# The Current Situation of the Energy Market in Japan

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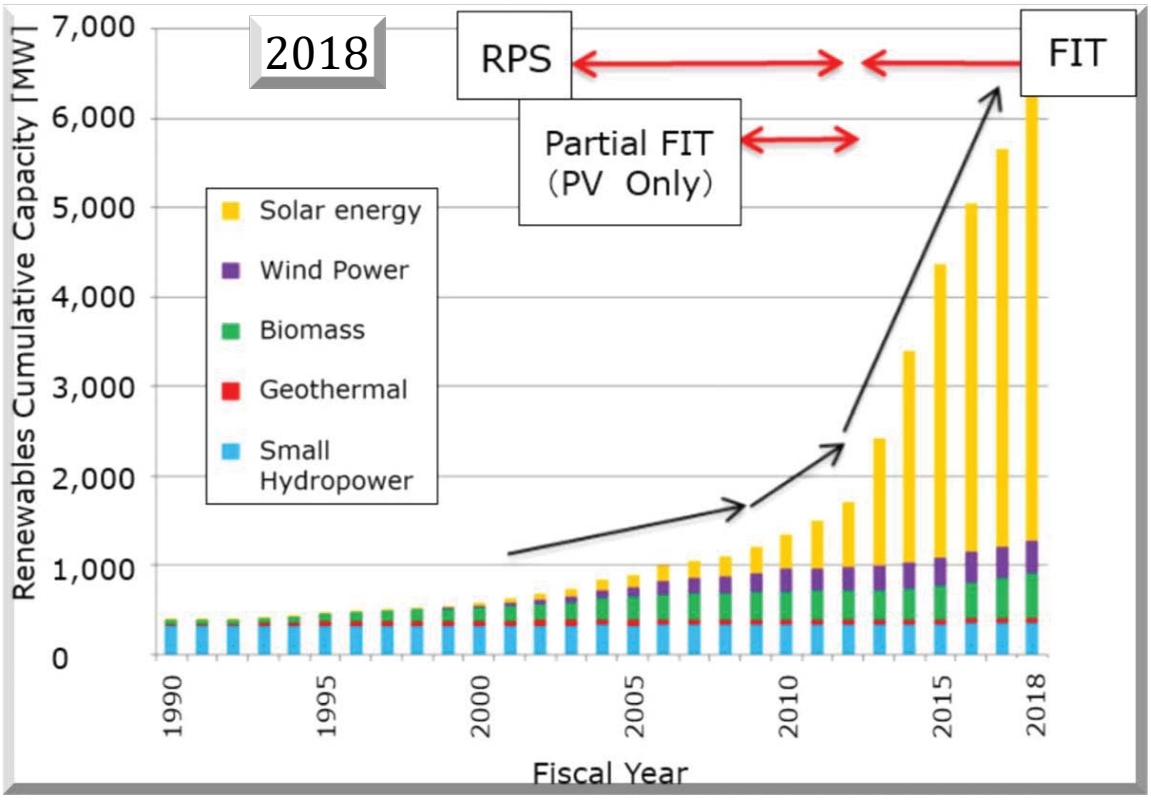
## Outline

- Brief Introduction to the Renewable Energy Market in Japan
- Fukushima New Energy Society Initiative
  - Promoting Installation of Wind Energy
  - Developing the Model for a Hydrogen Society
  - Creating Smart communities
- Invitation to the Fukushima Booth

# Introduction Status of Renewable Energy Power

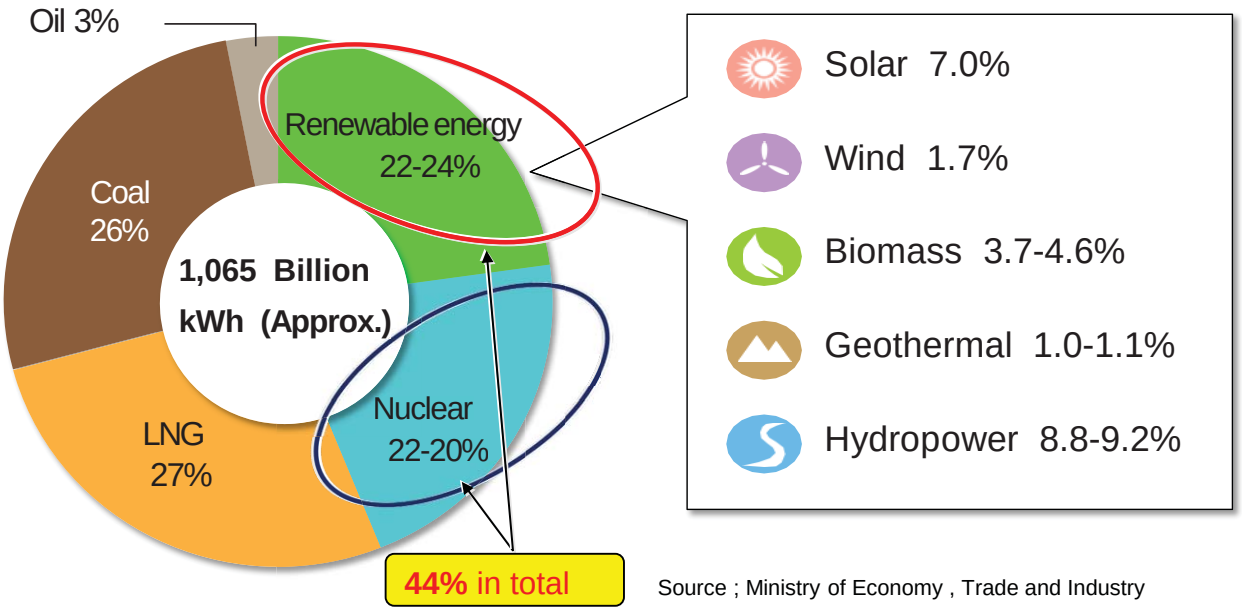
- Rapid expansion of renewable energy since the introduction of the FIT Scheme in 2012.
- The wind power introduction is still delayed although the solar power occupies over 90%.




Source; https://www.isep.or.jp/archives/library/11784

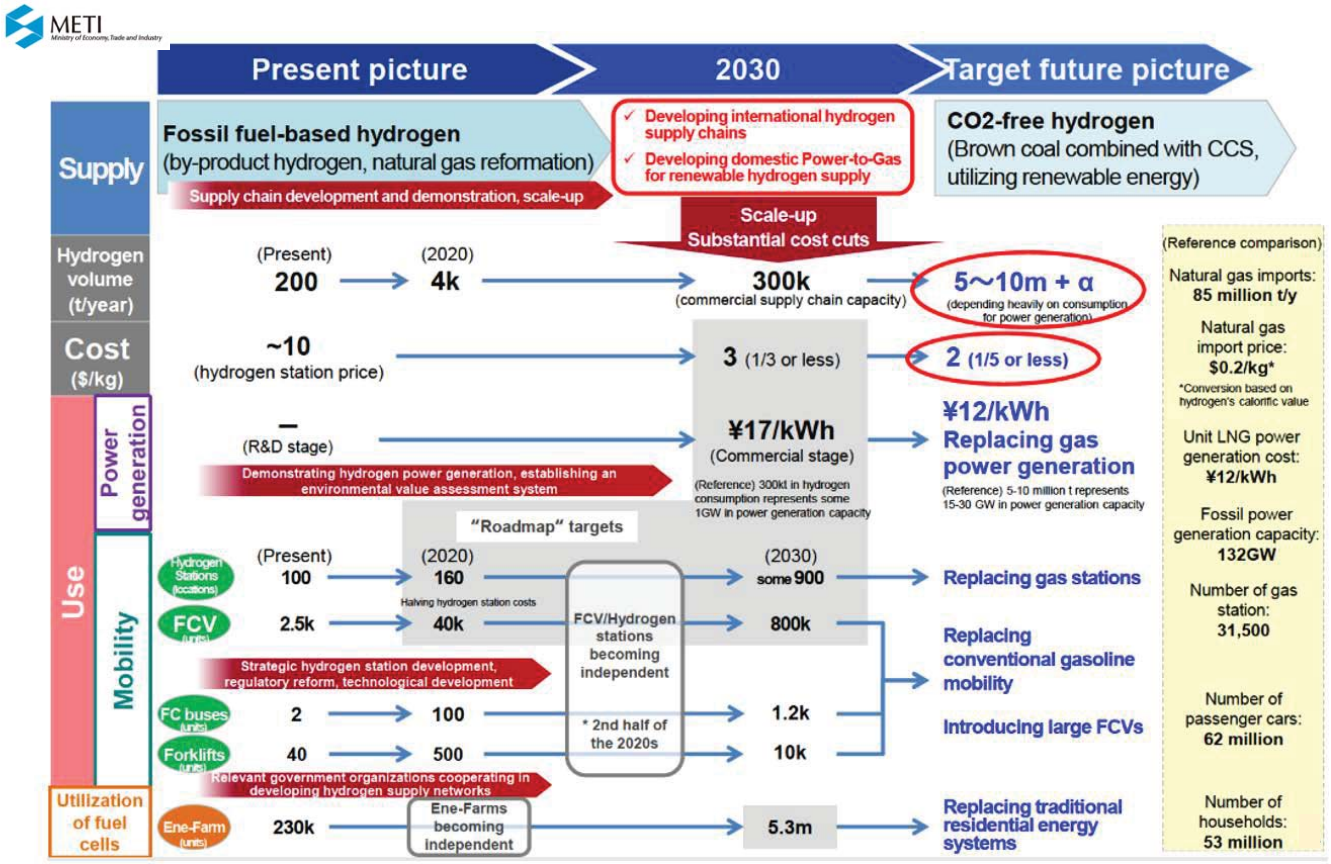
# Energy-mixture Target for 2030 by the Government

- In 2015 the Japanese government set a target for the year 2030, that aims to have 44% non-fossil rerated energy(renewable energy + nuclear).
- As restart of the shutdown nuclear power plants is difficult, it is expected that the ratio of renewable energy will be expanded in the near future.




Source ; Ministry of Economy , Trade and Industry

# Basic Hydrogen Strategy by the Government




# Major Changes Expected in the Market

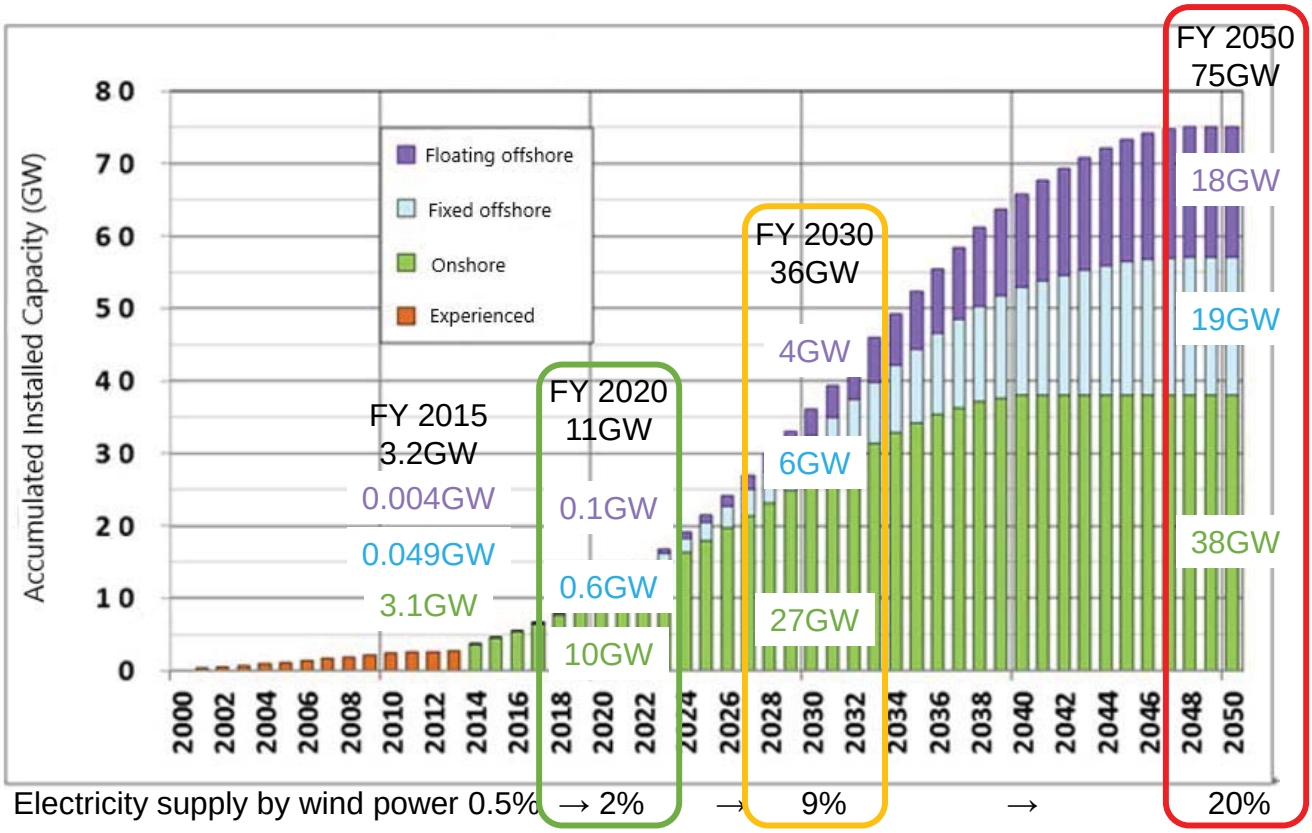
## Japan's Renewable Energy Strategy

**Progress in wind power introduction**
- Over 10GW Onshore wind projects are underway
- The new maritime law accelerates offshore wind in Japan

**FIT to end in March 2021**
- Cost reduction progress of renewable energy

**Electricity Power network reform**
- New electricity market is born from April 2021

# Target for Wind Energy Introduction

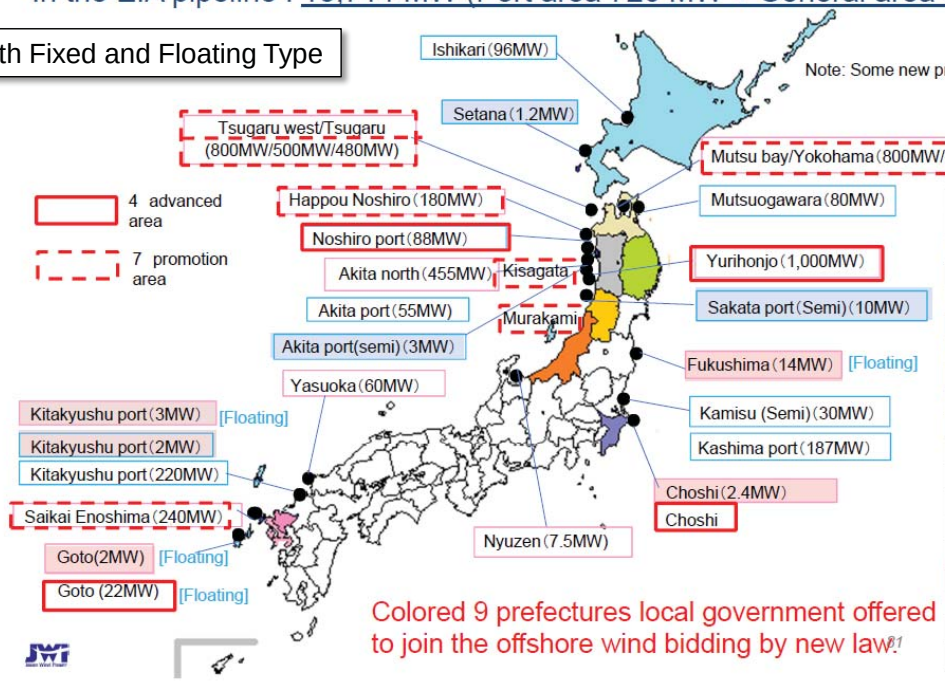



Source; Japan Wind Power Association http://jwpa.jp/pdf/JWPA_REvision2017_ExpertMTG.pdf

# Current Status of Offshore Wind Projects

In operation by Aug. 2019 : 67.6 MW (Port area 46.2MW + General area 21.4 MW)
National projects (originally) Commercial projects in operation
In the EIA pipeline : 10,714 MW (Port area 726 MW + General area 9,988 MW)

Both Fixed and Floating Type




EIA pipeline

| Prefecture | Capacity(MW) Port | GCS |
|---|---|---|
| Hokkaido | 100 | 0 |
| Aomori | 80 | 2,660 |
| Iwate | 0 | 0 |
| Akita | 139 | 4,176 |
| Yamagata | 0 | 0 |
| Niigata | 0 | 500 |
| Ibaraki | 187 | 0 |
| Chiba | 0 | 0 |
| Shizuoka | 0 | 1,150 |
| Toyama | 0 | 7 |
| Wakayama | 0 | 750 |
| Yamaguchi | 0 | 60 |
| Fukuoka | 220 | 0 |
| Saga | 0 | 416 |
| Nagasaki | 0 | 269 |
| SubTotal | 726 | 9,988 |
| Total | 10,714 | |

Source; Current status and future prospects of offshore wind power generation market in Japan/JWPA/Offshore Wind Energy Seminar & Networking.9/5/2019

# Fukushima New Energy Society Initiative

## Background and Summary

- Fukushima Prefecture has been preparing the action plan for next 3 years to pursue expansion of renewable energy, constructing smart communities and making the best use of green hydrogen. Moreover, Japan has now committed even more to reconstruct Fukushima in the field of renewable energy after 5 years since the TEPCO's Fukushima nuclear accident.
- "Fukushima New Energy Society Initiative" is the concept for creating the "Fukushima Model," which will realize a next-generation energy community. Not only Fukushima Prefecture will do its utmost to achieve the expansion of renewable energy, but we also strive for "generating," "reserving/transporting" and "using" green hydrogen.
- Fukushima was once damaged from the nuclear accident. This is the reason why **Fukushima must spread out the idea of "New Energy Society" model to the world, reinforce the prefecture to become the "Frontrunner of Renewable Energy" and cluster renewable energy industry in Fukushima.**

### Promoting Installation of Renewable Energy
～Offering our full support to fulfill "Fukushima spirit" ～

＜Fukushima Renewable Energy Institute, AIST (FREA) ＞
○ Only research institution in Japan which is specialized to renewable energy was established.

＜Fukushima floating offshore wind farm＞
○ One of the largest wind turbines installed in Fukushima offshore (7000kW).

Subjects to be continuously engaged

＜Supports no other regions offer＞
○ Improving power transmission facilities and reinforcing transformer substations.

＜Support to reinforce transmission lines ＞
○ Support a new system which power companies can participate in for installation of transmission lines in suitable areas for wind turbines such as Abukuma and Futaba regions.

### Developing the model for a Hydrogen Society
～Starting from Fukushima: Generate, reserve and use hydropower～

＜Generate hydropower＞
○ A large-scale hydrogen generating facility from wind power, etc.
（the world largest demonstration facility, produces up to 10,000kW）

＜Reserve and Use＞
○ Transportation of next-generation hydrogen, field demonstration of storage technologies.
○ Convert renewable energy generated in foreign countries to hydrogen, then import hydrogen to Fukushima.
(Feasibility studies may be performed)

＜Use＞
○ Hydrogen mixed combustion generator
(Utilize Integrated coal Gasification Combined Cycle, IGCC)
○ Install hydrogen stations.

### Creating Smart Communities
～Utilize renewable energy and hydrogen for the community reconstruction～

○Demonstrations in Shinchi Town and Naraha Town ○Developing hydrogen towns without $CO_2$ ○Expanding throughout Fukushima (Feasibility studies)

**"Front Runner in Renewable Energy"**

**Cluster new energy industry**
※Develop the scheme to support R&D, focused on Fukushima companies

**Spread the new idea, "Fukushima New Energy Initiative" to the world**

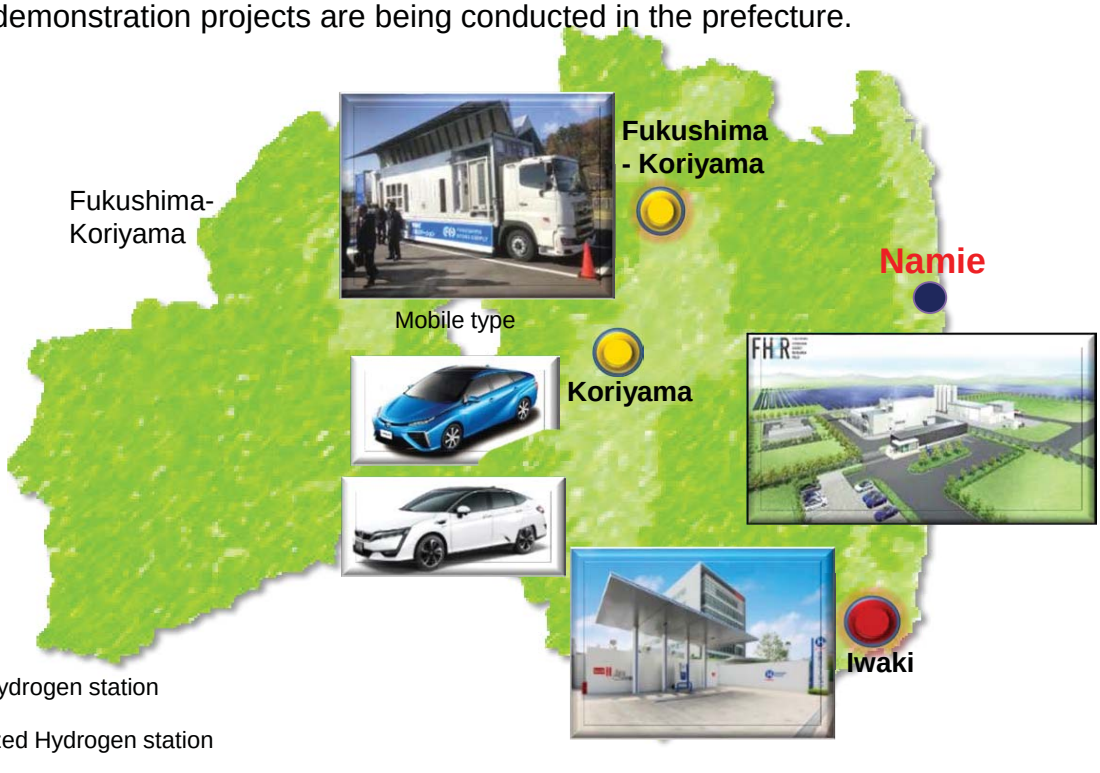
# Focus area 1 : Promoting Installation of Wind Energy

- A large-scale introduction for wind power is on going in the Abukuma Highlands.
- Construction of joint transmission lines for renewable energies is proceeding by the government.

Total capacity of the wind power projects in the prefecture is over 1GW.

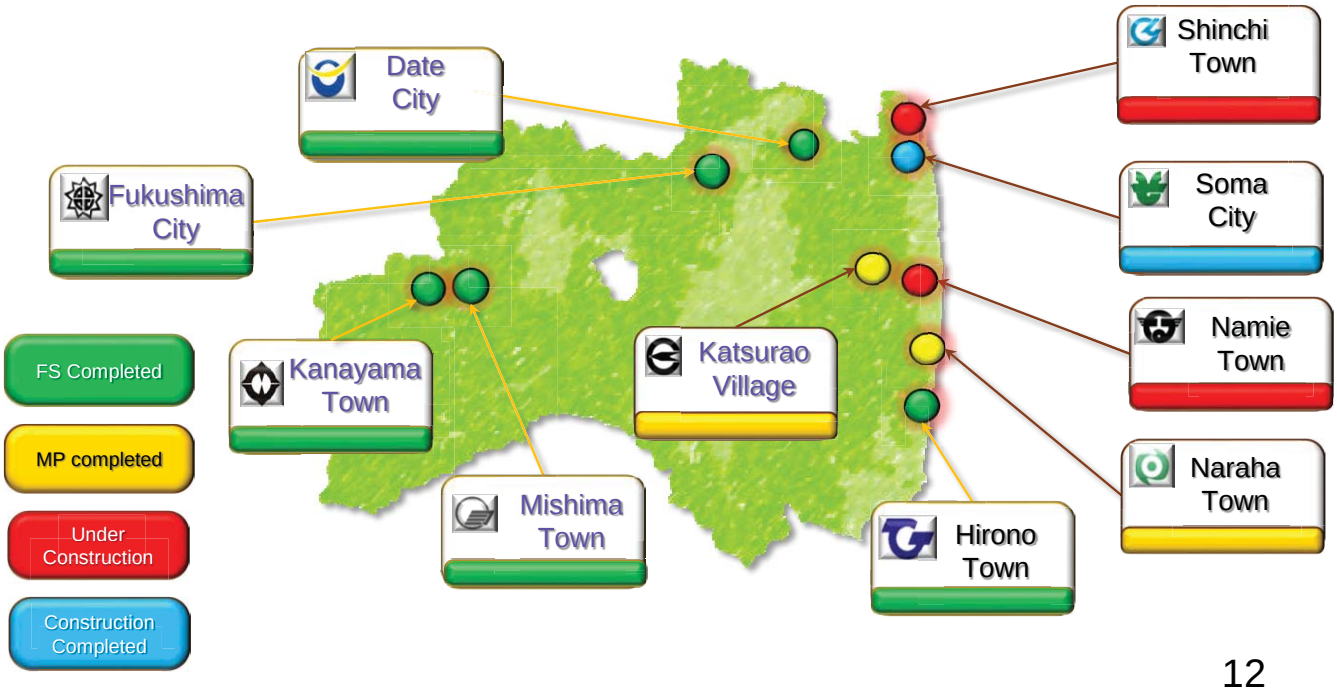
# Focus area 2:
# Developing the Model for a Hydrogen Society

- A large-scale green hydrogen generation facility has been constructed in Namie Town and Fukushima-made Hydrogen will be used during the Tokyo Olympic and Paralympic games.
- Three Hydrogen filling stations have been built and FCVs are being introduced. Also many development/demonstration projects are being conducted in the prefecture.




# Focus area 3:
# Creating Smart communities

- Five smart community projects have been completed and/or are under construction in the costal area.
- Other five projects are under review in the prefecture.



# Please Visit our Fukushima Booth!

- We are truly grateful for all the help and support given from the State of NRW to Fukushima Prefecture.

- Our challenges for renewable energies started from scratch, but with the assistance of many partners, especially NRW, Fukushima was able to build a solid foundation for renewable energy industries.
  We will continue to progress to become "a front runner in the field of renewable energy".

- Going forwards, let us develop our relationship between two regions, and create a strong reciprocal partnership that is mutually beneficial to each of us.

# E-world Energy & Water 2020

- 5 Fukushima-based companies and ICSN are exhibiting.
- We are looking forward to seeing you at our Fukushima Booth.

**Aizu Computer Science Laboratory, Inc.**


■Artificial Intelligence (AI)
■Blockchain technology

**ANEST IWATA Corporation**

■Scroll compressor / expander
■Binary generator
■Steam, Boiler

**FUJIKURA COMPOSITES Inc.**

■Rubber-coated fabric
■High durability
■4 designs for various blades

**Tohoku Murata Manufacturing Co., Ltd.**

■Safety
■Long life
■Fully usable capacity

**Yamato Sanko MFG.Co.,Ltd**

■ Reuse of waste heat(waste gas, steam, hot water)
■ Increases efficiency
■ Space-saving

**Iwaki Cooperative Support Networks Association, ICSN**

■ Collaboration project
■ Renewable energy networks, companies, products
■ LIB(Lithium ion battery ) industry cluster

Please talk to them directly after this seminar or Contact Fukushima international business advisor,
Ms. Kiyomatsu kiyomatsu@f-open.or.jp

EnergyAgency.
FUKUSHIMA

# Thank you for Listening!