



The Jakarta Japan Club



# Contribution Towards Net Zero Indonesia

by Japanese Companies

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## What is JETRO/JJC?

- **Jakarta Japan Club (JJC)** is the Japanese Chamber of Commerce in Jakarta since 1970, which is the largest community of Japanese people in Indonesia.
- JJC has 700 corporate members in Indonesia.
- **Japan External Trade Organization (JETRO)** is an organization associated with Japanese government, which works to promote trade and investment relations between Japan and other countries in the world.

## Background / Indonesia's Net-Zero Target

Indonesian government announced carbon neutrality by 2060.



Indonesia will increase ambition on GHG reduction by achieving the peaking of national GHG emissions in 2030 with net- sink of forest and land-use sector, reaching 540 Mton CO<sub>2</sub>e by 2050, and with further exploring opportunity to rapidly progress towards net-zero emission in 2060 or sooner.

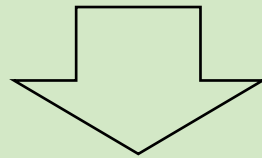
Source: INDONESIA Long-Term Strategy for Low Carbon and Climate Resilience 2050

# Contribution of Japanese Companies to Net Zero in Indonesia

## Contributions by Japanese Companies

- On going Projects by **88 companies**
- Planning/considering projects by **77 companies**

**Total: 165 companies**  
**457 projects**



**Map of decarbonization cooperation projects by Japanese companies**

## Contributions by Japanese Government Related Organization

- Publishing “**Business Catalog by Japanese Companies for Decarbonization Realization in Indonesia**”(JETRO)
- Implementation of research and demonstration projects on decarbonization technology (NEDO, JOGMEC)
- Decarbonization Roadmap Creation Support (JICA)
- Financial support (JBIC, NEXI)
- Implementation of seminars and training (JOGMEC, AOTS), etc.

# Contribution of Japanese Companies to Net Zero in Indonesia (by Sectors)

Sector	Number of Projects	Sector	Number of Projects
Solar power generation	100	Forestry sector	22
Hydro power	14	Renewable energy (others)	22
Geothermal power	17	Biomass/waste power generation	31
Ammonia/Hydrogen	20	Energy Conservation	85
CCUS/carbon recycling	25	Maritime/aviation sectors	8
Automobile electrification/Battery	32	Effective use of resources	38
Fossil fuel decarbonization	13	Others	30

**Total : 457 Projects**

# 1. Solar Power Plant



PT. ATW Alam Hijau



IHI Corporation





Nippon Oil Indonesia



Sojitz Corporation



Map of Jakarta and its surroundings

-  Solar Power Plant Projects (Ongoing/Started)
-  Solar Power Plant Projects (Planned/Considered)

## 2. Hydropower Plant



 **Hydropower Plant Projects**

\*Equipment planning and delivery projects are separate



PT.NiX Indonesia Consulting



Toshiba Asia Pacific Indonesia



The Kansai Electric Power Co., Inc



### 3. Geothermal Power Plant



**Geothermal Power Plant Projects**

\*Equipment planning and delivery projects are separate



Mitsubishi Heavy Industries, Ltd.



Rantau Dedap Geothermal



Muara Laboh Geothermal



Itochu Indonesia



Toshiba Asia Pacific Indonesia

## 4. Ammonia & Hydrogen



Ammonia & Hydrogen Projects



Mitsubishi Heavy Industries, Ltd.



IHI Corporation



Photo provided by KALTIM

Chiyoda Corporation

## 5. Carbon Capture, Utilization and Storage (CCUS)



CCUS Projects



**JGC Holdings Corporation**  
CCUS site outside Indonesia



**Mitsubishi Heavy Industries, Ltd.**  
CCUS site outside Indonesia

## 6. Vehicle Electrification/Battery Energy Storage System (BESS)



Vehicle Electrification/Battery Energy Storage System (BESS) Projects



SANTOMO RESOURCES INDONESIA

## 7. Fossil Fuel Decarbonization



Fossil Fuel Decarbonization Project



JGC Holdings Corporation  
IGCC Plant outside Indonesia



Sojitz Corporation

## 8. Forest Sector



Forest Sector Projects



IHI Corporation



Sumitomo Forestry Co., Ltd.



AEON Indonesia



# Map of Decarbonization Efforts by Japanese Companies (November 2022)

- Effort towards decarbonization: **457 projects** by **165 Japanese companies**
- Carbon reduction effort by Japanese companies: **30 million tons/year**



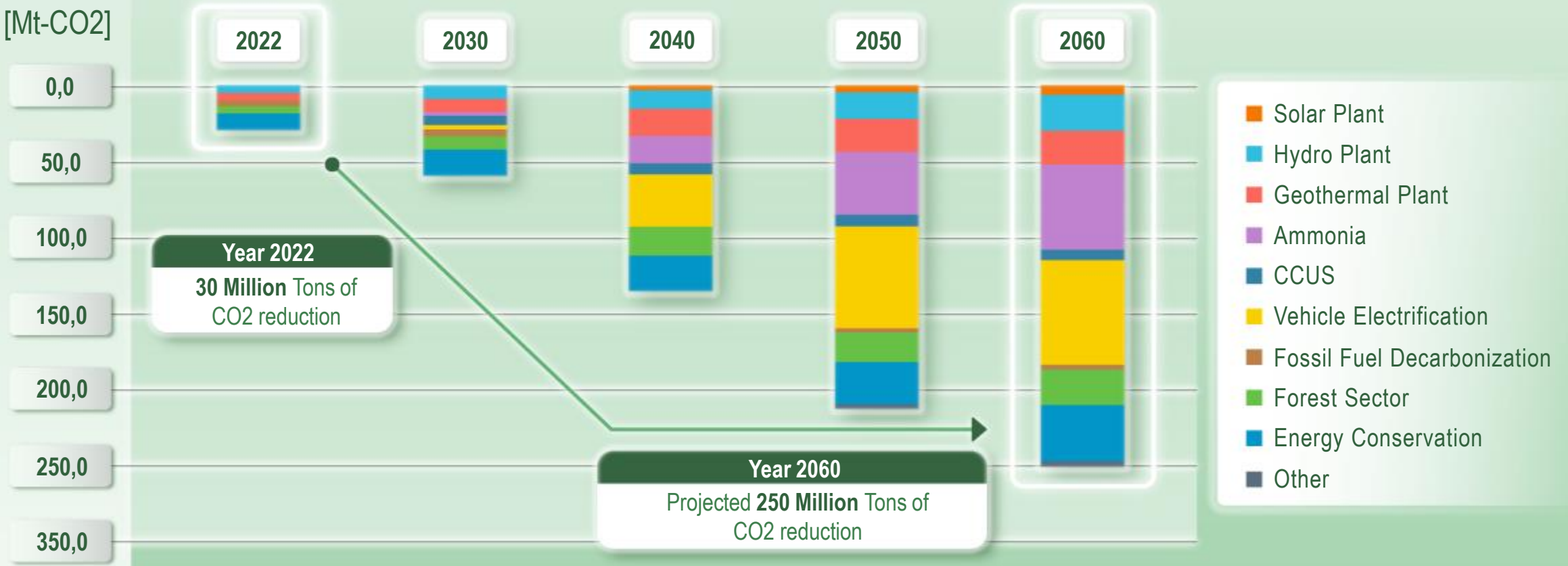
Map of Jakarta and its surroundings

Note: There are many more contribution efforts by Japanese companies that are not stated above, such as effective use of resource, decarbonization of shipping and aviation sector, and purchase of Renewable Electricity Certificates (RECs)

- |                                 |  |   |
|---------------------------------|--|---|
| Solar Power Plant (Running)     | Geothermal Plant                             | Vehicle Electrification & Battery Storage |
| Solar Power Plant (Considering) | Ammonia/hydrogen                             | Fossil Fuel Decarbonization               |
| Hydropower Plant                | Carbon Capture, Utilization & Storage (CCUS) | Forest Sector                             |

# Carbon Emission Reduction by Japanese Companies in Indonesia (Projected amount by various sectors)

CO2 emission reduction [Mt-CO2]



**Year 2022**  
30 Million Tons of CO2 reduction

**Year 2060**  
Projected 250 Million Tons of CO2 reduction

As seen on "Quantitative Research on Contributions Toward Decarbonization by Japanese Companies in Indonesia"  
By Abeam Consulting



# “Business Catalog” by Japanese Companies for Decarbonization Realization in Indonesia

Edition 3 (January 2023)

## Low Carbon Solution for Industry

EMS (Energy Management System), High-Efficiency Power Generator (Gas Engine, Fuel Cell), High-Efficiency Chiller, Waste Heat Power Generator, CO<sub>2</sub> Capture Technology

### PT. Mitsubishi Heavy Industries Indonesia

#### Product and service outline

- Mitsubishi Heavy Industries (MHI) Group offers a wide range of technologies and solutions to realize decarbonization and low carbon society (energy transition, energy saving, electrification, CO<sub>2</sub> capture, etc.), that meet customer needs.
- CO<sub>2</sub> emission reduction has become an important managerial issue for each industry and factory in Indonesia. Although, implementation of rooftop PV system is progressing, it is not necessarily effective depending on conditions such as limitation of power generation capacity and output fluctuation.
- CO<sub>2</sub> emission source is different for each industry and factory; therefore, it is the most important to analyze current conditions by each Scope and select appropriate solutions for CO<sub>2</sub> reduction. MHI Group supports CO<sub>2</sub> emission reduction on each Scope with the following solutions.

Scope-1 (direct emission) CO<sub>2</sub> capture unit  
 Scope-2 (indirect emission) Energy saving operation by EMS, high-efficiency chiller, in-house power generation by gas engine and fuel cell (SOFC), and power generation by waste heat recovery with ORC.

- Furthermore, MHI Group offers solutions in view of future utilization of hydrogen and ammonia for in-house power generation.

EMS (Energy Management System), SOFC (Solid Oxide Fuel Cell), ORC (Organic Rankine Cycle)

#### Experience and example

- MHI Group has been offering low carbon solutions that suit diverse needs of various customers.
- The figure on the right shows an example that our customer achieved around 40% of CO<sub>2</sub> emission reduction by applying our engine power generation.
- In addition to engine power generation, MHI Group can offer established and reliable technologies and solutions shown below. With these technologies, MHI Group realizes CO<sub>2</sub> emission reduction and economical efficiency improvement of customers considering their TCO, as an increase of electricity consumption and an introduction of PV system in the future.

EMS : Control system used for thermal power plants which MHI Group constructed.  
 Engine Power Generation/High-Efficiency Chiller : Has a major share in the Japanese market.  
 CO<sub>2</sub> Capture : Has top market share in the world, and has constructed world's largest plant in the US.  
 ORC : Abundant delivery records such as geothermal power plants, biomass power plants and waste heat recovery from factory furnaces, etc.

04 Internal Carbon Pricing

**English**

## Langkah-langkah dekarbonisasi yang dapat segera dimulai

### Penyewaan Tenaga Surya

#### PT. ATW Alam Hijau



#### Produk & Layanan

Penyewaan tenaga surya terutama untuk pengguna industri seperti pabrik yang tidak perlu menanggung sendiri biaya pemasangan sistem dan memperoleh tenaga hijau dalam jangka panjang tanpa investasi awal. Ini adalah “ketiga”, dan kami akan melakukan operasi dan pemeliharaan selama produk ini, selain berkontribusi untuk dekarbonisasi, juga berkontribusi diperkirakan akan meningkat di masa depan.

- Dalam desain dan konstruksi, kami melakukan kontrol kualitas untuk kontraktor lokal, dan juga menanggapi standar teknis yang jelas dari kantor pelanggan, sehingga Anda dapat menyerahkan pekerjaan kepada kami dengan tenang.
- Selain itu, solusi komprehensif meliputi penerapan Joint Crediting Mechanism (JCM) Kementerian Lingkungan Hidup (Jepang), peningkatan ketahanan dengan memperkenalkan baterai penyimpanan dan penggunaan energi terbarukan 100% dengan memberikan sertifikasi I-REC

#### Pencapaian & Hasil

PT ATW Alam Hijau memiliki rekam jejak pemasangan fasilitas PLTS di Jawa Barat, Jawa Timur, Bali, dan Batam

<Hasil Penyelesaian>

1.22 MWp	Jawa Barat	Pabrik Farmasi
0.48 MWp	Jawa Barat	Pabrik Farmasi
1.20 MWp	Jawa Timur	Pabrik Pengolahan Kayu
0.54 MWp	Jawa Timur	Pabrik Pengolahan Kayu
0.47 MWp	Bali	Dealer Mobil (beberapa lokasi)
0.36 MWp	Bali	Dealer Mobil (beberapa lokasi)
0.31 MWp	Jawa Timur	Pabrik Pipa Baja
0.66 MWp	Jawa Timur	Pabrik Pipa Baja
0.22 MWp	Jawa Barat	PLTU
0.81 MWp	Jawa Barat	Pusat Distribusi Farmasi

<Dijadwalkan untuk diperkenalkan (per Juli 2022) >  
 Pembuatan kertas, pembuatan kebutuhan sehari-hari, pembuat kemasan (semua di Jawa Barat)

**English**

**English**

**Indonesian**

13



Indonesian



English



Japanese

Available from JETRO Website

## Future Works

- Further Development of Decarbonization Projects

- Next “Decarbonization Project Map (Edition 3)” will be published in March 2023

- Next “Business Catalog (Edition 4)” will be published in March/April 2023

- Socialization to Indonesian Government/Society

- Elaboration of Quantitative Research

## Expectation to CEFIA

- Socialization of CEFIA Visualization Method to Industry

- To enhance “PDCA Cycle” of mitigation actions