release of radioactive materials.
- After the release of radioactive materials, the Nuclear Emergency Response Headquarters will identify areas where the air radiation dose rate exceeds a certain level based on the results of emergency monitoring, and temporarily relocate evacuees under the direction of the General Manager of the Headquarters (Prime Minister).



# Phased Evacuation Based on the EAL and Protective Actions based on the OIL after the Release

- O Three emergency classification levels have been introduced based on the status of the nuclear facility. The EAL (Emergency Action Level) is established as the standard for determining the classification.
- O Evacuation and/or sheltering-in-place will be conducted before the release of radioactive materials according to the EAL.
- O Temporary relocation of residents in the UPZ will be conducted after the release of radioactive materials according to the OIL (Operational Intervention Level).



### **Concept of Protective Actions in the UPZ**

- O In the event of a general emergency, residents in the UPZ should shelter in place in the stage before the release of radioactive materials.
- O <u>After the release of radioactive materials</u>, the Nuclear Emergency Response Headquarters will identify areas where the air radiation dose rate exceeds a certain level <u>based on the results of emergency monitoring</u> and, <u>in the identified areas</u>, will temporarily relocate evacuees under the <u>direction of the General Manager of the Headquarters (Prime Minister)</u>.
- O For foods and beverages, the concentration standard will be set up by radionuclide, and intake restrictions will be applied.

Na	tional government		Туре	Initial standard value	Outline of protective actions
Oversees emergency monitoring Emergency Monitoring Center (under the command of the national government)			OIL 1	500 µSv/h (microsieverts per hour)	Identify the area within a few hours as the standard and conduct evacuation.
			OIL 2	20 µSv/h (microsieverts per hour)	Identify the area within a day as the standard, restrict intake of local products, and conduct temporary relocation within about a week.
<ul> <li>Implements emergency monitoring</li> <li>Consolidates the results of emergency monitoring and checks</li> </ul>		Food and beverage standards	0.5 μSv/h (microsieverts per hour)	Identify the area, in which radionuclide concentrations in food and beverages should be measured, within a few days.	
their validity		)	OIL 6	The standard set by nuclide	Measure and analyze the radionuclide concentrations in foods and beverages within a week as the standard, and swiftly apply restriction of intake of those exceeding the standard.
Prefectures	Designated Nuclear local operator governments				

# **Current Status of Nuclear Power Plants**

Decommissioned Permit to alter Compliance with new Application **Restarted:** regulatory requirements facilities: not filed: reactor: under review: 10 units 10 units 9 units 7 units 24 units In service: 7 units (start date) (date permit granted) (application date) Out of service: 3 units 110-Output (10,000 kW) Kashiwazaki-Kariwa Nuclear 110 29-**Tomari Power** No. of years Power Station, Tokyo Electric 37 26 25 Station, Hokkaido ABWR 28 32 PWR BWR Power Company Holdings, Inc. 33 31 13 **Electric Power Co.** (2017, 12, 27)Inc. Shika Nuclear Power 121 54 (2013.7.8)Station, Hokuriku **Ohma Nuclear Power** 29 16 Electric Power Station, Electric Power Company (2014.8.12) Development Co., Ltd. (2014.12.16)Tsuruga Power Station, 36 116 Higashidori Nuclear <u>139</u> Japan Atomic Power Power Station, Tokyo 36 Co., Inc. Electric Power (2015.11.5) Company Holdings, Inc. 83 Mihama Power Station, 110 Higashidori Nuclear 46 Kansai Electric Power Power Station, Tohoku 17 Co., Inc. Electric Power Co. Inc. 2021 6 23 (2014.6.10) Ohi Power Station, 118 118 Kansai Electric Power 83 **Onagawa Nuclear** 31 30 Co., Inc. Power Station, Tohoku 21 Electric Power Co, Inc. 2018.3.14) (2018.5.9 Takahama Power Fukushima Dai-ichi Nuclear 87  $\overset{46}{\boxtimes}$ Station, Kansai Power Station, Tokyo 48 Electric Power Co., 47 38 37 Electric Power Company Inc. Holdings, Inc. (2016.4.20) (2016.1.29)(2016.2.26) Fukushima Dai-ni Nuclear 46 82 Shimane Nuclear Power Power Station, Tokyo Station, Chugoku 34 Electric Power Company Electric Power Co., Inc. Holdings, Inc. 2021.9.15 (2018.8.10) Tokai Power Station and 110 Tokai Dai-ni Power Station. Genkai Nuclear Power 44 Station, Kyushu the Japan Atomic Power 28 25 Electric Power Co., Inc Company (2018.9.26) (2018.3.23) (2018.6.16) 138 Hamaoka Nuclear Sendai Nuclear Ikata Power Station Power Station, Chubu Power Station. 18 Shikoku Electric Co Electric Power Co., Inc. Kyushu Electric 37 38 (2015.6.16)(2014.2.14) Power Co., Inc. (Aug. 12, 2016) (2015.8.11) (2015.10.15)

Source: Website of the Agency for Natural Resources and Energy

As of February 24, 2023

## **Nuclear Power Plants in Japan**

#### As of March 2023

