



NEDO Smart Community Projects

Presented in Warsaw, Poland
28 November, 2013

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New Energy and Industrial Technology Development Organization (NEDO)

- an agency of the Ministry of Economy, Trade and Industry, Government of Japan

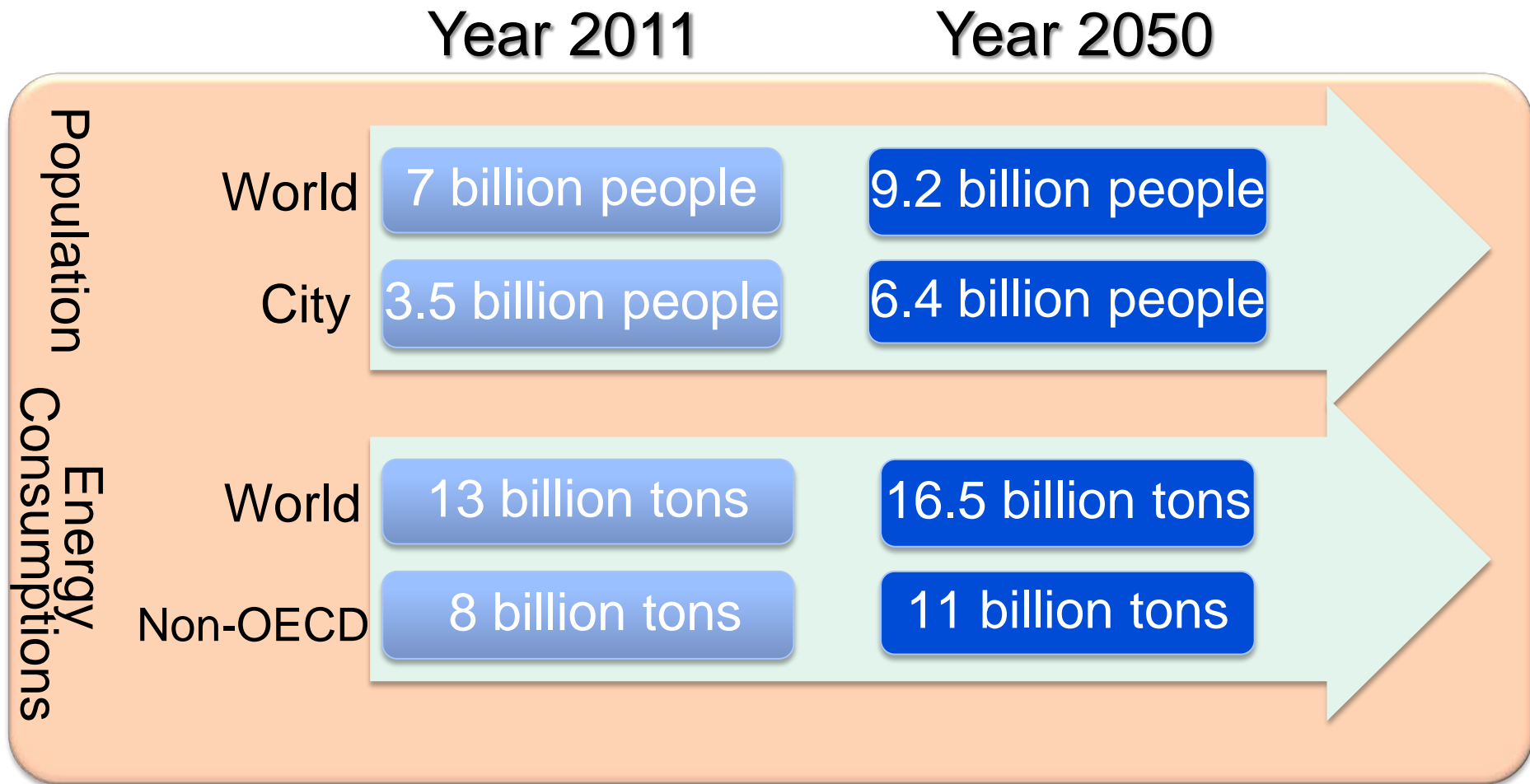
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Global energy circumstances



Global energy concerns

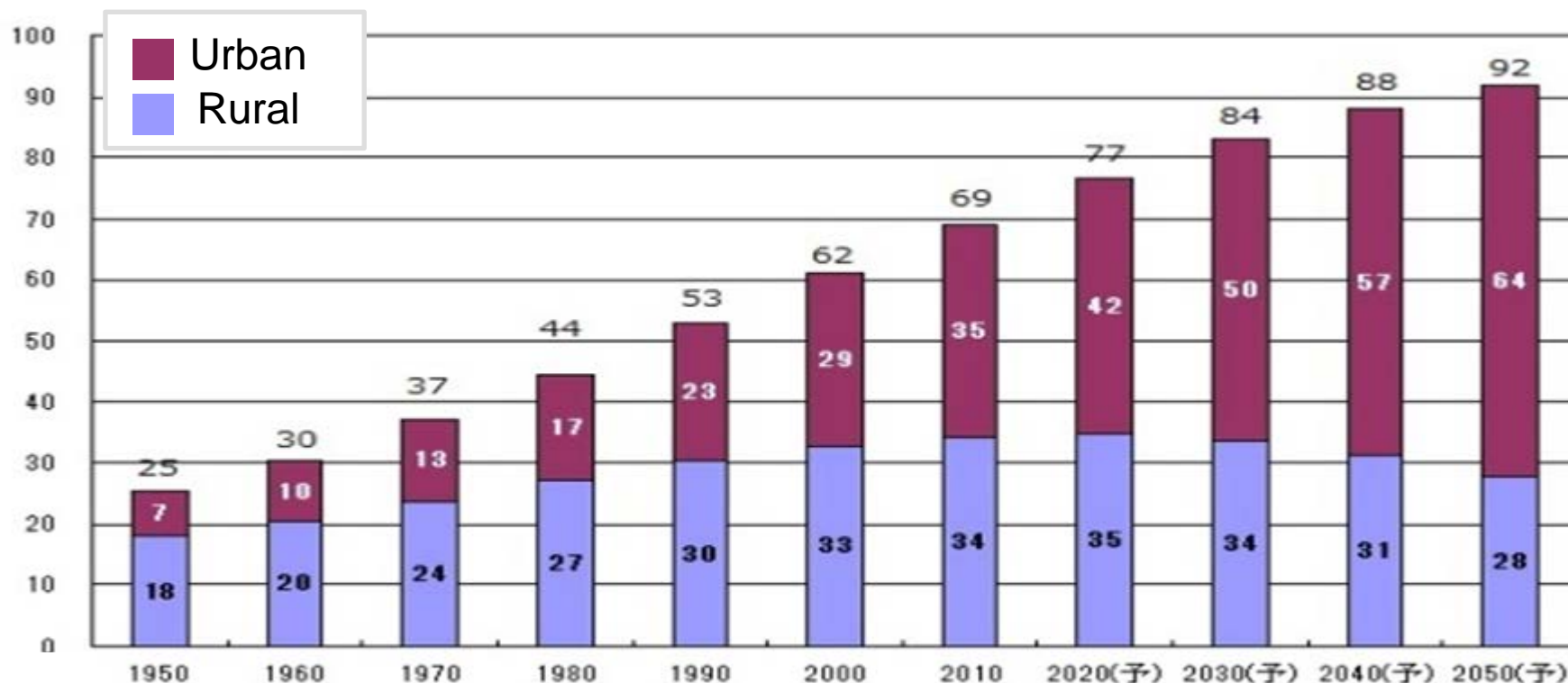


- Increased energy demands in cities
- Aging society
- Heavy traffic
- Air pollution
- Waste

Global energy circumstances

Explosive population growth 1950-2050

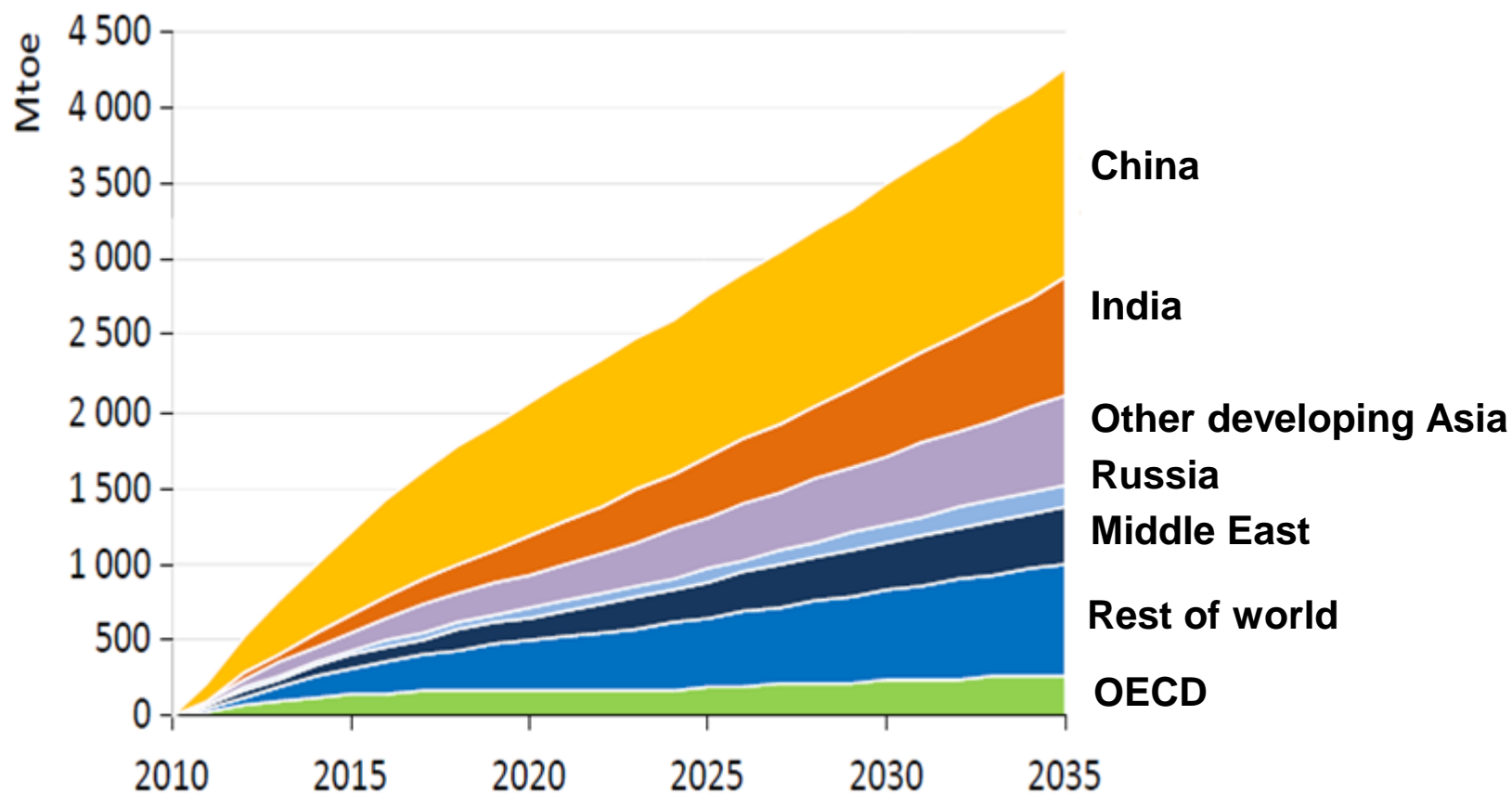
Billion



Source United Nations World Urbanization Prospects <http://esa.un.org/unup/>

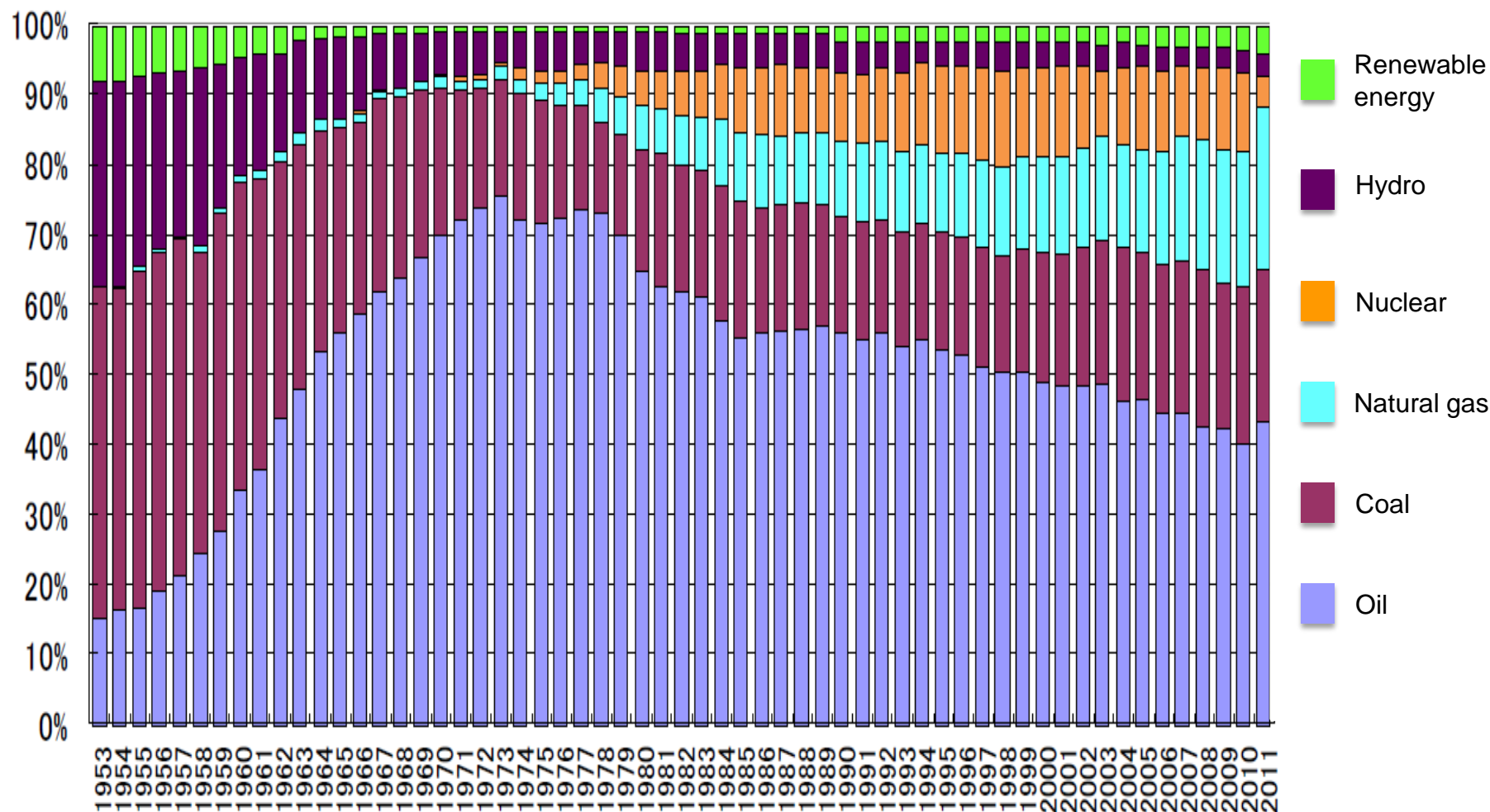
Global energy circumstances

Global primary energy prospects 2010 – 2035



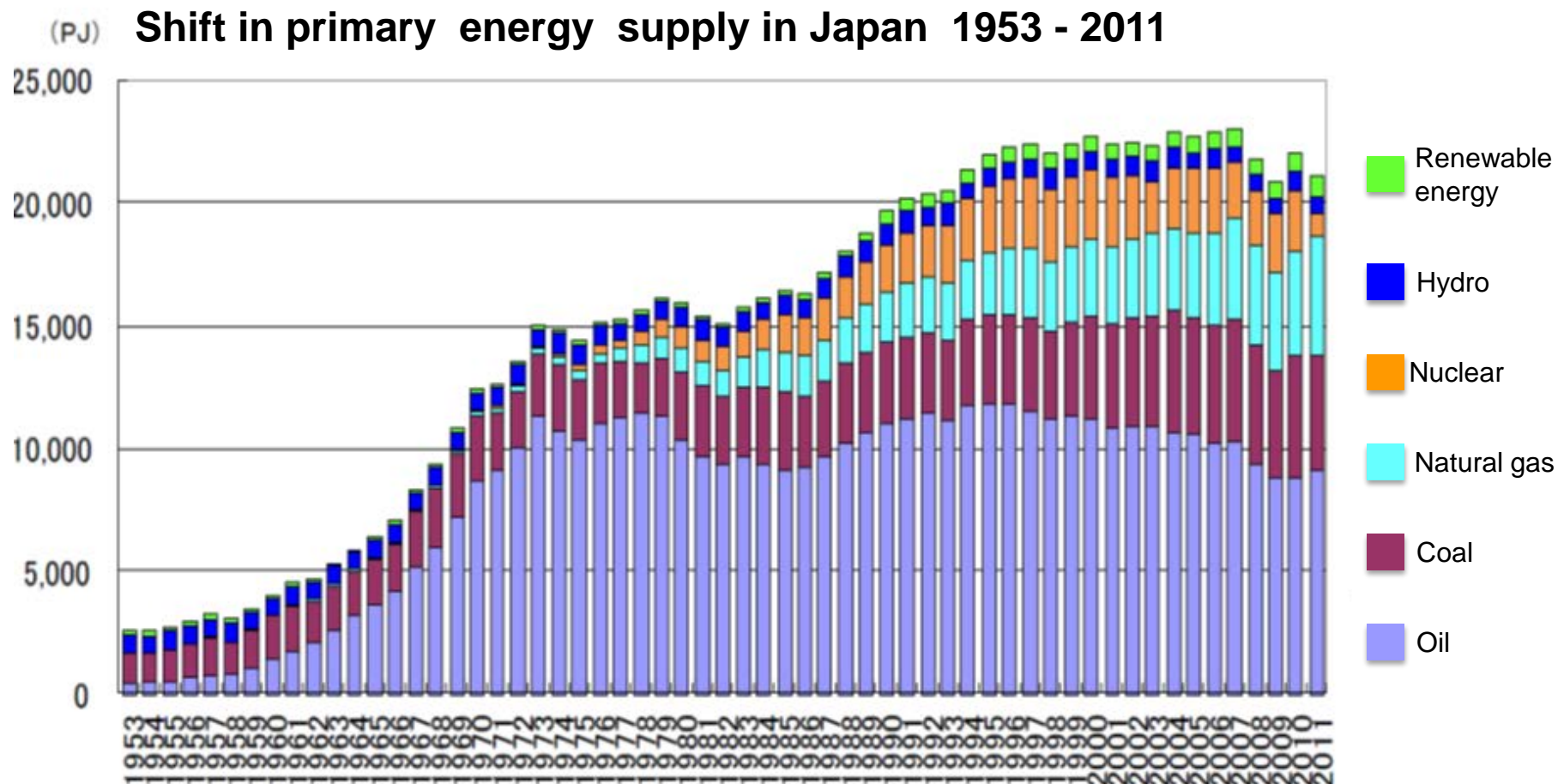
Primary energy supply in Japan (Prior to 3.11)

Shift in primary energy supply composition 1953-2011



Source: Agency for Natural Resources and Energy (Energy demand & supply result)

Primary energy supply in Japan (Prior to 3.11)



Source: Agency for Natural Resources and Energy (Energy demand & supply result)

Increasing use of renewable energy

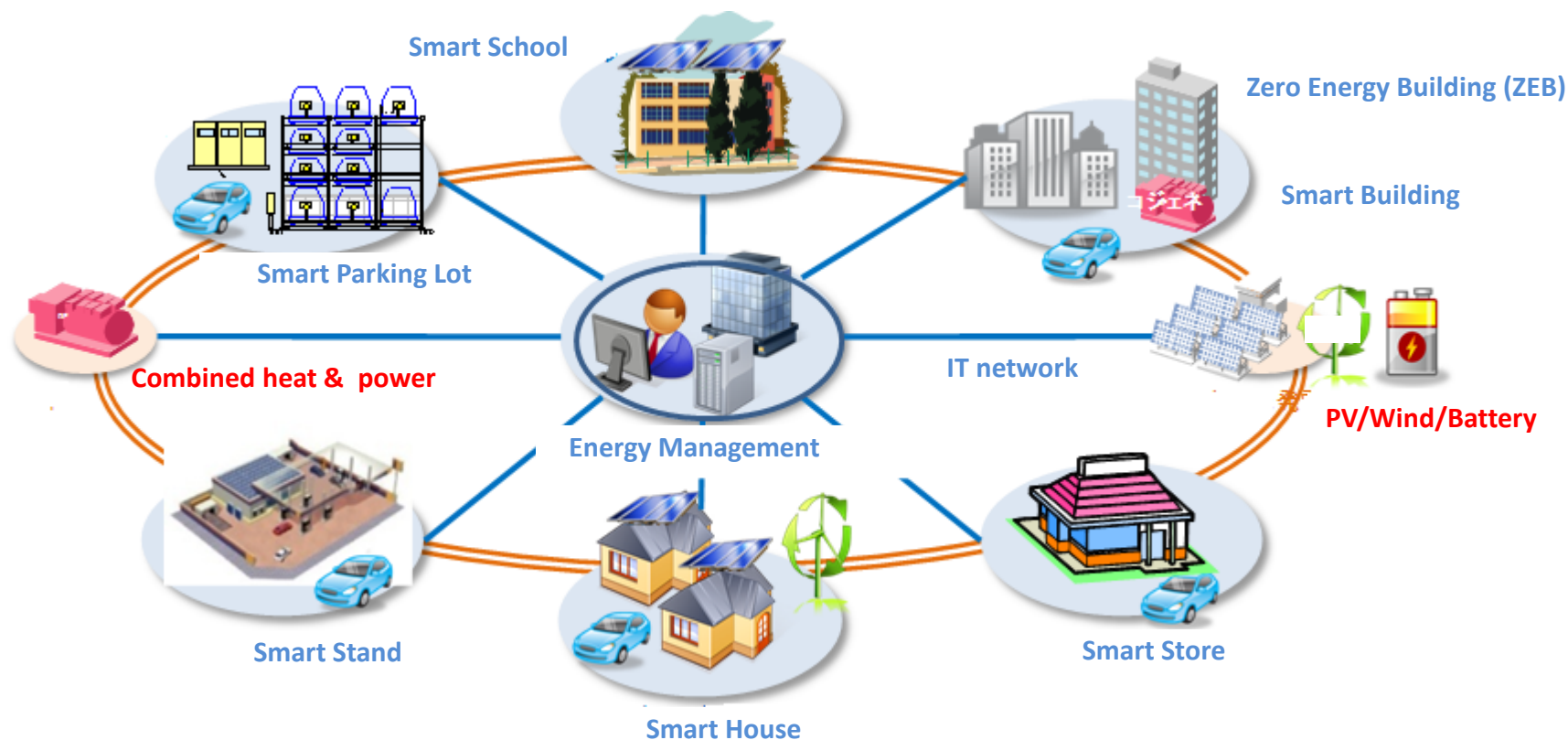
Renewable Energy	2010 Compared to 2010	2015 Compared to 2010	2020 Compared to 2010	2030 Compared to 2010
Plant Capacity w/ Hydro	31 m kW	48 m kW	70 m kW	132 m kW (Approx. 4 times)
Output	110 b kWh	140 b kWh (Approx. 1.4 times)	180 b kWh (Approx. 1.7 times)	300 b kWh (Approx. 3 times)
Plant Capacity w/o Hydro	9 m kW	27 m kW	48 m kW	108 m kW (Approx. 12 times)
Output	25 b kWh	50 b kWh (Approx. 2 times)	80 b kWh (Approx. 3 times)	190 b kWh (Approx. 8 times)

Source: Cabinet secretariat 's National Policy Unit, "Innovative strategy for energy and the environment" (Energy and Environment Council on Sep. 14th, 2012)

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What is Smart Community?



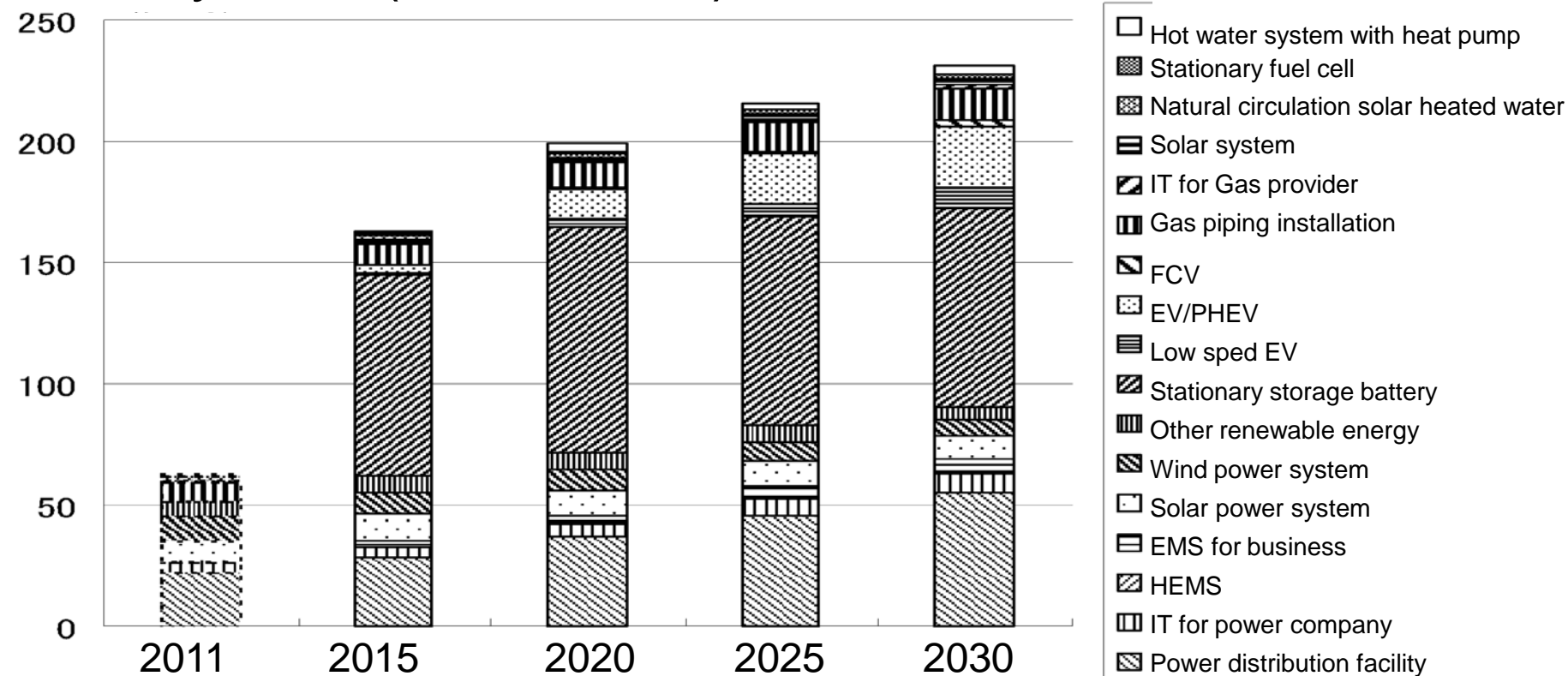
Smart community market size

▪ Approximate (2030)	¥ 230 trillion
▪ Stationary battery	¥ 82 trillion
▪ Power distribution equipment	¥ 55 trillion
▪ Electric vehicles	¥ 37 trillion

※not including service cost

Market size of smart community

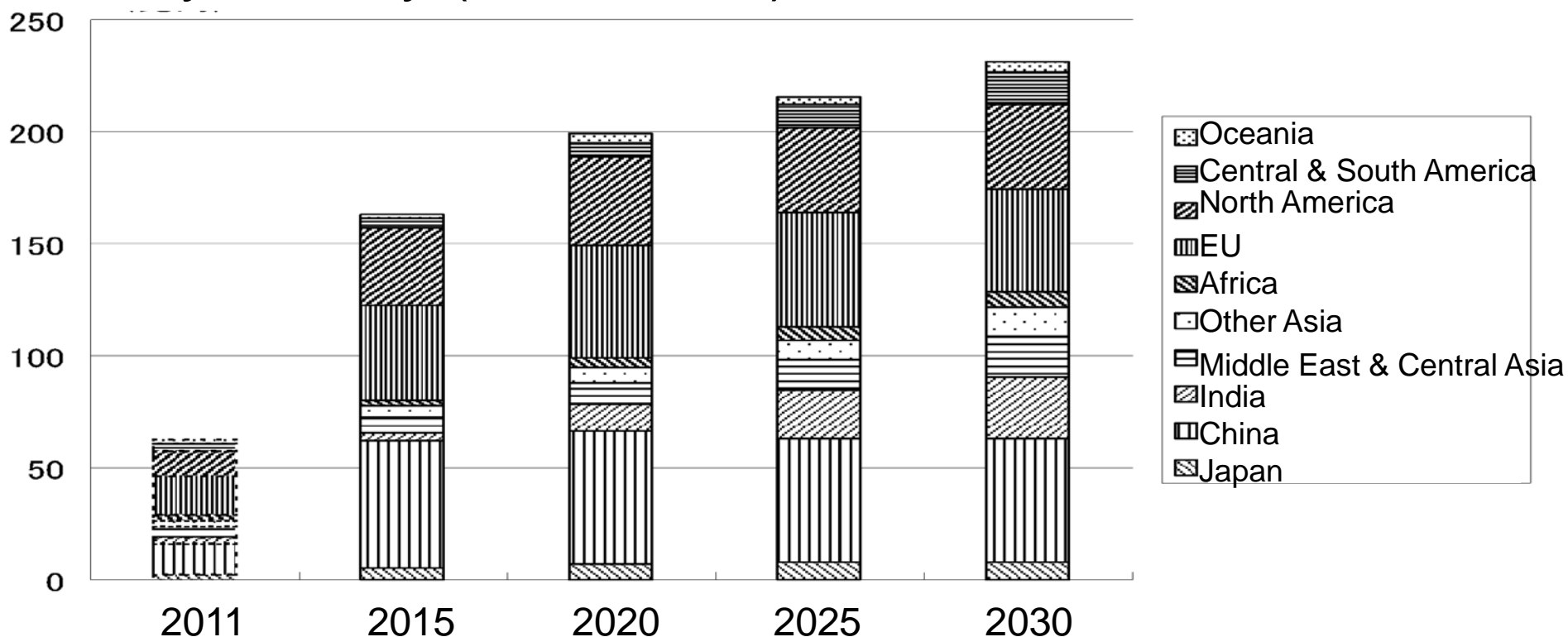
By item (Trillion Yen)



Source: Sekai Smart City Soran 2012 (Comprehensive Guide to Smart Cities of the World), Nikkei BP, Cleantech Institute.

Market size of smart community

By country (Trillion Yen)



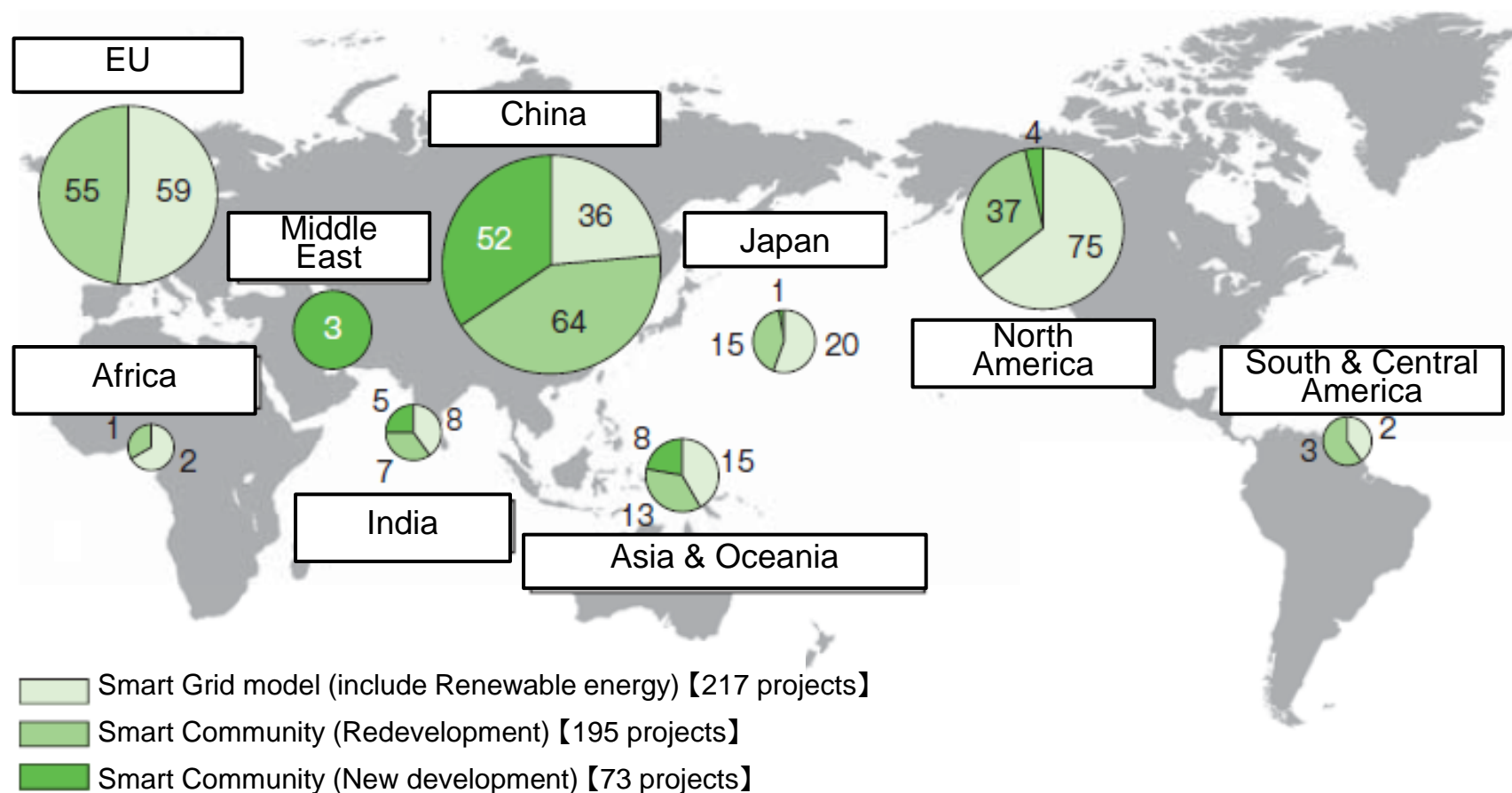
Source: Sekai Smart City Soran 2012 (Comprehensive Guide to Smart Cities of the World), Nikkei BP, Cleantech Institute.

Smart communities worldwide

- Advanced nations: 266 projects
 - Emerging nations: 219 projects
- Total: 485 projects

Source: Toshiba Corporation

Smart communities in the world



* Size of pie charts indicates the market size with number of projects data based on Sekai Smart City Soran 2012, Nikkei BP.

Source: Toshiba Corporation

World interest in Smart Grid

US

Improve vulnerable power infrastructure at low cost

EU

Progress in electricity deregulation &
corresponding renewable energy promotion

Emerging Countries

Inadequate energy supply, traffic congestion,
& poor waste management

All need Smart Community!

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NEDO's Projects in Japan 2005 - 2010



**Clustered Photovoltaic
Power Generation Systems**



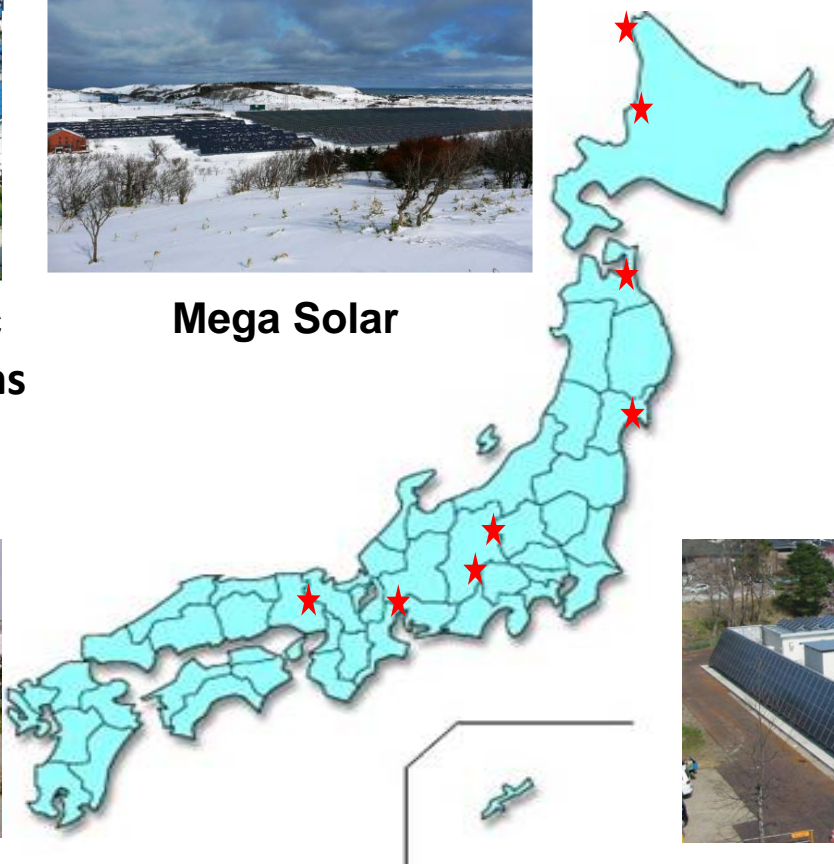
Mega Solar



**Storage of wind
generated power**



Micro Grid



New power network system

New power network system demonstration

The Sendai Micro Grid



NEDO's Overseas demonstration projects



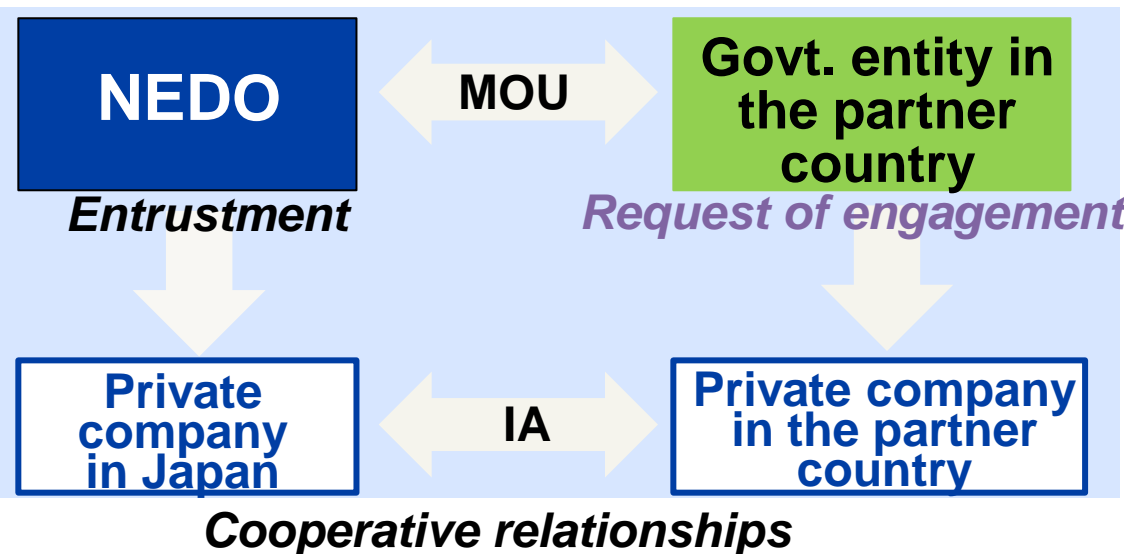
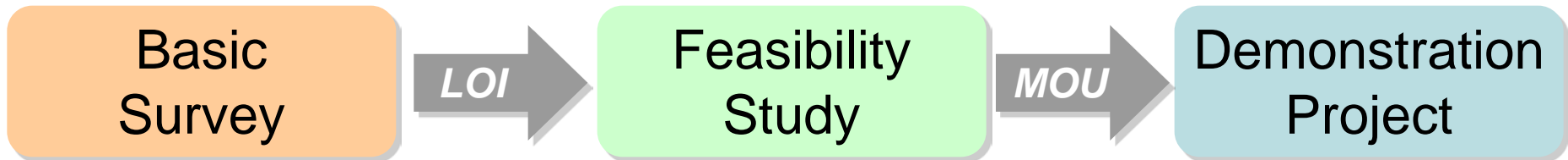
Mission of demonstration projects

1. Technical & social system demonstrations
2. Support for international deployment

Significance of Overseas projects

1. International contribution
2. Unique conditions only available overseas
3. Cooperate on common technical challenges

NEDO's role in composing a new project



Concluded MOU with Malaga City

Malaga, Spain - Demonstration project

EV..... 200 cars (Mitsubishi)
Chargers 23 quick chargers (Hitachi & Mitsubishi)
Charger Locations 9 locations



1. Started operation April 2013.
Crown Prince Felipe of Spain attended the ceremony.
2. 160 EVs & Quick chargers made in Japan in operation.
(increasing to 200 EVs)
3. The demonstration project is now underway.



The Inauguration Ceremony (Apr. 25, 2013)



EV and Quick charger

Lyon, France: Smart Community demonstration project

- Construction of positive energy buildings
- EV car-sharing system utilizing PV generated power



1. Dec. 2011: Concluded MOA
2. June 2013: Groundbreaking ceremony for construction of the positive energy building
3. Oct. 2013: Start operation of the EV car-sharing system
4. The remaining tasks are also operated from next year



Task1: Positive Energy Building (PEB)



Peugeot iOn



CITROËN C-ZERO



Mitsubishi i-MiEV

Task2: EV Car-sharing



Task3: Monitoring System for Households

Poland - Smart grid demonstration project

<Schematic diagram of demonstration project>

