



Japan's policy and strategies for a climate neutral and circular economy

June 29, 2021

Ministry of the Environment, Government of Japan



Climate neutral and circular economy: “Platform for Redesign 2020”



PLATFORM for REDESIGN 2020

Online Platform on Sustainable
and Resilient Recovery from COVID-19

Launched in September 2020

Purpose:

1. **Sharing information** among all stakeholders on efforts to address environmental degradation and climate change in the recovery from the coronavirus pandemic
2. **Providing opportunities to express and exchange views in online ministerial dialogue** to enhance the climate actions.

Three transitions

Transition to **decarbonized society**

Transition to **circular economy**

Transition to **decentralized society**

“**Virtuous cycle** of environmental protection and economic growth” as a pillar of reconstruction strategy

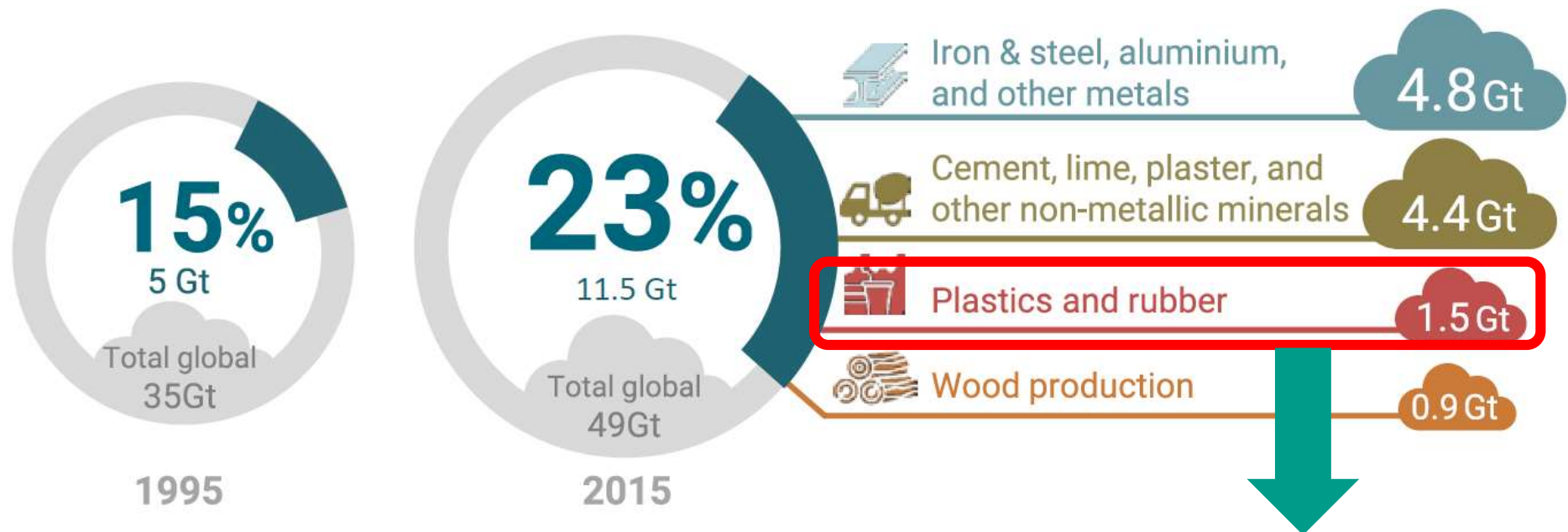
Climate neutral and circular economy: Law on plastic resource circulation



“The production of materials causes greenhouse gas emissions, which are the cause of anthropogenic climate change.”

UNEP IRP(2020) Resource Efficiency and Climate Change

Figure 1. Emissions caused by material production as a share of total global emissions 1995 vrs. 2015



The Plastic Resource Circulation Act

to encourage businesses to design sustainable products (enacted in June 2021)

Article 3.3 The Basic Policy shall be **in harmony with the national policy under the provisions of** the Act on Measures for the Conservation of the Marine Environment and **the Prevention of Global Warming** (Re: Article 3).

The Joint Crediting Mechanism (JCM)

JCM: a bilateral scheme contributing to the SDGs



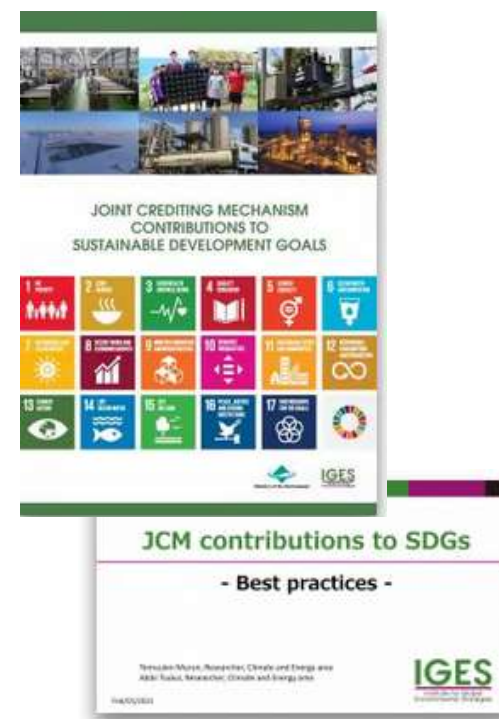
Joint Crediting Mechanism (JCM) is a **bilateral scheme** to cooperate with a partner country for **reducing greenhouse gas emissions**, in which the result of reduction is assessed as contribution by both partner countries and Japan. It **contribute to the multiple SDGs**, including the target 13 climate change.

Guidance and Best practices: JCM CONTRIBUTIONS TO SDGs

- **Guidance** : The first publication to analyze the interlinkage between the JCM and SDGs. It aims to clarify how the JCM contributes to SDGs.
<https://www.iges.or.jp/en/pub/joint-crediting-mechanism-jcm-contributions-sustainable-development-goals-sdgs/en>
- **Best practices** : This report summarizes the best practices of the JCM contributions to the SDG achievement, which shows how each project links with the SDG Goals.
(Publication Date: February 2021)
<https://www.iges.or.jp/jp/pub/jcm-sdgs-best-practices/en>

Guideline on Gender Equality for the JCM

- MOEJ developed the “Guideline on Gender Equality for the Joint Crediting Mechanism (JCM)” with the aim of encouraging mainly representative participants and partner participants of the JCM Model Projects to take action toward gender equality. < Start to apply from FY2020 >



Progress of the JCM

- Started in 2013, 17 countries have joined the partnership.

Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and Philippines

- About 180 supporting projects in the pipeline
- 90,710 credits issued from 38 projects
- 66 projects registered
- 90MRV methodologies approved

JCM official website
<https://www.jcm.go.jp/>



Waste heat recovery in cement industry (Indonesia)
122,000 tCO₂/y.
Start operation: Dec. 2017



Waste to Energy plant (Myanmar)
4,732 tCO₂/y.
Start operation: Apr. 2017



Floating solar power (Thailand)
2,552 tCO₂/y.
Start operation Jan. 2020



High efficiency transformers in power grids (Viet Nam)
7,972 tCO₂/y.
Start operation 2016-2018

Technologies Transferred through JCM by MOEJ (FY2013-2020)



- 43% are energy efficiency and 47% are renewable energy
- Effective use of Energy, Transport, Waste to energy, F-gas Recovery and Destruction and REDD+ project shares 10%

※ Since there are projects to introduce multiple technologies, the number of projects and the number of technologies do not match.

As of April 7, 2021

Waste(3PJs) 2%

- Waste to Energy(2)
- Power Generation with Methane Gas(1)

Transport(3PJs) 2%

- Digital Tachographs(1)
- Modal Shift(1)
- CNG-Diesel Hybrid (1)

REDD+(2PJs) 1%

- Controlling slush and burn(2)

F-gas counter measure(2PJs) 1%

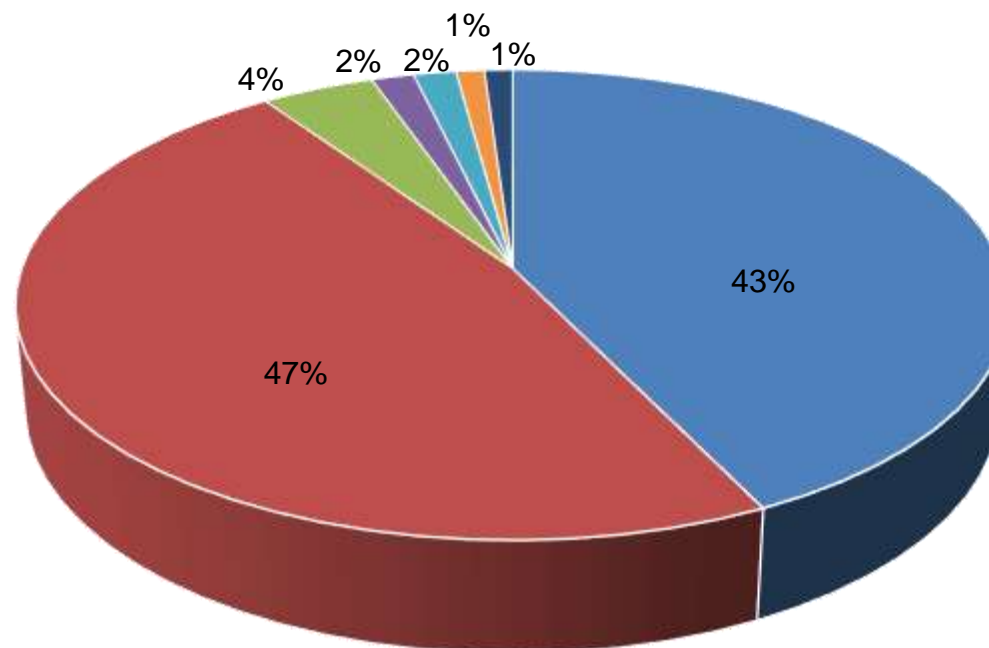
- Recovery & Destruction(2)

Effective Use of Energy(8PJs) 4%

- Waste Heat Recovery(3)
- Gas Co-generation(5)

Renewable energy(89PJs) 47%

- Solar(&Storage battery)(64)
- Micro hydro(11)
- Wind(1)
- Biomass(8)
- Geothermal(1)



Energy efficiency(80PJs) 43%

- Boiler(9)
- Air Conditioning(5)
- Refrigerating/Chiller(27)
- Looms(4)
- Transformer(5)
- LED Lighting(6)

MoEJ's New Initiative for Decarbonized Infrastructure

<FY2030 Target >

- Aiming for a cumulative GHG emission reduction of about **100 million tons** of CO₂ from JCM projects through public-private partnerships (maximum project size of about 1 trillion yen through public-private partnerships with a diversification of funds accelerating the implementation of projects).
 - The project will also be used for Japan's emission reduction goal.
- ⇒To realize above, we will proceed condition arrangement for JCM expansion

1. Renewable Energies

(Solar Power, Wind Power, Hydro Power, Geothermal Energy, Biomass Energy, Green Hydrogen, and so forth)



Solar Power



Wind Power

2. Green Logistics (Including Cold Chain)

(Non-Fluorocarbon Cooling System, Modal Shift, Airports, Ports and Harbors, and so forth)



High-Efficient Freezer



Modal Shift

3. Infrastructure for Circular economy

(Waste to Energy, Recycling system, Landfill and so forth)

- ※ Further including energy efficient facilities, effective use of energies, CCUS, fluorocarbons recovery and destruction, Johkasou, and REDD+, in addition to the above



Waste to Energy



Improvement of landfill
(Fukuoka method)

- Towards the FY2030 reduction target, MOE will implement 4 actions to create favorable conditions for a diversified and large-scale JCM projects.

1. Formulation of Global Rule on Market Mechanism

- Lead the discussion on Paris Agreement Article 6 (market mechanism)
- Make JCM a global de-facto standard and develop decarbonization markets



United Nations
Framework Convention on
Climate Change

2. Diversification of Finance

- Cooperate with public funds (co-financing with JBIC and JOIN)
- Cooperate with international organizations (JCM project creation with ADB, utilization of funds of the World Bank, and so on)
- Improve the conditions for JCM projects with a focus on private funds



3. Global and Regional Expansion

- Expand projects in the Indo-Pacific region target area
- Introduce advanced technologies through cooperation with third countries including the US and Australia
- Application of JCM to Carbon Offsetting Reduction Scheme for International Aviation (CORSIA)



4. Facilitation of Decarbonization Market

- Promote the transition to decarbonization, from the formulation of a long-term strategy to its implementation
- Spread Japan's efforts on Zero Carbon Cities, environmental measures and standards (Decarbonization Domino Effect)
- Utilize "Japan Platform for Redesign: Sustainable Infrastructure" (413 members joined, as of now)

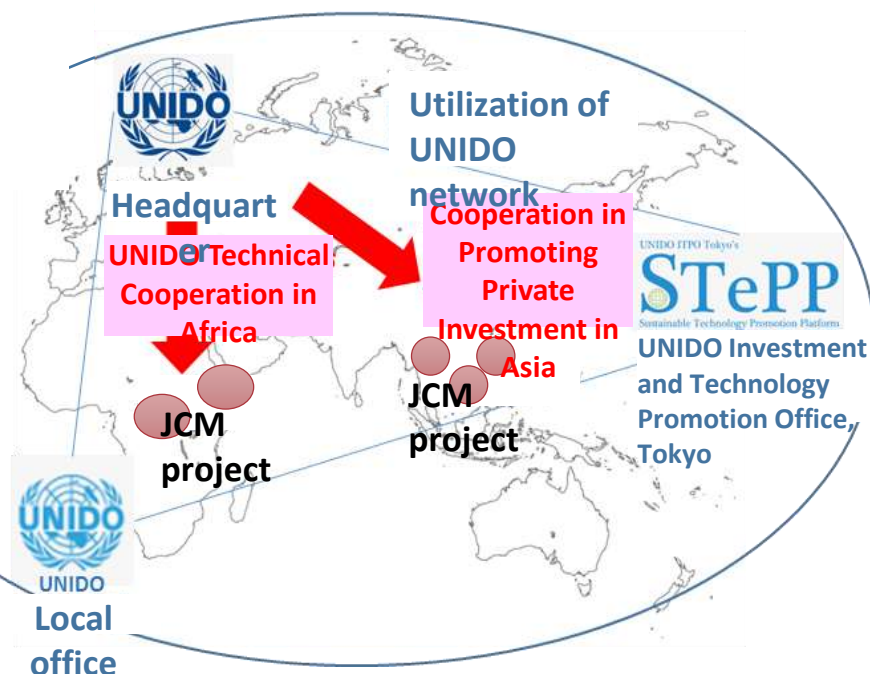


Collaboration with UNIDO by the JCM

- Signed **Joint Declaration** on Environmental Cooperation in order to support the JCM. (Nov.10.2020)
- Potential for cooperation in the formation of the JCM project in Africa and Asia.
 - Africa : UNIDO Technical Cooperation
 - Asia : Cooperation in Promoting Private Investment



Linkage with existing UNIDO programme, including multi-funding



- Aiming to facilitate close cooperation between UNIDO and MOEJ on
- **climate change**
 - **the circular economy**
 - **fluorocarbon life cycle management**
 - **the reduction of industrial pollution**
 - **the elimination and reduction of persistent organic pollutants**
 - **life cycle management of mercury**

Comprehensive Set of Assistances from Upper Stream to Lower Stream



Thank you for your
kind attention!!



JCM Financing Programme by MOEJ (FY2013~2020) as of April 7, 2021

Total 176 projects

(● Model Project: 167 projects (including Eco Lease: 1 project), ■ ADB: 5 projects, ◆ REDD+: 2 projects, ▲ F-gas: 2 projects) Other 1 project in Malaysia

114 underlined projects have been started operation.

57 projects with * have been registered as JCM projects.

Cambodia: 6 projects

- LED Street Lighting*
- 200kW Solar PV at International School*
- Solar PV & Centrifugal Chiller
- Inverters for Distribution Pumps
- Solar PV & Biomass Power Plant
- 1.1MW Solar PV

Myanmar: 9 projects

- 700kW Waste to Energy Plant*
- Brewing Systems to Brewery Factory
- Once-through Boiler in Instant Noodle Factory
- 1.8MW Rice Husk Power Generation
- Refrigeration System in Logistics Center
- 8.8MW Waste Heat Recovery in Cement Plant
- 7.3MW Solar PV
- Brewing Systems and Biogas Boiler to Brewery Factory
- Energy Saving Equipment to Complex Buildings

Bangladesh: 5 projects

- Centrifugal Chiller
- Loom at Weaving Factory*
- 315kW PV-diesel Hybrid System*
- Centrifugal Chiller*
- High Efficiency Transmission Line

Saudi Arabia: 2 projects

- Electrolyzer in Chlorine Production Plant
- 400MW Solar PV

Maldives: 3 projects

- 186kW Solar Power on School Rooftop*
- Smart Micro-Grid System
- Greater Male Waste to Energy Project

Ethiopia: 1 project

- 120MW Solar PV

Kenya: 2 projects

- 1MW Solar PV at Salt Factory*
- 38MW Solar PV

Laos: 5 projects

- ◆ REDD+ through controlling slush-and-burn
- Amorphous transformers
- 14MW Floating Solar PV
- 11MW Solar PV
- 14MW Solar PV

Thailand: 38 projects

- Energy Saving at Convenience Store
- Upgrading Air-saving Loom*
- Centrifugal Chiller & Compressor*
- Centrifugal Chiller in Tire Factory
- Co-generation in Motorcycle Factory
- Air Conditioning System & Chiller*
- Refrigeration System
- Ion Exchange Membrane Electrolyzer
- Chilled Water Supply System
- LED Lighting to Sales Stores
- 2MW Solar PV1
- 12MW Waste Heat Recovery in Cement Plant
- Co-generation System PV
- 3.4MW Solar PV*
- Refrigerator and Evaporator
- Heat Recovery Heat Pump
- 30MW Solar PV*
- 5MW Floating Solar PV*
- Boiler System in Rubber Belt Plant
- Air-conditioning Control System
- Biomass Co-generation System
- Co-generation in Fiber Factory
- Biomass Boiler
- 25MW Solar PV in Industrial Park
- 3.4MW Solar PV
- 0.8MW Solar PV and Centrifugal Chiller
- ▲ Introduction of Scheme for F-gas Recovery and Destruction
- 37MW Solar PV and Melting Furnace
- Heat Exchanger in Fiber Factory
- 15MW Biomass Power Plant in Sugar Factory
- 8.1MW Solar PV
- Centrifugal Chiller to Machinery Factory
- 5MW Solar PV
- 2.6MW Solar PV
- 2.5MW Solar PV with Blockchain Technology
- 2MW Solar PV2
- 30MW Floating Solar PV
- 1MW Solar PV on Factory Rooftop*
- Refrigerants to Cold Chain Industry**
- Centrifugal Chiller at Textile Factory 2*
- 500kW Solar PV and Storage Battery*
- Centrifugal Chiller at Textile Factory 3*
- Upgrading to Air-saving Loom*
- Smart LED Street Lighting System
- Gas Co-generation System*
- 1.6MW Solar PV in Jakabaring Sport City*
- 10MW Hydro Power Plant1
- Industrial Wastewater Treatment System
- Gas Co-generation system
- CNG-Diesel Hybrid Public Bus
- Injection Molding Machine3
- 10MW Hydro Power Plant2
- 5MW Hydro Power Plant
- Energy Saving at Convenience Store*
- Double Bundle-type Heat Pump*
- 30MW Waste Heat Recovery in Cement Industry*
- Regenerative Burners*
- Old Corrugated Cartons Process*
- Centrifugal Chiller in Shopping Mall*
- Once-through Boiler System in Film Factory*
- Once-through Boiler in Golf Ball Factory*
- ◆ REDD+ through controlling slush-and-burn
- Looms in Weaving Mill*
- LED Lighting to Sales Stores
- 0.5MW Solar PV*
- Absorption Chiller*
- Rehabilitation of Hydro Power Plant
- 2MW Mini Hydro Power Plant
- 10MW Hydro Power Plant1
- 5MW Hydro Power Plant
- 4.2MW Solar PV
- High Efficiency Autoclave
- 12MW Biomass Power Plant
- Boiler to Carton Box Factory
- 6MW Hydro Power Plant2
- 8MW Mini Hydro Power Plant

Mongolia: 8 projects

- Heat Only Boiler (HOB)**
- 2.1MW Solar PV in Farm*
- 10MW Solar PV*
- 8.3MW Solar PV in Farm*
- 15MW Solar PV
- Upscaling Renewable Energy Sector
- Fuel Conversion by Introduction of LPG Boilers
- Improving Access to Health Services

Viet Nam: 28 projects

- Digital Tachographs*
- Amorphous transformers1*
- Air-conditioning in Hotel1*
- Electricity Kiln
- Air-conditioning in Lens Factory*
- Container Formation Facility*
- Amorphous transformers 2*
- 320kW Solar PV in Shopping Mall*
- Air-conditioning Control System
- High Efficiency Water Pumps*
- Energy saving Equipment in Lens Factory*
- Amorphous transformers 3*
- Energy Saving Equipment in Wire Production Factory*
- Amorphous transformers 4
- Energy Saving Equipment in Brewery Factory
- High Efficiency Chiller
- Modal Shift with Reefer Container
- Inverters for Raw Water Intake Pumps
- ▲ Collection Scheme and Dedicated System of F-gas
- Biomass Boiler to Chemical Factory
- Air-Conditioning System and Air Cooled Chillers
- 49MW solar PV
- 57MW solar PV
- Biomass Boiler to Soluble Coffee Manufacturing Plant
- Once-through Boiler to Food Factory
- Biomass Co-generation System to Food Factory
- Air-conditioning in Hotel2
- 2MW Solar PV

Mexico: 6 projects

- 1.2MW Power Generation with Methane Gas Recovery System
- Once-through Boiler and Fuel Switching
- 20MW Solar PV
- 30MW Solar PV1
- Energy Efficient Distillation System
- 30MW Solar PV2

Philippines: 13 projects

- 15MW Hydro Power Plant
- 1.53MW Rooftop Solar PV
- 1.2MW Rooftop Solar PV
- 4MW Solar PV
- 2.5MW Rice Husk Power Generation
- 18MW Solar PV
- 0.16MW Micro Hydro Power Plant
- 33MW Wind Power
- 19MW Hydro Power Plant
- 2MW Solar PV (Eco Lease)
- Biogas Power Generation and Fuel Conversion
- 29MW Binary Geothermal Power Generation

Palau: 5 projects

- 370kW Solar PV for Commercial Facilities*
- 155kW Solar PV for School*
- 445kW Solar PV for Commercial Facilities II*
- 0.4MW Solar PV for Supermarket
- 1MW Solar PV for Supermarket

Indonesia: 38 projects

- Centrifugal Chiller at Textile Factory*
- Energy Saving at Convenience Store*
- Double Bundle-type Heat Pump*
- 30MW Waste Heat Recovery in Cement Industry*
- Regenerative Burners*
- Old Corrugated Cartons Process*
- Centrifugal Chiller in Shopping Mall*
- Once-through Boiler System in Film Factory*
- Once-through Boiler in Golf Ball Factory*
- ◆ REDD+ through controlling slush-and-burn
- Looms in Weaving Mill*
- LED Lighting to Sales Stores
- 0.5MW Solar PV*
- Absorption Chiller*
- Rehabilitation of Hydro Power Plant
- 2MW Mini Hydro Power Plant
- 6MW Hydro Power Plant1
- 5MW Hydro Power Plant
- 4.2MW Solar PV
- High Efficiency Autoclave
- 12MW Biomass Power Plant
- Boiler to Carton Box Factory
- 6MW Hydro Power Plant2
- 8MW Mini Hydro Power Plant

Costa Rica: 2 projects

- 5MW Solar PV*
- Chiller and Heat Recovery System

Chile: 5 projects

- 1MW Rooftop Solar PV*
- 3.4MW Rice Husk Power Generation
- 3MW Solar PV1
- 3MW Solar PV2
- 34MW Solar Power