

# Current Status of PV Facilities and Vision for the Future

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## Table of Contents

- I. Current Status of PV Facilities
- II. Natural Disaster Threats
- III. Kyushu Electrical Safety Inspection Association's Efforts to Improve Inspection Efficiency
- IV. Vision for the Future

## Key Points of Today's Presentation

The number of PV facility installations in Japan  
**are on the rise**



Accidents caused by **natural disasters**  
are on the rise

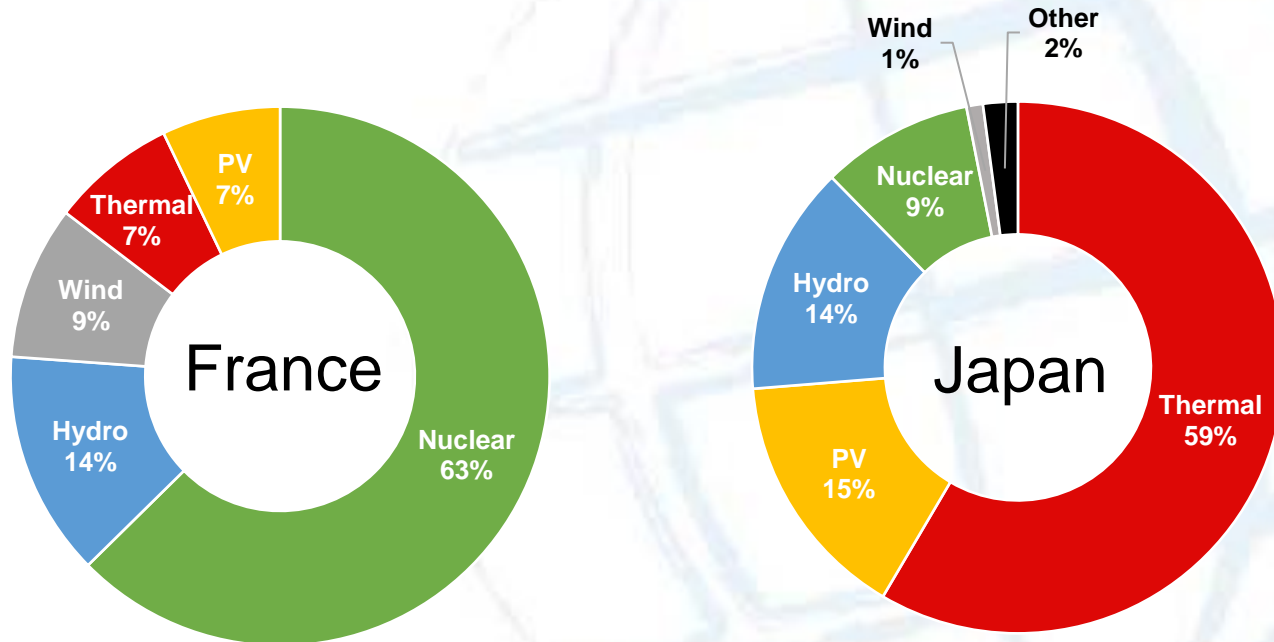


Conclusion

It is critical that **we perform proper inspections efficiently**

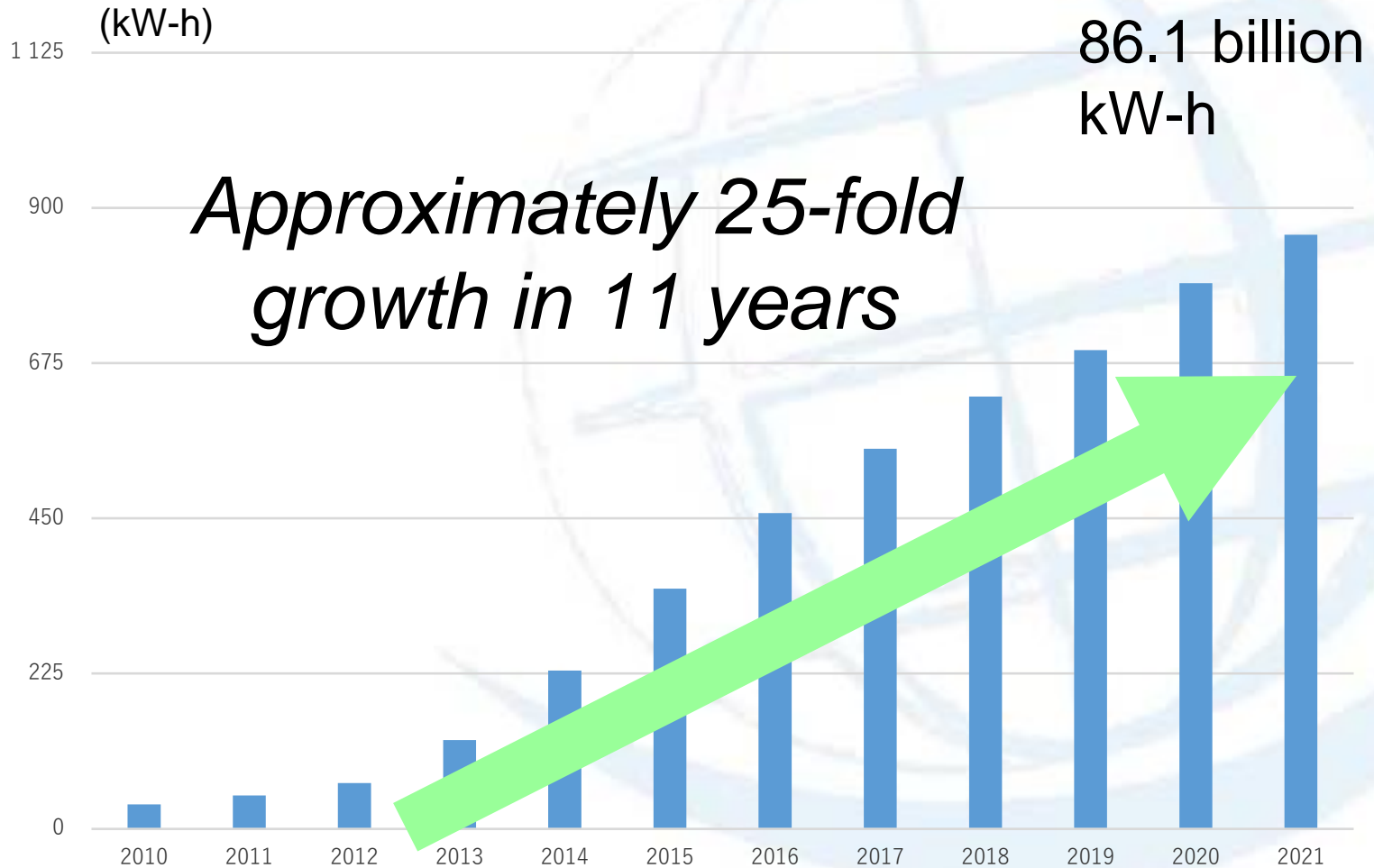
# I. Current Status of PV Facilities

## Differences in the amounts of power generation in France and Japan



Source: Prepared based on IEA monthly electricity statistics data. Categories of power generation that make up smaller than whole number percentages are not included to improve visibility.

## Growing PV-generated power in Japan



3.5 billion kW-h

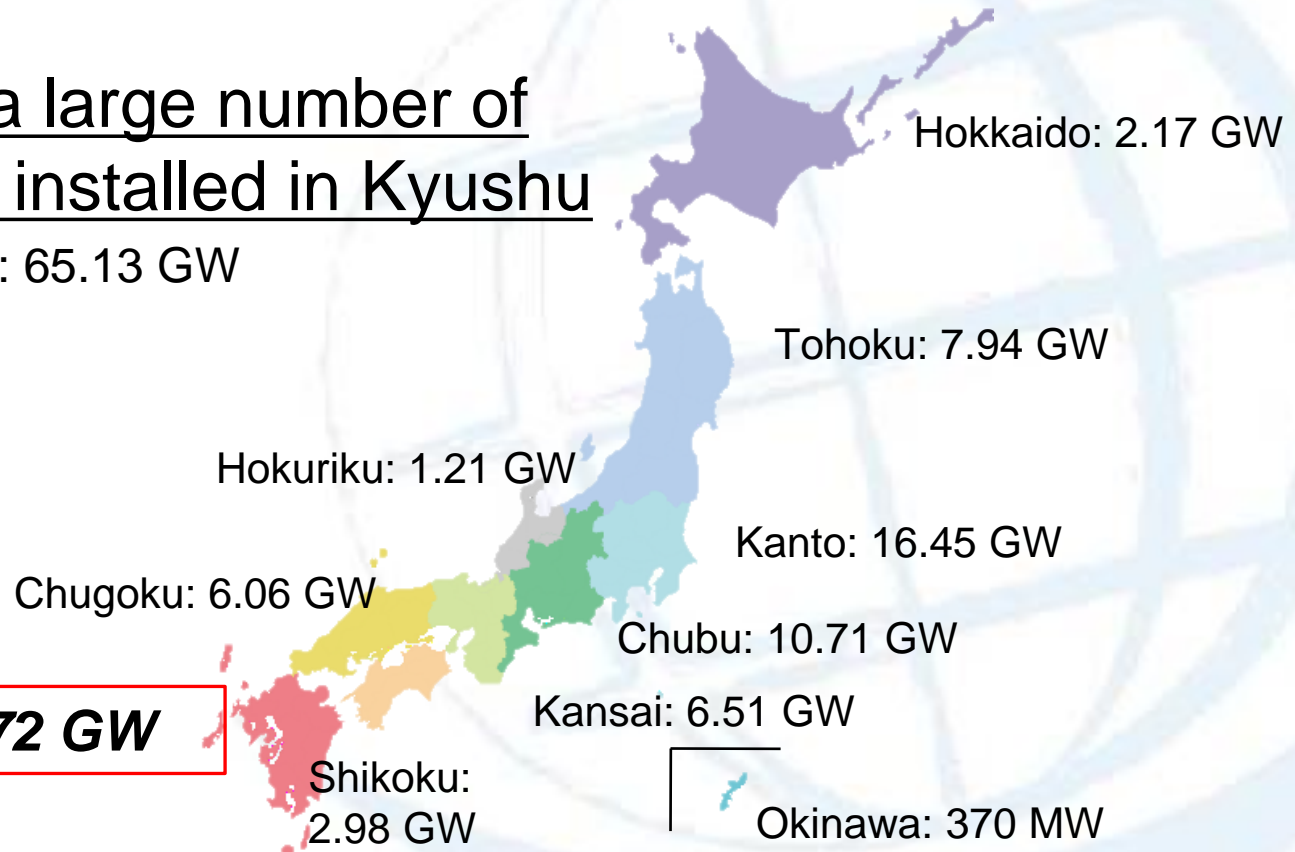
Source: Prepared by Agency for Natural Resources and Energy based on Comprehensive Energy Statistics data

Board Meeting – 16 and 17 October 2023

## PV power plant installed capacities by region (March 31, 2023)

There are a large number of power plants installed in Kyushu

National total: 65.13 GW



Source: Prepared based on the Agency for Natural Resources and Energy's "Feed-in Tariff Scheme Information Disclosure Website" (for newly certified projects).



## Types of PV Generation Facilities



Large-scale  
ground mounted

Rooftop mounted



Floating





## II. Natural Disaster Threats

## Damage to PV facilities caused by natural disaster



Typhoon damage

## Damage to PV facilities caused by natural disaster

Are there any potential  
airborne debris nearby?



Are the panels securely  
fixed in place?



## Damage to PV facilities caused by natural disaster



Landslide damage due to heavy rain



## III. Kyushu Electrical Safety Inspection Association's Efforts to Improve Inspection Efficiency

## Example of efficiency improvement 1: Better insulation resistance measuring efficiency — Before



Measurements were taken while checking information displayed on a screen.



## Example of efficiency improvement 1: Improvements made to insulation resistance measuring efficiency — After Streamlined report generation



Data saved on smartphone



## Example of efficiency improvement 2: Better load rejection testing efficiency

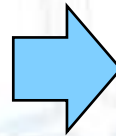
Better workability thanks to reduced weight



VT fabricated for testing

### Example of efficiency improvement 3: Better dielectric strength testing efficiency

After testing the PV facility on site, charges are discharged to ensure safety.



- Unable to determine if discharge was complete

- Residual charge is indicated by sound and light

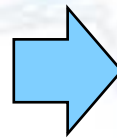
## Example of efficiency improvement 4: Better precision inspection efficiency

Perform large area inspections efficiently from the air

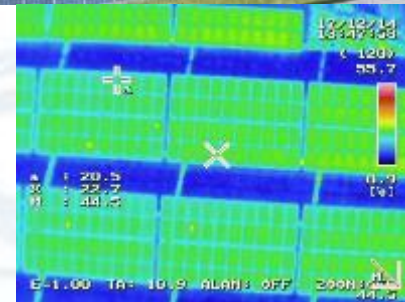
Before



Inspection performed using  
thermal imaging camera



After



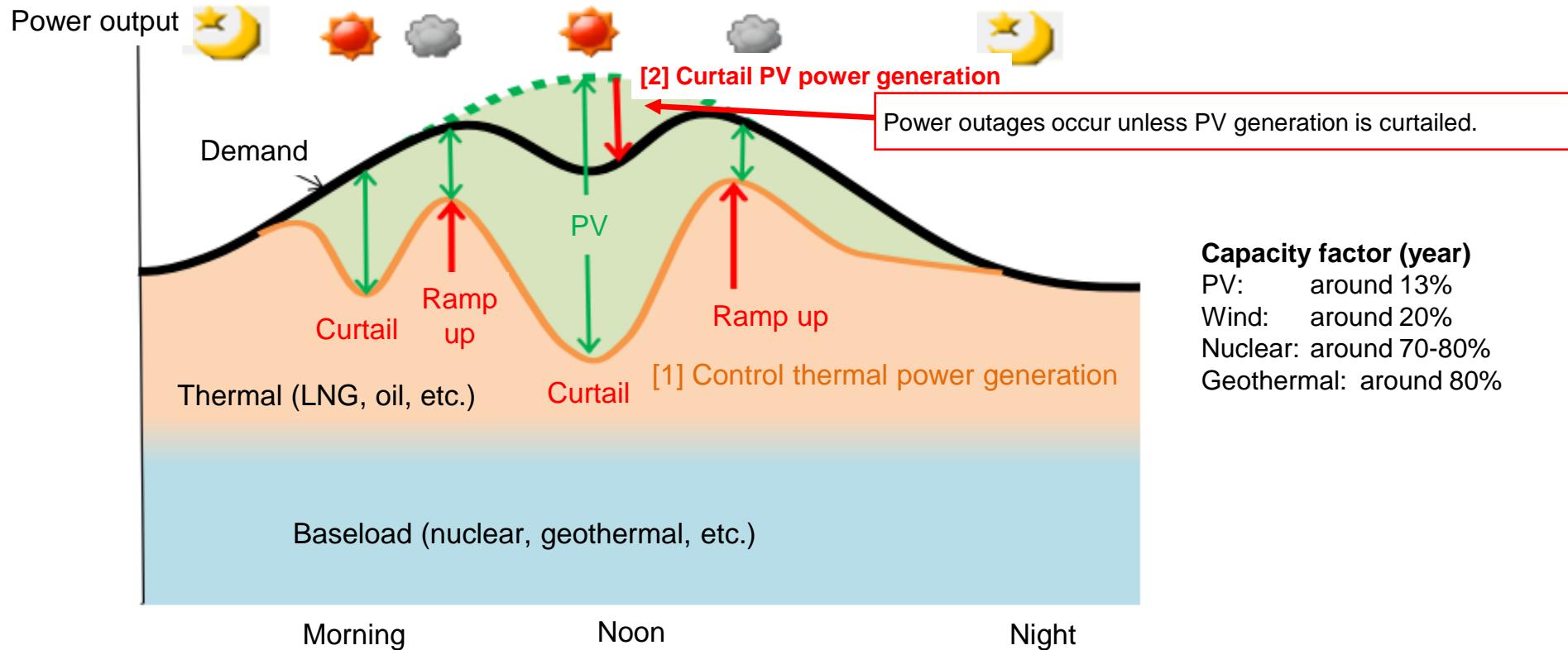
Filmed by drone



## Example of efficiency improvement 5: Better efficiency in responding to output control

At times of low demand, PV power plants need to be shut down.

[Illustration of supply-demand on minimum demand days (sunny days in May, etc.)]



Source: Agency for Natural Resources and Energy, "Revising the Operation of the Feed-in Tariff Scheme, etc."

Example of efficiency improvement 5: Better efficiency in responding to output control

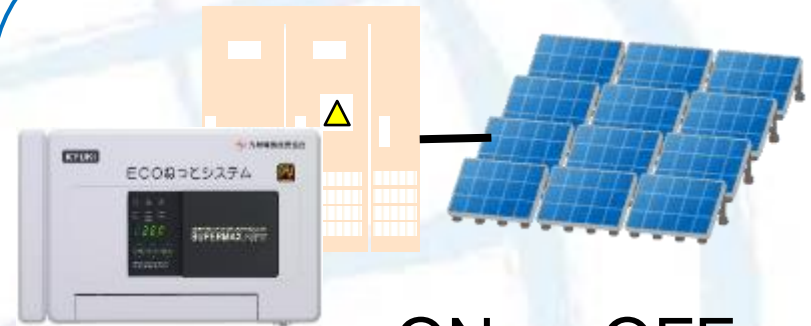
Manual work reduced with the introduction of remote system

Before

Shut down before  
8:00 a.m. (OFF)

Restore after 4:00  
p.m. (ON)

After



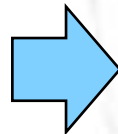
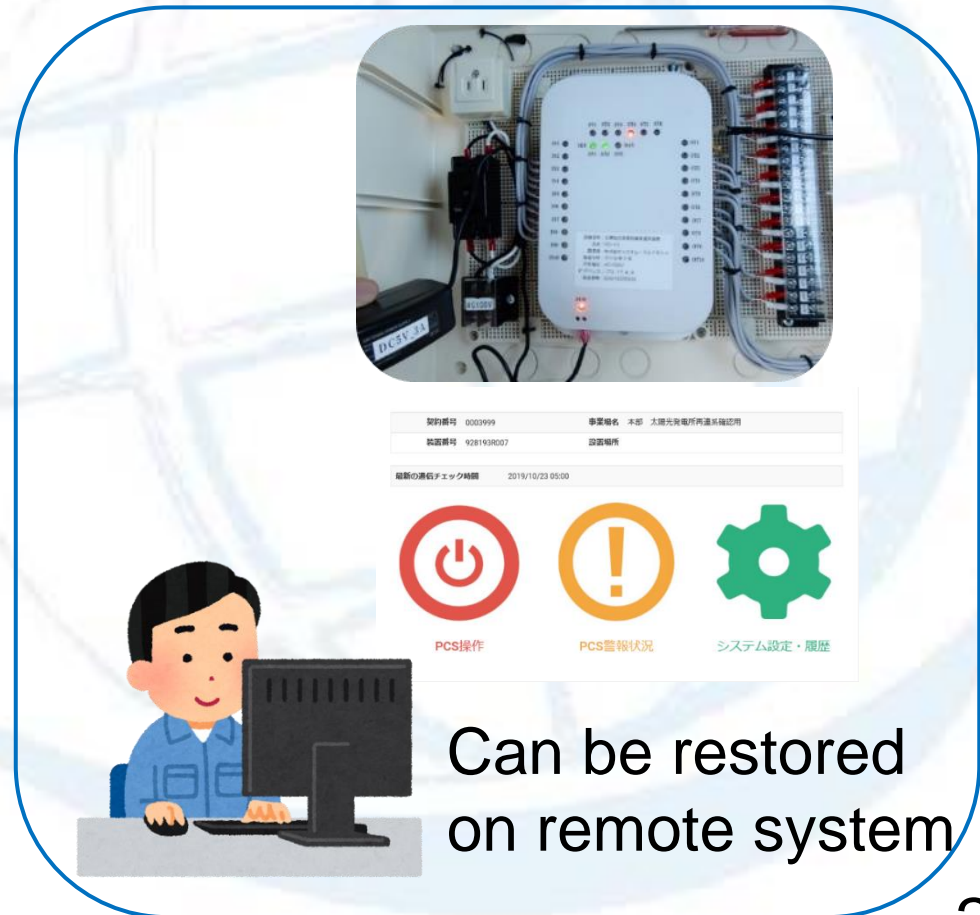
ON ⇔ OFF




Make timer settings on  
remote system

Example of efficiency improvement 6: Better efficiency in recovering from grid-side accidents


Less time spent traveling to and from sites


|             |                  |      |                 |
|-------------|------------------|------|-----------------|
| 契約番号        | 0003999          | 事業場名 | 本部 大層光発電所再連系確認用 |
| 装置番号        | 9281938007       | 設置場所 |                 |
| 最新の通信チェック時刻 | 2019/10/23 05:00 |      |                 |



PCS操作



PCS監視状況



システム設定・履歴

Can be restored on remote system

## Once a year, association-wide presentations for work-improvements proposals



Operational Improvement Proposal Presentation Meeting





## IV. Vision for the Future

## Vision for the future



Shift nighttime work to  
daytime

### Utilize AI and IoT



Constant monitoring system  
Improvements to testing and  
measuring equipment

*We will continue to make improvements and  
enhancements to ensure that field work is  
performed properly and efficiently.*

**THANK YOU**

**MERCI**

