

**APEC EGNRET45, Xiamen, China**

# **Policy Strategy and Priority of New and Renewable Development in Japan**

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# **1. Long term energy outlook**

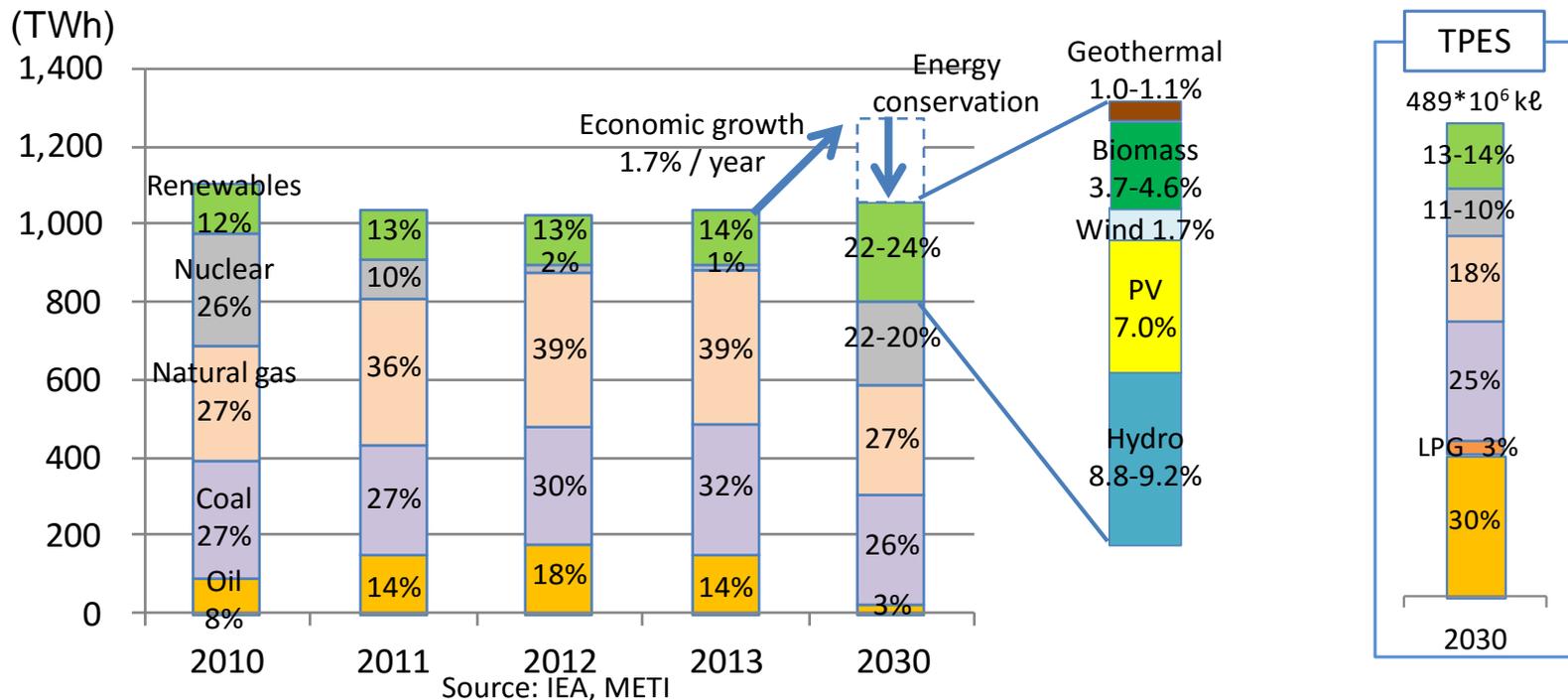
## **2. RE deployment status**

## **3. Current issues**

## **4. Action to the issues**

# Long term energy outlook for 2030

- In 2015, Japanese government has published “Long-Term Energy Supply and Demand Outlook” (for 2030).
  - The previous plan was completely revised after Fukushima accident.
- Renewable electricity share will be 22-24% in 2030.
- This outlook can be revised corresponding to the situation.



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2003

## RPS (Renewable Portfolio Standard)

- wind, solar, small hydropower, biomass power generation , binary geothermal
- 8-year target set by every 4 years
- Finish in July 2012 as FIT started

2009

## Buyback system surplus PV electricity

- Started from November, 2009
- Developed from Utilities' voluntary Net -Metering system
- Only for small scale facilities up to 500 kW

2012

## Commencement of FIT

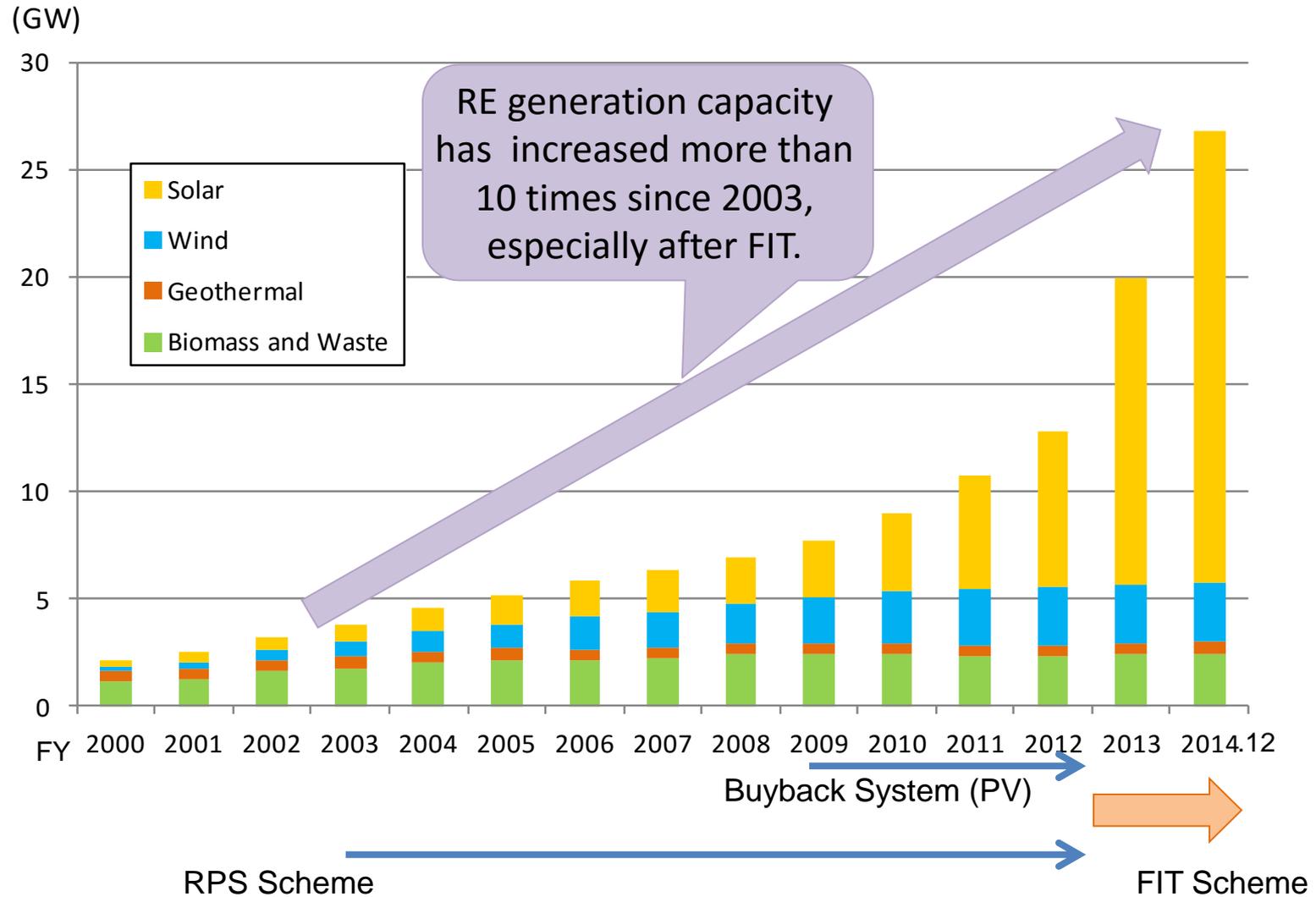
- Started from July 1, 2012
- Premium FIT rate for the investors during first 3 years
- Utilities hold the rights to disconnection the renewable energy facilities up to 30 days without compensation in order to maintain the grid electricity quality

2015

## Expiration of premium period of FIT

- New disconnection guideline for the **new** application of PV and wind.(Jan)  
PV:360 hours changed from 30days/ Wind: 720 hours can be disconnected without compensation from the Utilities
- 3 years FIT premium rate period is finished (July)
- Currently, New FIT scheme is under consideration for diversification of renewable energy technologies

# Transition of RE installation



Source: The Energy and Data Modeling Center (EDMC) of IEEJ,  
The Federation of Electric Power Companies of Japan (FEPC) (before 2010),  
METI (after 2011)

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## Current Issues

- Unbalanced RE deployment (Too much rely on PV)
- RE deployment with national cost consciousness
- Stabilized electricity output in a low cost way
- Establishment of wide area grid utilization system and the rule

## Current Discussion

- Strengthen the transmission lines in and out of utilities' area
- FIT rate setting and revision of the connection rule
- Cost reduction through
  - (1) R&D
  - (2) standardization of project contract and construction etc.
- Capacity Building for better opportunity of project finance

# Need diversification in renewable energy

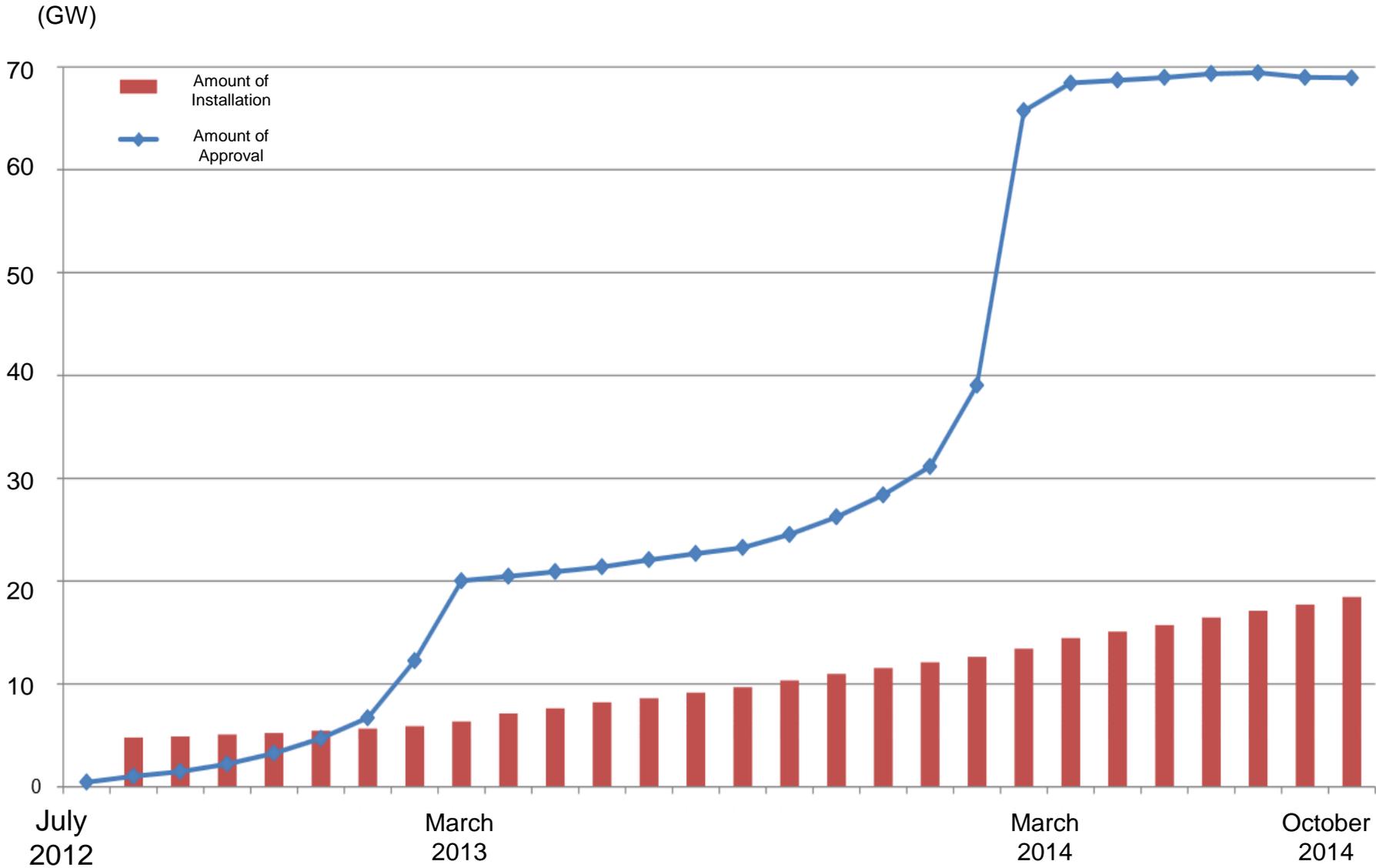
- ◆ PV capacities account for 96.3% of the total renewable energy capacities installed during first 3 years of FIT
- ◆ Non residential PV facilities alone account for 80.9% among total

(MW)

	Cumulative Capacity as of June 2012 Before	Capacity start operation from July 2012 to June 2015
PV (Residential)	4,700	3,320
PV (Non Residential)	900	17,450
Wind	2,600	350
Middle and Small Hydro (Less than 30MW)	9,600	110
Biomass	2,300	320
Geothermal	500	10
<b>Total</b>	<b>20,600</b>	<b>21,560</b>

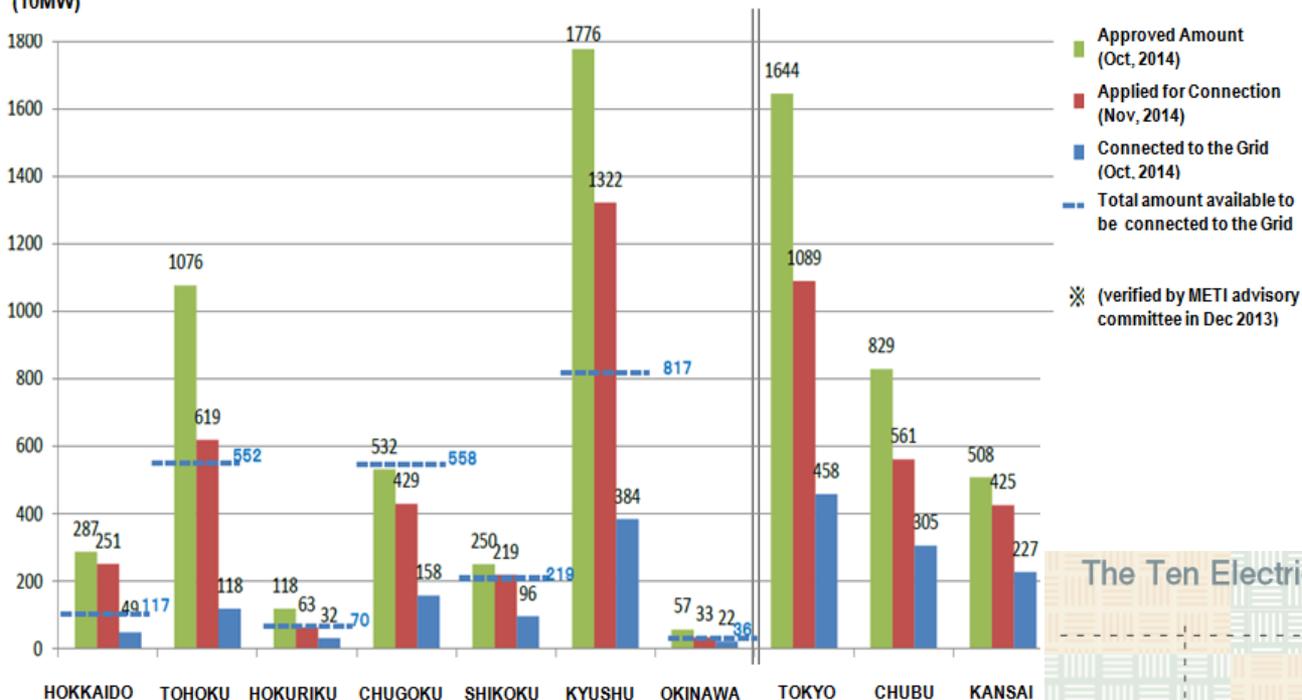
96.3% of Total After FIT

# Approved PV application and installation

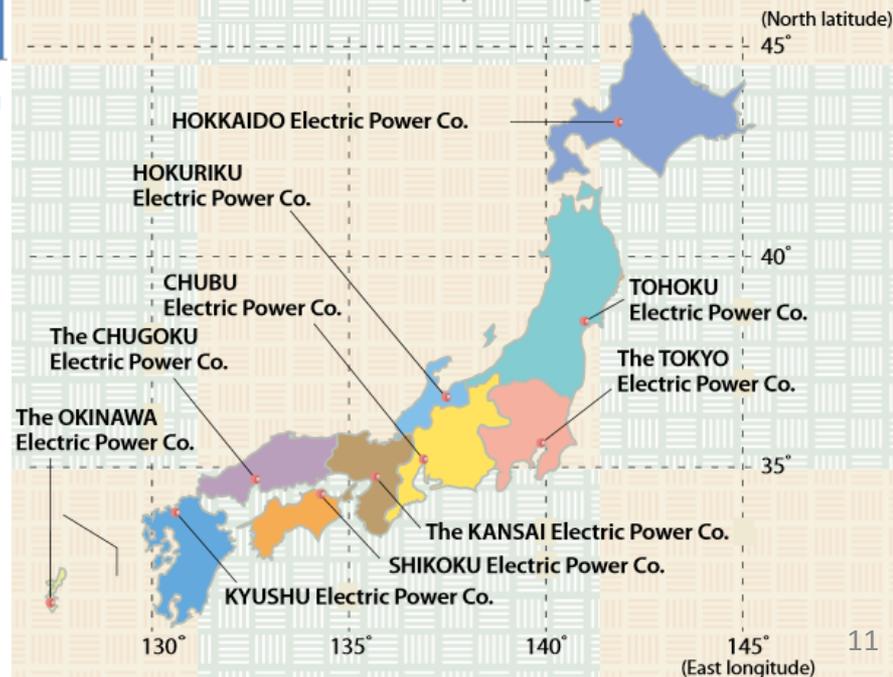


# PV connection to the grid by utilities

(10MW)



The Ten Electric Power Companies by Service Area



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# New rule for PV disconnection

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## The Rule when FIT is started

- The disconnection rule is applied only over 500kW PV plant
- Utilities can disconnect the PV power plants from the grid up to 30 days without any compensation.

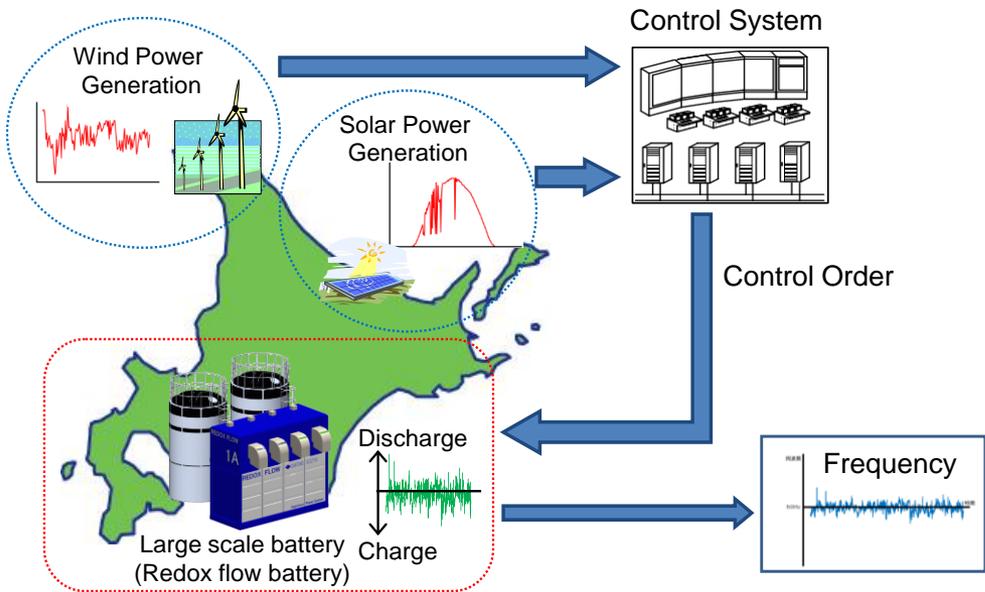
## New Rule for New Applied Facilities

\* Starting date varies based on the plant scale and the utility area.

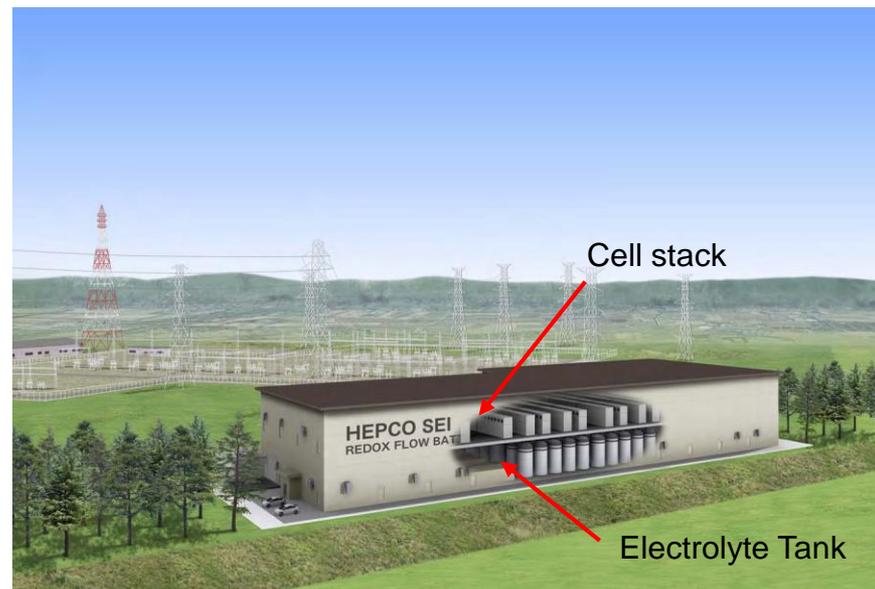
- This rule can be applied all plants including residential roof top system  
(Except small plants under 50kW in Tokyo, Chubu and Kansai Area.)
- Utilities can disconnect PV plants up to 360 hours and Wind power plants (over 20kW) up to 720 hours without any compensation.
- Geothermal and Small Hydro Power Plants have no limits to the grid connection.

# Utility scale batteries for grid stability(1)

Hokkaido Electric Power Co.,Inc.  
(Demonstration Project :FY2013-FY2017)



Overview of battery system  
(Sumitomo Electric Industries)

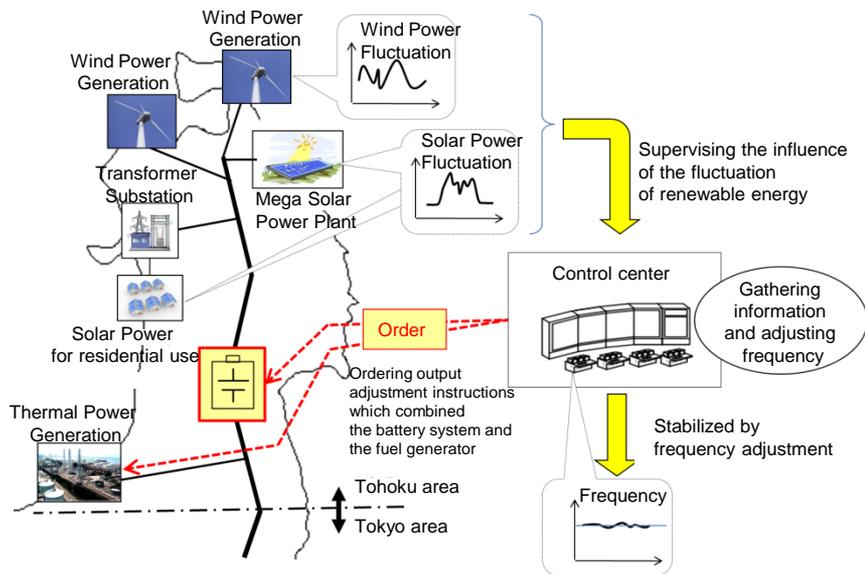


Conceptual drawing

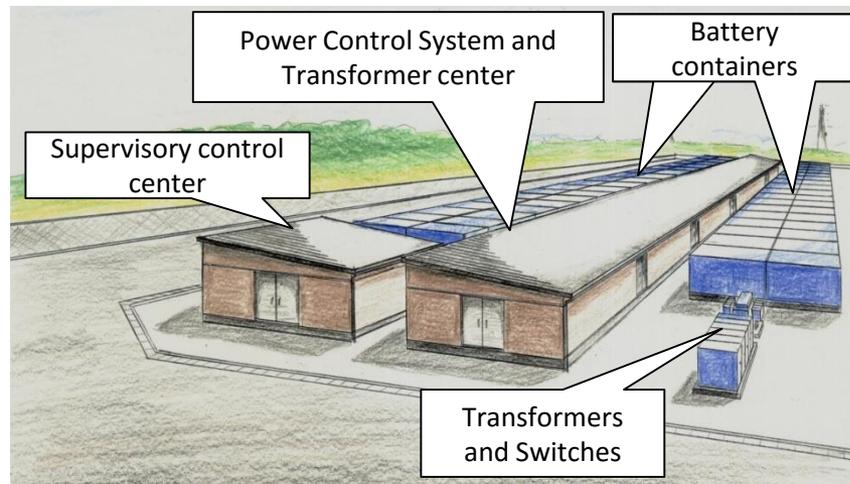
Subsided Company	Battery type	System Capacity	Location
Hokkaido Electric Power Co., Inc. Sumitomo Electric Industries Ltd	Redox Flow battery	60 MWh	Minami Hayakita Substation

# Utility scale batteries for grid stability(2)

Tohoku Electric Power Co.,Inc.  
(Demonstration Project:FY2013-FY2017)



1  
Overview of battery system  
(Toshiba)



Conceptual drawing

Subsided Company	Battery type	System Capacity	Location
Tohoku Electric Power Co., Inc.	Toshiba Lithium ion Battery	20 MWh	Nishi Sendai Substation

# Utility scale batteries for grid stability(3)

Tohoku Electric Power Co.,Inc.  
Demonstration Project :FY2015

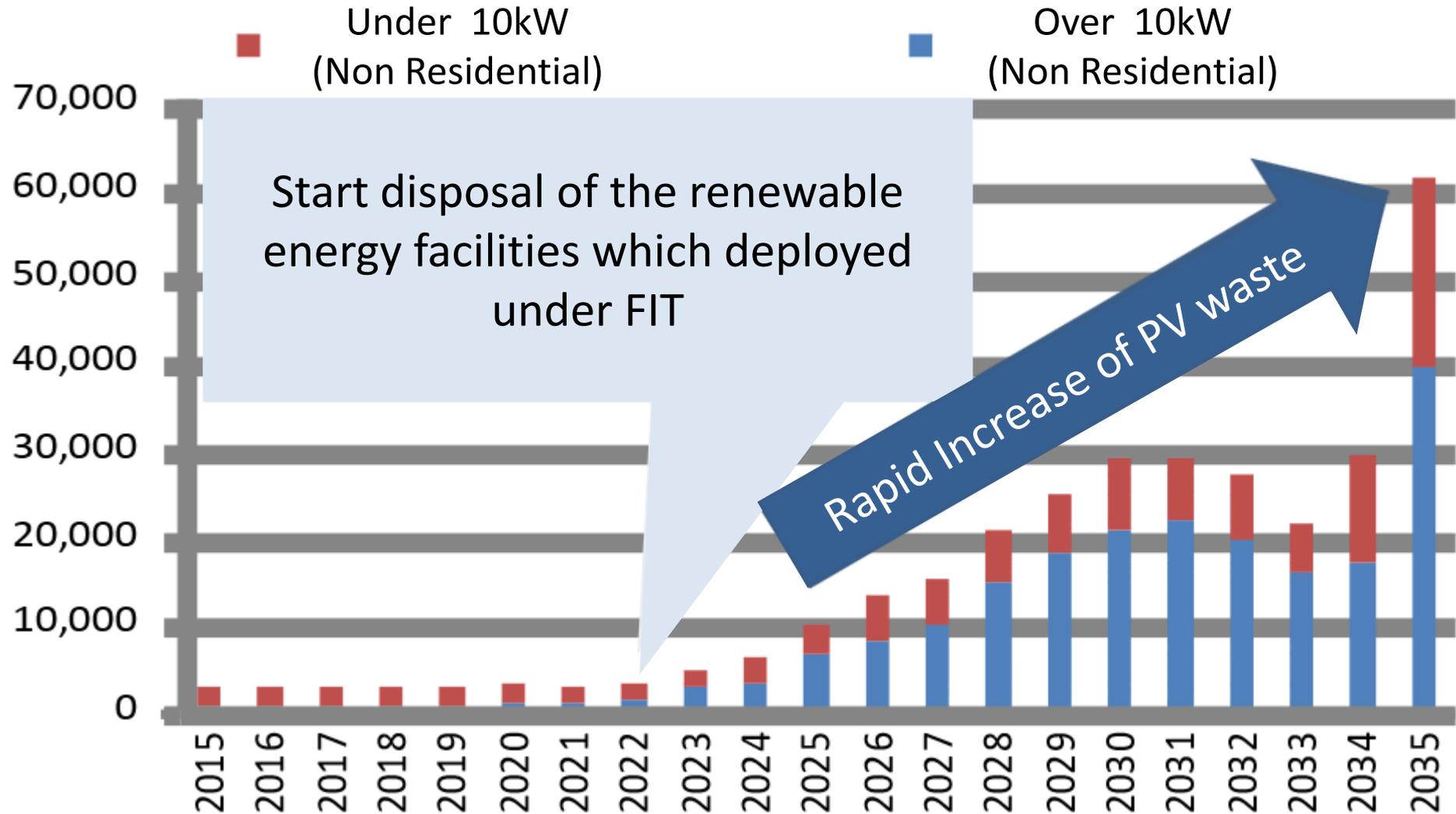
Subsidized Company	Battery type	System Capacity	Location
Tohoku Electric Power Co., Inc.	Lithium ion Battery	40 MWh	Minami Soma Substation

Kyushu Electric Power Co.,Inc.  
Demonstration Project :FY2015

Subsidized Company	Battery type	System Capacity	Location
Kyushu Electric Power Co., Inc.	NAS Battery	300 MWh	Buzen Oil Thermal Power Plant

# Challenges to be anticipated in the future

Anticipated PV disposal in the future (PV operating life = 25 years)



**Thank you for your attention !**