

# Will community-based renewable energy projects increase in Japan?

5th October 2015  
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Environmental Policy Research Center (FFU)



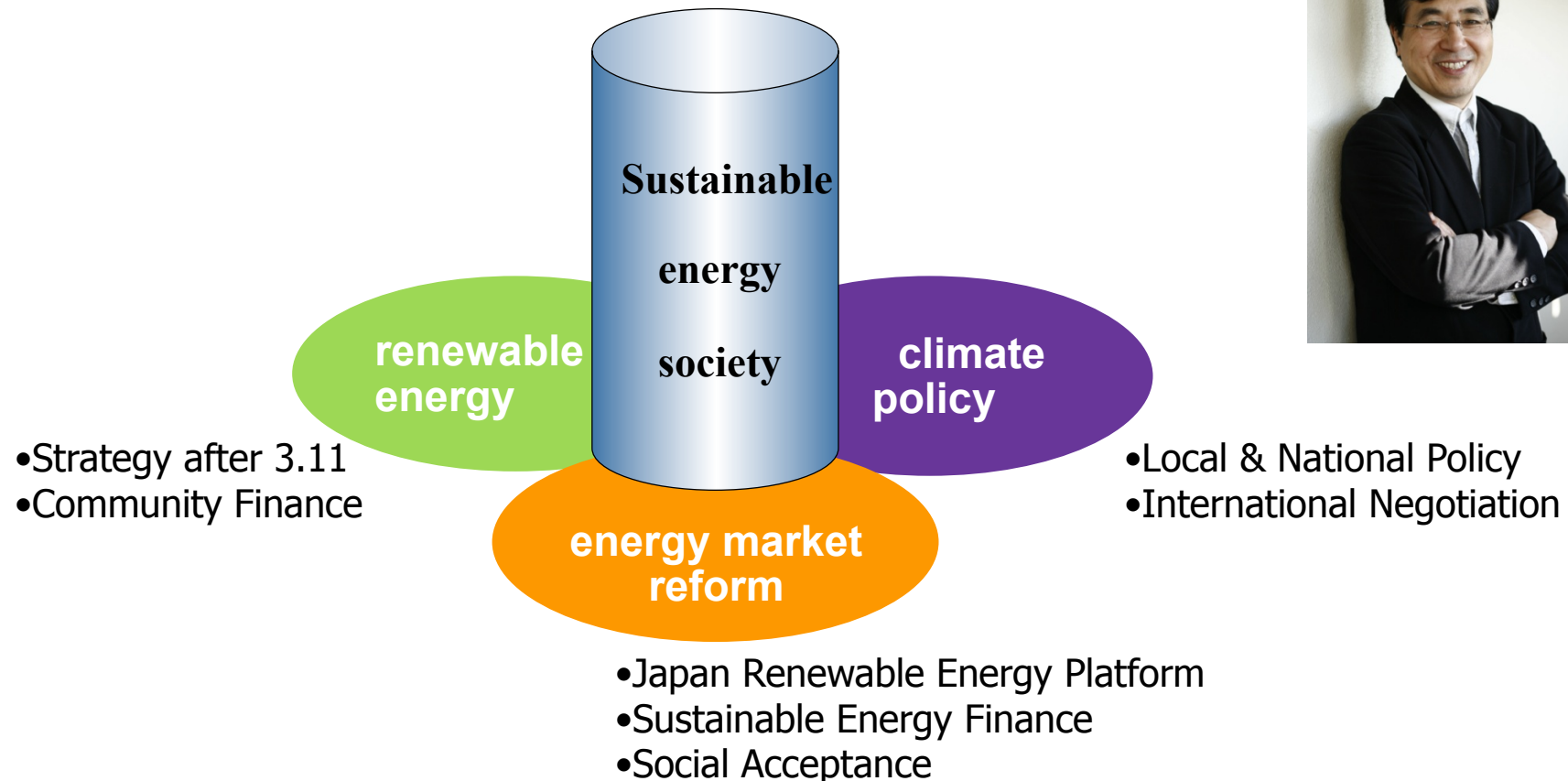
Institute for Sustainable Energy Policies

# ISEP -Mission & Domain

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The Non-Profit organization has promoted realization of sustainable energy policy in Japan including FIT proposal since 2000.

**Director: Tetsunari Iida**



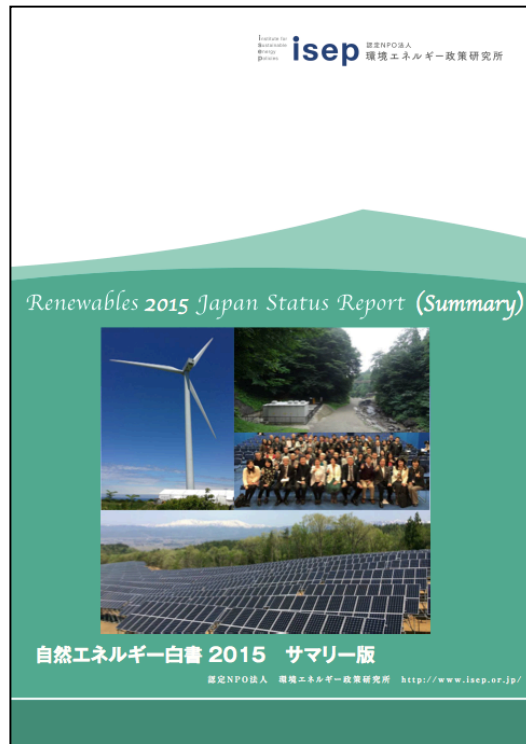
# Local Project “Community Power (CP)” Projects



Community Wind, PV, Hydro

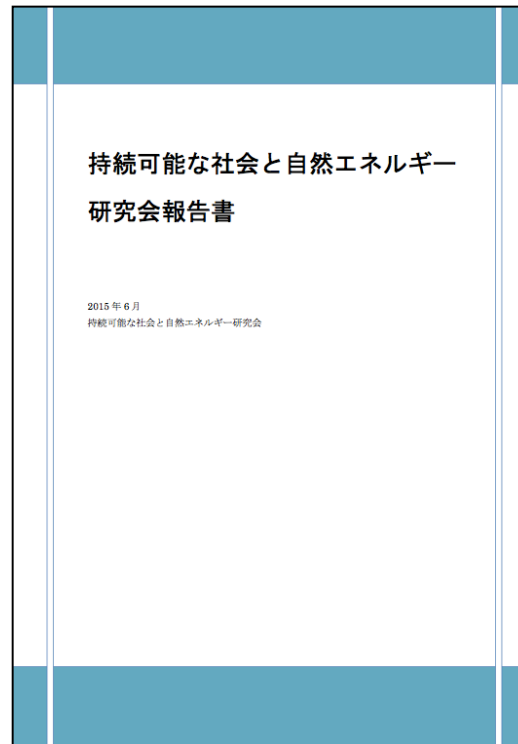
- Citizen's investment
- Collaboration with NPOs and local enterprises in Hokkaido, Iida-city, Odawara, and so on.

# Policy Research



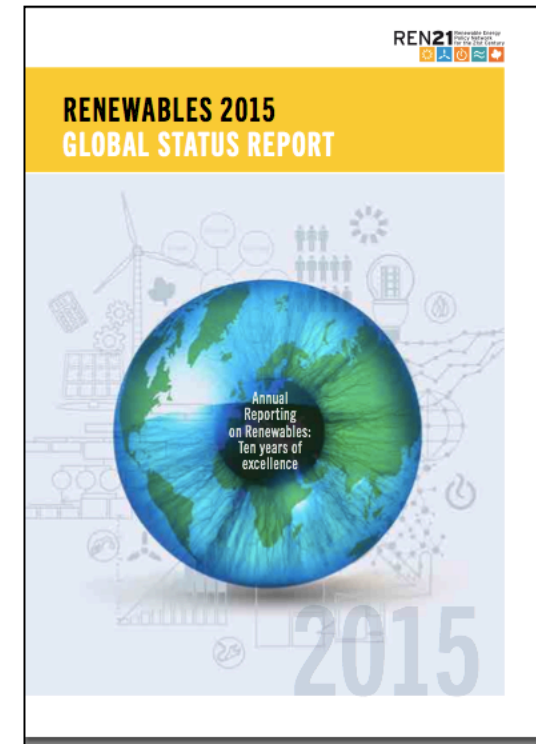
Renewables Japan Status Report 2015 summary

・Collaboration with Renewable Associations in Japan



Sustainable Society and Renewables Report 2015

・Collaboration with various researchers and NPOs



Renewables 2015 Global Status Report

・Collaboration with research institutes all over the world

# Capacity Building

More than 100 interns (including 4 German interns) at ISEP and Seminar on community power projects at Kyoto Uni.



Symposium on interns and ex-interns  
(25<sup>th</sup> May, 2015)



Seminar on Community Power Projects  
(17<sup>th</sup> – 19<sup>th</sup> August, 2015)

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**1** Energy shift after 3.11 in Japan

**2** Increasing CP projects

**3** Visit to the site of Energiewende

# Renewable Energy Capacity

## ANNUAL INVESTMENT / NET CAPACITY ADDITIONS / PRODUCTION IN 2014

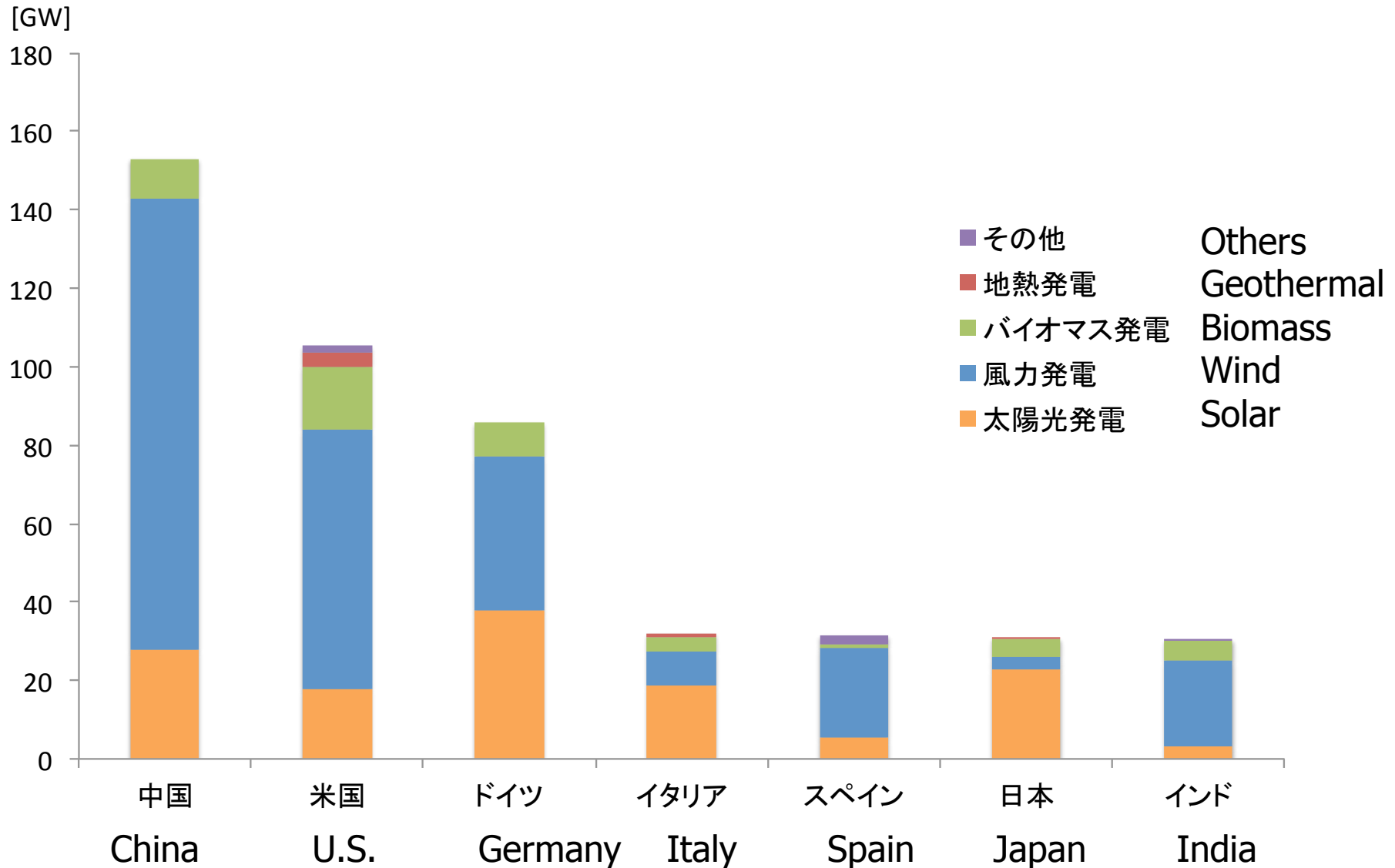
	1	2	3	4	5
Investment in renewable power and fuels (not including hydro > 50 MW)	<b>China</b>	United States	Japan	United Kingdom	Germany
Investment in renewable power and fuels per unit GDP <sup>1</sup>	<b>Burundi</b>	Kenya	Honduras	Jordan	Uruguay
 Geothermal power capacity	<b>Kenya</b>	Turkey	Indonesia	Philippines	Italy
 Hydropower capacity	<b>China</b>	Brazil	Canada	Turkey	India
 Solar PV capacity	<b>China</b>	Japan	United States	United Kingdom	Germany
 CSP capacity	<b>United States</b>	India	—	—	—
 Wind power capacity	<b>China</b>	Germany	United States	Brazil	India
 Solar water heating capacity <sup>2</sup>	<b>China</b>	Turkey	Brazil	India	Germany
 Biodiesel production	<b>United States</b>	Brazil	Germany	Indonesia	Argentina
 Fuel ethanol production	<b>United States</b>	Brazil	China	Canada	Thailand

# Renewable Energy Capacity

## TOTAL CAPACITY OR GENERATION AS OF END-2014

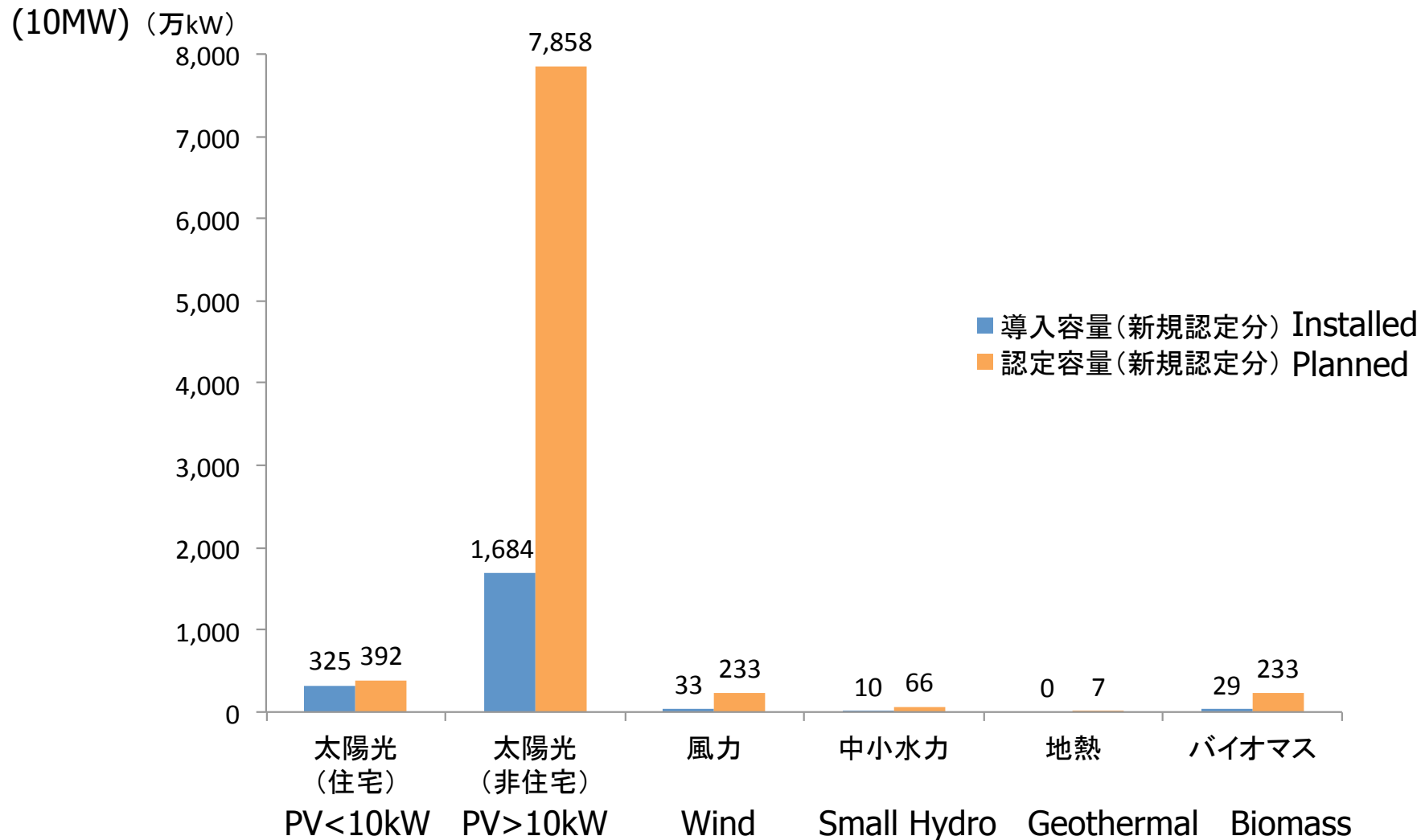
	1	2	3	4	5
<b>POWER</b>					
Renewable power (incl. hydro)	China	United States	Brazil	Germany	Canada
Renewable power (not incl. hydro)	China	United States	Germany	Spain / Italy	Japan/India
Renewable power capacity <i>per capita</i> (among top 20, not including hydro <sup>3</sup> )	Denmark	Germany	Sweden	Spain	Portugal
🔌 Biopower generation	United States	Germany	China	Brazil	Japan
🔌 Geothermal power capacity	United States	Philippines	Indonesia	Mexico	New Zealand
💧 Hydropower capacity <sup>4</sup>	China	Brazil	United States	Canada	Russia
💧 Hydropower generation <sup>4</sup>	China	Brazil	Canada	United States	Russia
☀️ Concentrating solar thermal power (CSP)	Spain	United States	India	United Arab Emirates	Algeria
☀️ Solar PV capacity	Germany	China	Japan	Italy	United States
☀️ Solar PV capacity <i>per capita</i>	Germany	Italy	Belgium	Greece	Czech Republic
💨 Wind power capacity	China	United States	Germany	Spain	India
💨 Wind power capacity <i>per capita</i>	Denmark	Sweden	Germany	Spain	Ireland
<b>HEAT</b>					
☀️ Solar water collector capacity <sup>2</sup>	China	United States	Germany	Turkey	Brazil
☀️ Solar water heating collector capacity <i>per capita</i> <sup>2</sup>	Cyprus	Austria	Israel	Barbados	Greece
🔌 Geothermal heat capacity <sup>5</sup>	China	Turkey	Japan	Iceland	India
🔌 Geothermal heat capacity <i>per capita</i> <sup>5</sup>	Iceland	New Zealand	Hungary	Turkey	Japan

# RE Capacity of top 7 Countries in 2014



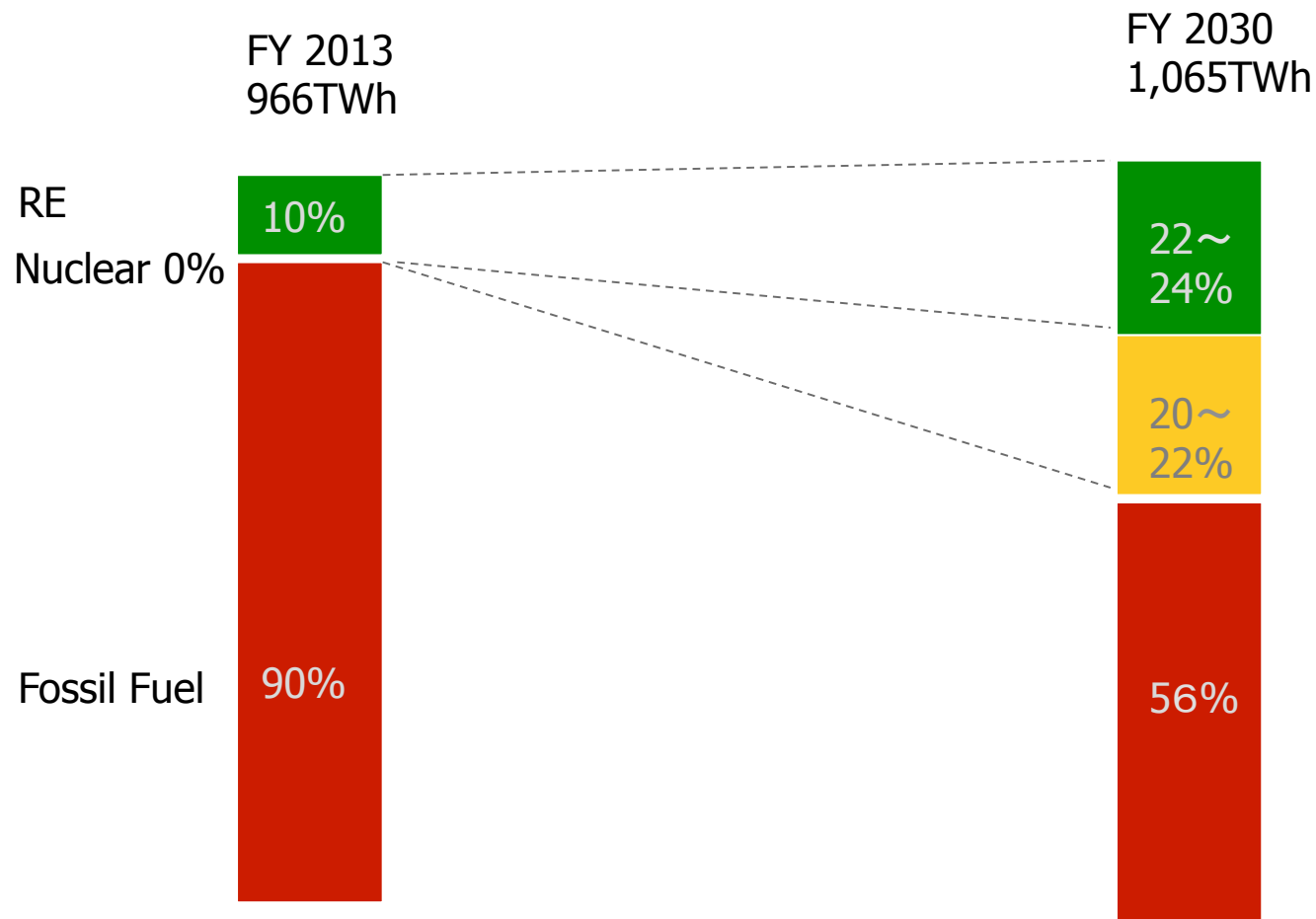
# Renewable Energy after FIT-law (until May 2015)

Large scale PV is penetrated because of high tariff and short period of construction.



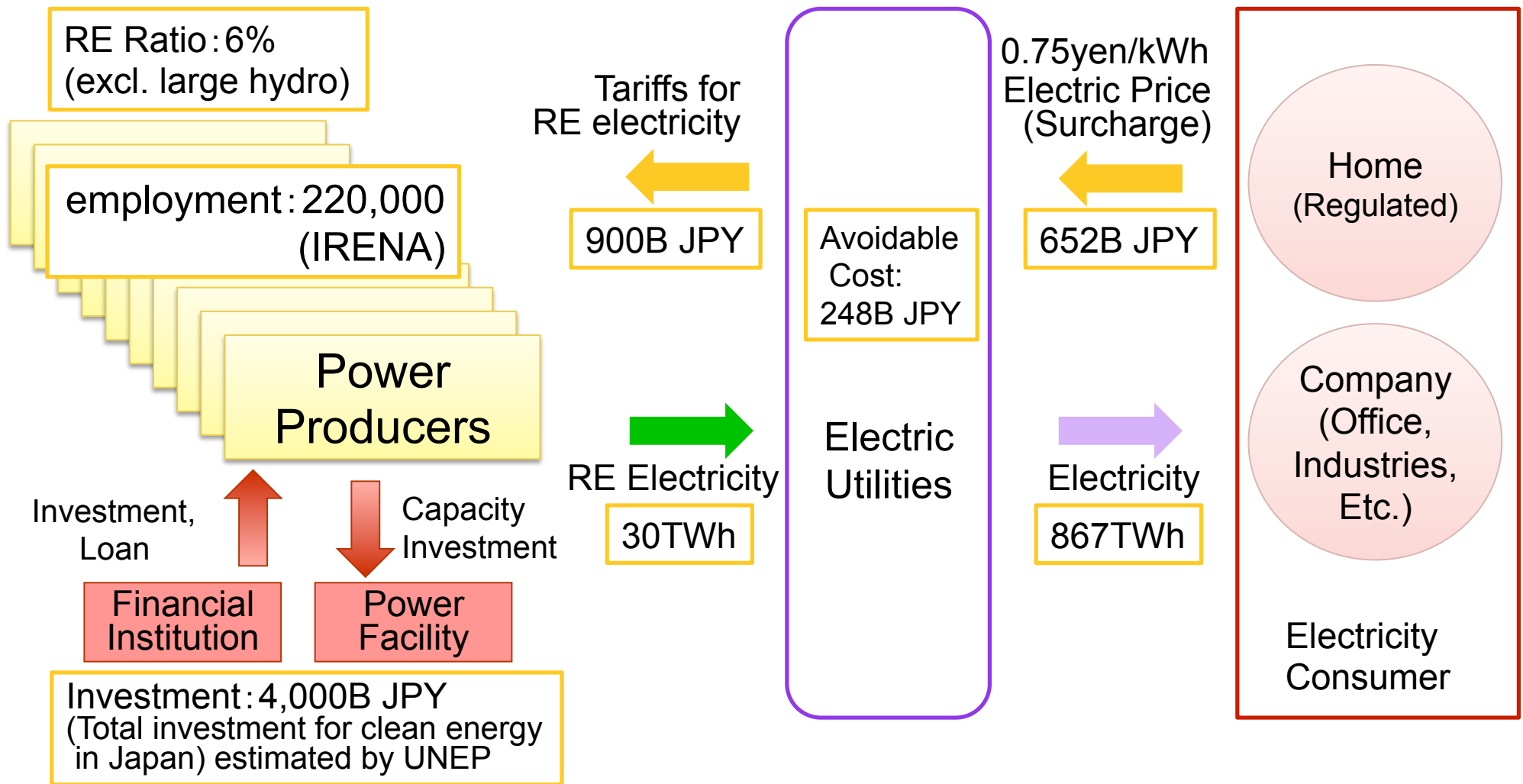
# Electricity Share in 2030 in Long-term Energy Plan

Modest target for RE and less interest for heat and EE.



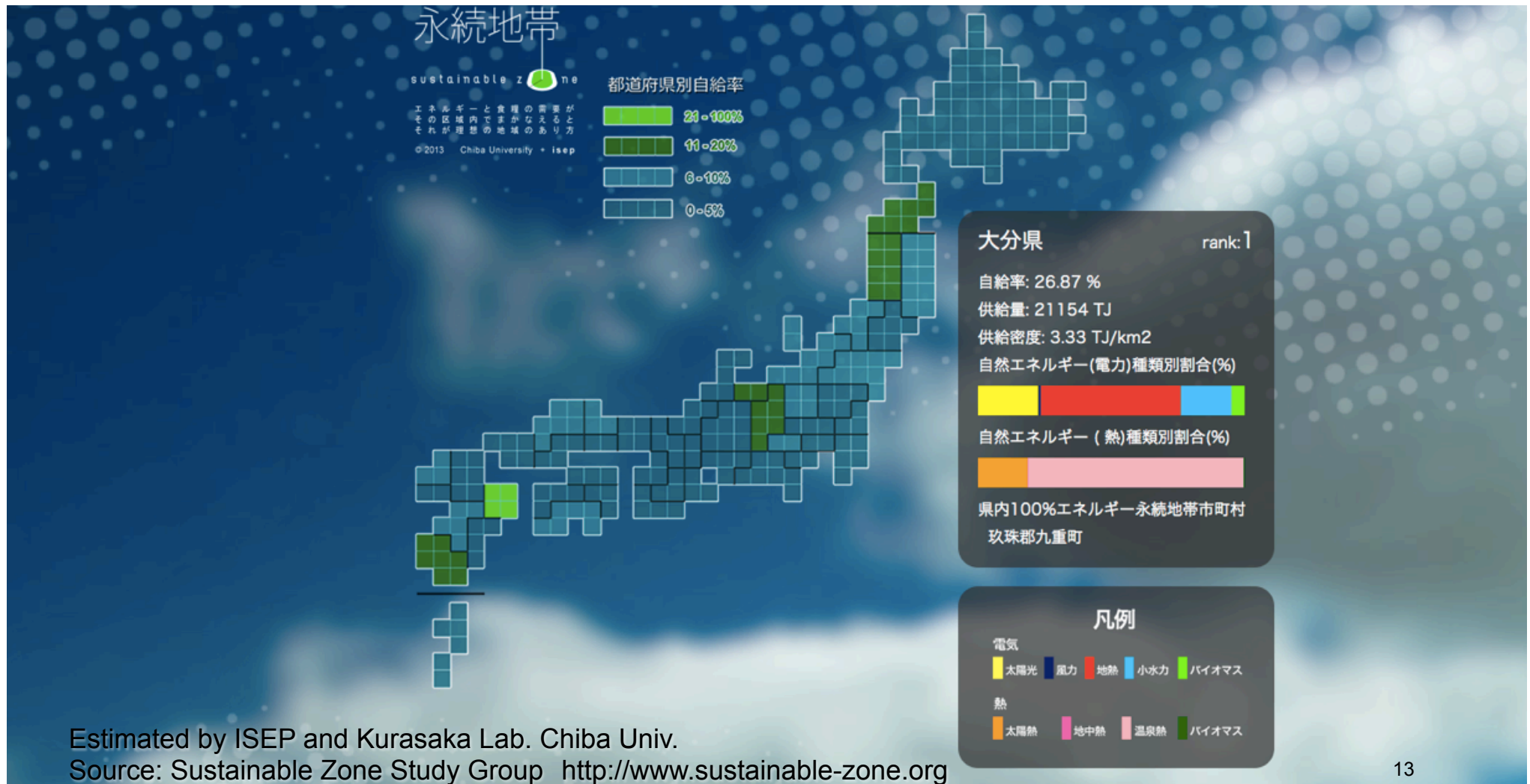
# Economical Effects of FIT in Japan (FY 2014)

Large Impact on investment and employment.



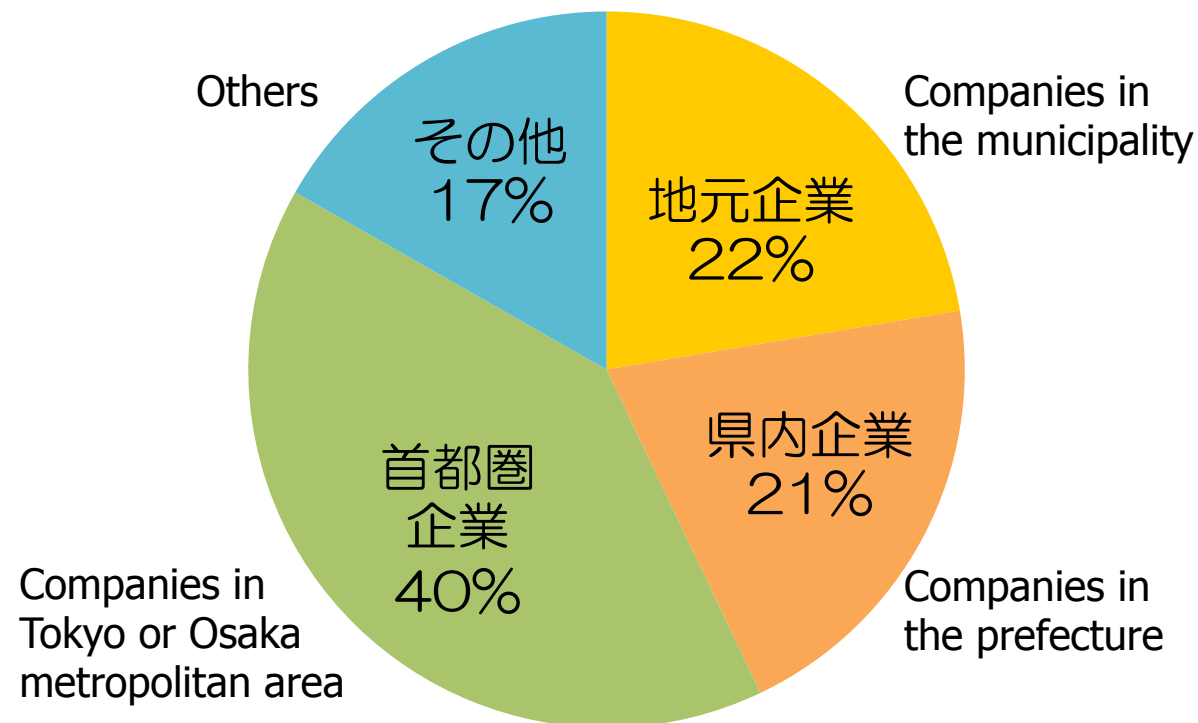
# Sustainable Zone (FY2014)

14 prefectures supply 10% of energy demand and 57 municipalities can supply 100% energy demand(excluding industry demand).



# Most RE Projects are not owned by Local Entities

Until the end of 2013, most RE projects are not owned by local citizens and companies.



# Policy Proposal for Community Power Project



1. Long-term national target and concept
2. Appropriate FIT revision and priority access with grid planning
3. Consistency with existing laws (water right, hot spring law, fishery rights etc)
4. Zoning map, consensus building and capacity building
5. Mutual influence over community power projects and local policy and programs

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**1** Energy shift after 3.11 in Japan

**2** Increasing CP projects

**3** Visit to the site of Energiewende

# Iida-city promoted Local Projects since 2004

Local NPO and ISEP cooperated citizens invested PV projects with the help of Iida-city and MoE.



# Community Power in Japan

## Brief History of Community Power in Japan



# Community Power in Japan

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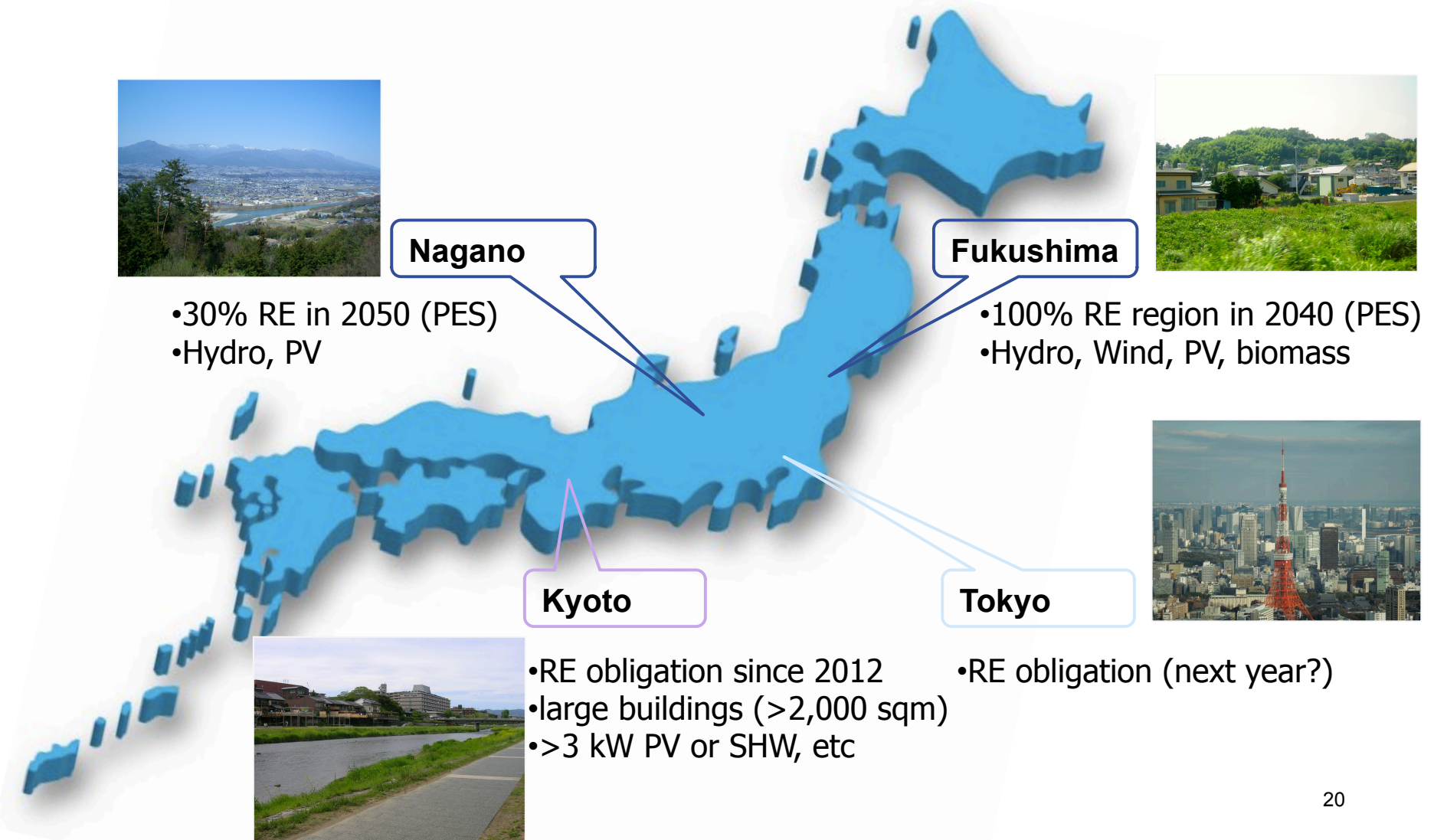
## Community Power Definition

1. Local stakeholders own the majority or all of a project
2. Voting control rests with the community-based organization
3. The majority of social and economic benefits are distributed locally

\* A project can be defined as “Community Power”, if at least two of the three criteria are fulfilled

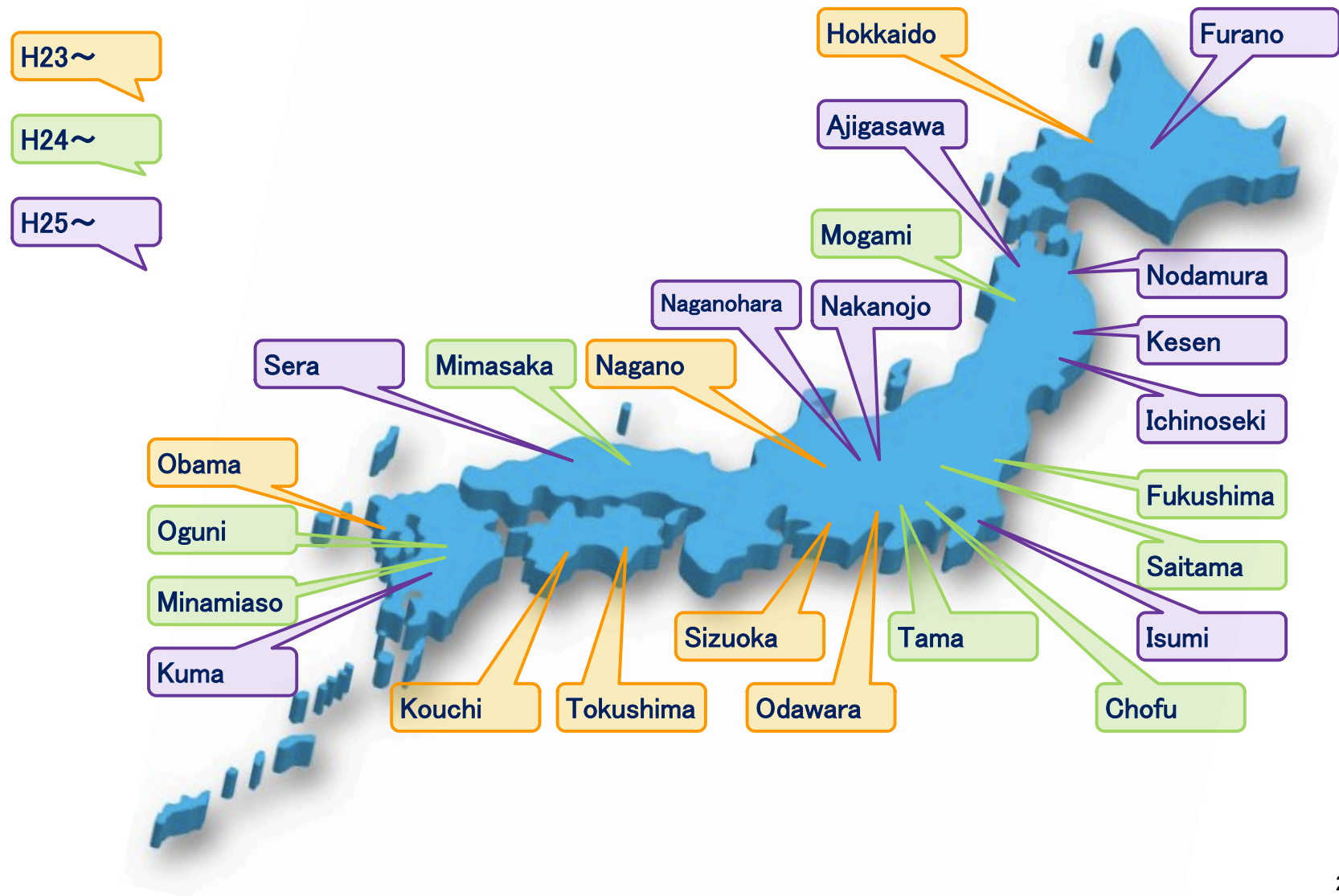
# New Local Targets and Policies

Some prefectures aim 100% RE regions or RE obligation.



# Emerging Community Power Initiatives

## 25 model area sponsored by MoE









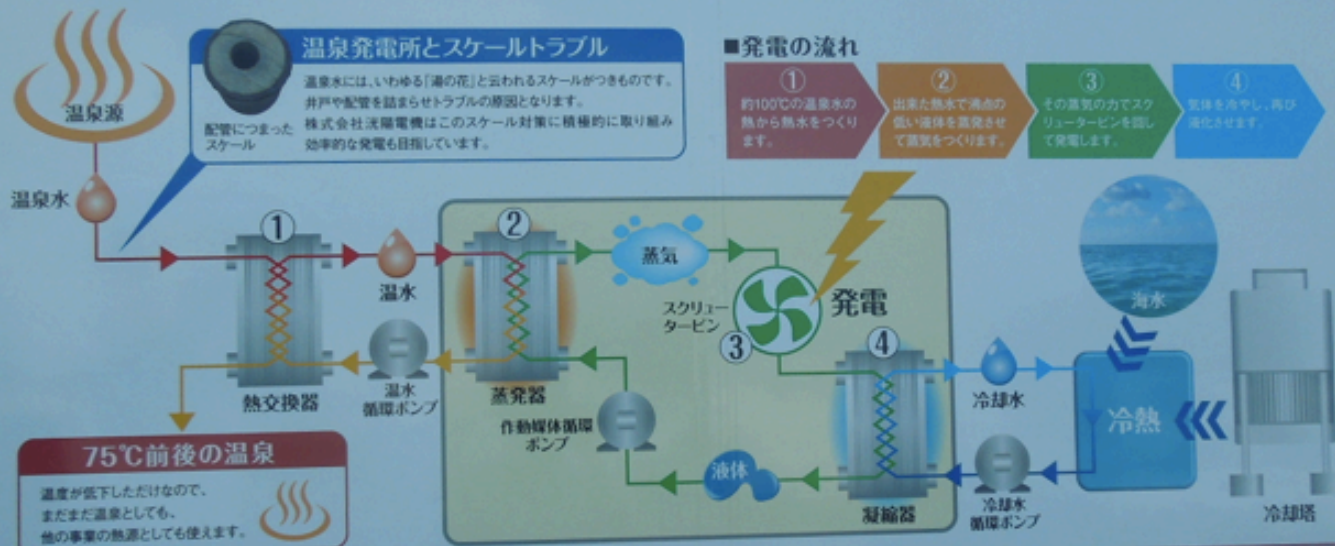


洗陽電機

# 小浜温泉バイナリー発電所

系統概念図

当発電所には神戸製鋼製の72kWバイナリー発電機3台が設置されています。



想定年間売電量: 792,000kWh 売電想定額 (FIT利用時): 31,680千円/年

## ■お問合せはこちら

### 見学窓口はこちら

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TEL / FAX: 0957-74-3345  
(雲仙Eキャンレッジ交流センター内)  
E-mail: info@obamaonsen-pj.jp  
〒854-0514 長崎県雲仙市小浜町北本町923番地4



Obama  
Onsen  
Energy

### 技術的なお問合せはこちら

【株式会社 洗陽電機 東京支店】電源開発本部  
TEL: 03-5542-1072 (直通) / FAX: 03-5542-1073  
〒103-0022 東京都中央区日本橋室町4-1-5 共同室町4丁目ビル2階  
本社 〒658-0053 兵庫県神戸市東灘区住吉宮町3-7-14  
(TEL) 078-851-8819 (代) (FAX) 078-851-8829

enesys  
www.koyoelec.com  
株式会社 洗陽電機  
KYOYO ELECTRIC CORPORATION



# International Community Power Conference 2014 in Fukushima





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内  
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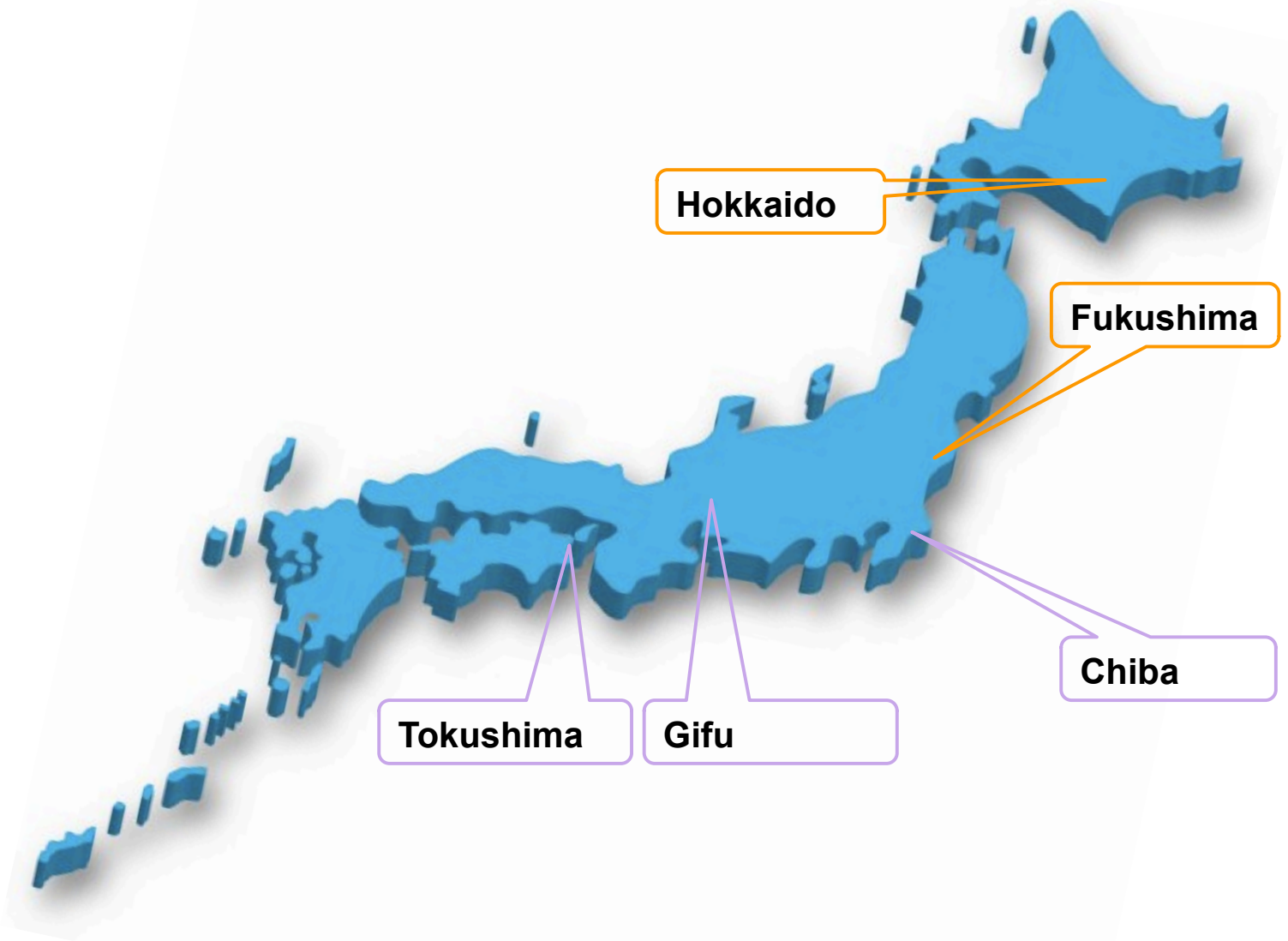
# Japan Community Power Association



# Primary Industry and Renewable Energy

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MoFA supports Renewable Energy as primary industry promotion.













ソーラーシェアリング  
上総鶴舞ソーラー発電所  
ソーラーパネル設置：100w×348枚 34.8kw  
年間発電量：約35,000kWh  
協力：CHO技術研究所・NPO世界環境改善連合  
有限会社サイジ・東通物産株式会社  
株式会社LOOP・立海電気工業株式会社  
平成24年度 農林水産省  
「緑と水の環境技術プロジェクト事業」調査対象機関  
日本政策金融公庫融資事業 設置者：高津 寛







徳島県

さなごうち  
村の玉手箱

佐那河内  
より

徳島県  
佐那河内産



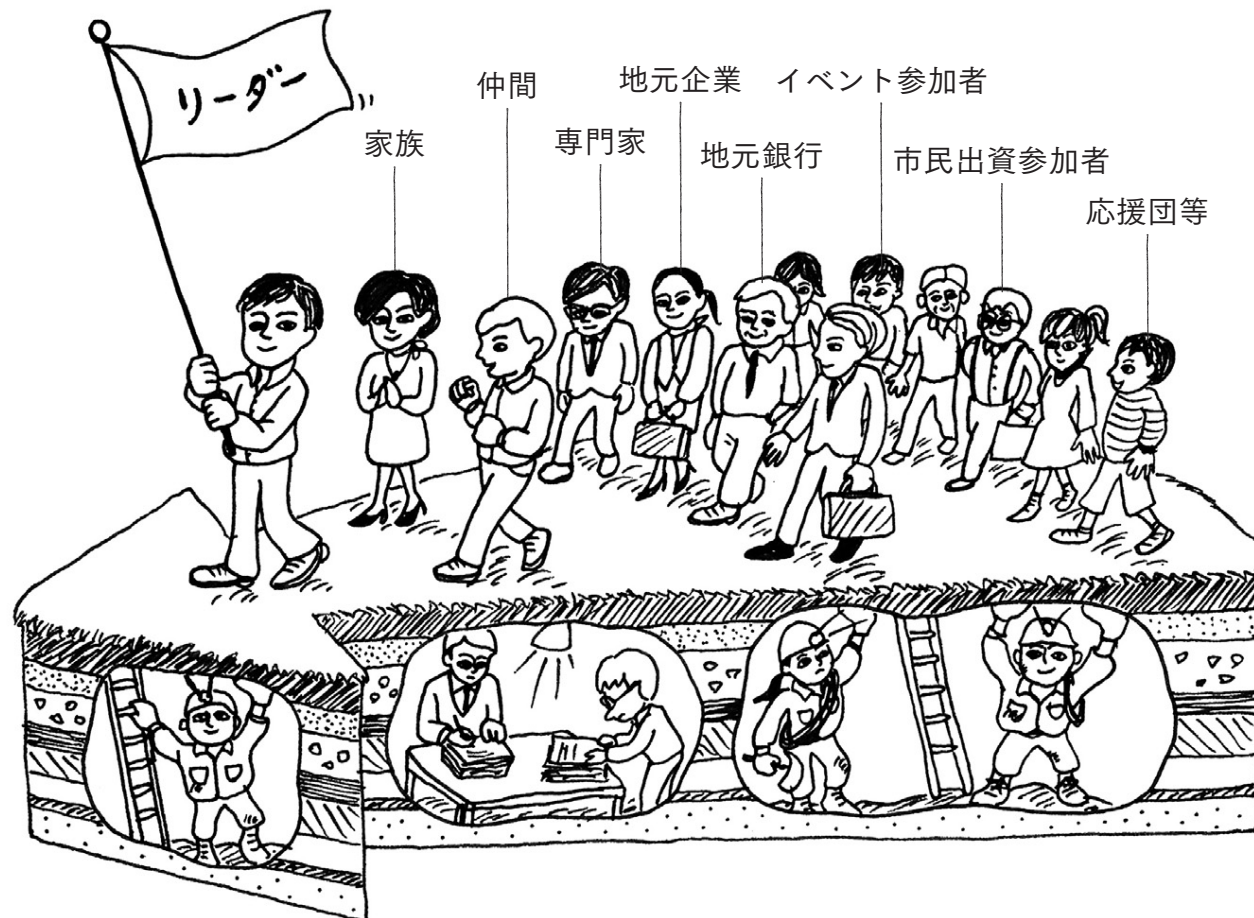
# More than 20 Renewable Energy Ordinance

Some municipalities include CP concept in their ordinance.

No.	Ordinance	Prefecture	In effect
1	芦別市再生可能エネルギー利用促進条例	北海道	2014年4月
2	東神楽町再生可能エネルギー推進条例第一条	北海道	2013年4月
3	榛東村自然エネルギーの推進等に関する条例	榛東村	2012年3月
4	中之条町再生可能エネルギー推進条例(条例第36号)第一条	群馬県	2013年6月
5	八丈町地域再生可能エネルギー基本条例	東京都	2014年4月
6	神奈川県再生可能エネルギーの導入等の促進に関する条例	神奈川県	2014年4月
7	鎌倉市省エネルギー推進及び再生可能エネルギー導入促進に関する条例	神奈川県	2012年6月
8	小田原市再生可能エネルギーの利用等の促進に関する条例	神奈川県	2014年4月
9	大磯町省エネルギー及び再生可能エネルギー利用の推進に関する条例	神奈川県	2015年4月
10	飯田市再生可能エネルギー導入による持続的な地域づくりに関する条例	長野県	2013年4月
11	飯島町地域自然エネルギー基本条例	長野県	2014年2月
12	多治見市再生可能エネルギー普及を促進する条例	岐阜県	2013年6月
13	豊田市再生可能エネルギーの導入の推進に関する条例	愛知県	2014年3月
14	新城市省エネルギー及び再生可能エネルギー推進条例	愛知県	2012年12月
15	設楽町省エネルギー及び再生可能エネルギー基本条例	愛知県	2014年1月
16	湖南市地域自然エネルギー基本条例	滋賀県	2012年9月
17	大阪市再生可能エネルギーの導入等による低炭素社会の構築に関する条例	大阪府	2012年4月
18	宝塚市再生可能エネルギーの利用の推進に関する基本条例	兵庫県	2014年10月
19	洲本市地域再生可能エネルギー活用推進条例	兵庫県	2013年6月
20	日南町再生可能エネルギー利用促進条例	鳥取県	2012年1月
21	土佐清水市再生可能エネルギー基本条例	高知県	2013年3月
22	唐津市再生可能エネルギーの導入等による炭素社会づくりの推進に関する条例	佐賀県	2012年7月

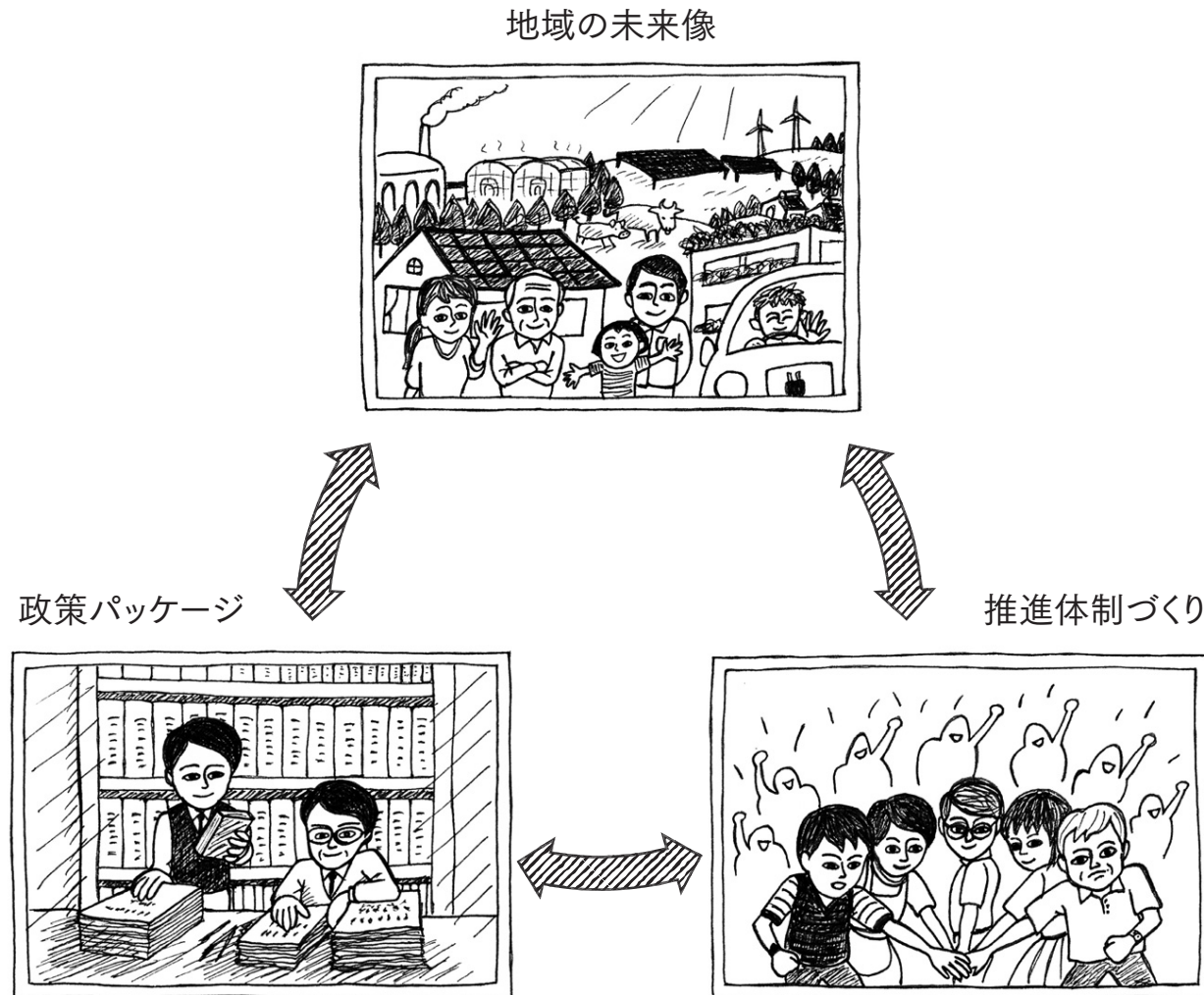
# Multiple actors of CP projects

Local governments should consider how to support the local actors by their authority.



# 3 important factor for Local CP concept

Vision of the local future is most important but most energy plan by municipalities lack it.



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**1** Energy shift after 3.11 in Japan

**2** Increasing CP projects

**3** Visit to the site of Energiewende

- Kernkraft Brokdorf
- Buergermeisterin

Brokdorf

- Greenpeace Energy
- Stromnetz Hamburg

Hamburg

Geesthacht

- Kernkraft Geesthacht
- Buergermeister

Berlin

- Berlin Energie
- Buerger Energie Berlin
- Agentuer fuer  
Erneurbare Energie

Deutschland

# Lessons from research trip in Germany

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## 1. Energy democracy of distribution network and retail business in Berlin and Hamburg

- Who owns the network and who makes decision, who gets benefit?
- Agenda setting and participation by citizen, less political leadership in Berlin.
- Smart city with more RE and EE needs integration of Infrastructure (and IT).
- Quick decision making is an important advantage of recommunalization.
- Retail business gives various options for urban inhabitants.



# Lessons from research trip in Germany

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## 2. Contrast of nuclear phase-out between Brokdorf and Geesthacht

- Minor impact on Geesthacht with 30 thousand population, some industry, and easy access to Hamburg.
- Conflicts between national political decision and business strategy.

## 3. Energy shift directly leads to job shift

- Taking over Vattenfall staffs for distribution network in Berlin and Hamburg.
- How to provide new job in Brokdorf.
- Priority access of RE means less sales of nuclear electricity.



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## Summary

# Will community-based renewable energy projects increase in Japan?

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## 1. Energy shift after 3.11 in Japan

- FIT have created major economical and social impacts but only for electricity.
- More policy supports for community power projects are needed.

## 2. Increasing CP projects

- Successful CP projects sponsored by MoE are taking further steps.
- MAFF supports renewable energy as primary industry promotion.
- Some local governments strongly promote RE based on CP concept.

## 3. Visit to the site of Energiewende

- Energy democracy of distribution network and retail business
- Contrast of nuclear phase-out between Brokdorf and Geesthacht
- Energy shift directly leads to job shift

# Thank you for your attention

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Sustainable Energy Policies