COP 18 Side Event

Japan's Low carbon technology and BOCM(Bilateral Offset Credit Mechanism /JCM(Joint Crediting Mechanism)

- as a tool for mitigation technology transfer -

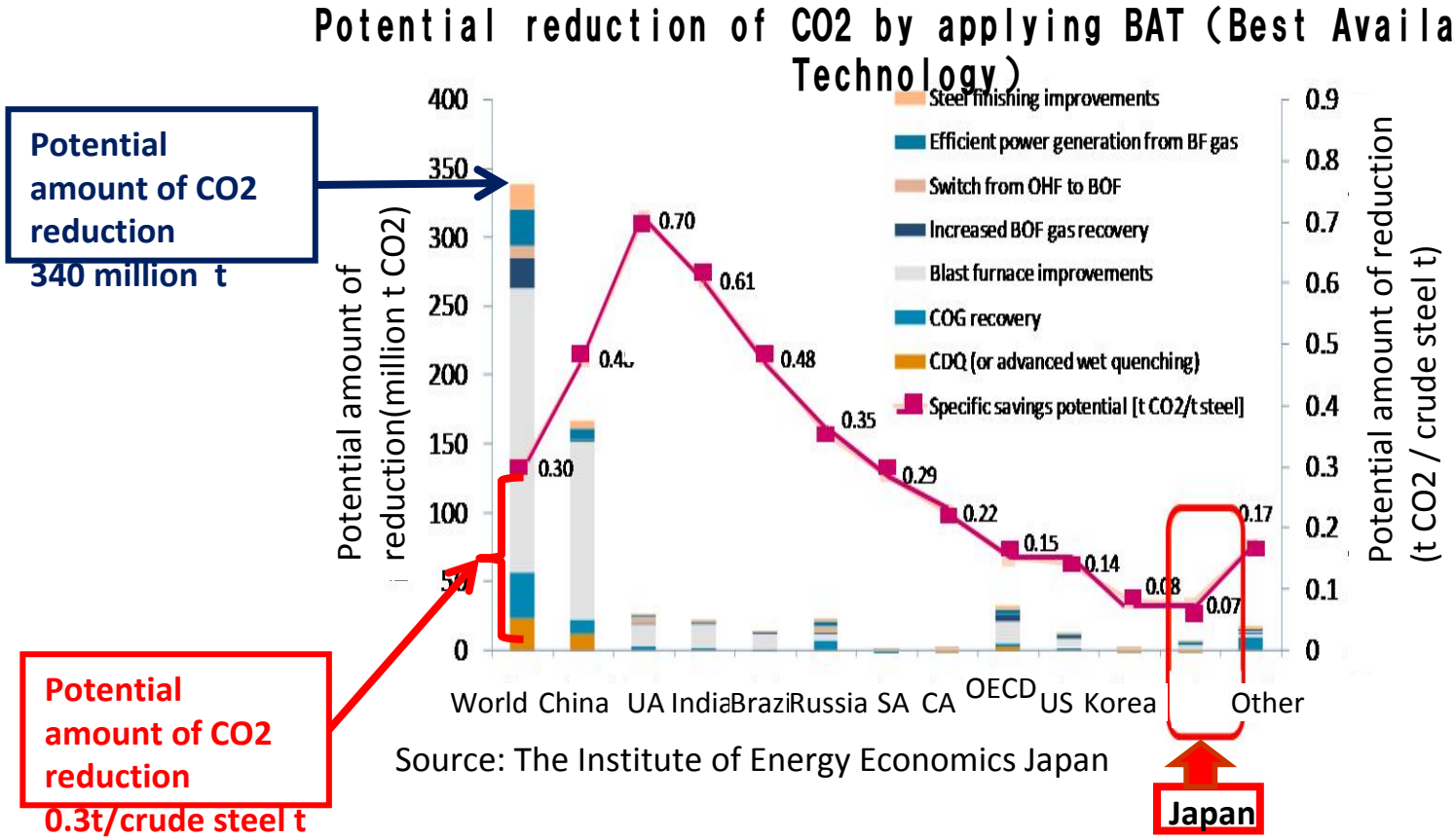
December 5th, 2012

Ministry of Economy, Trade and Industry
Government of Japan

Japan's Low-Carbon Technology and Potential Contribution

Iron and Steel

➢By applying the best practice of iron and steel plants in Japan to that of the world's plants, it is estimated to be reduced **340 million tons** of CO2

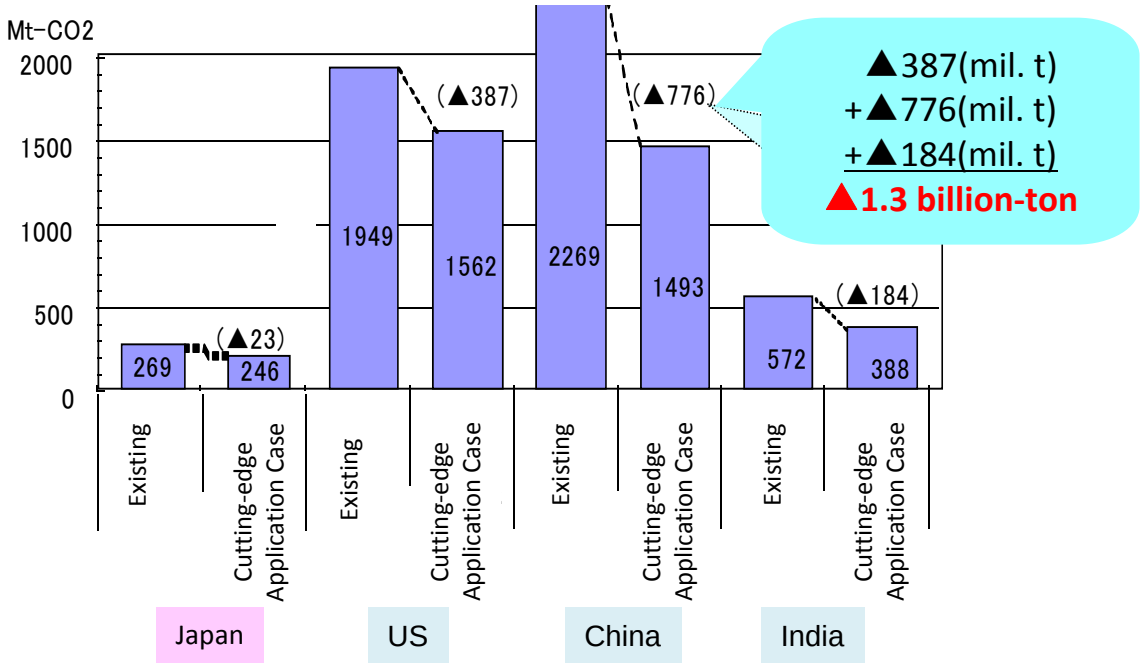


Japan's Low-Carbon Technology and Potential Contribution

Coal Power Generation

➢By applying the best practice of coal-fired power plants in Japan to that of the US, China and India, it is estimated to be reduced **1.3 billon tons** of CO2 which is equivalent to Japan's total emission.

CO2 Emission from Coal Power Plant in 2004

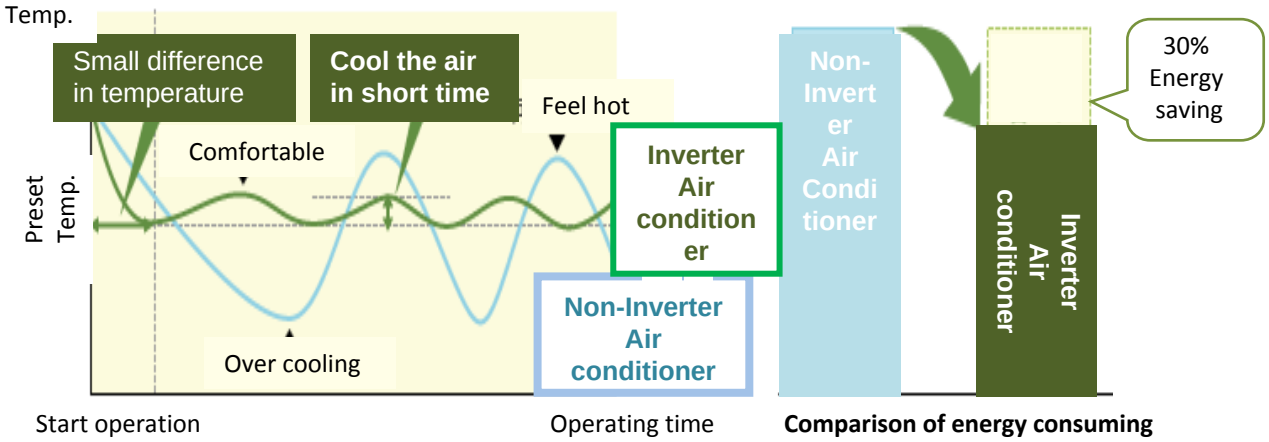


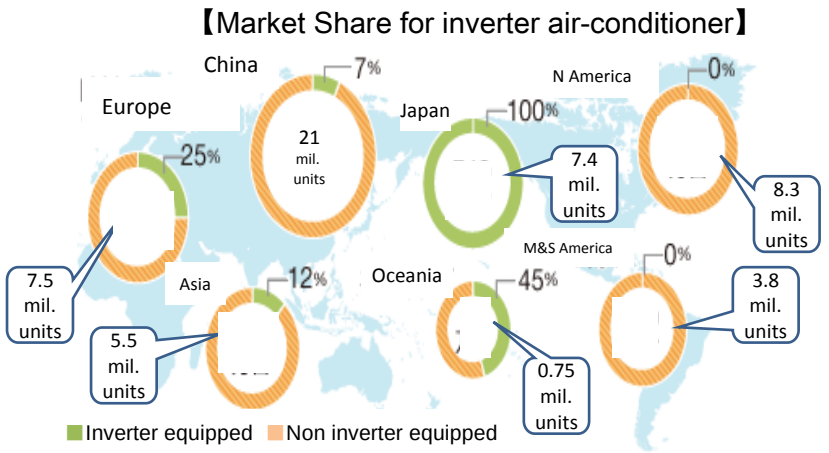
Source: The Institute of Energy Economics Japan

Japan's Low-Carbon Technology and Potential Contribution

Home Electrical Appliance（Air Conditioner)

➢By improving efficiency of all air-conditioners' in the world as efficient as Japan's air-conditioners which is equipped with inverter controller, it is estimated to be reduced **100 million tons** of CO2.

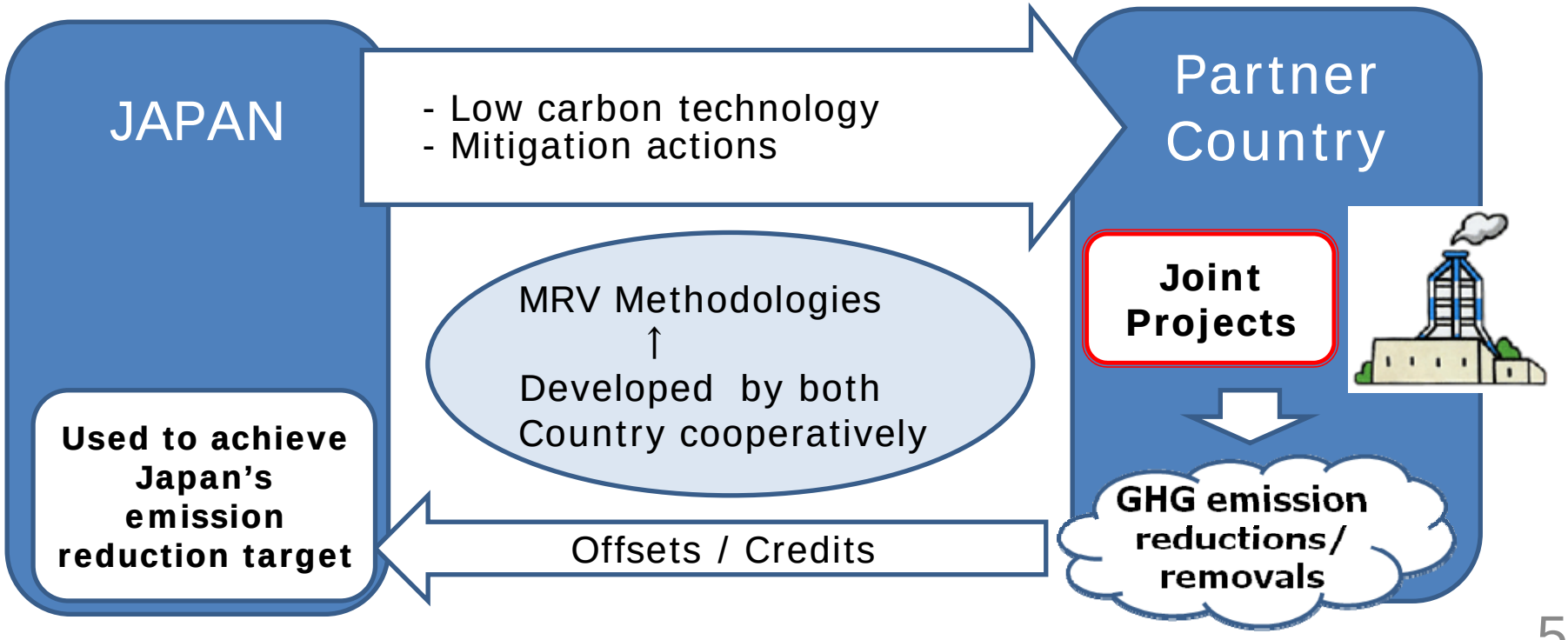




Outline of BOCM/JCM

- To facilitate diffusion of advanced low-carbon technology (technologies, products, systems, services, infrastructure etc.)
- To contribute (1)implementation of mitigation actions, (2) sustainable development of developing countries.
- To appropriately evaluate contributions to GHG emission reductions/removals
- To contribute to the ultimate objective of the UNFCCC

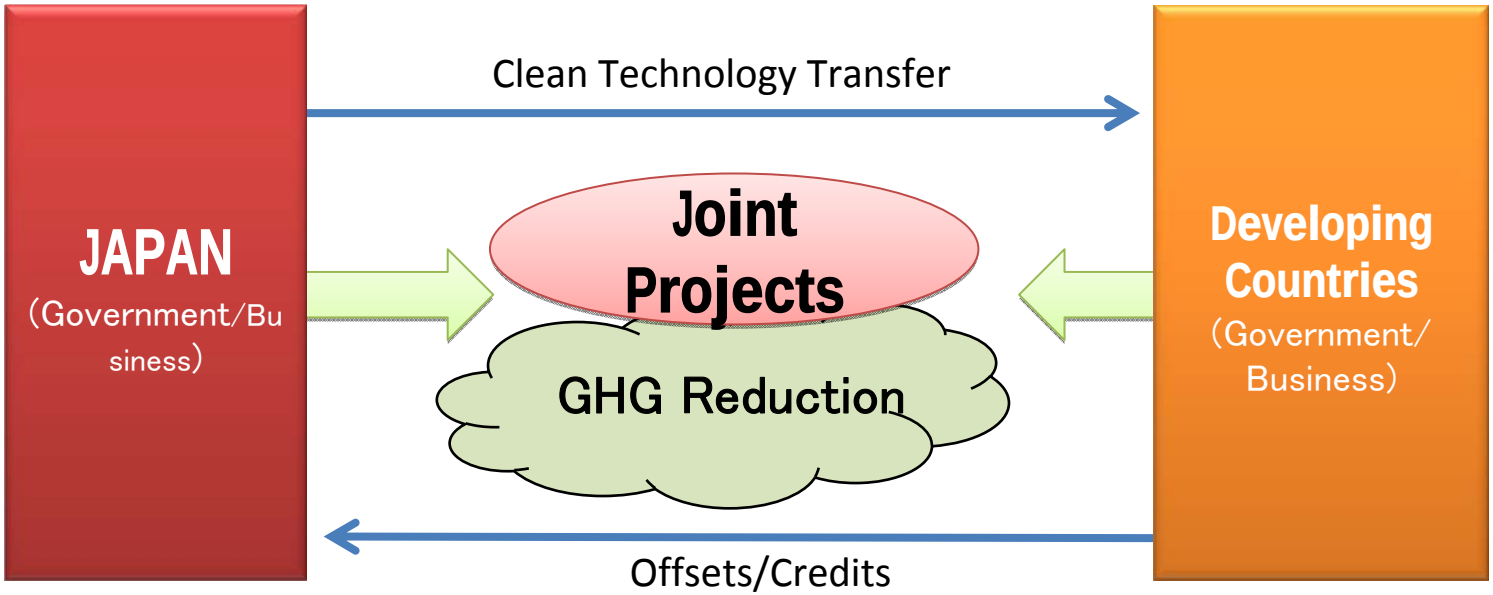
※ GHG: Greenhouse gas



Feasibility Studies for BOCM/JCM

Feasibility Studies for BOCM/JCM

- started from 2010.
- funded by Government of Japan (conducted by Japanese private companies)
- purpose
  - to explore and design possible BOCM/JCM
  - to develop MRV methodologies
  - to estimate GHG emissions reduction potential
  - to evaluate financial aspects of projects



Approaches of BOCM/JCM

- The BOCM/JCM should be designed and implemented, taking into account the followings:

(1) Ensuring environmental integrity and transparency

(2) Maintaining simplicity and practicality

(3) Promoting concrete actions for global GHG emission reductions/removals

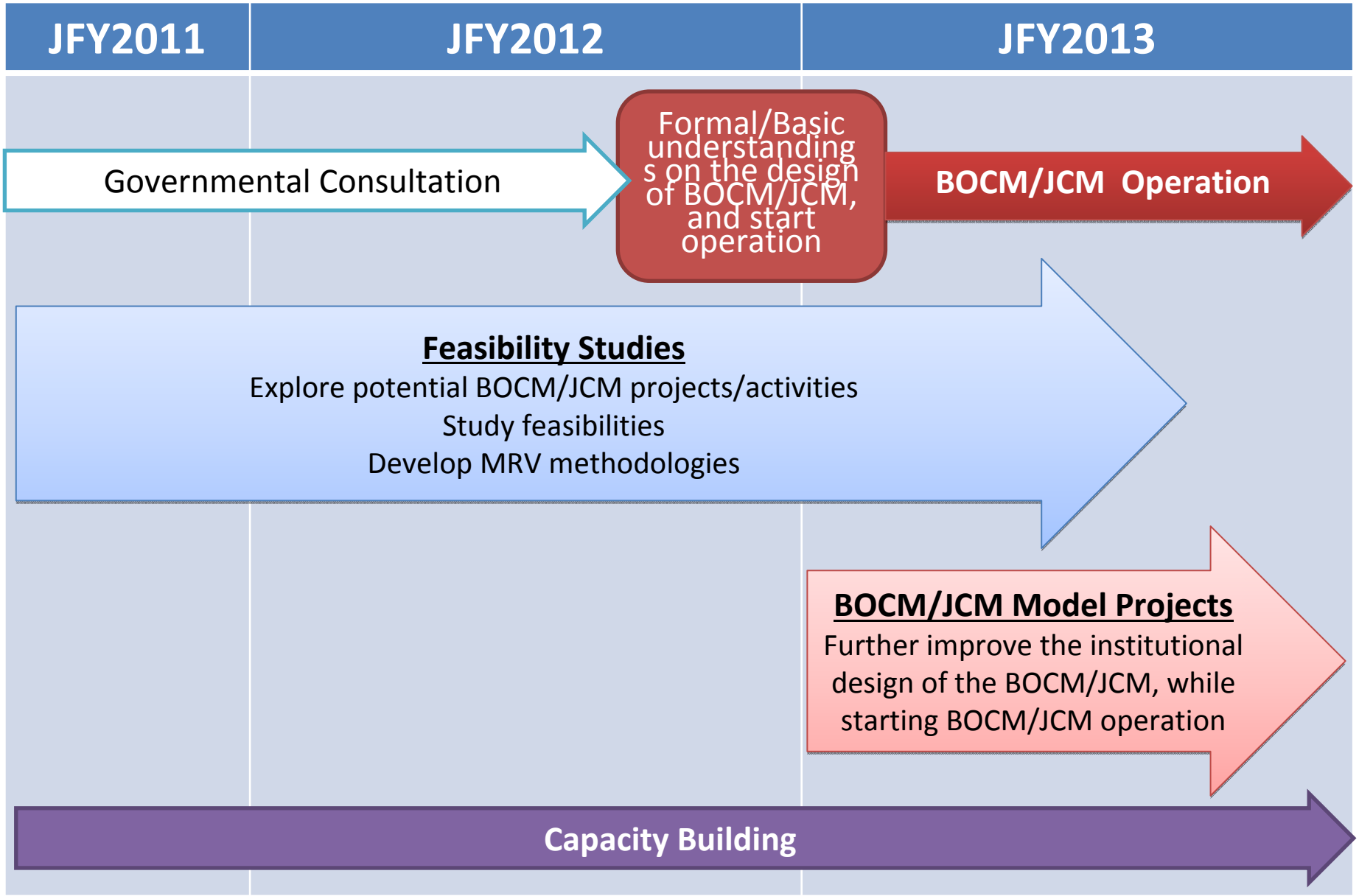
(4) Avoiding uses of any mitigation projects registered under the BOCM/JCM for the purpose of any other international climate mitigation mechanisms

(5) Aiming for concrete contributions to assisting adaptation efforts of developing countries through the BOCM/JCM

- Eligibility of projects in BOCM/JCM

  - several approaches are proposed (“positive list”, “benchmarking”, etc.)

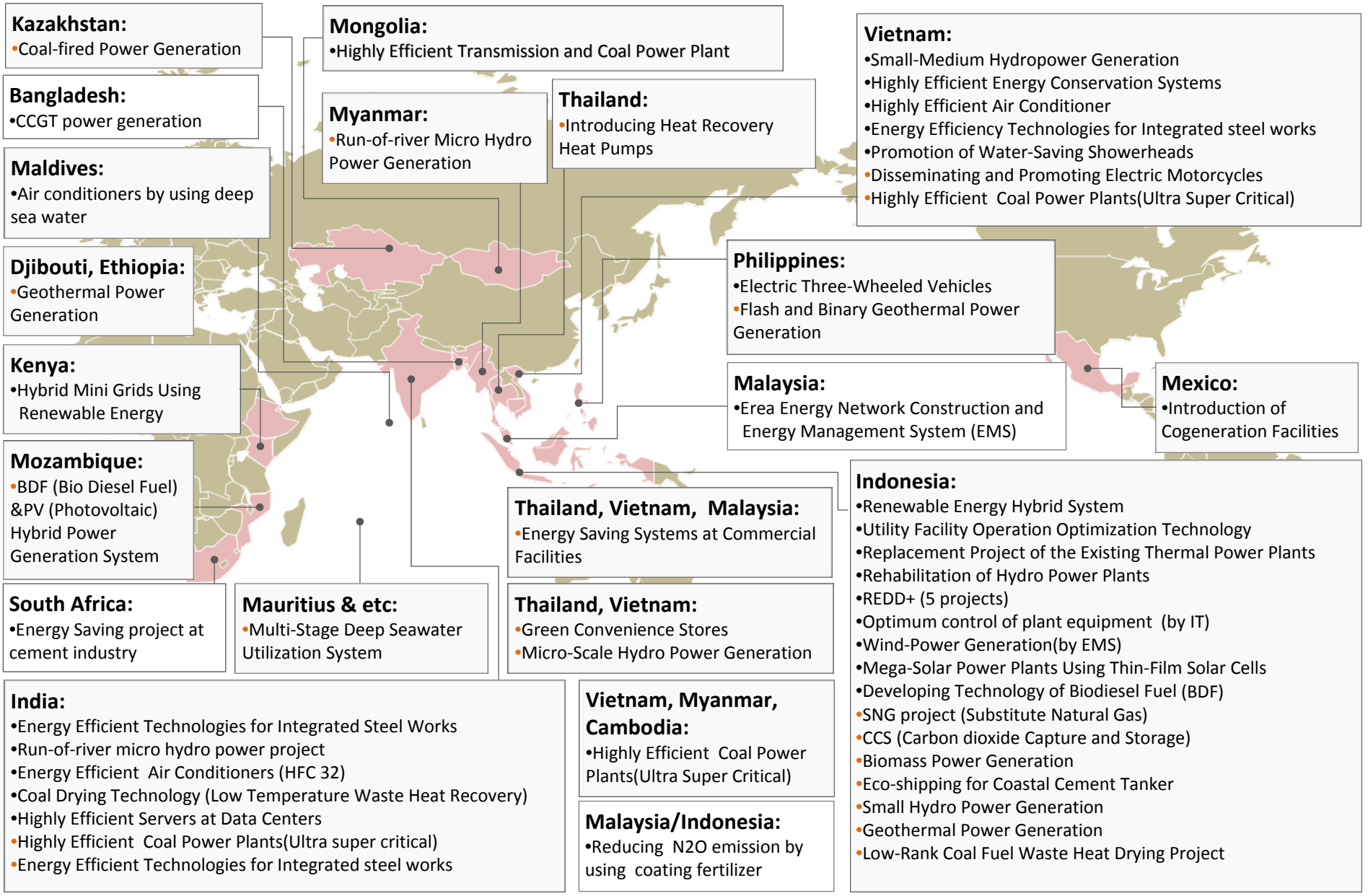
Roadmap & MRV/[BOCM] Model Project



BOCM/JCM Feasibility Studies (FSs) by METI & NEDO in FY2012

54 projects were selected (19 countries)

- (Black) → METI's FSs for Policy Recommendation (33 projects)
- (Yellow) → NEDO's FSs for Project Exploration /Development (21 projects)



Kazakhstan:
- Coal-fired Power Generation

Bangladesh:
- CCGT power generation

Maldives:
- Air conditioners by using deep sea water

Djibouti, Ethiopia:
- Geothermal Power Generation

Kenya:
- Hybrid Mini Grids Using Renewable Energy

Mozambique:
- BDF (Bio Diesel Fuel) &PV (Photovoltaic) Hybrid Power Generation System

South Africa:
- Energy Saving project at cement industry

Mauritius & etc:
- Multi-Stage Deep Seawater Utilization System

India:
- Energy Efficient Technologies for Integrated Steel Works
- Run-of-river micro hydro power project
- Energy Efficient Air Conditioners (HFC 32)
- Coal Drying Technology (Low Temperature Waste Heat Recovery)
- Highly Efficient Servers at Data Centers
- Highly Efficient Coal Power Plants(Ultra super critical)
- Energy Efficient Technologies for Integrated steel works

Mongolia:
- Highly Efficient Transmission and Coal Power Plant

Myanmar:
- Run-of-river Micro Hydro Power Generation

Thailand:
- Introducing Heat Recovery Heat Pumps

Thailand, Vietnam, Malaysia:
- Energy Saving Systems at Commercial Facilities

Thailand, Vietnam:
- Green Convenience Stores
- Micro-Scale Hydro Power Generation

Vietnam, Myanmar, Cambodia:
- Highly Efficient Coal Power Plants(Ultra Super Critical)

Malaysia/Indonesia:
- Reducing N2O emission by using coating fertilizer

Vietnam:
- Small-Medium Hydropower Generation
- Highly Efficient Energy Conservation Systems
- Highly Efficient Air Conditioner
- Energy Efficiency Technologies for Integrated steel works
- Promotion of Water-Saving Showerheads
- Disseminating and Promoting Electric Motorcycles
- Highly Efficient Coal Power Plants(Ultra Super Critical)

Philippines:
- Electric Three-Wheeled Vehicles
- Flash and Binary Geothermal Power Generation

Malaysia:
- Erea Energy Network Construction and Energy Management System (EMS)

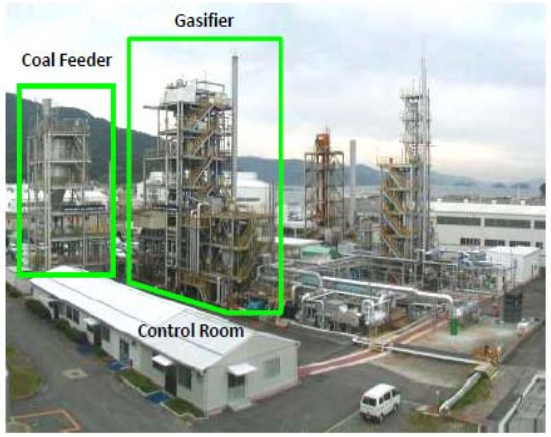
Mexico:
- Introduction of Cogeneration Facilities

Indonesia:
- Renewable Energy Hybrid System
- Utility Facility Operation Optimization Technology
- Replacement Project of the Existing Thermal Power Plants
- Rehabilitation of Hydro Power Plants
- REDD+ (5 projects)
- Optimum control of plant equipment (by IT)
- Wind-Power Generation(by EMS)
- Mega-Solar Power Plants Using Thin-Film Solar Cells
- Developing Technology of Biodiesel Fuel (BDF)
- SNG project (Substitute Natural Gas)
- CCS (Carbon dioxide Capture and Storage)
- Biomass Power Generation
- Eco-shipping for Coastal Cement Tanker
- Small Hydro Power Generation
- Geothermal Power Generation
- Low-Rank Coal Fuel Waste Heat Drying Project

Example of Feasibility Study (Indonesia)

SNG: Substitute Natural Gas

Site : South Sumatra
CO2 Reduction: 1,3150,000 CO2 t/year



Appearance of 50 t/d class Coal Gasification Pilot Plant

Energy efficiency in factories

Site: Refinery/Textile/Pulp and paper plants etc
CO2 Reduction: 1,000,000CO2 t/year

Geothermal Power

Site: Rabtau Dedap
CO2 Reduction: 900,000 CO2 t/year

REDD+ (Peat land)

Site: Central Kalimantan

CO2 Reduction:
a tens of millions CO2 t/ 30 years

High efficiency solar cells

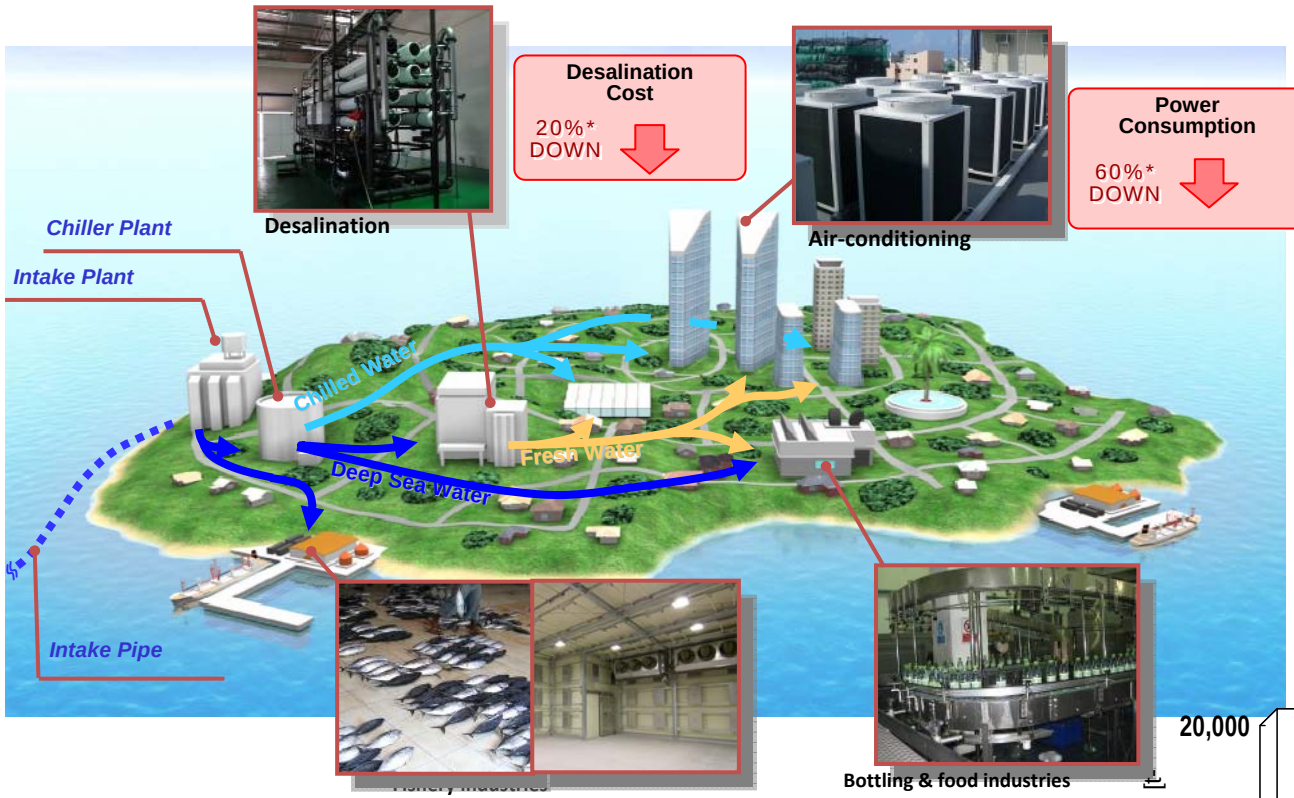
Site: Un-electrified area

Cell-phone base-system(BTS)

CO2 Reduction: 470,000 CO2 t/year

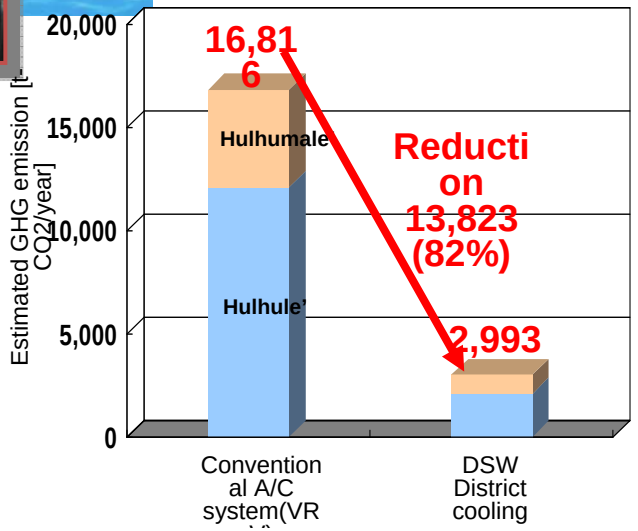
Example of Feasibility Study (Maldives)

Concept of Multistage Deep Seawater Utilization



- More than 100 cities in 20 countries are expected as potential sites for deep seawater cooling system.
- Up to 1 million t-CO2/year of total GHG emission reduction is expected at those potential sites.

Estimated GHG reduction at 2 FS sites



Example of Feasibility Study (Kenya)

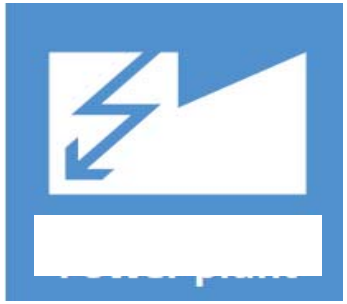
Outline of F/S

-To study the feasibility of participation in a business of rural electrification by Hybrid Mini-Grid system (Hybrid of Solar and Wind with Diesel Generator)

- To propose MRV in case of Hybrid Mini-Grid system

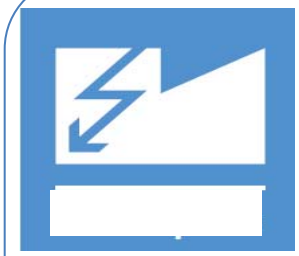
Technologies / Products

Diesel Generators



Replace

Hybrid of Solar and Wind with Diesel Generator



Diesel Generators

Wind power

Solar power

Estimated reduction:13,000 tones CO2/year