

Smart Grid Latest Developments — Introduction of NEDO Activities —

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Asian Representative Office in Bangkok

New Energy and Industrial Technology Development Organization (NEDO)

- 1. Profile of NEDO*
- 2. Smart Community*
- 3. NEDO's Latest Development*
 - E-Mobility*
 - Battery Energy Storage System*
 - Local Energy Management System*
- 4. Summary*

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Profile of NEDO



New Energy and Industrial Technology Development Organization

- **Foundation: Established in 1 October, 1980**
- **Personnel: 1000(as of April 1, 2019)**
- **Budget: Approximately US\$ 1.43 billion(FY 2019)**

Our Missions

- **Addressing energy and global environmental problems**
- **Enhancing industrial technology**



Profile of NEDO



As an Innovation Accelerator,

- Promoting of industry-academia collaboration*
- Accelerating social implementation of technology*



**Energy Conservation &
Environment**

Industrial Technology

Energy Systems

**New Industry Creation and
Discover of Technology
Seeds**

Covered Energy Field



Wind



Solar



Biomass

RE + Energy System Tech.



Geothermal



Ocean



E-Mobility

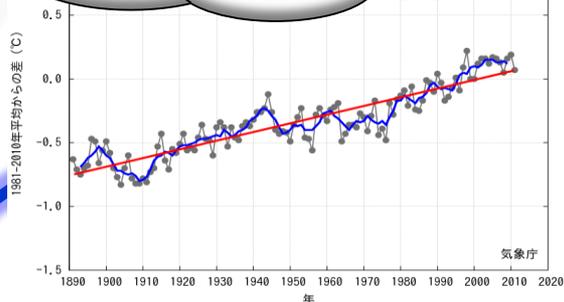


Energy Storage

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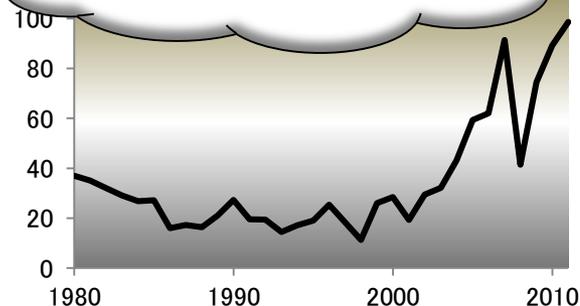
Global Energy Issues

Global Warming



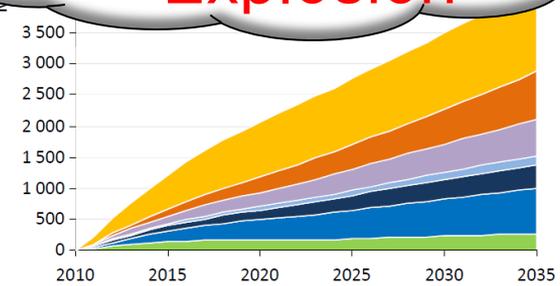
Rising average temperature

Energy Security



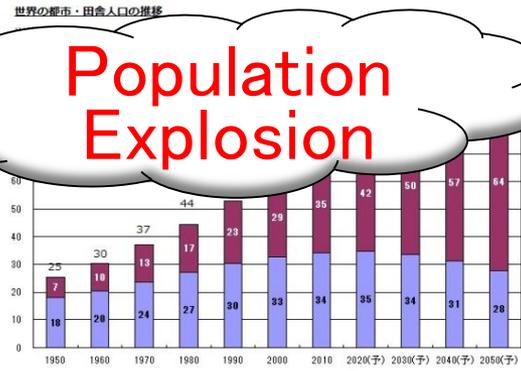
Soaring oil price

Energy Demand Explosion



Increasing energy demand

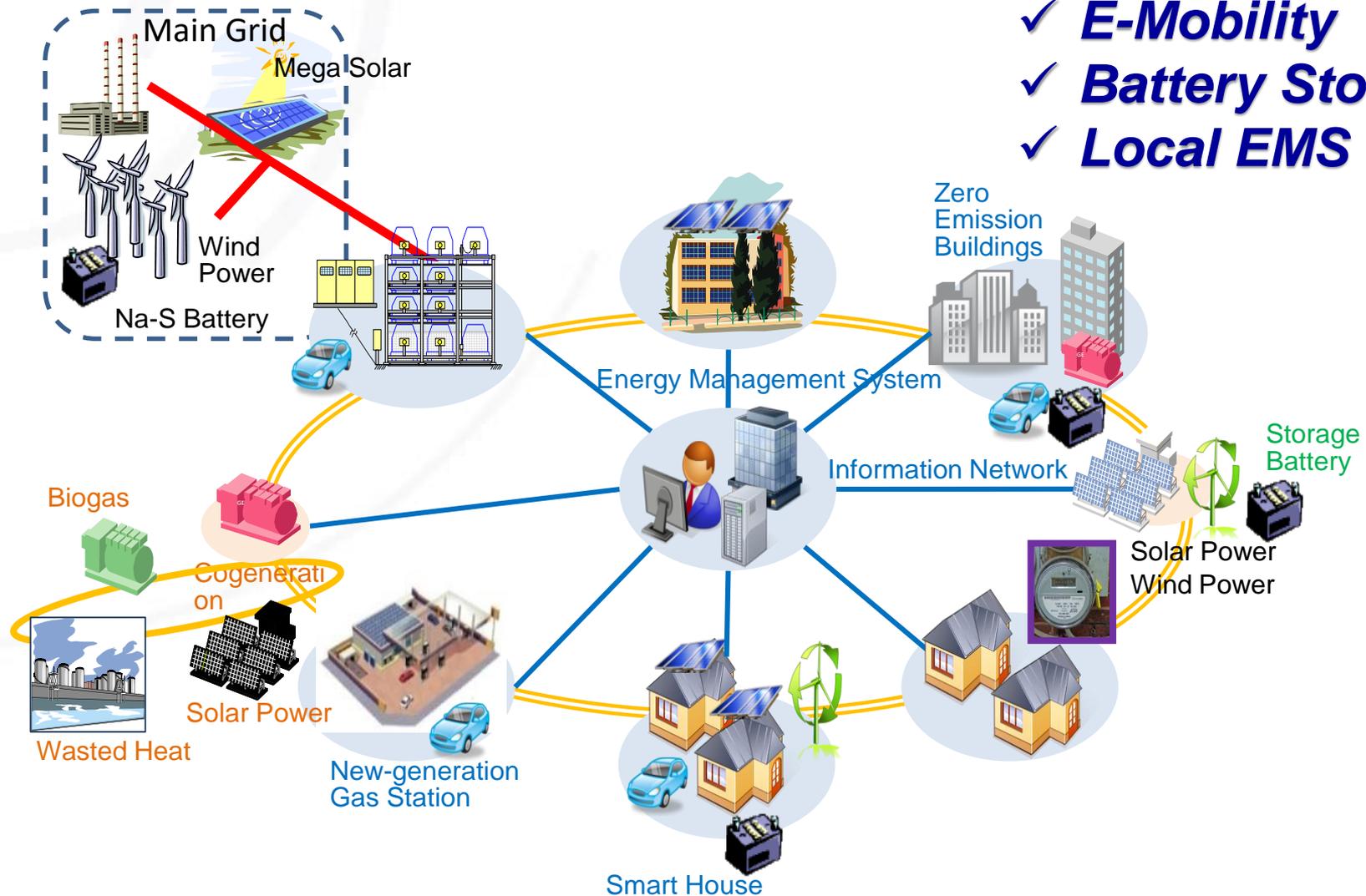
Population Explosion



Increasing population

Smart Community

- ✓ **E-Mobility**
- ✓ **Battery Storage**
- ✓ **Local EMS**



Smart Community Projects



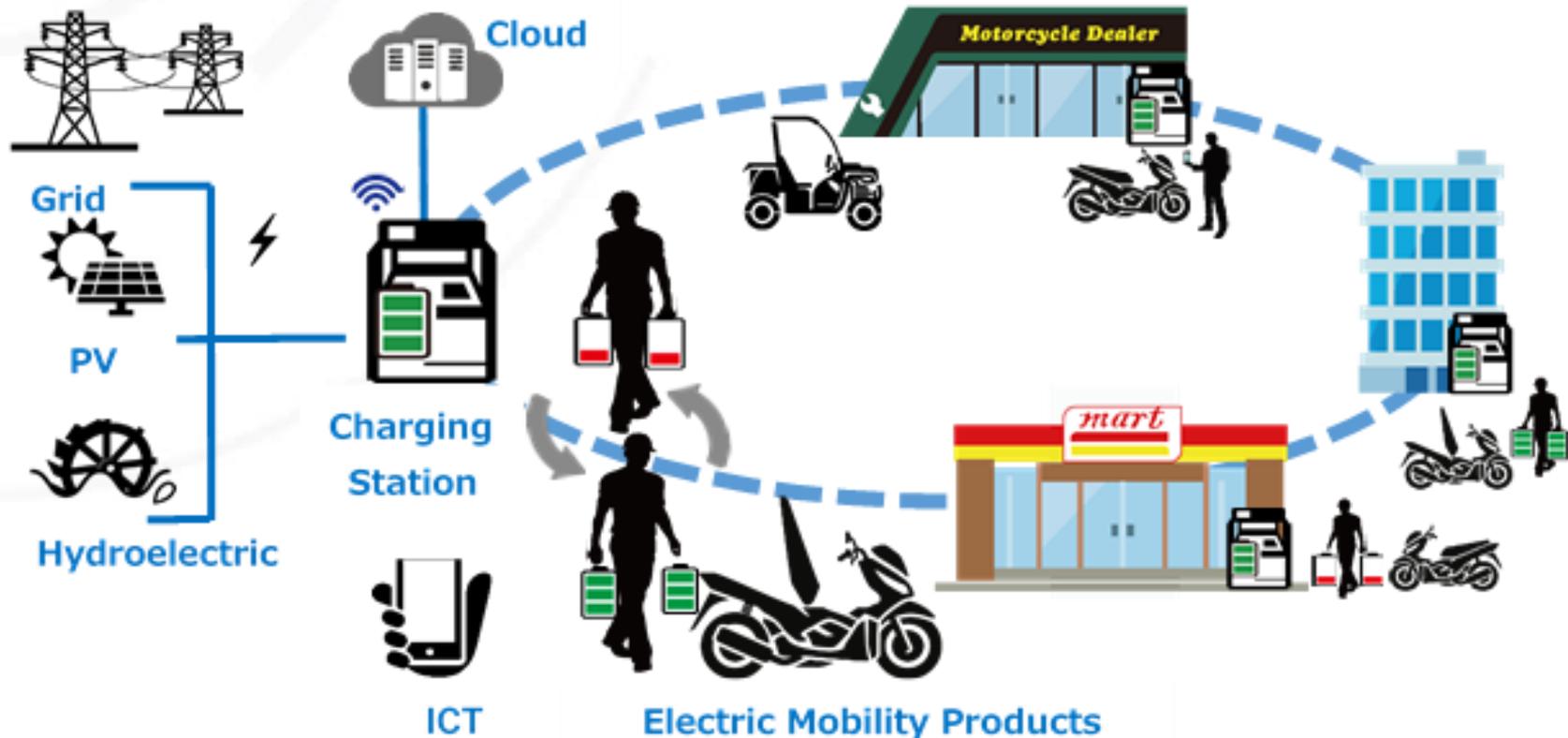
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Electric Motorcycle

Indonesia

Ongoing (FY2018 - 2020)

The Demonstration Project to Increase Energy Efficiency Through Utilization of Electric Vehicle and Mobile Battery Sharing



Electric Motorcycle



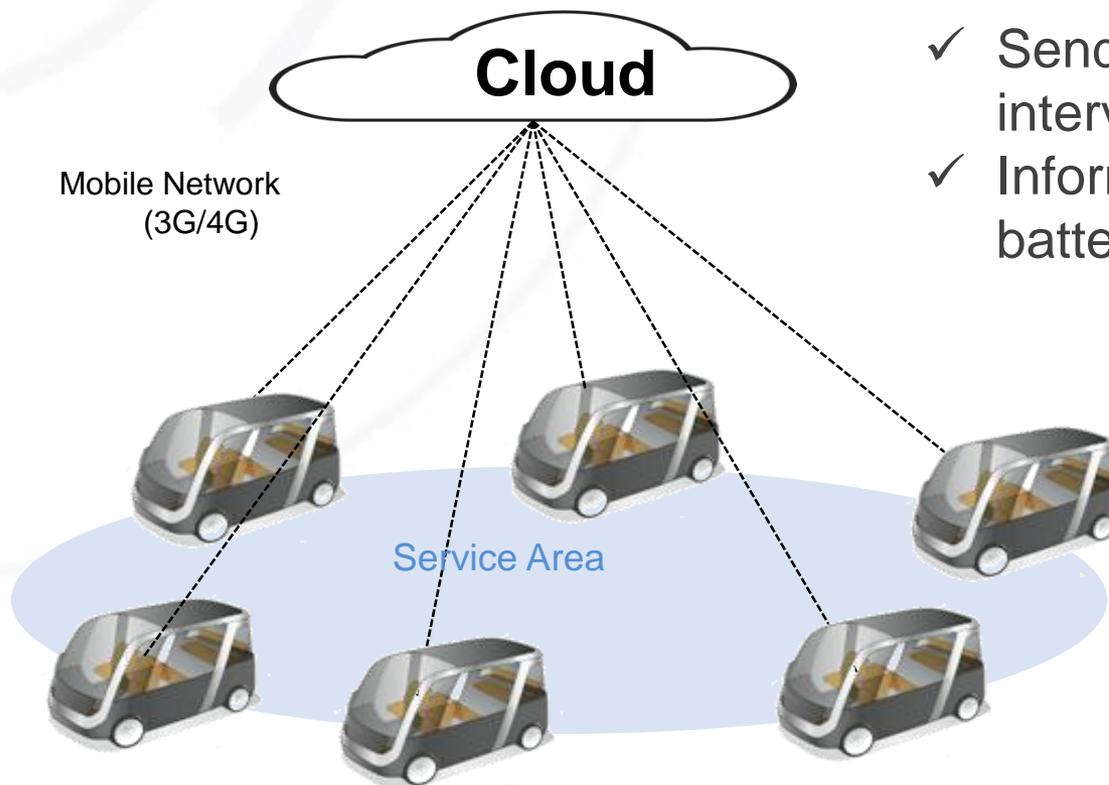
Products used in demonstration phase

Electric Tricycle

Philippines

End (FY2016 - 2018)

The Demonstration Project for Mobility as a System



- ✓ Send signals to adjust interval of EV
- ✓ Inform allocated time for battery charging

Send data of vehicle status and operation results to the Cloud

Electric Tricycle



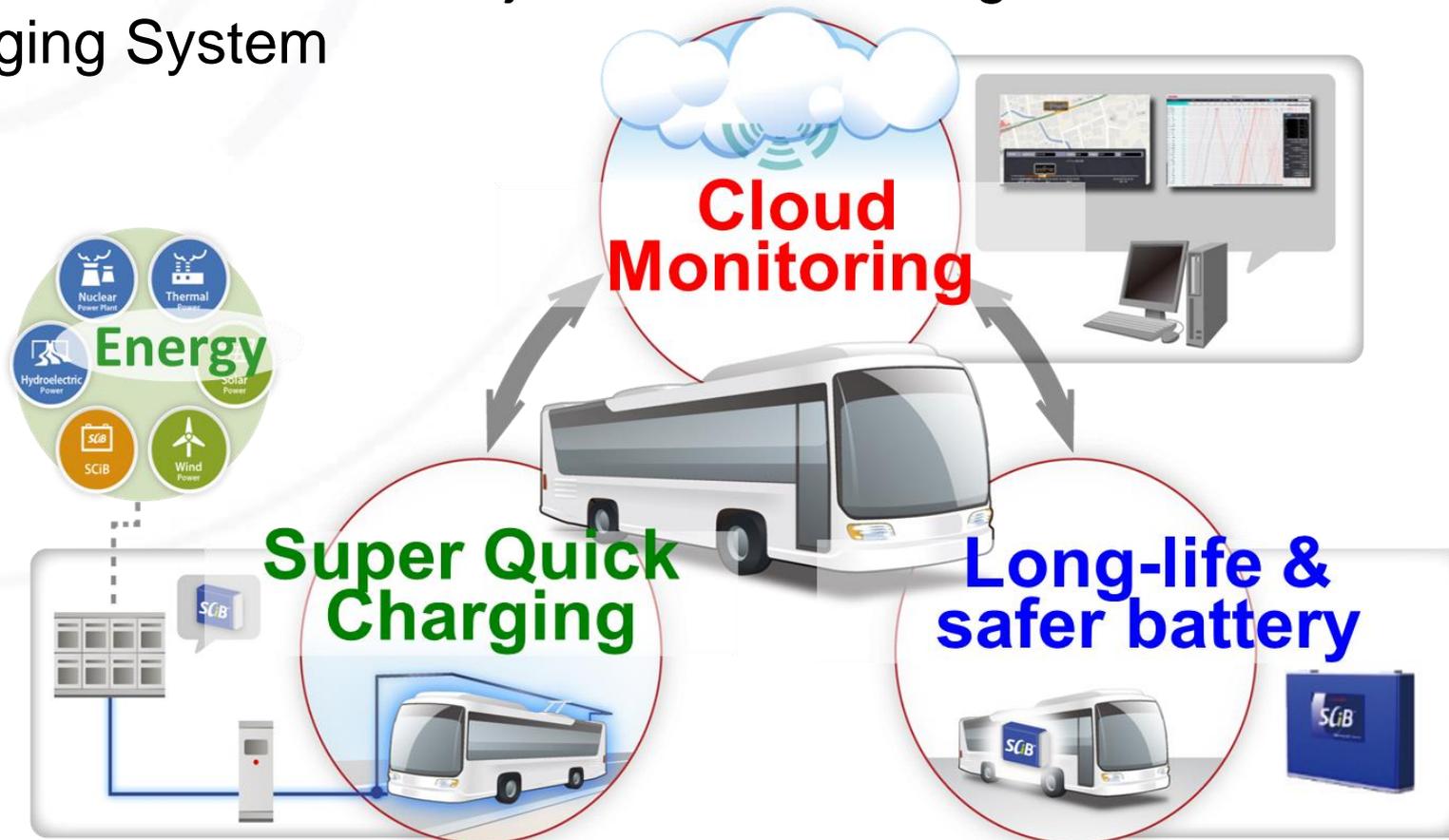
Energy Consumption Reduction ⇒ more than 85%

Electric Bus

Malaysia

Ongoing (FY2015 - 2020)

The Demonstration Project for Introducing EV Buses with a Fast-charging System



Electric Bus



10 min super quick charge ➡ 30 km of driving

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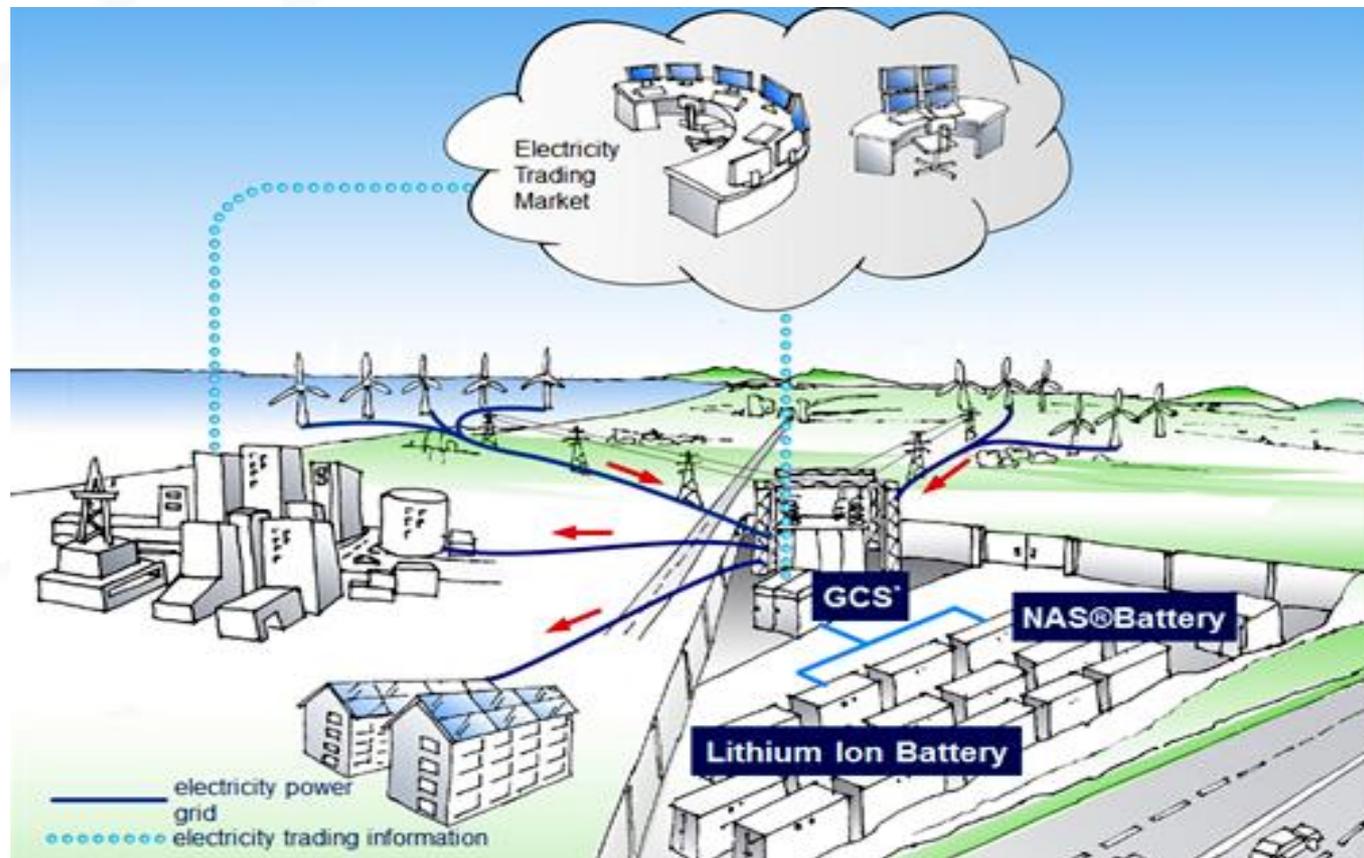
Large-Scale Hybrid Battery System



Germany

Ongoing (FY2016 - 2020)

The Demonstration Project for Large-Scale Hybrid Battery System



Large-Scale Hybrid Battery System

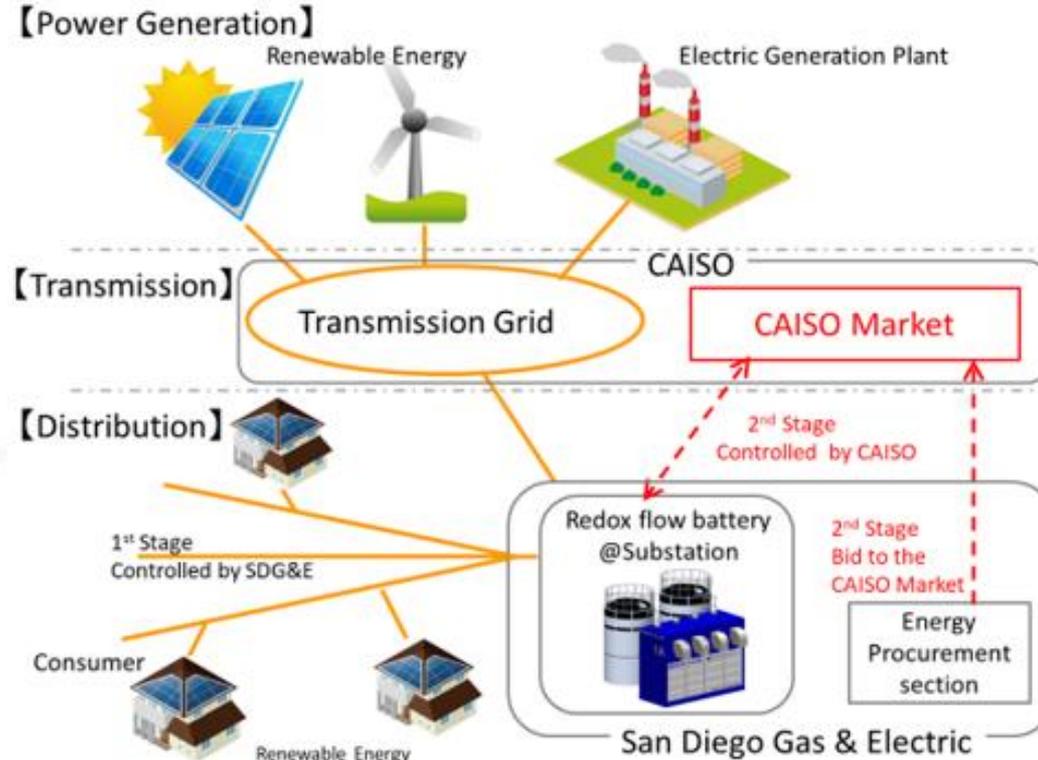


Redox Flow Battery for Power Grid

U.S.A.

Ongoing (FY2015 - 2020)

The Demonstration Project for Storage Battery Operation for both Electricity Transmission and Distribution



Redox Flow Battery for Power Grid



Redox Flow Battery (2MW / 8MWh)

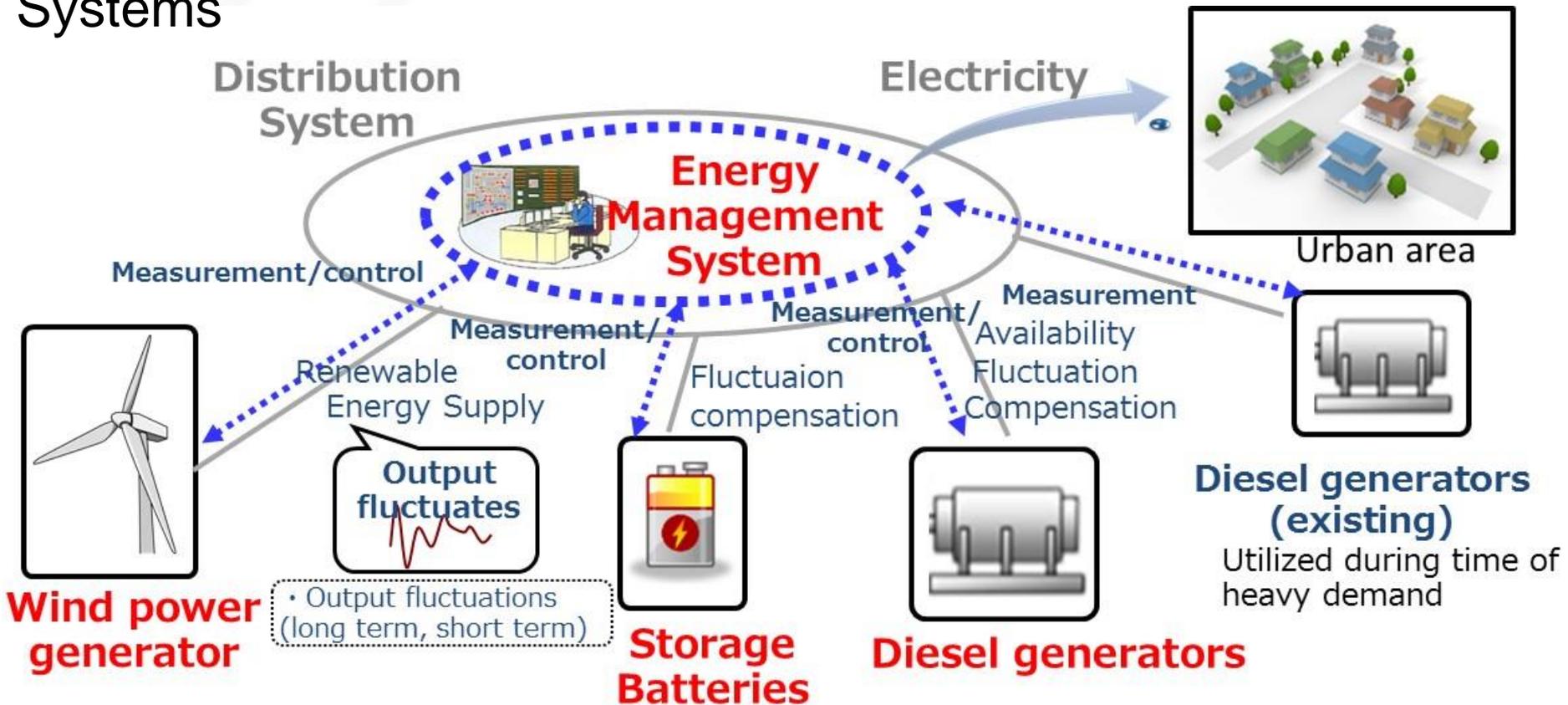
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Polar Microgrid System

Russia

Ongoing (FY2018 - 2021)

The Demonstration Project including Wind Power Generation Systems



Polar Microgrid System



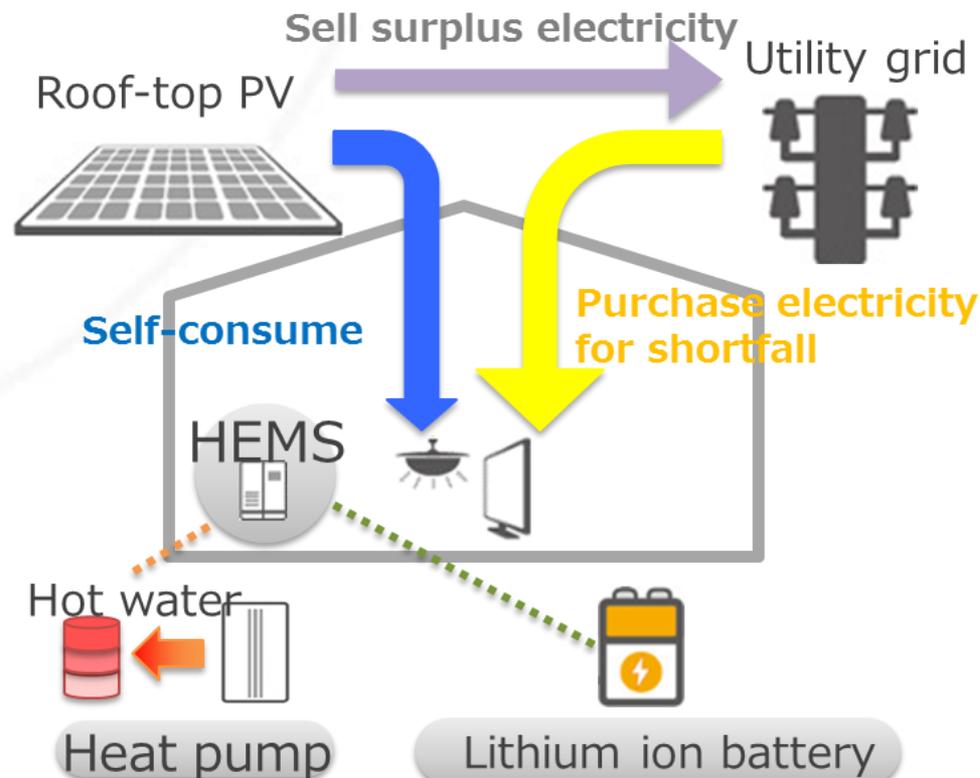
Aim to reduce consumption of diesel fuel by **16%**

Residential Energy System

Germany

Ongoing (FY2014 - 2019)

The Demonstration Project for a Residential System that Combines PV, Storage Batteries, Heat Pumps, and HEMS

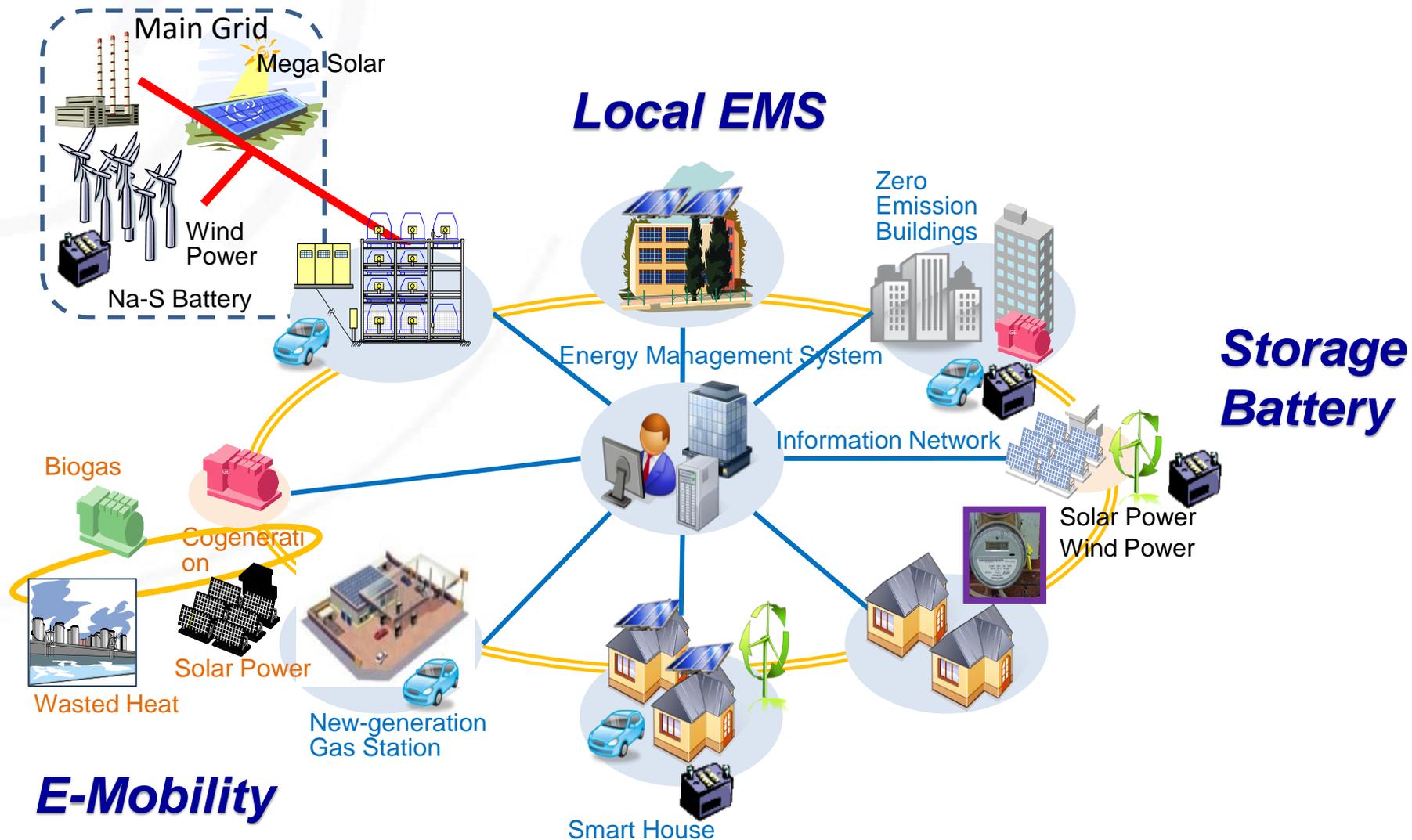


Residential Energy System

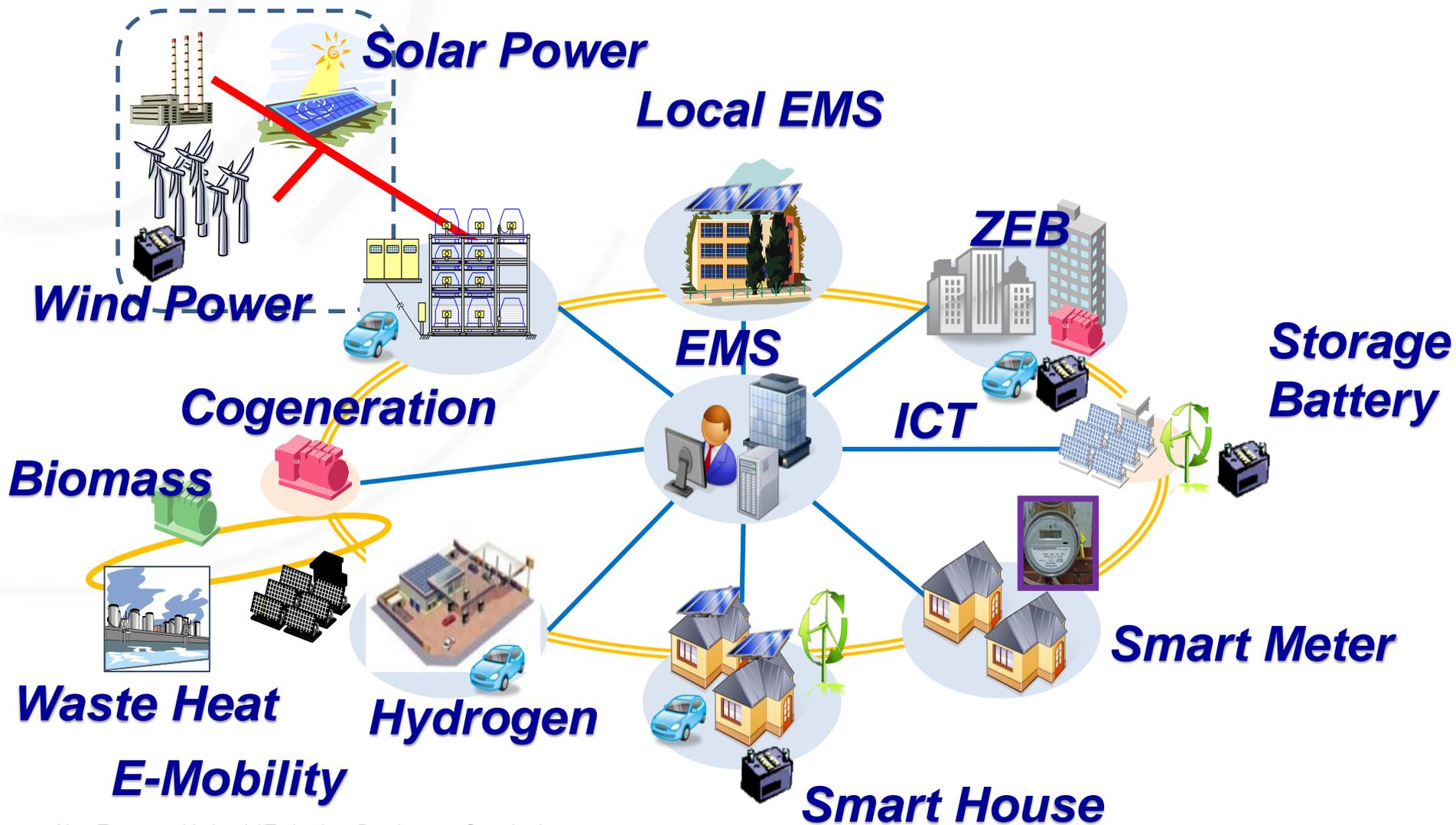


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Tech. for Smart Community



Tech. for Smart Community





<http://www.nedo.go.jp/english>

Thank you