

# **Hawaii Clean Energy Cooperation and NEDO**

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New Energy and Industrial Technology  
Development Organization (NEDO)  
JAPAN  
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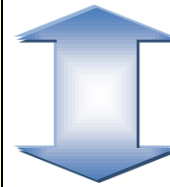
# Who is NEDO ?



**Ministry of Economy, Trade  
and Industry (METI)**

**Council for Science  
and Technology Policy**

**Budget: US\$2.4 billion**  
**Number of personnel: Approx.1,000**  
**Offices in DC, Silicon Valley, Paris,  
Beijing, Bangkok and New Delhi**



**Coordination with policy  
making authorities**



## Promotion of R&D projects

- Autonomous and advanced R&D project management
- R&D activities with flexible and agile project management



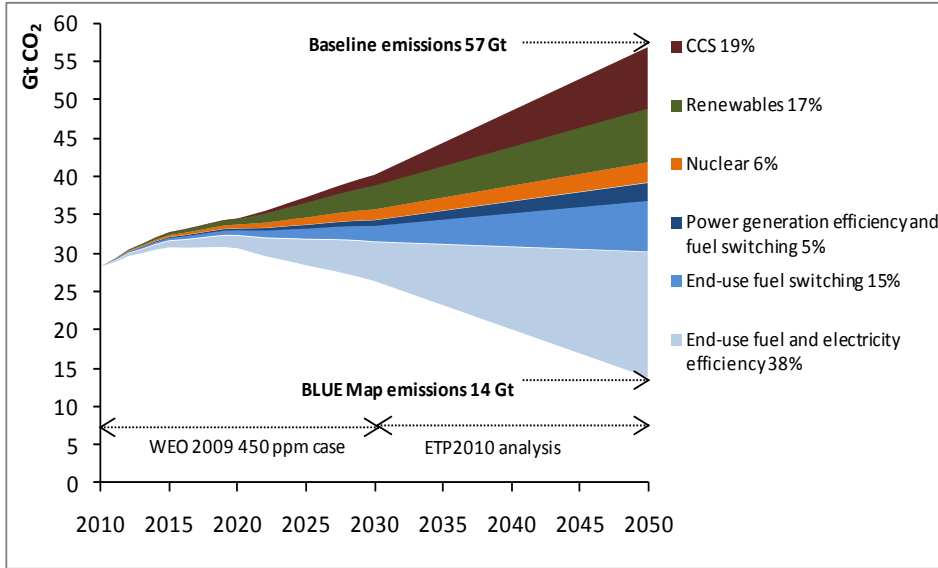
**Combined efforts of industry,  
government, and academia**

**Industry**

**Universities**

**Public research institutes**

# Energy is a Global Challenge

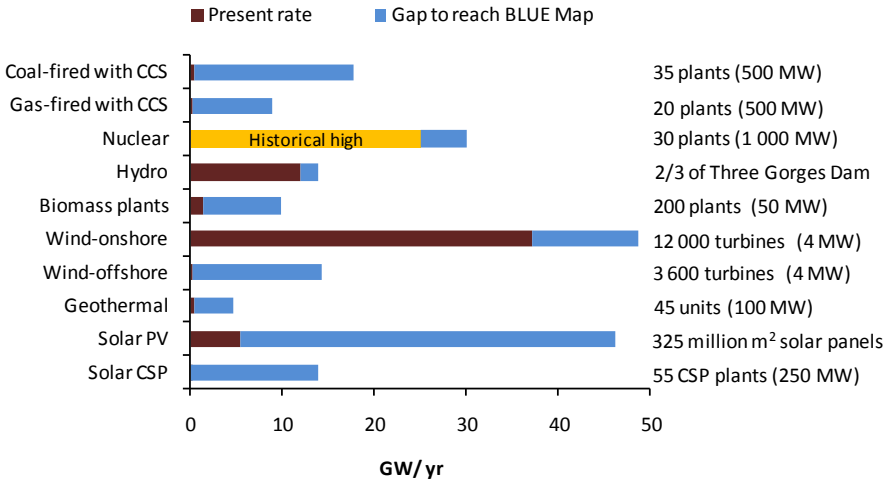


- Energy Efficiency and Renewable Energy contribute over half of CO2 reduction

(Source: IEA)

Need to accelerate investment into clean tech from current levels

Global Clean Energy Market  
 \$46 bn (2004) to \$243 bn(2010)  
 (Bloomberg New Energy Finance)

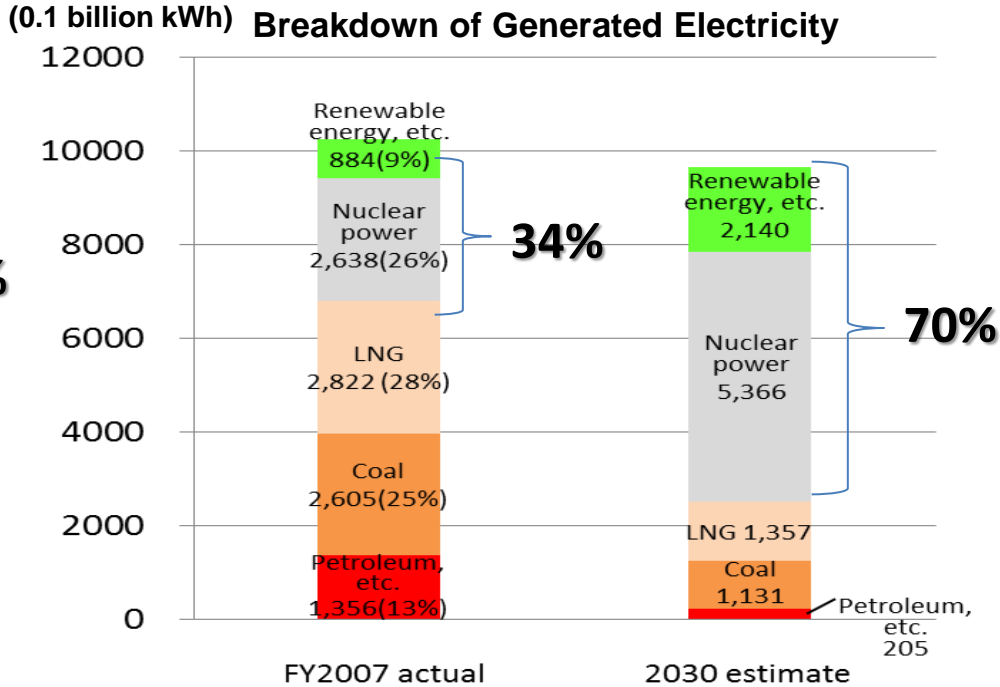
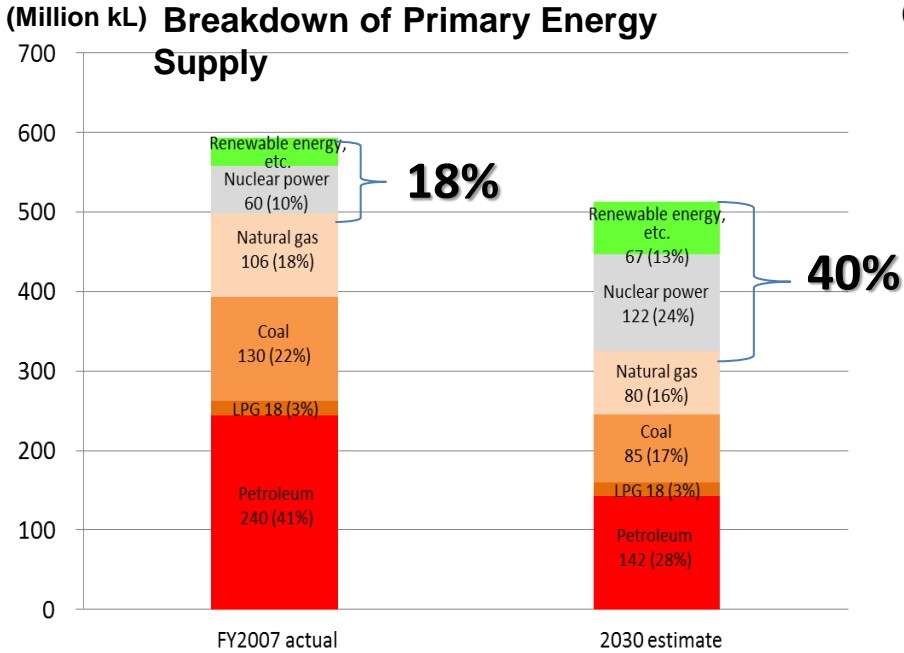


# Japan has ambitious policy targets (to be reviewed)

The Japanese government has set ambitious policy targets to achieve a **30% reduction in energy-related CO<sub>2</sub> in 2030 compared to the 1990 level.**

For example,

- ◆ Energy self sufficiency: 40% (18% at present)
- ◆ Zero-emission power source ratio: 70% (34% at present)



# Why Japan-U.S. Cooperation in Clean Energy ?



**Strategic Partners**

**2 of 3 largest economies in the world**

**Clean Energy/ Smart Grid is system of systems**

## *Complementary Strengths*

### **Strength of Japan**

**Applied Technology, Material/  
Manufacturing Technology  
Product/Process incremental  
innovation**

**(Energy efficiency, Solar PV,  
Fuel cells, Batteries etc.)**

**Innovation system with large  
companies and existing SMEs**

### **Strength of U.S.**

**Basic Research,  
System Engineering  
Marketing/Organizational  
innovation**

**(Smart Grid (Smart meter system),  
Bio fuels, Solar thermal,  
Computational Science etc.)**

**Innovation system with large  
companies, new ventures,  
university**

# NEDO efforts to integrate renewable energy (2000-2010)

**Smart Grid Elements**

## Clustered PV



Ota City  
Demonstration site

## Mega solar



Wakkanai, Hokuto City  
Large-scale PV power generation system

## Battery for wind power



Tomamae City  
Battery storage building for Winvilla wind farm

## Micro grid



Aichi, Hachinohe, Kyotango  
Verification of grid stabilization

## Power quality



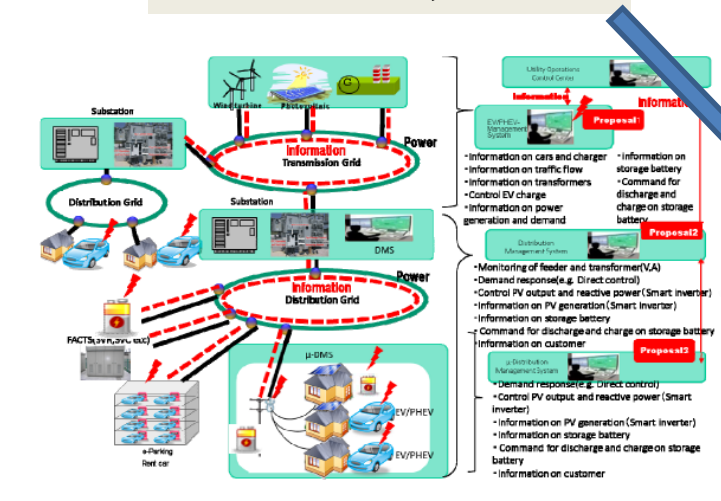
Maebashi, Sendai  
Establishing system control for power quality

## Battery technologies

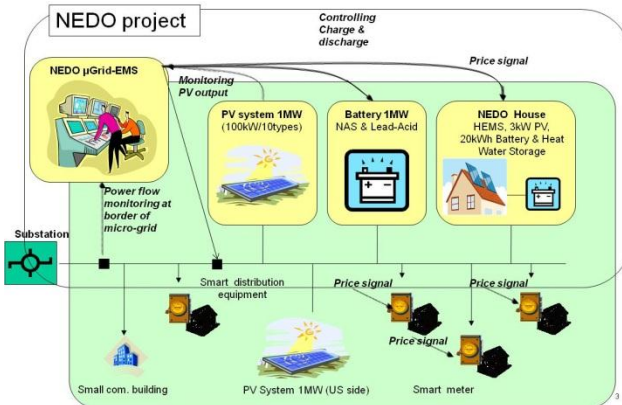


Development of electric energy storage system for grid connection with new energy resources

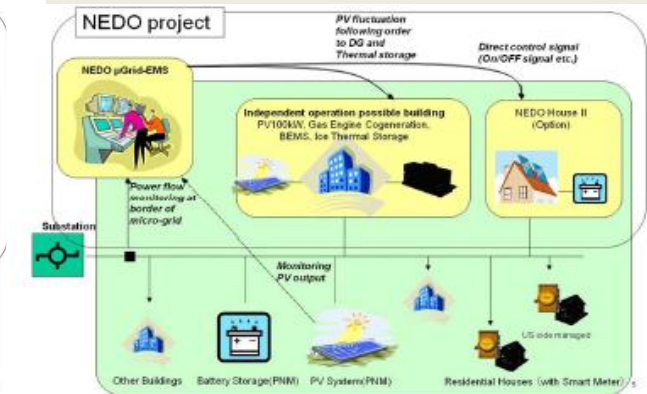
## Maui Island, Hawaii



## Los Alamos, New Mexico



## Albuquerque, New Mexico



**Interoperability of standards !!!**

## Significance of cooperation

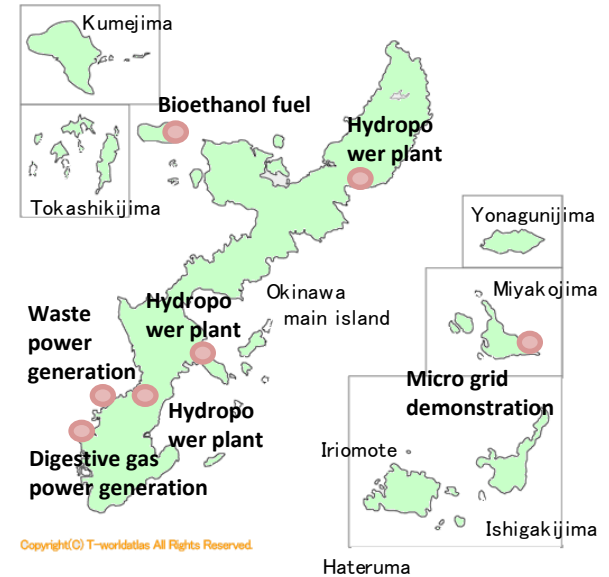
Okinawa and Hawaii are similar

- geographical conditions (island)
- climate condition
- energy structure

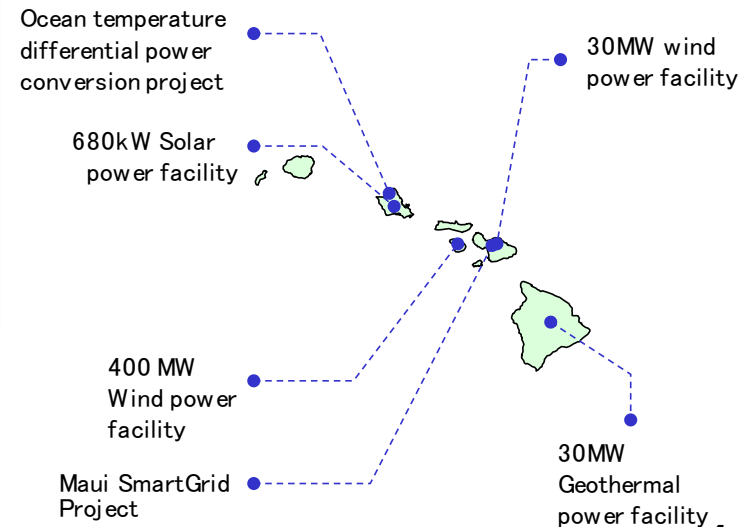


- Synergy through cooperation
- Joint creation of Global Model
- Okinawa –Hawaii cooperation as symbolic Japan-U.S. cooperation

## Example of activities in Okinawa



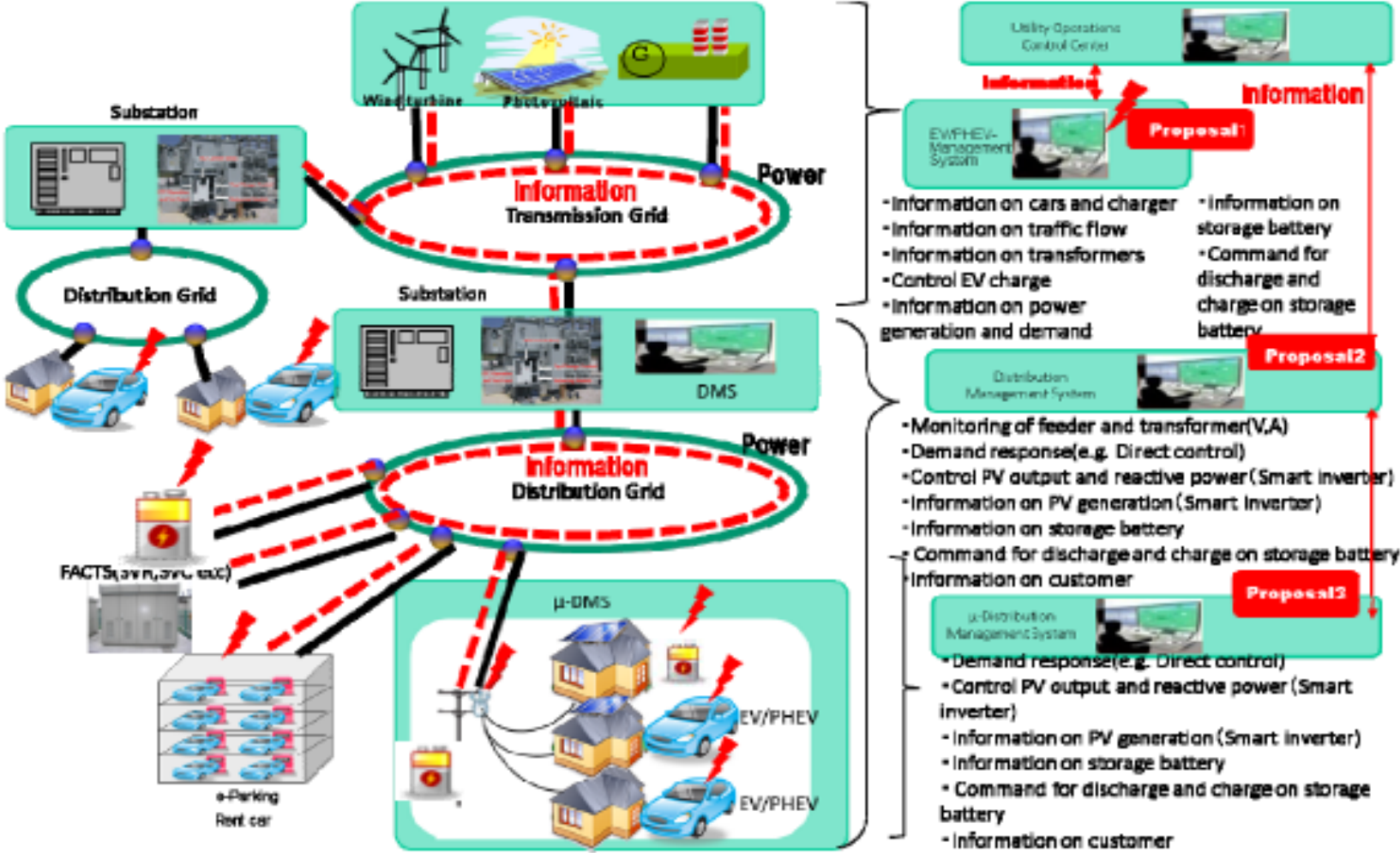
## Example of activities in Hawaii





# NEDO collaboration project in Hawaii

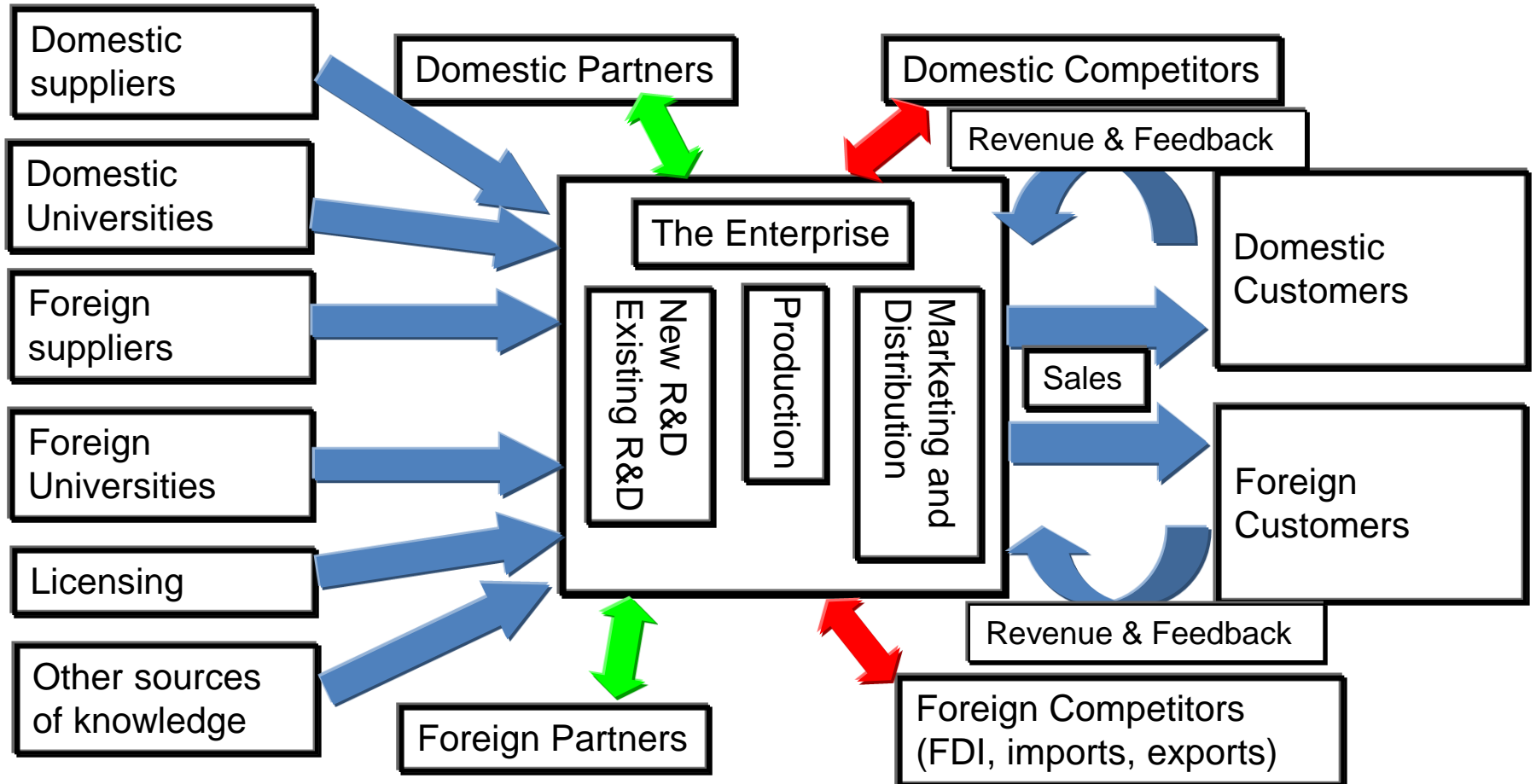
Hitachi, Cyber Defense Institute, JFE Engineering, Sharp, Hewlett-Packard Japan, and Mizuho Corporate Bank conducting Feasibility Study.  
 Strong Partnership with State of Hawaii, HECO, HNEI and DOE National Laboratories



- Large/large company – large/small company
- Strategic Collaboration, IP Collaboration, JV, Buy-out
- Technology/Finance
- Targeting US/JP/Global market

## Examples

GE – Fuji Electric	Smart meters
GE – Hitachi	Nuclear
Westinghouse – Toshiba	Nuclear
Eaton – Takaoka	DC Quick Charger
Carrier – Toshiba	Air Conditioning
Tesla – Toyota	Electric Vehicles
Ford – Toyota	Hybrid Systems for Trucks
NRG Group – Eurus Energy	45 MW PV plant
CBI polymers (Skai Ventures) - ??	Decongel (Nuclear Cleanup)



**Thank you very much  
for your attention!!**



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