添付資料

添付 1 カーボンニュートラルセミナー関連資料

1.1 日本工営発表資料

EECへの投資促進およびJCM制度のご案内

Introduction of JCM Scheme and Promoting Investment in the EEC

2024年7月25日

July 25, 2024

日本工営 環境技術部

International Environment Dept., Nippon Koei Co., Ltd.

日本工営株式会社

日本工営の紹介

Introduction of Nippon Koei

会社概要/Company Profile

ID&E Holdings

- 会社名/Corporate name : ID&Eホールディングス株式会社 Integrated Design & Engineering Holdings Co., Ltd.
- 設立/Established : 2023年7月3日/July 3, 2023
- 資本金/Capital : 7,522 百万円/million yen
- 従業員数/Number of employees : 6,335
- 事業内容/Business areas : 傘下のグループ会社の事業活動の管理およびこれに付帯・関連する業務 Management and related business activities of group companies
- 会社サイト/Web site : https://www.id-and-e-hd.co.jp/english/

主要グループ会社/Major group company

- 会社名/Corporate name : 日本工営株式会社 Nippon Koei Co., Ltd.
- 設立/Established : 1946年6月7日/June 7, 1946
- 資本金/Capital : 500 百万円/million yen
- 従業員数/Number of employees : 2,479
- 事業内容/Business areas : コンサルティング事業（国内・海外） Consulting Business （domestic/overseas）
- 会社サイト/Web site : https://www.n-koei.co.jp/consulting/english/

EECにおける投資機会

Investment Opportunities in the EEC Area

EECにおける投資機会/Investment opportunities in the EEC area

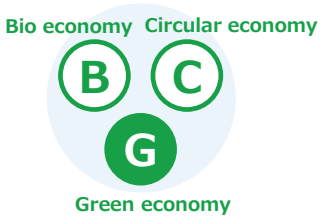
■ EECの概要/Outline of EEC

- EECはタイの国家戦略「**タイランド4.0**」の中核地域で、バンコク都東部の3県（**チョンブリ県、チャチュンサオ県、ラヨン県**）が対象。
  The Eastern Economic Corridor（EEC） is the main target area of Thailand's national strategy “Thailand 4.0” and covers three provinces east of Bangkok, Chonburi, Chachoengsao, and Rayong provinces.
- 域内GDPはタイ全体の約**15%**程度を占める。
  The regional GDP accounts for about 15% of national GDP.
- 重点産業として12分野、またこれらの促進区域として特定産業特別区を指定。
  12 targeted industries and promoted zones for specific industries have been designated.

EECにおける特定産業特別区
Promoted Zones for Specific Industries

■ BCGモデルに資する投資機会/Invest opportunities related to BCG model

- EECはタイ政府が推進する**BCG（バイオ・循環型・グリーン）経済モデル**の推進地域。
  EEC is a target area of the BCG (bio-circular and green) economy model promoted by the Thai government.
- EECはグリーン・循環型経済投資促進のための5か年実行計画（2024-2028）を策定。2030年までに**産業分野におけるGHG排出量20%削減**及び**EECにおける新規投資40%増加**を目標。
  EEC has established a 5-year action plan to promote investment in the green and circular economy (2024-2028), targeting a 20% reduction in GHG emissions in the industrial sector and a 40% increase in new investment in EEC area by 2030.



BCGモデルのイメージ図
Image of BCG Model

都市間連携事業の紹介

Introduction of City-to-City Collaboration Program

環境省都市間連携事業/City to City Collaboration Program for Zero-Carbon Society by Ministry of the Environment, Japan

■ 都市間連携事業の概要/Outline of City to City Collaboration Program (C3P)

- 都市間連携事業は2013年より開始され、アジアを中心に**13**か国の**49**都市・地域と日本の**20**自治体が参加。
  City to City Collaboration Program began in 2013, participating 49 cities/regions in 13 countries, mainly in Asia, and 20 cities/regions in Japan.
- 本事業は都市レベルでの脱炭素化の推進に向け、海外都市と日本の都市が連携することで、1) 脱炭素を推進する**都市における基盤制度の構築支援**および 2) **民間レベルでの脱炭素プロジェクトの形成支援**（**JCM案件形成**等）を目指している。

  This Program is a scheme to promote decarbonization at the city level through collaboration between overseas and Japanese cities, aiming to 1) design local systems to promote zero-carbon societies and 2) create zero-carbon projects efficiently and effectively at the private sector level (e.g., JCM model projects formulation).
- 日本工営は2015年より本事業に参加し、令和6年度は**9**件の都市間連携事業を実施中。
  Nippon Koei has participated in this Program since 2015, and in FY2024, 9 projects are ongoing.

C3P City-to-City Collaboration Program

タイ東部経済回廊（EEC）におけるBCGモデルの実現による脱炭素社会の共創支援事業/Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand

大阪市とタイ王国東部経済回廊（EEC）による都市間連携事業は、2022年2月に締結した「脱炭素社会形成に関する協力覚書(MOU)」に基づき、政策対話を通じた制度構築支援及びJCM案件形成支援により、EECにおける**BCG（バイオ・循環型・グリーン）経済**及び**ネットゼロの実現**を支援している。
Based on the MoU signed between Osaka City and EEC in February 2022, this City to City collaboration project will provide institutional framework support and JCM Project Formation support to help realize the BCG (Bio, Circular and Green) economy and Net Zero as set forth by EEC.

■ これまでの主な活動/Main achievements

- 市長級政策対話の実施
  Conducting mayor-level Policy Dialogue
- JCM案件組成
  Formulating JCM Model Projects
- ビジネスマッチングセミナーの実施
  Conducting Business Matching Seminar 等 etc.

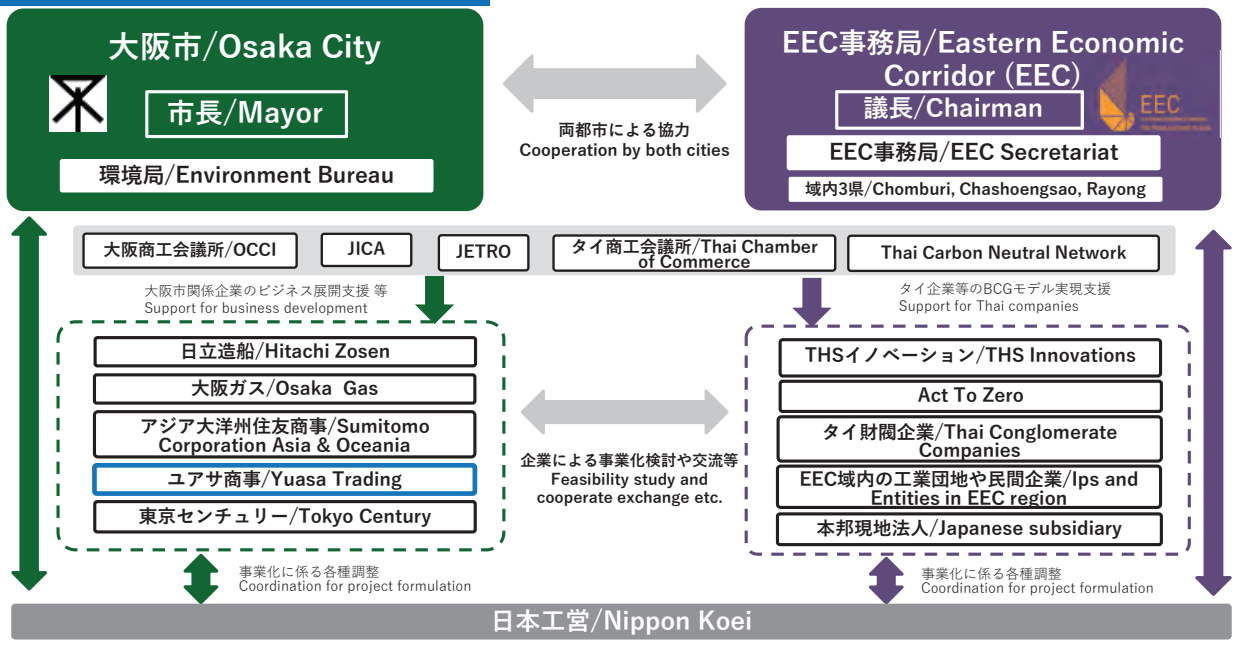

Policy Dialogue at Osaka City


Business Workshop

■ 本年度の主な活動/Main activities for FY2024

- IEATや、大阪商工会議所、タイ商工会議所等の日タイネットワークを活用したワークショップの実施
  Conduct workshops utilizing Japan-Thailand business networks such as the IEAT, Osaka Chamber of Commerce and Industry (OCCI) and the Thai Chamber of Commerce and Industry
- JCM案件形成及びカーボンクレジット創出支援（工場の省エネ診断による各種高効率設備の導入事業、廃棄物発電事業等）
  Support for JCM model projects formulation and carbon credit creation ex.) projects to introduce various types of high-efficiency equipment through energy-saving diagnosis at factories, waste to energy projects

■ 実施体制/Implementation Structure



JCM制度の紹介

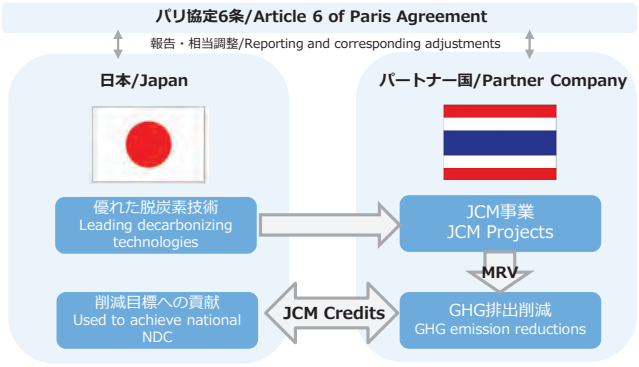
Introduction of JCM Scheme

JCM制度の紹介/Introduction of JCM Scheme

2013年より開始された二国間クレジット制度（JCM）は、パリ協定第6条に基づき実施するもので、パートナー国への優れた脱炭素技術、製品、システム、サービス、インフラ等の普及や対策実施を通じ、パートナー国での温室効果ガス排出削減・吸収や持続可能な発展に貢献し、その貢献分を定量的に評価し、両国の削減目標の達成に貢献する仕組み。

The Joint Crediting Mechanism (JCM), launched in 2013 and implemented under Article 6 of the Paris Agreement, is a mechanism to contribute to the reduction and absorption of GHG emissions and sustainable development in partner countries through the dissemination of superior decarbonization technologies, products, systems, services, and infrastructure in partner countries.

■ JCM概要/Overview of JCM scheme



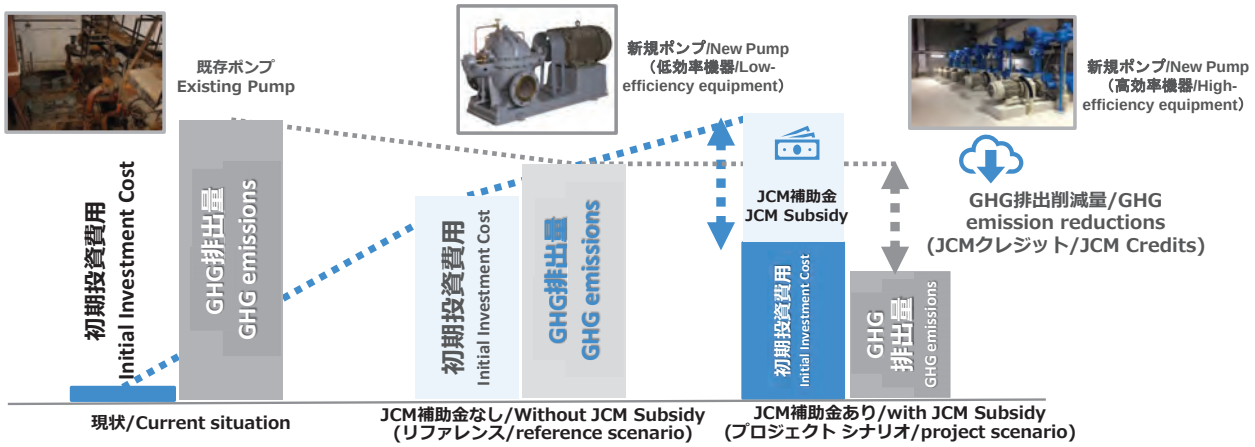
MRV: Measurement, reporting and Verification

- JCMパートナー国/JCM partner companies : **29**
- JCM採択件数/Number of selected JCM : **245**
- 想定GHG削減量/Estimated GHG emission reductions : **3,049,323 t-CO2/year**
- JCM設備補助事業の予算/Budget for JCM Model projects(subsidy) : **約128億円**（3カ年）/ approximately 29.3 billion THB (3 years)
- JCM設備補助事業の公募期間/JCM model projects' application period for FY2024 : 2024年4月5日～2024年11月29日/from April 5, 2024 to November 29, 2024

JCM制度の紹介/Introduction of JCM Scheme

JCM設備補助事業では、高効率機器や製品の導入や、再生可能エネルギーシステムの設置を行うことで、初期投資費用に対する補助金が提供される。

The JCM Model Projects provides subsidies for the initial investment costs of installing high-efficiency equipment/products and renewable energy systems etc.



注：JCMスキームでは、上表の条件に加え、費用対効果の数値を評価する。
*In addition to the conditions in the table above, the JCM scheme evaluates cost-effectiveness figures as well.

JCM制度の紹介/Introduction of JCM Scheme

NIPPON KOEI

■ JCM設備補助事業の対象技術/Target Technologies for JCM Model Projects

再生可能エネルギー/Renewable Energy

太陽光/Solar Power

風力/Wind Power

廃棄物発電/Waste to Energy

バイオガス発電
/Biogas generation

ゴミ焼却発電/Waste to Energy

URL：https://www.hitachizosen.co.jp/news/2017/06/002645.html
URL：https://www.carbon-markets.go.jp/column/waste_mgmt_biomass/1603/

省エネルギー技術/Energy-saving

高効率貫流ボイラ
/High-efficiency Once-through Boiler

高効率ターボ冷凍機
/High Efficiency Chiller

高効率ポンプ
/High Efficiency Pump

BEMS/空調制御システム
Air-Conditioning Control System

同一国での類似案件実績 Number of adoptions of the same technology in the same country	JCM設備補助率の最大割合 Max rate of JCM subsidy
0件/project	50%
1-3 件/projects	40%
4-7件/projects	30%
8-9件/projects	20%
10件以上/projects or more	対象外 not eligible

JCM制度の紹介/Introduction of JCM Scheme

NIPPON KOEI

■ JCM設備補助事業の申請条件/Application requirements for JCM Model Projects

Project Scale
Subsidy amount will be
Max. 2 billion JPY (= 20 mil. USD) (= 500 mil. THB)

Project Period
Project should be commenced
within 3 years

GHG reductions
GHG emission reduction is expected to be more than
1,000 tCO2/y

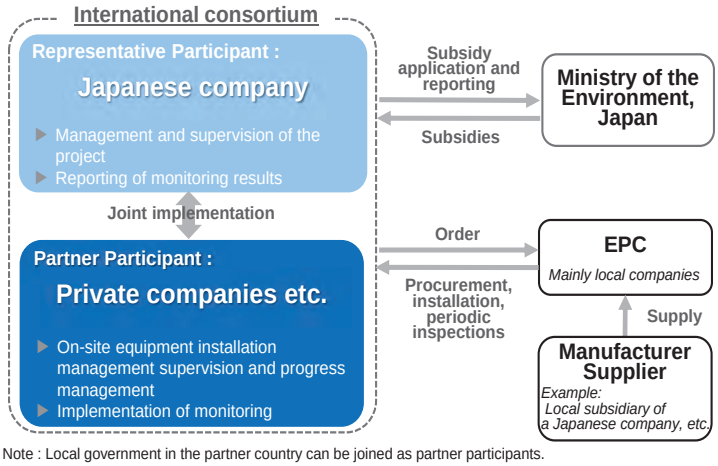
Cost Effectiveness
Cost effectiveness should be **4,000 JPY/tCO2 or lower.**

$$\text{Cost effectiveness [JPY/tCO2]} = \frac{\text{(Total amount of subsidy [JPY])}}{\text{(Total GHG emission reduction [tCO2/y])} \times \text{(Legal durable years)}}$$

, based on Japanese regulation

Note: In the case of solar power projects, if the number in a partner country is more than 5, its cost-effectiveness is expected to be less than or equal to 3,000 JPY/tCO2.

■ JCM設備補助事業の申請体制/Application formation for JCM Model Projects



Note : Local government in the partner country can be joined as partner participants.

タイにおけるJCMの現状/JCM in Thailand

- タイは2015年に二国間文書に署名し、これまでにJCM事業48件が採択。
  Thailand signed the MOU in 2015, and 48 JCM projects have been adopted.

- 日本・タイ間のJCM協力覚書を更新（2024年7月8日）
  Memorandum of Cooperation on JCM was renewed between Thailand and Japan on July 8, 2024.

  ➡対象技術、民間JCM*の方針等について、更新内容の確認が必要。
  Confirmation of updated contents are required regarding the target technologies, private sector JCM projects* strategies, etc.

- 太陽光発電は採択数10件を超えるため、JCM設備補助事業の対象外
  Solar Power generation projects ate not eligible for JCM model projects as the number of adopted projects exceeds 10 in Thailand.

【民間JCM】
- 民間資金によるJCM事業の実施により、民間企業はJCMクレジットを優先的に取得することが可能。
  Implementation of JCM projects with private sector investments enables private companies to obtain JCM credits preferentially.
- 民間JCM事業に係る方針として、「民間資金を中心とするJCMプロジェクトの組成ガイダンス（改訂版）」が公表されている（2024年3月）
  Updated of the guidance on the development of private sector JCM projects invested and implemented by private companies without any governmental financial support in March 2024.

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添付 2 政策対話関連資料

2.1 アジェンダ

「Policy Dialogue」

between

EECO, Osaka City, Pattaya City, and Rayong City

28th January 2025, 09.30-11.30 hrs.

@Space 6 Room,6th Floor, Grande Centre Point Space Pattaya

Draft agenda:

09:30 – 09:40	**Opening Remarks** *(10 mins)* - Dr. Cholachit Vorawangso Virakul, Assistant Secretary General, EECO - Mr. HORII Hisashi, Director General, Environment Bureau, Osaka City
09:40 – 09:55	**"Decarbonization Investment Supporting Scheme in EEC"** *(15 mins)* - Dr. Cholachit Vorawangso Virakul, Assistant Secretary General, EECO
09:55 – 10:10	**"Osaka City's Global Warming Countermeasures"** *(15 mins)* - Mr. Shunsuke KAWABE, Manager for International Cooperation, Environment Bureau, Osaka City Government
10:10 – 10:25	**"Decarbonization Efforts in Pattaya City"** *(15 mins)* - Ms. Panchaya Nongyai, Director of Environmental Quality Promotion, Pattaya City
10:25 – 10:40	**"Decarbonization Efforts in Rayong City"** *(15 mins)* - Mr. Chatnuchai Sombatsri, Municipal clerk, Rayong City Municipality
10:40 – 10:55	**"Example of Thailand-Japan collaboration projects in Thailand (i.e. JCM projects)"** *(15 mins)* - Mr. Masaru Ishikawa, General Manager, International Environment Dept., Nippon Koei Co., Ltd.
10:55 – 11:20	**Discussion for next step – City-to-City Collaboration FY2025** *(25 mins)*
11:20 – 11:25	**Closing Remarks** *(5 mins)* - Dr. Cholachit Vorawangso Virakul, Assistant Secretary General, EECO
11:25 – 11:30	**Photo session** *(5 mins)*

* Thai – Japanese Consecutive Interpretation

添付 2 政策対話関連資料

2.2 大阪市発表資料

Policy Dialogue on decarbonization between EECO, Pattaya City, Rayong City

Osaka City ‘s Global warming Countermeasures

Osaka City

Jan.28, 2025

Osaka City Government

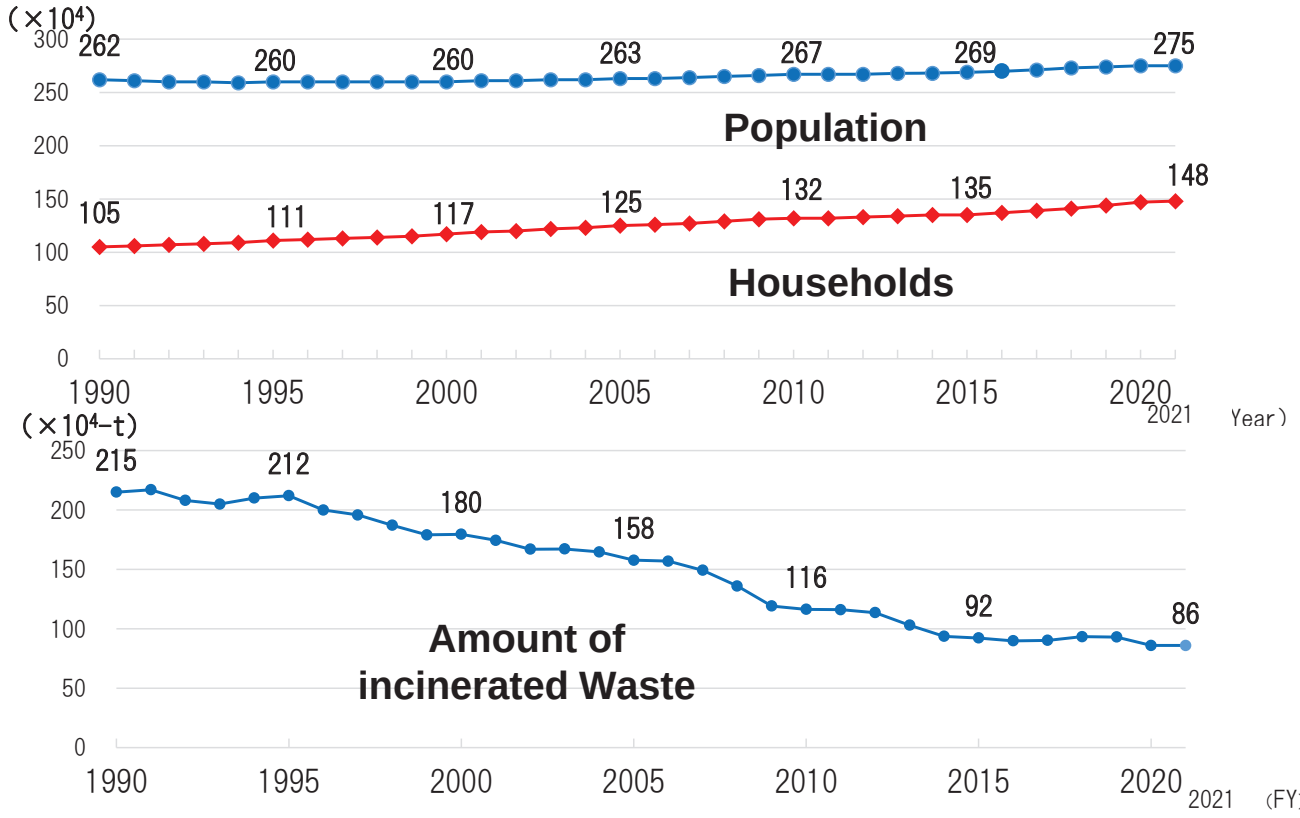
The highlight projects of Osaka ～Expo 2025 Osaka, Kansai, Japan～

- Theme : “ Designing Future Society for Our Lives ”
- Sub-themes : “ Saving Lives ”
  “ Empowering Lives ”
  “ Connecting Lives ”
- Concept : “ People’s Living Lab.”
- Event Period : April 13 – October 13, (6 months)
- Projected visitors : Approx. 28.2 million

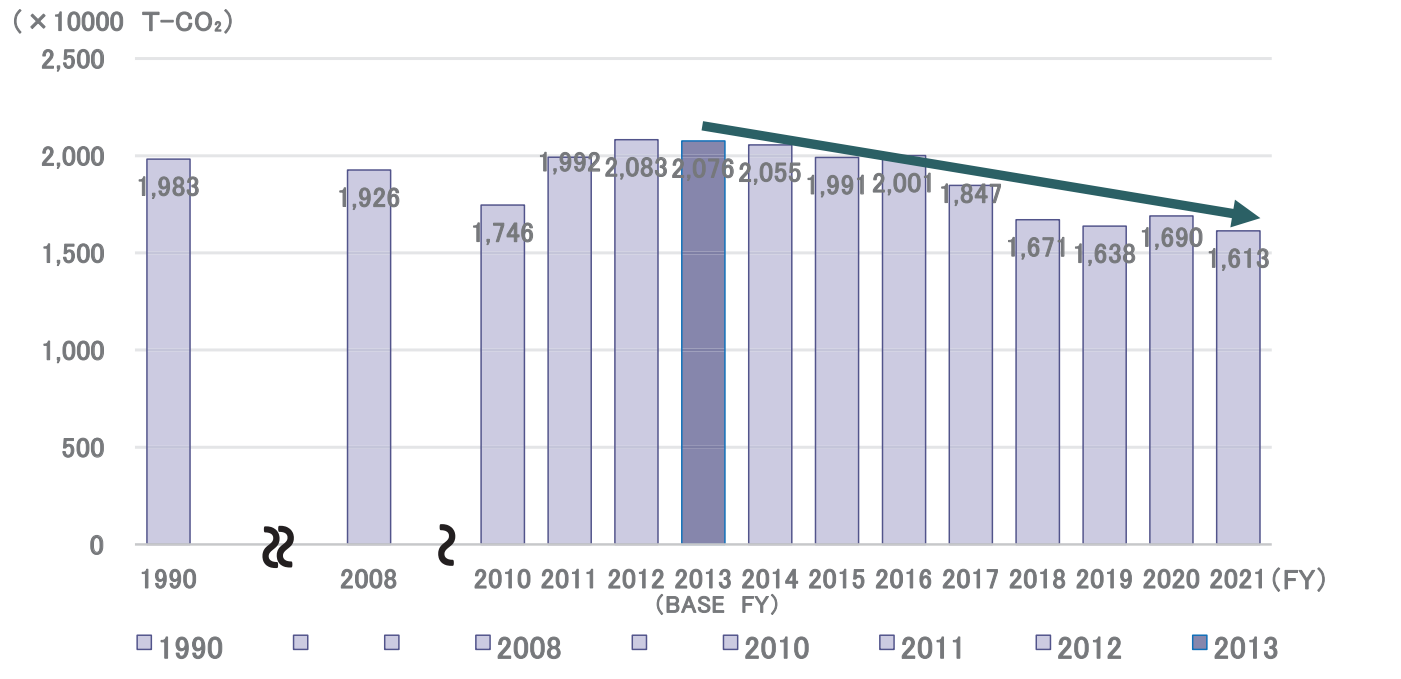
Provided By: Japan Association for the 2025 World Exposition

The situation in Osaka city

The population and the number of households are on the rise, but the amount of household waste is on the decrease due to the progress of waste sorting and recycling efforts.

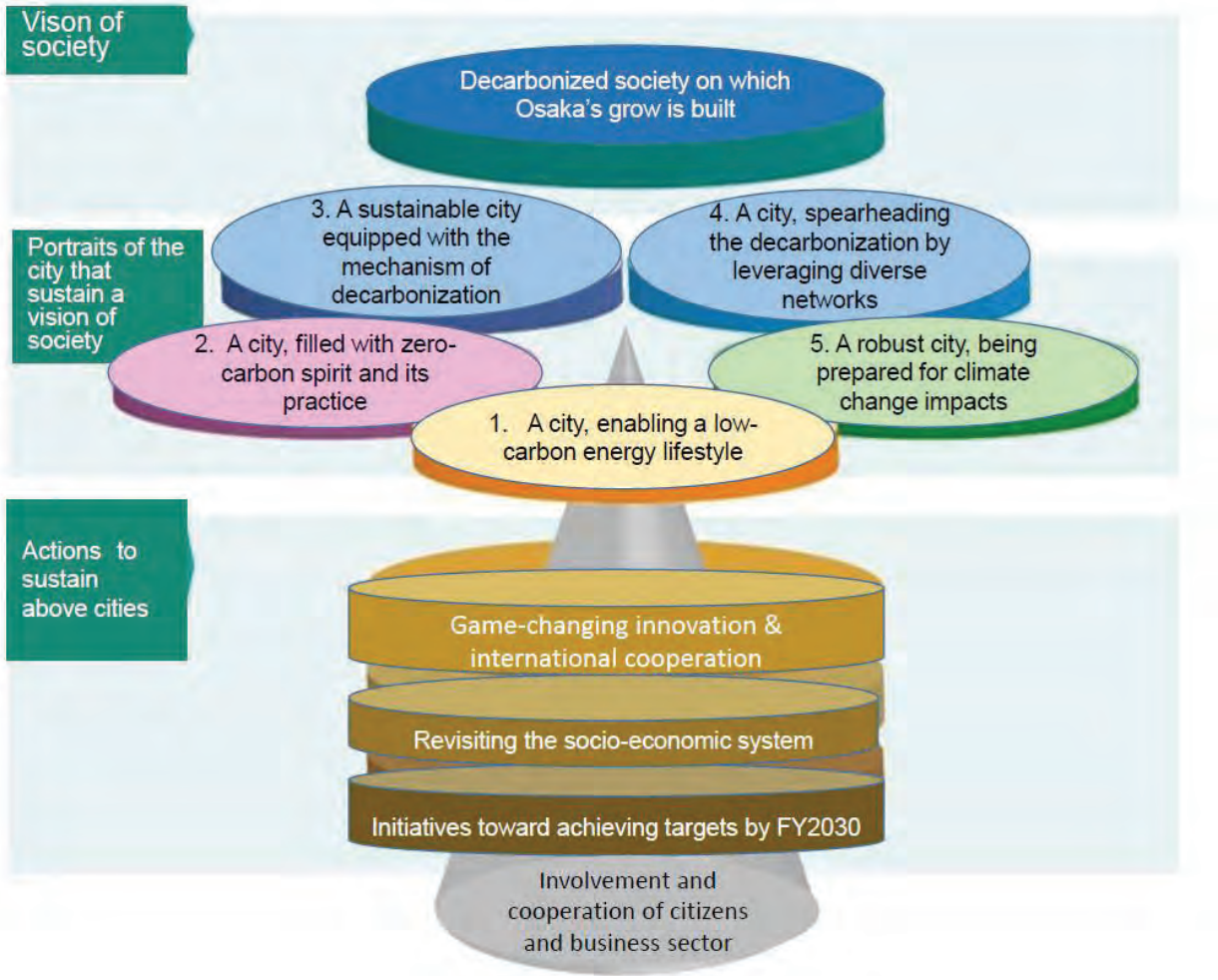


Trends in greenhouse gas emissions in Osaka City area



GHGs emissions in FY2021 were 16,130,000t-CO2, a reduction of approximately 22% from the base year of FY2013.

Midterm goal	Long term goal
50% cut from 2013 levels by 2030	Net zero emission of GHG (carbon-neutral) by 2050.



Pillar1. A city, enabling a low-carbon energy lifestyle

1-1 Promotion of Renewable energy

- Joint Purchase Program for Solar Panels and Storage Batteries
- Solar Panel Installation Promotion Project (Rooftop Leasing Program)

Solar panels installed on the rooftop of an elementary school (Rooftop Leasing Program)

1-2 Harnessing unexploited energy

- Energy Saving by ATES Technology
- Waste to Energy
- Biomass power generation using digestion gas at STP (sewage treatment plants)

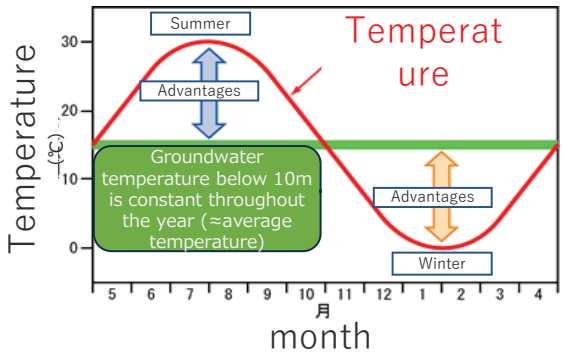
power generation at waste incineration plants

1-3 Expansion of Hydrogen Energy Utilization

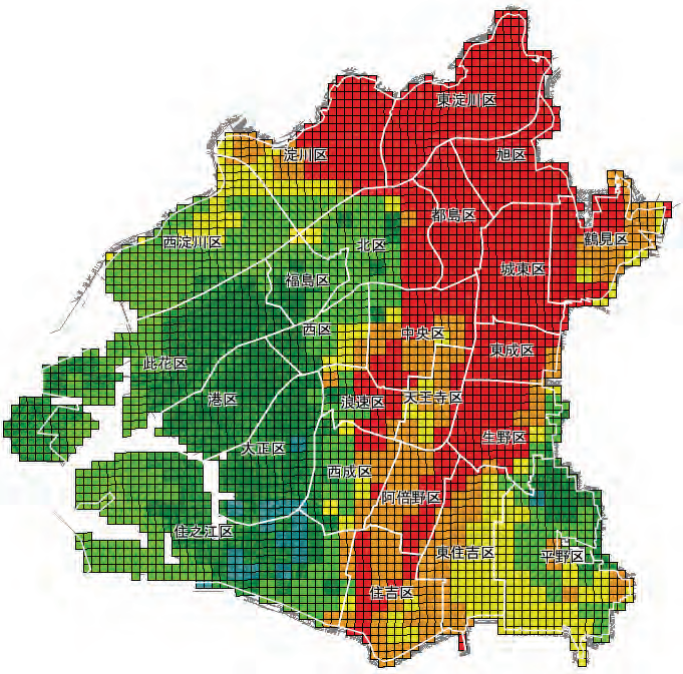
○Promotion of next-generation vehicle

1-2 Harnessing unexploited energy

Characteristics of groundwater:
Cold in summer and warm in winter



- The center of the city is dense, with high heat demand buildings. There are rich aquifers beneath those buildings.
- The potential for ATES is 2.8 x 10^7 GJ/year, which is equivalent to about 15% of the city's annual energy consumption.

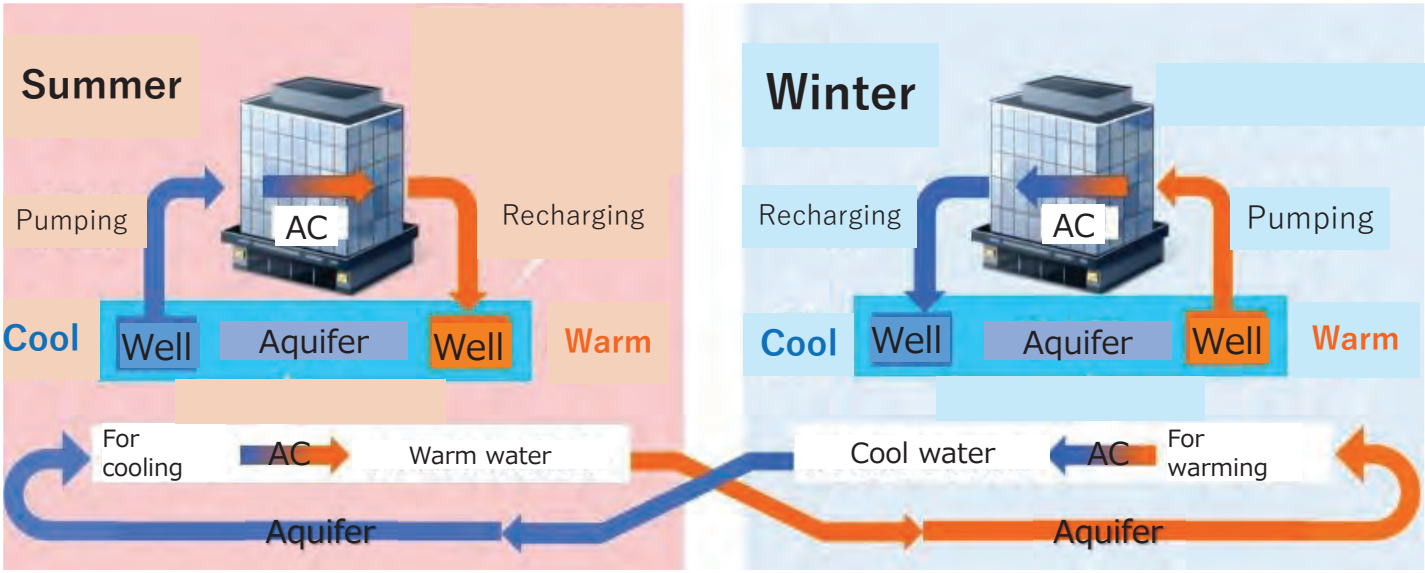


Map of geothermal heat potential
(Green areas indicate high potential.)

1-2 Energy Saving by ATES Technology

How ATES（Aquifer Thermal Energy Storage） works

・Using a pair of wells, waste heat is stored in the aquifer, and thermal energy is used between seasons.
・Waste heat from summer air conditioners is used for heating in winter and cold air in winter is used for cooling in summer.



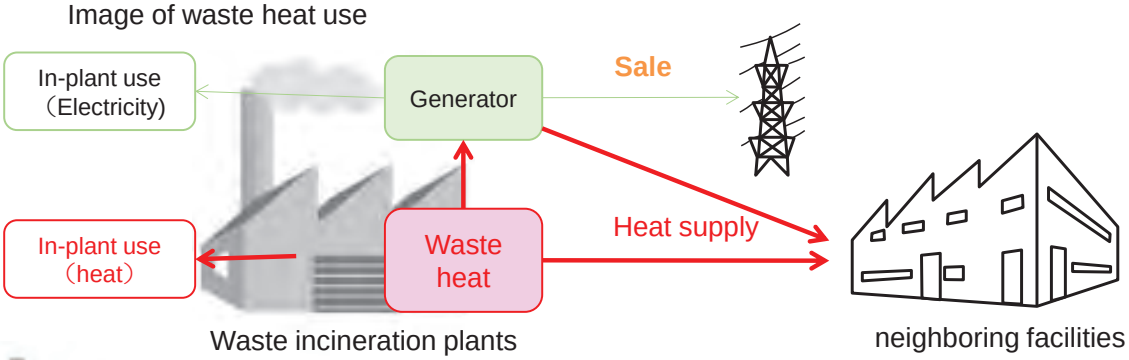
In Osaka City, through comparison with natural chillers the outcome attained was saving 40% of energy.
(Based on example of a facility that has total floor area of approximately 14,000m^2)

1-2 Waste to Energy

Power generation and residual heat utilization at waste incineration plants

All 6 waste incineration plants in Osaka City generate electricity, and 3 plants supply steam to neighboring facilities.
The amount of electricity generated is approximately 470 million kWh/year.
Of this, the amount of electricity supplied to the Electric Power Company, excluding that consumed within the plants, is approximately 300 million kWh/year.

Image of waste heat use



Higasiyodo waste incineration plants

Plant	Capacity	Power Generation	Destination of Steam
Nishiyodo	300t/d 2 unit	14,500kW	swimming pool
Yao	300t/d 2 unit	12,800kW	sanitary treatment plant swimming pool
Maishima	450t/d 2 unit	32,000kW	Swage treatment plant
Hirano	450t/d 2 unit	27,400kW	-
Higasiyodo	200t/d 2 unit	10,000kW	-
Suminoe	200t/d 2 unit	11,300kW	-

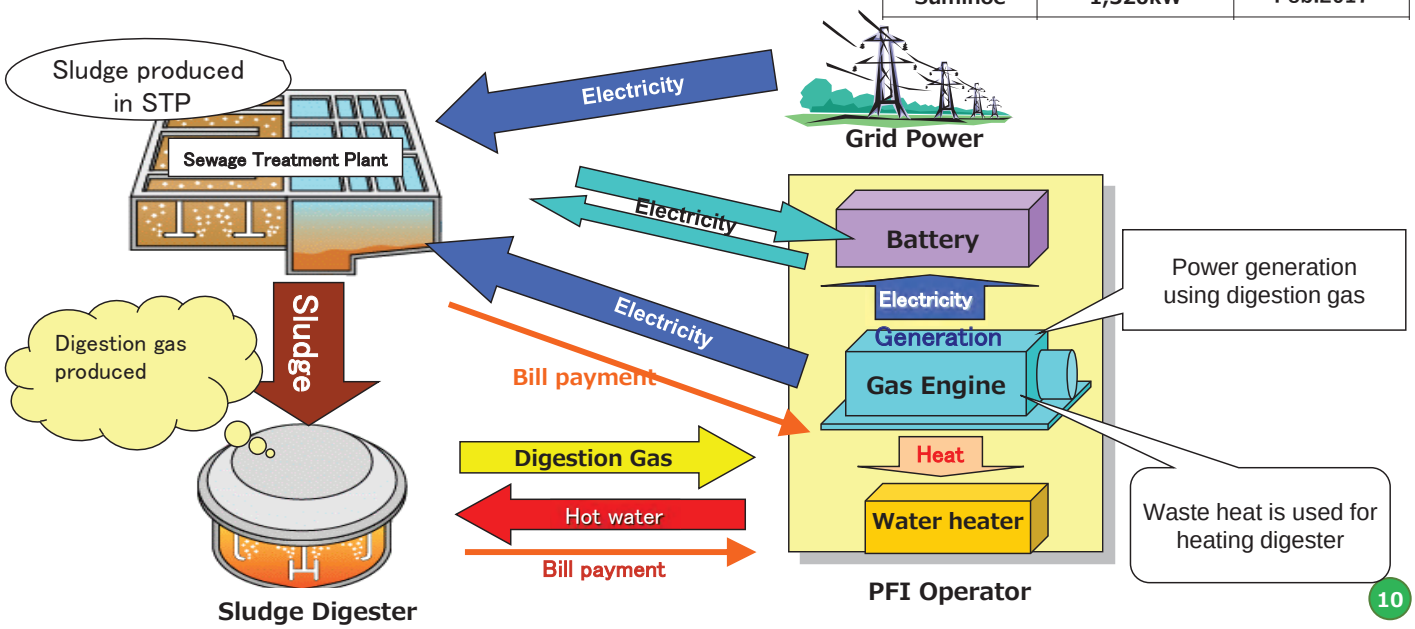
1-2 Harnessing biomass energy

Biomass power generation using digestion gas at sewage treatment plants(STP)

The digestion gas produced during the sludge treatment process is used as a fuel to generate electricity, making beneficial use of unused energy at wastewater treatment plants.

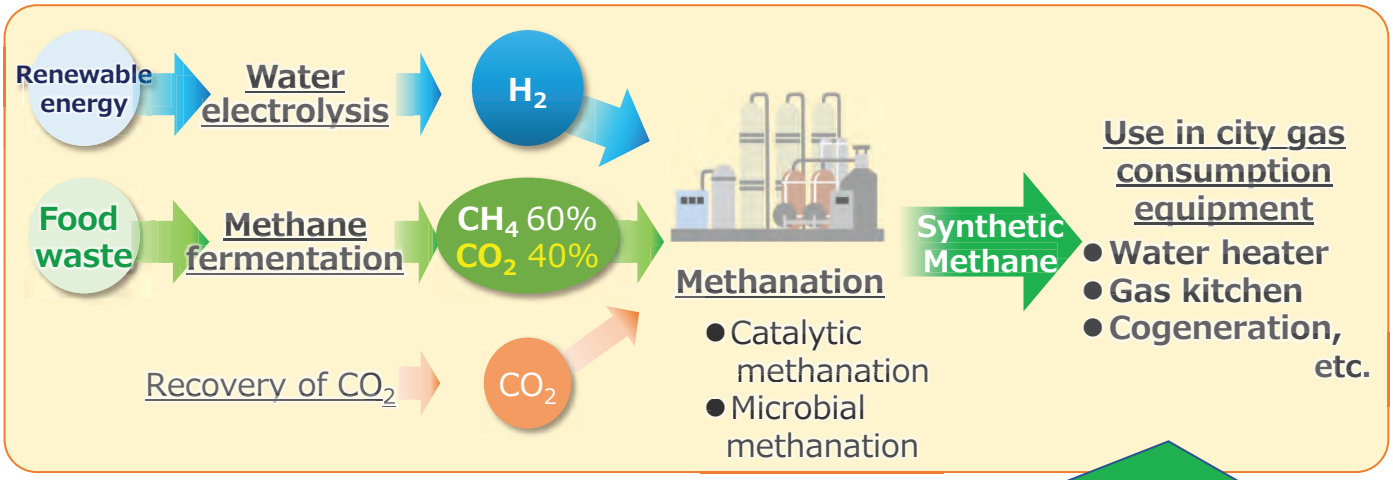
Track record

STP	Capacity	Start of operation
Nakahama	1,200kW	Apr.1995
Tsumori	2,819kW	Sep.2007
O-no	750kW	Aug.2016
Ebi-e	750kW	Nov.2016
Hanaten	1,320kW	Apr.2017
Suminoe	1,320kW	Feb.2017



1-3 Hydrogen Utilization “Demonstration of Hydrogen Supply Chain Construction by Methanation ”

- Synthesize fuel gas from hydrogen and recovered CO_2 (synthetic methane).
- CO_2 emitted during the combustion of synthetic methane is recovered and does not increase CO_2 emissions.



Scheduled to be demonstrated at the Expo 2025 Osaka, Kansai

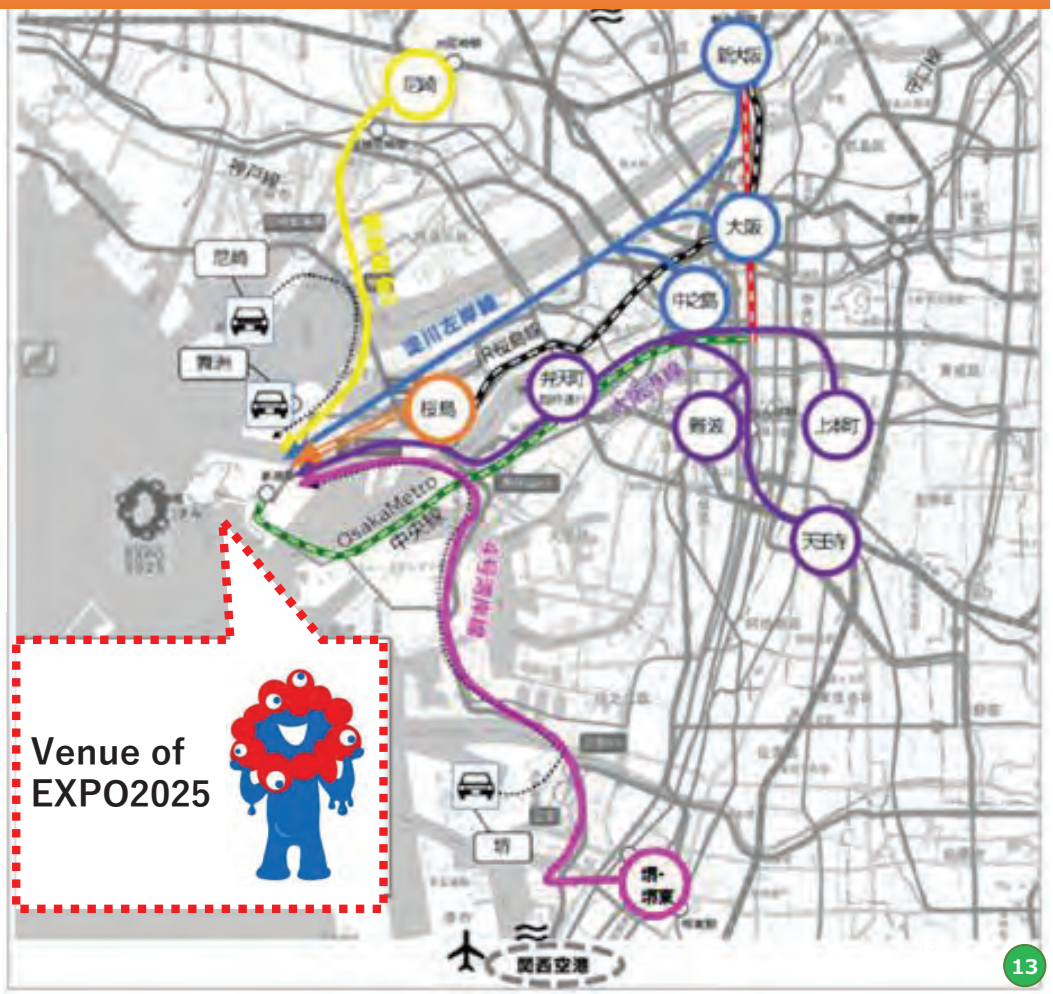
Use of hydrogen can reduce city gas demand, which links with decarbonization effort.

City rail network

Expo2025 as a catalyst for decarbonization

Over the three years from FY2022 – 2024, about 100 EV/FC buses are to be introduced as shuttle buses between the nearest stations and the Venue of Expo2025.

In addition to the national subsidy scheme, the Osaka Prefectural and the City Government subsidize part of the necessary costs to promote the introduction of EV buses.



Pillar2. A city, filled with zero-carbon spirit and its practice

○Contents of environmental learning

Publication
White Paper

Side reader

A grade specific side reader 'Osaka Environment class' and audio-visual materials with content based on Osaka's environmental features were prepared for middle and upper primary school students and junior high school students, These have been distributed to elementary and junior high schools for use in the classroom from 2012.

Web site of Environment Bureau, "Naniwa Eco-style" environmental learning and information site

Home screen

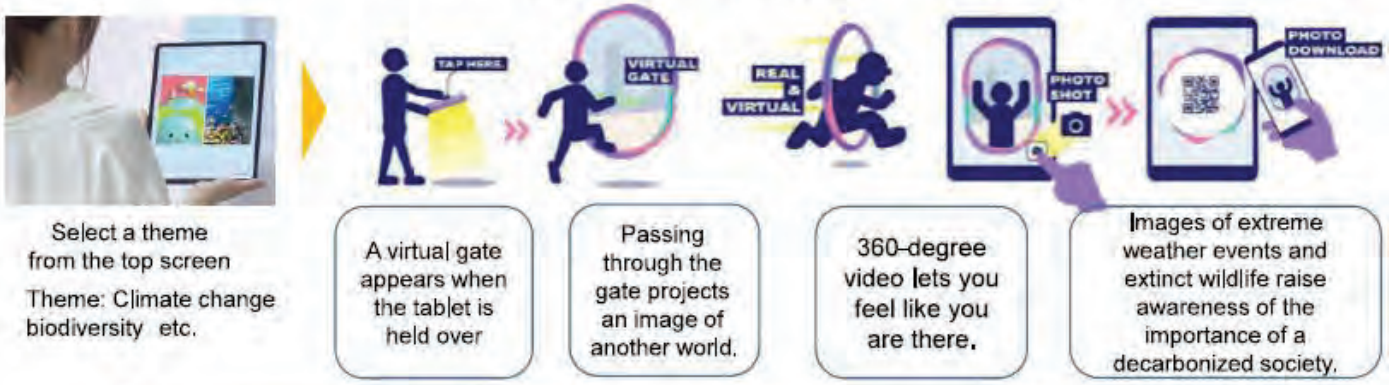
Page for educational video

Pillar2. A city, filled with zero-carbon spirit and its practice

○Experiential environmental learning using AR technology

AR : Augmented reality is a computer technology that shows digital images on top of the current real world.

A magical experience of going back and forth between the real and virtual worlds



Select a theme from the top screen

Theme: Climate change biodiversity etc.

A virtual gate appears when the tablet is held over

Passing through the gate projects an image of another world.

360-degree video lets you feel like you are there.

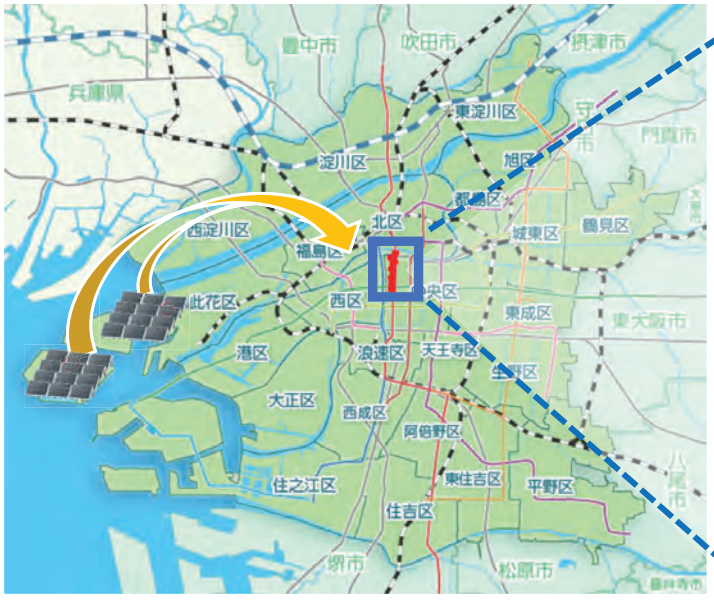
Images of extreme weather events and extinct wildlife raise awareness of the importance of a decarbonized society.

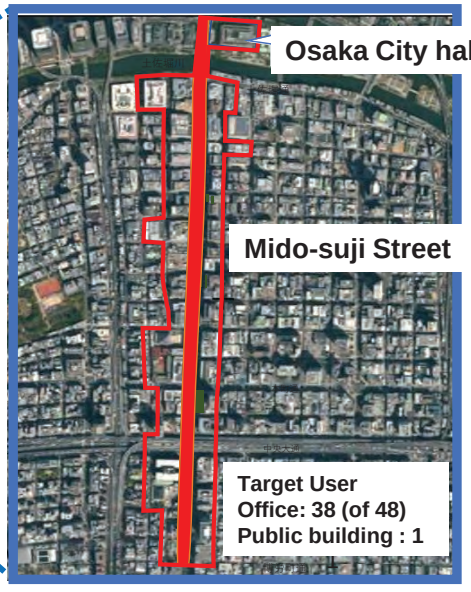
Pillar3. A sustainable city equipped with the mechanism of decarbonization

○Decarbonization Leading Area

The area around Mido-suji Street, the symbolic street running north-south through the center of Osaka city、is a historic business district that has contributed to the development of modern Osaka and now Osaka's most business-intensive district.

In this area, we aim to achieve net-zero CO2 emissions from electricity consumption in business sectors by FY2030. (selected as the national project in Nov.2023.)





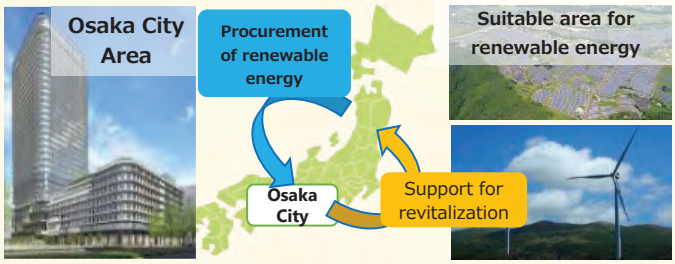
○Advanced Initiatives in Decarbonization Leading Area

Promotion of decarbonization in central urban areas of large cities where it is difficult to secure renewable energy

■ Building integrated solar power generation system

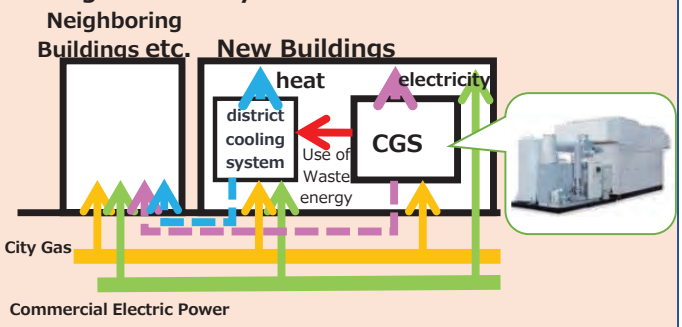
Effective use of building walls and windows

■ Procurement of renewable electricity through inter-regional cooperation



Establishment of local return scheme

■ Cogeneration system



Reinforcement of the area through energy distribution to neighboring buildings

■ Biomass power generation

Utilization of pruned branches of roadside trees along Midosuji Avenue

※Introduction of high-efficiency air conditioning, LED lighting, etc.

17

Pillar3. A sustainable city equipped with the mechanism of decarbonization

Business model in ASEAN

TJ GROUP HOLDINGS Co., Ltd.

- Business model: Promoting carbon neutrality through biomass power by using waste biomass
- Prevention of pollution: bad smell, wastewater and home of pests
- Distributed power supply: Promoting local economy and circulation of resources in local area

Waste biomass in each region

Root of tree

Coconuts husk

Casava root and rhizome

Chip factory/biomass power plant

Manufacturing wood chip

Generate electricity from wood chips

Buyer of renewable energy

Pillar4. A city, spearheading the decarbonization by leveraging diverse networks

< Supporting environmental and energy industries for sustainable growth in all businesses.>>

Initiatives to support creating businesses associated with the carbon neutral (CN) technologies

Based on the promising results of university's research that can potentially contribute to carbon neutrality, we are working on the matching and cooperation between universities and large companies and venture capital (VC). This will lead to the activation of research and the commercialization of new technologies and will also help start-ups to demonstrate and showcase their technology at Expo 2025.

<International city to city cooperation>

Cooperation on decarbonized Society with the Eastern Economic Corridor (EEC) in Thailand

In February 2022, Osaka City signed a memorandum of understanding with the Eastern Economic Corridor (EEC) in Thailand on the regional pilot project to achieve a carbon-neutral society. Incorporating Osaka/Kansai's technologies into the EEC's smart city development programs will contribute to decarbonization in Thailand and promote the economies of Osaka and Kansai.

Collaboration with Greater Manchester in the UK

Since September 2021, Osaka City and Greater Manchester (GM) in the UK have been working together under the EU's International Urban and Regional Cooperation (IURC) program to tackle decarbonization as a priority. GM has set an ambitious target of carbon neutrality by 2038, 12 years ahead of the UK's net zero commitment. Working with GM through dialogue on policy and innovative technologies will accelerate progress towards carbon neutrality for Osaka City.

<Contribution to external region based on inter-regional cooperation>

Creating a Regional Circular and Ecological Sphere (Local SDGs)

As a large consumer of natural resources, Osaka City needs to develop policies to promote the conservation and sustainable use of biodiversity. Establishing extensive natural and economic links with neighboring regions will lead to the creation of a regional Circular and Ecological Sphere, where agriculture, forestry, fisheries and urban areas can be utilized by complementing and supporting each other's regional resources.

The Eastern Economic Corridor (EEC) in Thailand

5 Year Environment Plan for Greater Manchester

Pillar5. A robust city, being prepared for climate change impacts

<Adaptation to climate change>

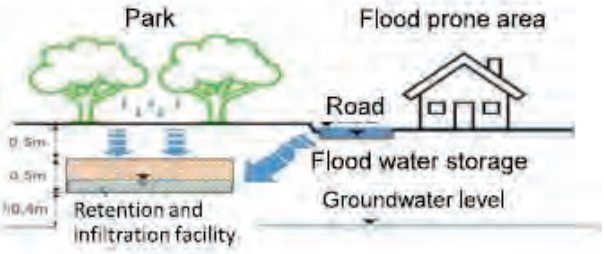
Flood mitigation

In Osaka City, the frequency of localized and short-term torrential rains are increasing due to the climate change. We are working to strengthen the capacity of sewerage systems to receive rainwater, increase the number of inlets, and improve the sewer network. We will continue to systematically strengthen and maintain the functions of the sewerage system.

Trunk sewer network in Osaka City

Promoting Green Infrastructure

Green infrastructure utilize the functions of the natural environment and help to prevent and reduce the flood damage and mitigate the heat island effect.



<Expansion of energy infrastructure>

Resilient society by V2X for balancing electricity supply and demand

We will promote V2X (Vehicle to Everything) to establish independent and decentralized energy systems that are resilient to disasters. In FY2021, the V2X system was installed at the Ikuno Ward Office. Promoting the benefits of the system to citizens and businesses will encourage V2X installation in homes and office buildings and accelerate the establishment of a new energy resilient society capable of balancing electricity supply and demand.

* V2X (Vehicle to X [Everything]): a generic term for technologies and systems that enable power sharing between 'Vehicles' that use storage batteries such as EV and 'everything' including buildings and facilities that consume electricity.

Charging a laptop, lights, etc. from an EV

添付 3 ワークショップ関連資料

3.1 日本工営発表資料

City to City Collaboration for Zero-Carbon Society in FY2024

－Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand－

JCM Seminar

January 2025

日本工営株式会社

Company Profile

ID&E

- Corporate name : Integrated Design & Engineering Holdings Co., Ltd.
- Established : July 3, 2023
- Capital : 7,522 million yen
- Number of employees : 6,335
- Business areas : Management and related business activities of group companies
- Web site : https://www.id-and-e-hd.co.jp/english/

NIPPON KOEI

- Corporate name : Nippon Koei Co., Ltd.
- Established : June 7, 1946
- Capital : 500 million yen
- Number of employees : 2,479
- Business areas : Consulting Business （domestic/overseas）
- Web site : https://www.n-koei.co.jp/consulting/english/

【Consulting Business】 NIPPON KOEI

【Urban Space Business】 NIPPON KOEI URBAN SPACE BDP.

【Energy Business】 NIPPON KOEI ENERGY SOLUTIONS

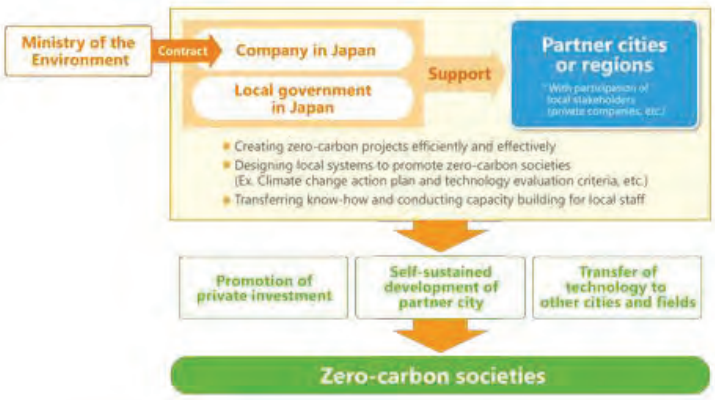
【Business Management】 NIPPON KOEI BUSINESS PARTNERS

Overseas Network

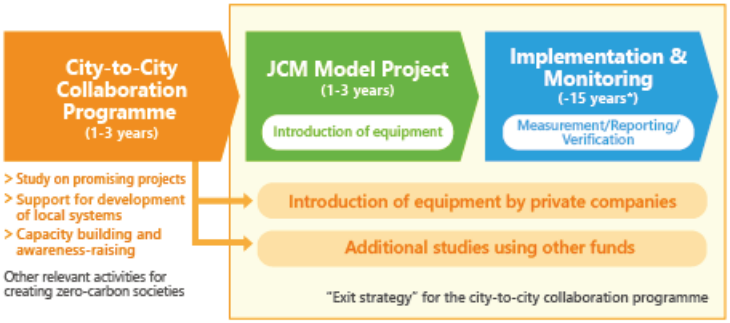
City to City Collaboration Program for Zero-Carbon Society by Ministry of the Environment, Japan

- City to City Collaboration Program began in 2013, participating **49** cities/regions in **13** countries, mainly in Asia, and **20** cities/regions in Japan.
- This Program is a scheme to promote decarbonization at the city level through collaboration between overseas and Japanese cities, aiming to 1) design local systems to promote zero-carbon societies and 2) create zero-carbon projects efficiently and effectively at the private sector level (e.g., **JCM model projects** formulation).

■ Outline of City-to-City Collaboration Program



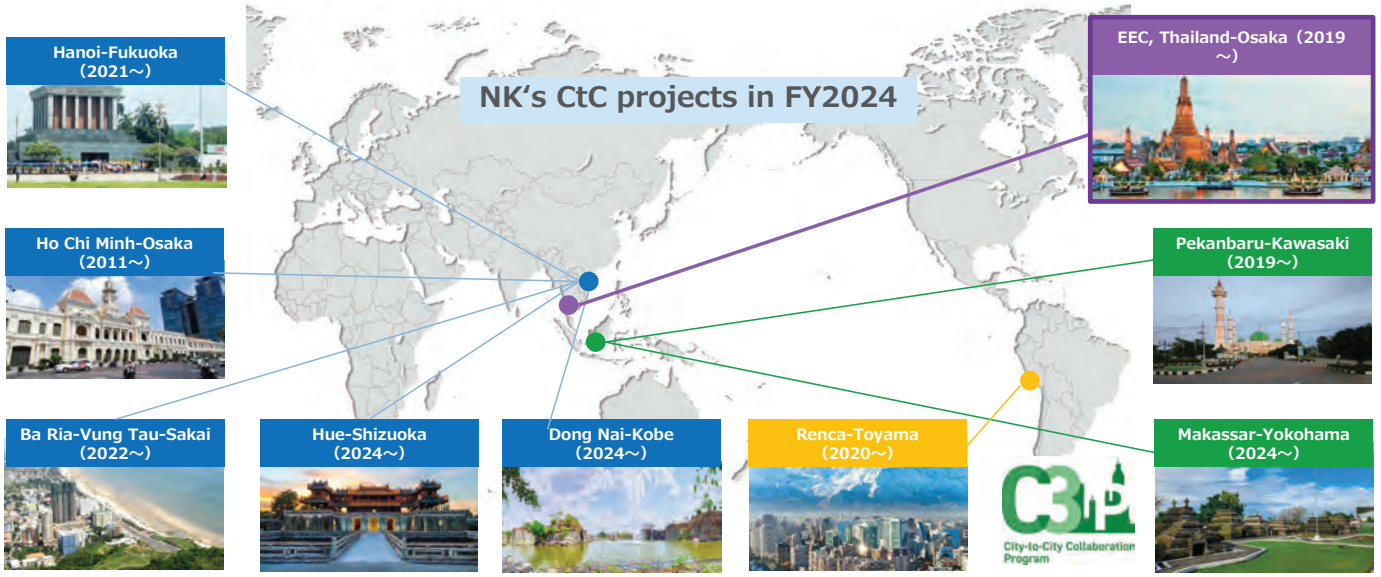
■ Image of exit strategies of the City-to-City Collaboration Program



Source: Ministry of the Environment, Japan

City to City Collaboration Program for Zero-Carbon Society by Ministry of the Environment, Japan

- Nippon Koei has participated in this City-to-City Program since 2015.
- **9** projects are ongoing in FY2024.



City to City Collaboration for Zero-Carbon Society in FY2024
- Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand -

Based on the MoU signed between Osaka City and EEC in February 2022, this City to City collaboration project will provide 1) institutional framework support and 2) JCM Project Formation support to help realize the BCG (Bio, Circular and Green) economy and Net Zero as set forth by EEC.

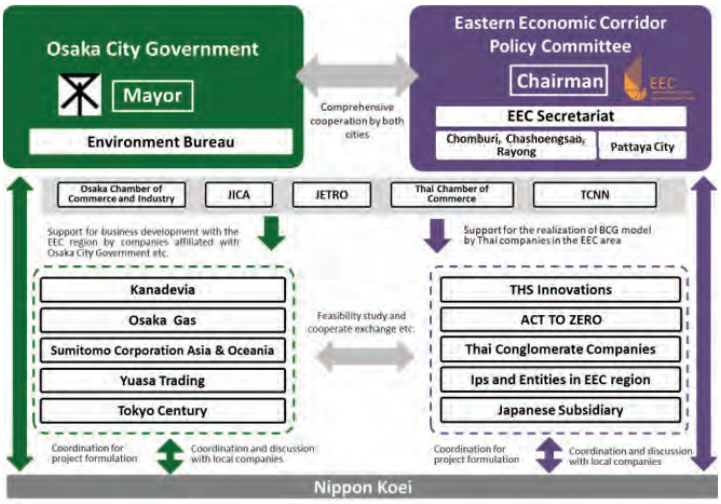
■ Main achievements

- Conducting mayor-level Policy Dialogue
- Formulating JCM Model Projects
- Conducting Business Matching Seminar etc.

■ Planning activities for FY2024

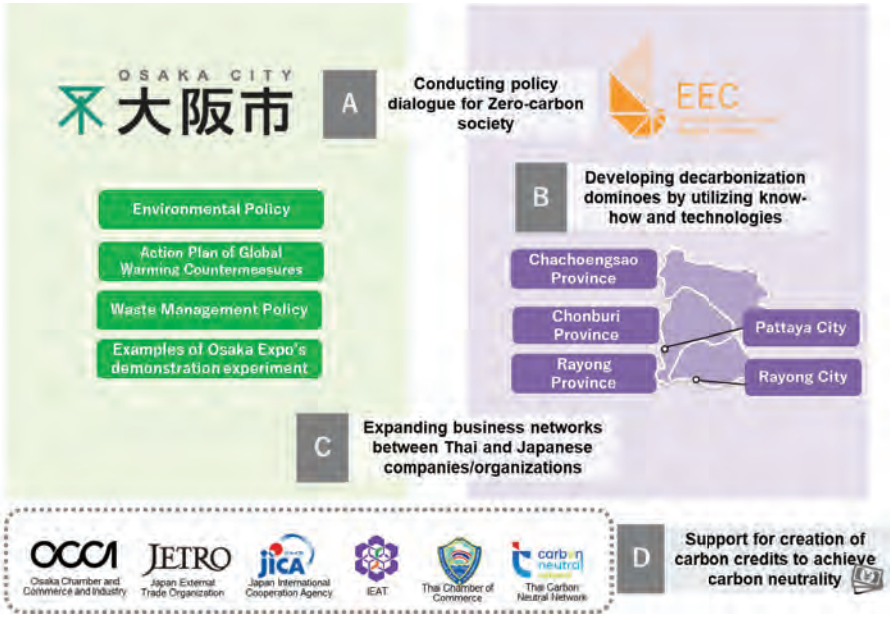
- Conduct workshops utilizing Japan-Thailand business networks such as the IEAT, Osaka Chamber of Commerce and Industry (OCCI) and the Thai Chamber of Commerce and Industry.
- Support for JCM model projects formulation and carbon credit creation ex.) projects to introduce various types of high-efficiency equipment through energy-saving diagnosis at factories, waste to energy projects.

■ Implementation Structure



City to City Collaboration for Zero-Carbon Society in FY2024
- Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand -

■ Image of City-to-City Collaboration Activities



◆ Technical Workshop at Thailand

- Date: January 2025
- Place: Chonburi (TBD)
- Purpose: Introduction of decarbonization technologies/services
- Expected participants: EEC, IEAT, TGO, Osaka City, Thai / Japanese companies
- Agenda (tentative)

#	Contents	Presenter
1	Opening Remark	EECO
2	Introduction of the City-to-City Collaboration Project activities	Nippon Koei
3	Introduction of JCM scheme in Thailand	TGO
4	Decarbonization efforts in Industrial Parks	IEAT
5	Introduction of JCM projects and decarbonization technologies	Japanese partner companies
6	Discussion	All
7	Closing Remark	Osaka City

City to City Collaboration for Zero-Carbon Society in FY2024
- Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand -

PPON KOEI

■ Past Activities of the City-to-City Collaboration Project 1/2

Courtesy Visit at Osaka City in January 2024

Policy Dialogue in January 2024

City to City Collaboration for Zero-Carbon Society in FY2024
- Support for Designing Decarbonization Society with BCG Economy in EEC, Thailand -

PPON KOEI

■ Past Activities of the City-to-City Collaboration Project 2/2

JCM Potential Survey

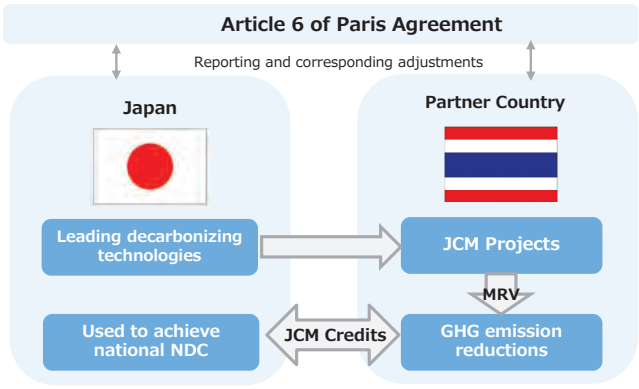
Technical Workshop in Bangkok

EECi Visit

Introduction of JCM Scheme

The Joint Crediting Mechanism (JCM), launched in 2013 and implemented under Article 6 of the Paris Agreement, is a mechanism to contribute to the reduction and absorption of GHG emissions and sustainable development in partner countries through the dissemination of superior decarbonization technologies, products, systems, services, and infrastructure in partner countries.

■ Overview of JCM scheme



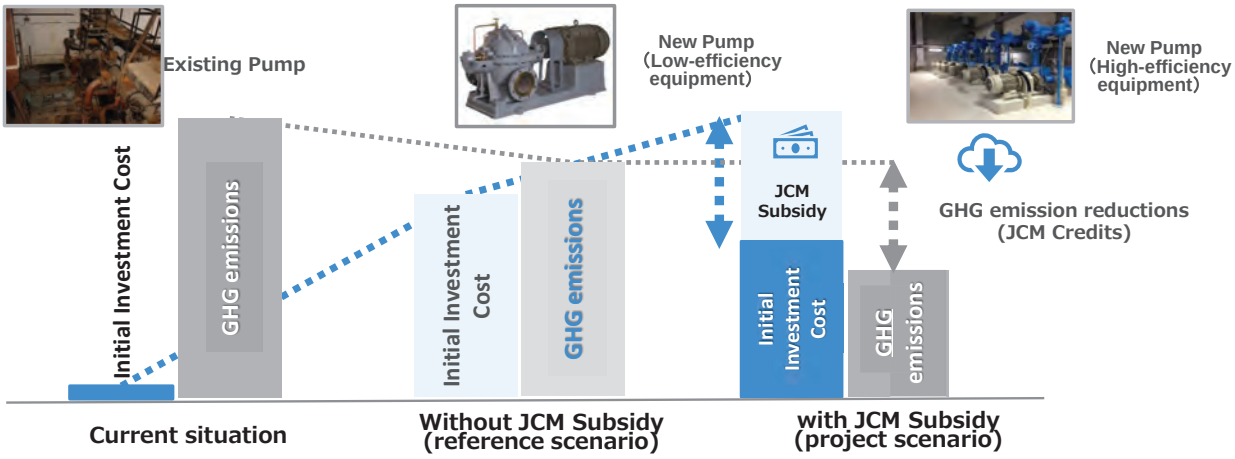
MRV: Measurement, reporting and Verification

- **JCM partner countries :** 29
- **Number of selected JCM :** 245
- **Estimated GHG emission reductions :** 3,049,323 t-CO2/year
- **Budget for JCM Model projects(subsidy) :** 29.3 billion THB (3 years)
- **JCM model projects' application period for FY2024 :** from April 5, 2024 to November 29, 2024
- **Web site :** https://gec.jp/jcm/

- Thailand signed the MOU in 2015, and 48 JCM projects have been adopted.
- Memorandum of Cooperation on JCM was renewed between Thailand and Japan on July 8, 2024.

Introduction of JCM Scheme

The JCM Model Projects provides subsidies for the initial investment costs of installing high-efficiency equipment/products and renewable energy systems etc.

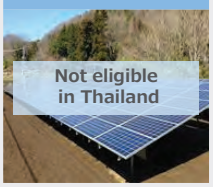


*In addition to the conditions in the table above, the JCM scheme evaluates cost-effectiveness figures as well.

■ Target Technologies for JCM Model Projects

Renewable Energy

Solar Power



Wind Power

Waste to Energy

Biogas generation

Waste to Energy

URL : https://www.hitachizosen.co.jp/news/2017/06/002645.html
URL : https://www.carbon-markets.go.jp/column/waste_mgmt_biomass/1603/

Energy-saving

High-efficiency Once-through Boiler

High Efficiency Chiller

High Efficiency Pump

Air-Conditioning Control System

Number of adoptions of the same technology in the same country	Max rate of JCM subsidy
0project	50%
1-3 projects	40%
4-7 projects	30%
8-9 projects	20%
10 projects or more	not eligible

■ Application requirements for JCM Model Projects

Project Scale

Subsidy amount will be

Max. 2 billion JPY (= 20 mil. USD) (= 500 mil. THB)

Project Period

Project should be commenced

within 3 years

GHG reductions

GHG emission reduction is expected to be more than

1,000 tCO2/y

Cost Effectiveness

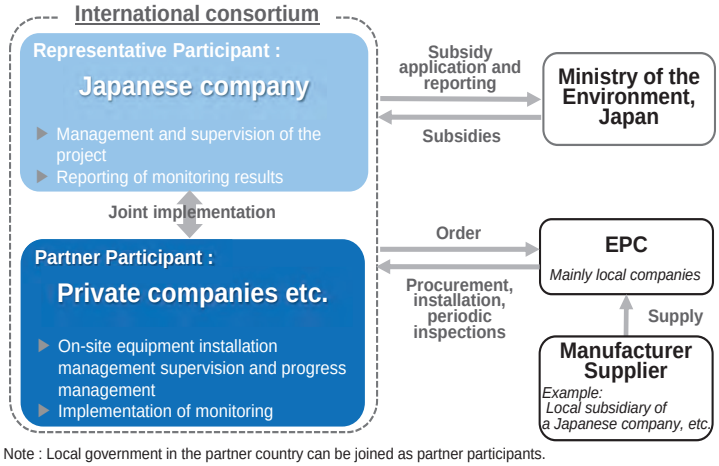
Cost effectiveness should be **4,000 JPY/tCO2 or lower.**

$$\text{Cost effectiveness [JPY/tCO2]} = \frac{\text{(Total amount of subsidy [JPY])}}{\text{(Total GHG emission reduction [tCO2/y])}} \times \text{(Legal durable years)}$$

, based on Japanese regulation

Note: In the case of solar power projects, if the number in a partner country is more than 5, its cost-effectiveness is expected to be less than or equal to 3,000 JPY/tCO2.

■ Application formation for JCM Model Projects



Note : Local government in the partner country can be joined as partner participants.

Current JCM situation in Thailand

■ Current JCM situation in Thailand

- Thailand signed the MOU in 2015, and 48 JCM projects have been adopted.
- Memorandum of Cooperation on JCM was renewed between Thailand and Japan on July 8, 2024.
- Confirmation of updated contents are required regarding the target technologies, private sector JCM projects* strategies, etc.
- Solar Power generation projects ate not eligible for JCM model projects as the number of adopted projects exceeds 10 in Thailand.

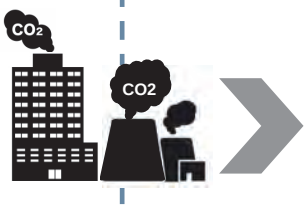
We, Nippon Koei, can support not only JCM application but decarbonization activity !

Note : Private sector JCM
- Implementation of JCM projects with private sector investments enables private companies to obtain JCM credits preferentially.
- Updated of the guidance on the development of private sector JCM projects invested and implemented by private companies without any governmental financial support in March 2024.

Corporate support services for a decarbonization activity

Nippon Koei can support for formulation of decarbonized projects and issuance of carbon credits !

① Service for Visualization of GHG Emission

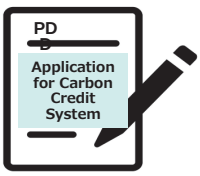


Calculation of GHG emissions to understand and assess the current situation

② Support for Decarbonization Projects by Companies

Implementation Support for Decarbonization Projects with Carbon Credits
- Research for market and regulations
- Application for subsidy schemes
- Business matching etc.

③ Support for Issuance of Carbon Credits



Support for Registration and Issuance of Carbon Credits (JCM, T-VER, VCS etc.)

④ Support for Transaction of Carbon Credits

Transaction of Carbon Credits

Research for Trend of Carbon Credit Market and Transaction of Carbon Credits

Related Services by Nippon Koei

Feasibility Study on Decarbonization Projects :
- ✓ Commissioned work for identification and formulation of JCM Model projects in JCM partner countries in Latin America

Formulation of Decarbonization Projects :
- ✓ JCM Model Projects/JCM Eco Lease Scheme/Co-Innovation Projects etc.
- ✓ Project formulation/coordination with carbon credit scheme

Calculation of GHG emissions (MRV) :
- ✓ Implementation of MRV for JCM Model Projects, etc.

Research and Implementation Support in new technology/new scheme :
- ✓ Feasibility study on the development of green hydrogen technology and value chain
- ✓ Feasibility study on the new decarbonatization technologies, such as CCS/CCUS, Electric vehicle etc.

添付 3 ワークショップ関連資料

3.2 EEC 発表資料

EEC At a glance

THE EASTERN ECONOMIC CORRIDOR (EEC) lies at the heart of Thailand's 4.0 development strategy, aimed at restructuring and revitalizing the Thai economy.

COMPLETE STRATEGIC LOCATION

" Creating an Inclusive Environment"

- In 2017, the Royal Thai Government **initiated the Eastern Economic Corridor (EEC)** to be an area-based development initiative aiming to revitalise the well-known Eastern Seaboard of Thailand.
- Covering the development of the 3 Eastern provinces: Rayong, Chonburi, and Chachoengsao.
- Having objective of developing modern and environmentally friendly economic activities, providing comprehensive government services, creating efficient infrastructure and public utilities, determining the appropriate use of land as well as developing cities to be modern and suitable for living and doing business.

Location: Rayong, Chonburi, and Chachoengsao

Area : 13 Million Hectares (8.3 Million Rai)

EECO Investment promotion mechanism

Targeted investment
- *Area (EEC promotional zones)*
- *Industries (5 Clusters)*

Tailor-made incentives

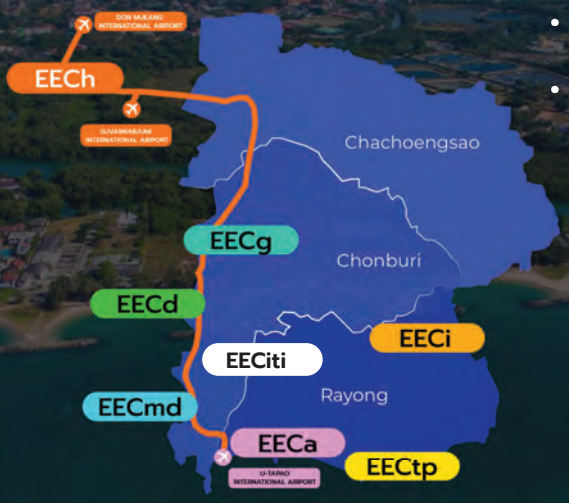
Total solutions for starting operations

EEC Promotional Zones

Industrial Estates

1. WHA Rayong Industrial Estate
2. Eastern Seaboard I.E. (Rayong)
3. WHA Eastern Industrial Estate (Map Ta Phut)
4. WHA Eastern Seaboard I.E.1
5. WHA Chonburi I.E.1
6. WHA Chonburi I.E.2
7. WHA Eastern Seaboard I.E.2
8. WHA Eastern Seaboard I.E.3
9. WHA Eastern Seaboard I.E.4
10. CPGC I.E. (Rayong)
11. Amata City Chonburi I.E.
12. Amata City Chonburi I.E. (2ndProject)
13. Amata City Rayong I.E.
14. Pinthong Industrial Estate
15. Pinthong Industrial Estate (Laem Chabang)
16. Pinthong Industrial Estate (3rdProject)
17. Pinthong Industrial Estate (4thProject)
18. Pinthong Industrial Estate (5thProject)
19. TFD I.E. (2ndProject)
20. Yamato industries I.E.
21. Smart Park I.E.
22. Asia Clean
23. Rojana Nongyai
24. Rojana Lamchabang
25. WHA Industrial Estate (Rayong)
26. EGCO Rayong Industrial Estate
27. Apex Green Industrial Estate

Industrial Clusters for Special-Targeted Industries



Establishments for Specific Business Operators

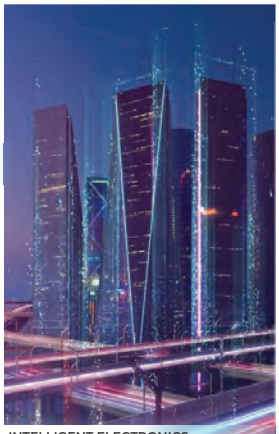
- Toyota
  Next-generation automotive Banpho
- Alibaba
  E-commerce Bang Pakong

As of January 2024

5 Clusters of Special-Targeted Industries

Medical & Health

MEDICAL AND COMPREHENSIVE HEALTHCARE



INTELLIGENT ELECTRONICS

AUTOMATION AND ROBOTICS

DEFENSE

Digital

Next-Generation Automotive

NEXT-GENERATION AUTOMOTIVE

GREEN AND CIRCULAR

BIOFUEL AND BIOCHEMICAL

ADVANCED AGRICULTURE AND BIOTECHNOLOGY

FOOD FOR THE FUTURE

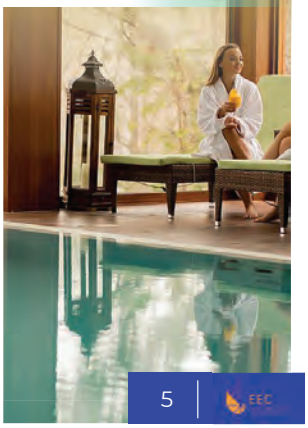
BCG

Services

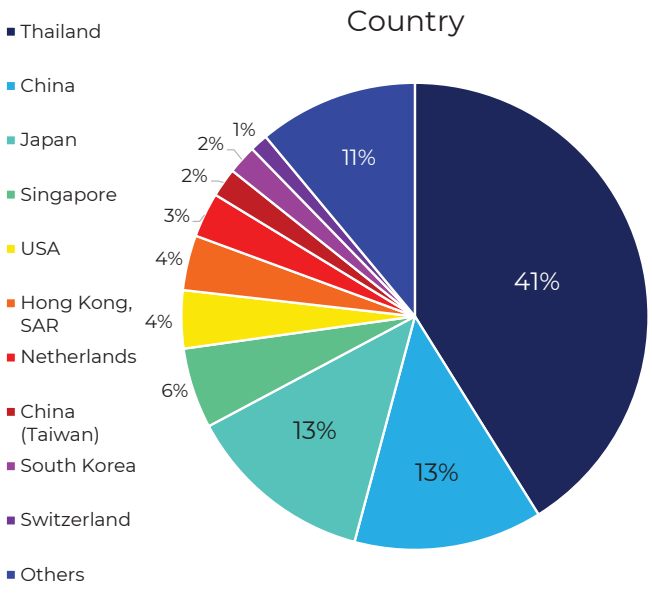
HIGH-VALUE AND MEDICAL TOURISM

AEROSPACE & LOGISTICS

EDUCATION AND HUMAN RESOURCE DEVELOPMENT



Investment Promotion Certificate Issuance from 2018 – 2023



Source: BOI as of December 2023
Note: Exchange rate = Annual average rate
Complied by BCG Division, EEC

Total value of USD 44.3 Billion

Top 5 by Nationalities*

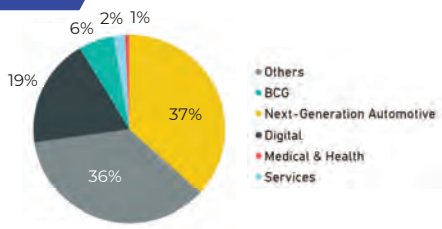
1. **China** — Automotive, Electrical appliances
2. **Japan** — Automotive, Petrochemical &Chemical
3. **Singapore** — Electrical appliances, Automotive
4. **United States** — Digital, Agricultural and Food
5. **Hong Kong, SAR** — Automotive, Electrical appliances

Investment Promotion Certificate Issuance in EEC (2018 – Q3 2024)

Japan

Total investment value: USD 6,068 mm (THB 206,514 mm)

Total projects: 513

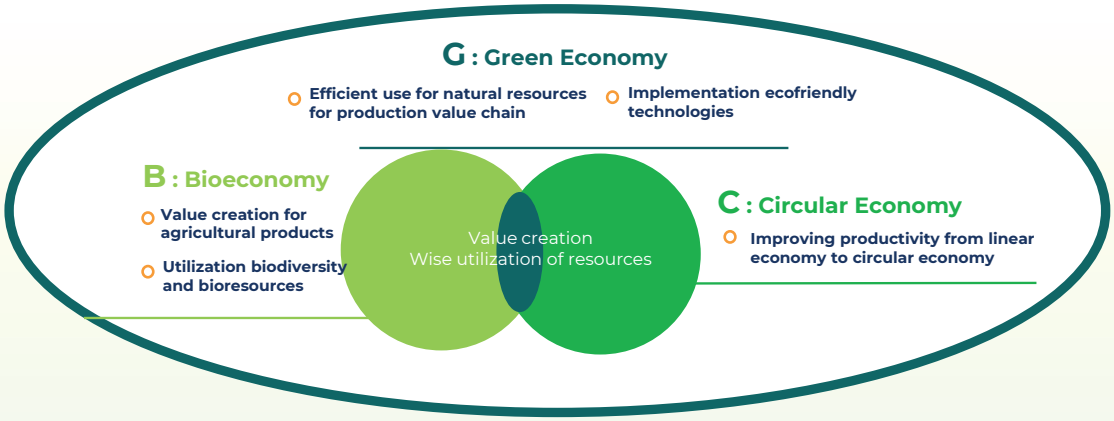


Medical & Health	Digital	Next-Generation Automotive	Bio-Circular-Green (BCG)	Services	Others
USD 45 mm (THB 1,521 mm)	**USD 1,128 mm** (THB 38,392 mm)	**USD 2,233 mm** (THB 76,005 mm)	**USD 365 mm** (THB 12,430 mm)	**USD 116 mm** (THB 3,943 mm)	**USD 2,181 mm** (THB 74,223 mm)
7 projects	**67** Projects	**146** projects	**27** Projects	**69** projects	**197** projects

Source: BOI as of September 2024

Bio-Circular-Green-Economy in EEC

Goal of **Carbon Neutrality** by 2050



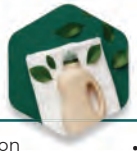
Thailand's 20-Year National Strategy

Sustainable Development Goals

Exclusive Opportunities under BCG Economy in EEC

Food & Agriculture

- Smart/precision farming
- Functional food
- Food Ingredient
- Animal Feed



Biofuel & Biochemical

- Biofuel (Bio-ethanol, SAF)
- Biochemical (Bioplastic, Green reagent, Green solvent etc.)

Energy

- Renewable energy
- Waste to Energy
- Energy Storage
- Energy Management System

Waste Management & Recycling

- Urban Mining
- Recycling Business
- Remanufacturing

(Draft) EEC Environmental Plan (2023 – 2027)

Objective to promote environmental management in parallel with the continuous development of cities and communities, balance various development projects, effectively take caution with the environment and community, and encourage sustainable business investments in the EEC.

4 Strategic areas

	Example of projects*
1. Waste and Environmental Pollution Management	➢ construct a wastewater collection and treatment system in the pollution control area in Rayong province ➢ the project to increase the efficiency of solid waste management in Klaeng District
2. Conservation, Restoration, Maintenance and Sustainable Use of Natural Resources	➢ Khlong Bang Phai Monkey Cheek (flood water retention basins) Restoration Project ➢ the water source conservation and rehabilitation project with water distribution system on Samae San Island
3. Promoting Sustainable Living and Business Operations	➢ project to improve the landscape around Baan Amphur beach in Chonburi Province
4. Empowering Relevant Sectors	➢ clean production technology transfer for the biotechnology industry project

* 190 projects in total implemented by the Ministry of Natural Resources and Environment

Decarbonization in Transportation sector

Project : **Accelerating the adoption and life-cycle solutions to electric mobility in Thailand under UNIDO-GEF program (2024 – 2028)**

Key activities

1. Improve policy and regulatory framework for electric mobility and sustainable use of batteries in a gender-responsive manner	• Develop analyses, forecast and management system for **GHG emissions in the public transport sector** • Enhance policy and regulatory framework for **EV ecosystem development, charging infrastructure integrated with RE** • Enhance policy and regulatory framework for addressing **life-cycle issues for electric mobility and sustainable use of batteries.**
2. Accelerate technology adoption of electric mobility and sustainable use of batteries	• Developing an EV entrepreneurship support program • Demonstration of **electric vehicles for public transportation** • Demonstration of **applying data to support planning and management** of charging infrastructure, fleets of electric songthaews and minibuses, and GHG emissions reduction • Demonstration of the integration of circular economy principles in **the life cycle of electric vehicle batteries**
3. Capacity building, up-scaling and knowledge sharing	• Linkages created with **regional and global platforms on electric mobility** as part of the Global Electric Mobility Program. • Training sessions for **public and private sector on life cycle solutions for EVs and batteries** with focus on gender equality and women's empowerment

Decarbonization in Manufacturing sector

Project : **Driving manufacturing sector in EEC towards Net Zero goal**

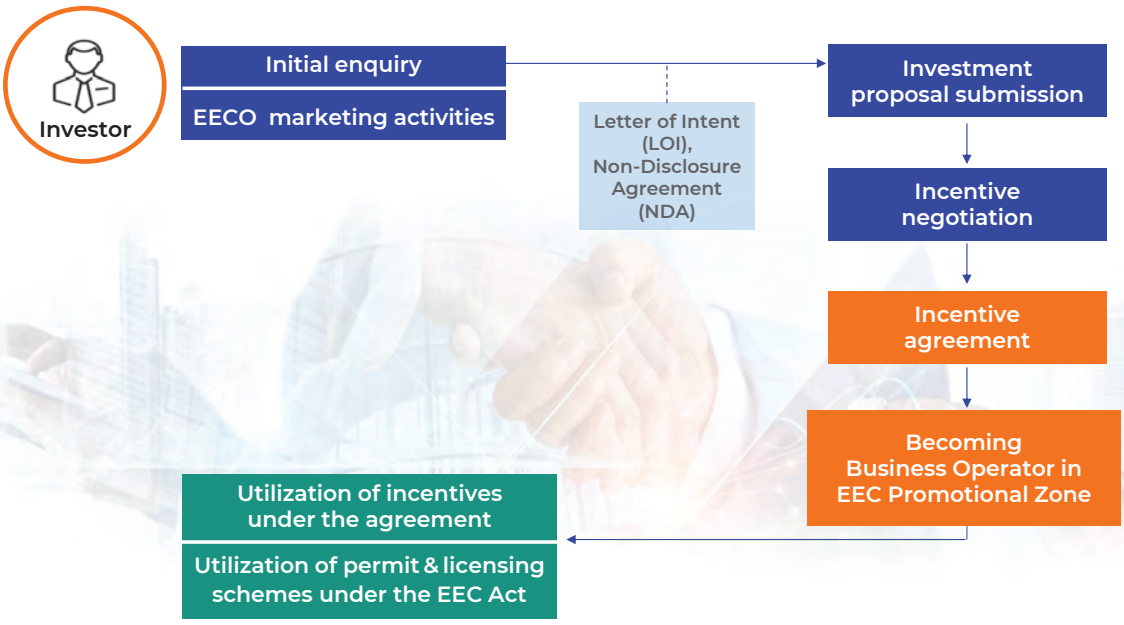
Goal promoting new investment in Low-carbon technology and creating carbon credit demand >100,000 tCO2e

Participants

Key activities

1. **Assessment of Greenhouse gas (GHG) emissions in the organization (supported by consultants)**
   - Development of the organization's carbon footprint.
   - Identification of measures to achieve net-zero emissions .
   - Identification of Carbon offsetting activities.
2. **Reassessment of CFO and Net Zero Pathway**
   - Verified by a certified body registered with the Thailand Greenhouse Gas Management Organization (TGO).
3. **Supporting Carbon Offsetting Efforts**
   - Facilitating participation in carbon offsetting by purchasing carbon credits from voluntary projects in Thailand.

EEC Investor Journey



Consideration for granting EEC investment incentives

Dimension	Criteria
Strategic	1. The nature of industry, whether it is a special-targeted industry or a business relating to or beneficial to the development and promotion of the special-targeted industry under the EEC Act
	2. Importance of the business to the supply chain, value chains and business ecosystem of special-targeted industries
	3. Pioneer to the Thai industry
Economic	1. Investment value, the actual investment to be made
	2. Investment plan and the timeline to start business operation
	3. Local content or impact on domestic industries
	4. Level of technology to be used in business operation
	5. Knowledge and technology transfer plan
	6. Research and development (R&D) activities involved
	7. Employment or participation of local labour force
Environmental	1. Sustainability in business operation
	2. Contribution to greenhouse gas reduction, carbon neutrality or Net Zero
Social	1. Participation in local community development and support

EEC INVESTMENT INCENTIVES

Condition

Operation in one of the EEC Promotional Zones
(37 as of 1 Jan 2024)

Promoted 5 business clusters

- Medical & Health
- Digital
- Next-generation automotive
- BCG
- Services

Tax &Duties

Exemption of CIT (Corporate Income Tax)	=>	Up to 15 years
Reduction of CIT (Corporate Income Tax)	=>	Up to 50% for 10 years

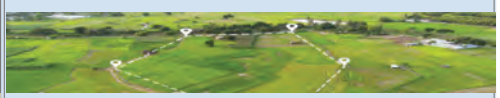
Exemption/Reduction of duties

Benefits similar to free zone, bonded warehouse, or free trade zone operators

Business Operation

EEC Visa + EEC Work permit

Waiver of professional license
e.g. medical services, engineer



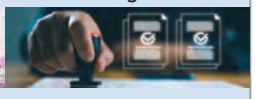
Owning land for business operation

Long-term lease of land or real estate
50 years + 49 years

Owning condominium for business operation and residing

Conducting financial transaction in foreign currency

- Exemption from the laws governing exchange control
- Right to use foreign currency for the payment of goods or services



Licensing & Permit under 14 Acts of Parliament from the EECO

EEC
EASE OF BUSINESS OPERATION

EEC
VISA
and Work Permit

Types and qualifications of EEC Visa

EEC-S : Specialist	EEC-E : Executive	EEC-P : Professional	EEC-O : Others
1	2	3	4 Dependents
			
Nominated by and having a valid employment contract with the permitted Business Operator			
Must not have prohibited characteristics according to immigration law			
✓ Having knowledge and skills in the professional fields related to the special target industries or related businesses ✓ Having evidences of being specialist e.g. document certifying educational qualification of at least Master's degree or equivalent and details of related working experiences of at least 3 years	✓ A person whose responsibilities involve management functions and has the authority to make decisions in business operations ✓ Having evidences to demonstrate their managerial responsibilities such as organizational structure, duties and responsibilities, employment certificates, educational qualification, and professional experience.	✓ A person who has professional experience in a field related to special target industries or related businesses. ✓ Having evidences of being professional e.g. details of related working experiences of at least 5 years, except in the case of science or new knowledge that the experience of at least 1 year is allowed.	✓ Spouse by common law ✓ Parents, legitimate children, adopted children, or children (under 20) of a spouse ✓ Accompanying people

Scope and Privilege of EEC Visa

EEC-S , E , P , O

Permission to stay in the for the maximum of 10 years

No restrictions on number of entries/

The initial entry stamp is valid for a period not exceeding 5 years

Notification of residence in accordance with the Immigration Bureau's regulations can be done through the online reporting system

Access to Fast Track service at the country's international airports

Stamp verification, visa type change, and extension at any Immigration Offices in EEC

EEC-S , E , P

Right to apply for the EEC work permit without being required to obtain a work permit under the law governing foreigners' working management

Flat personal income tax rate of 17%

EEC
LICENSING & PERMIT SCHEME

List of Licenses Issued Directly by EECO
Section 43

Legislations	Example of Licenses
1. The law on land excavation and land filling	- Land excavation or land filling permit
2. The law on building control	- Construction, modification or demolition of the building permit - Certificate of construction, modification or relocation of a building
3. The law on registration of machines	- Registration of ownership of machinery - Permission to transfer machinery
4. The law on public health	- License to operate a health-hazardous business - License for business detrimental to Health
5. The law on immigration	- Permission for foreigners to stay in the Kingdom
6. The law on commercial registration	- Certificate of commercial registration
7. The law on factory	- Factory licenses
8. The law on land allocation	- Land development Licenses

List of Licenses Issued Directly by EEC Policy Committee
Section 37

Legislations	Example of licenses
1. The Announcement of the National Executive Council No. 58, dated January 26th, 1972, with the exception of the provision in respect of the duty and authority of the Ministry of Finance, such as water supply	- Concession Permit for Water Supply
2. The law on navigation in Thai waters	- Permission to construct things by encroaching on the river
3. The law on royal irrigation	- Permission to use water from irrigation waterways
4. The law on energy industry	- License for the Energy Industry Operation, such as an energy production permit
5. The law on concession highways	- Concession Permit for Building or Maintaining Highways
6. The law on nuclear energy for peace	- License to produce, possess, or use radioactive materials - License to produce, possess, or use nuclear materials

添付 3 現地ワークショップ関連資料

3.3 TGO 発表資料

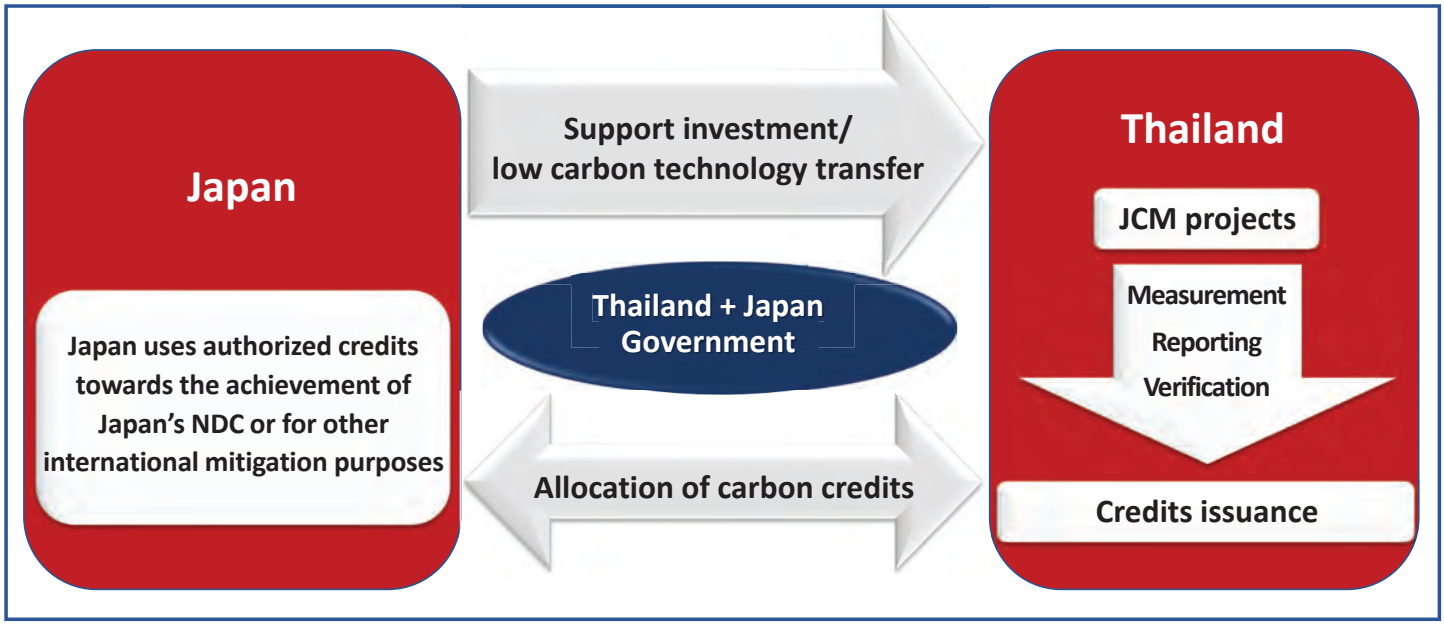
Business Seminar
"Investment Opportunities for Sustainability in Eastern Economic Corridor (EEC)"
under EEC-Osaka City-to-City program

Introduction of JCM Scheme in Thailand

Thailand Greenhouse Gas Management Organization

Thursday, January 28, 2024

Joint Crediting Mechanism: JCM



NDC: Nationally Determined Contributions (NDCs)

JCM Projects

Project type	Source of Financial support	Contact	Details
JCM Model Project	Ministry of Environment	GEC	- Call for proposal in early of April - JCM Global match
Private-Sector-Led Promotion of Low Carbon Technology	NEDO	NEDO	
Private JCM	Private entity		

GEC - Global Environment Centre Foundation
NEDO - New Energy and Industrial Technology Development Organization

FY2024 JCM financing programme for JCM model projects

JCM THE JOINT CREDITING MECHANISM

Global Environment Centre Foundation | Access | Contact | Search | Japanese

Overview | Call for Proposals | Projects | News | Publications | JCM Global Match

2024. 04. 05

Call for Proposals: Financing Programme for JCM Model Projects in FY2024

※Application Closed

The Global Environment Centre Foundation (GEC) as an implementing organization for the Financing Programme for Joint Crediting Mechanism (JCM) Model Projects in FY2024, is soliciting the project proposals for the financing programme.

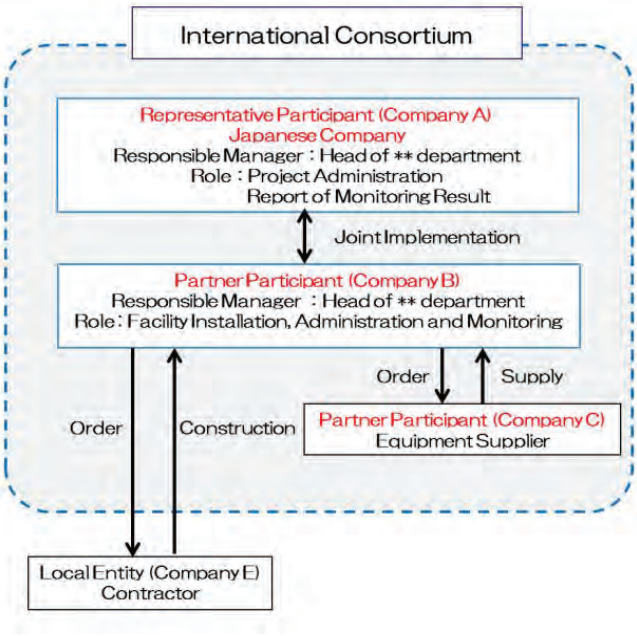
Documents

- Recent Development of the Joint Crediting Mechanism (JCM) [PDF]
- Guidelines for Submitting Proposals (Tentative translation)[PDF]
- Overview of JCM Eco Lease scheme [PDF]
- Possible_Contributions_of_JCM_Projects_to_SDGs[PDF]
- Guideline on Gender Equality for the JCM Model Project[PDF]
- Agreement on International Consortium (Example for the JCM Model Project)[WORD]
- Agreement on International Consortium (Example for the Eco Lease Project)[WORD]
- Project Idea Note for the JCM Project (Form No.3-16) [WORD]
- Agreement on the Allocation of JCM Credits (Form No.5 for the JCM Model Project) [WORD]
- Agreement on the Allocation of JCM Credits (Form No.5 for the Eco Lease Project) [WORD]

https://gec.jp/jcm/kobo/mp240405/

https://ghgreduction.tgo.or.th/en/news-jcm/item/5438-2024-07-09-07-09-42.html

Development of JCM Model Projects



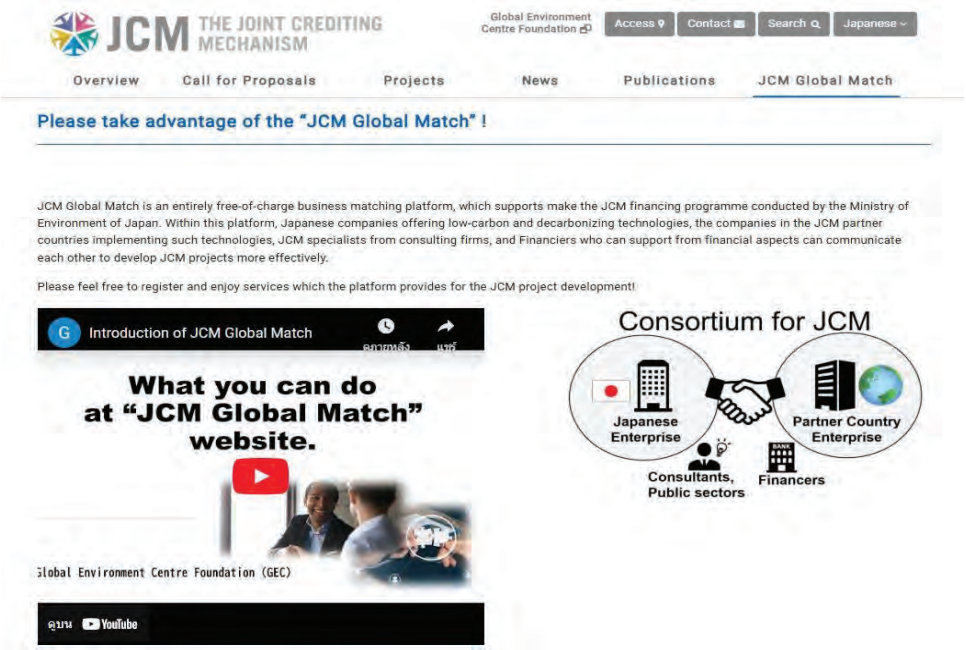
Thai project participant

- Receive subsidy for implementation of the project
- Implement the project and measure GHG emission reduction

Japanese project participant

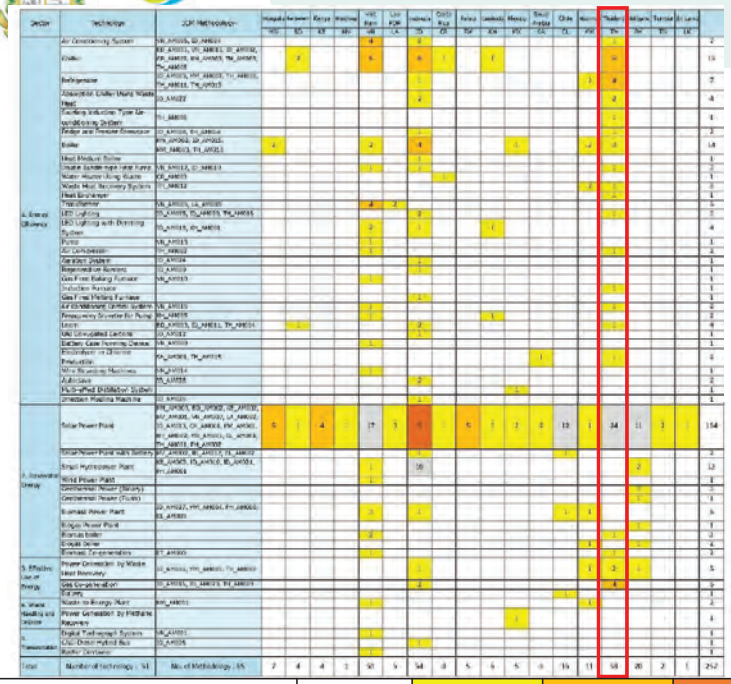
- Forward subsidy from the Japanese government/entity to Thai project participant or provide funding for the project
- Report and Request of credit issuance

JCM Global Match



https://gec.jp/jcm/globalmatch/

Criteria for selection the JCM Model Projects



Cost effectiveness

Cost-effectiveness of emission reductions of GHGs in terms of financial support and its certainty Cost-effectiveness for GHG emission reductions [JPY/ tCO2eq]

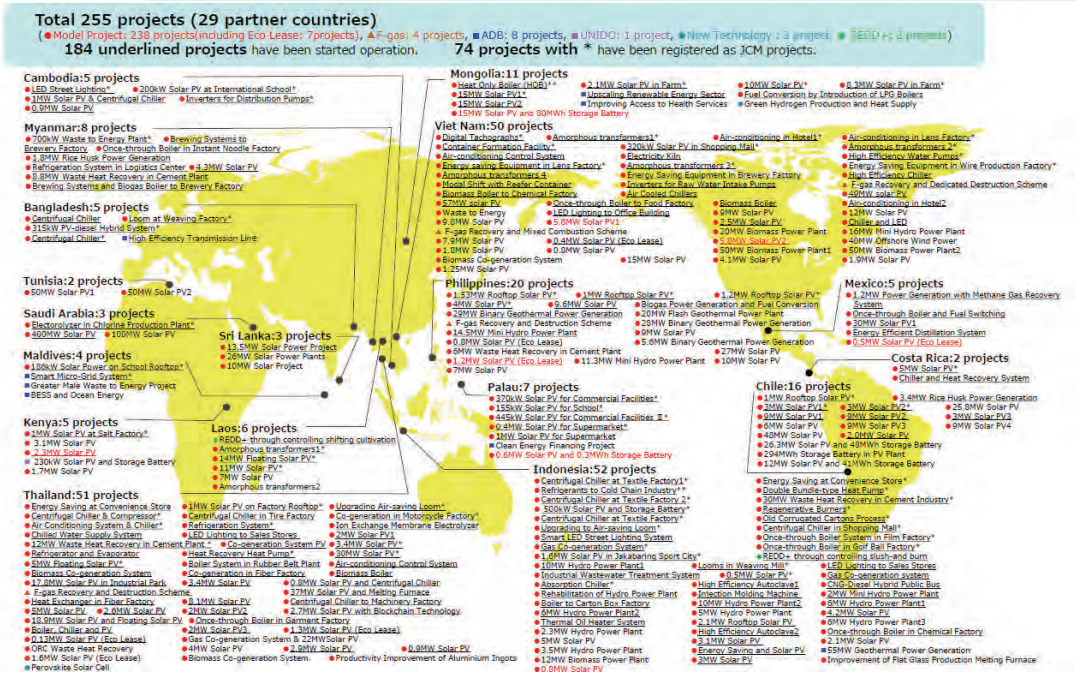
$$= \frac{\text{Amount of financial support [JPY]}}{\text{Total emission reductions of GHGs [tCO2eq]}}$$

Cost-effectiveness of financial support and its certainty to reduce 1 ton of GHG emissions will be evaluated.

Cost-effectiveness of GHG emission reductions should be 4,000 JPY/tCO2eq or lower.

Percentage of Financial Support:	UP to 50% (0 projects)	UP to 40% (1-3 projects)	UP to 30% (4-7 projects)	UP to 20% (8-9 projects)	No applicable (more than 10 projects)

JCM Model Projects



JCM Model Projects

Renewable Energy


Solar power, FARMLAND Co., Ltd., Chile

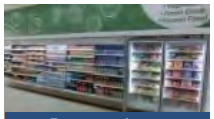

Floating Solar PV,TSB Co., Ltd.,Thailand


Hydro Power Plant, Toyo Energy Farm Co., Ltd., Indonesia


Biogas Power Generation, ITOCHU Corporation, Philippines


Binary Power Generation Project at Geothermal Power Plant, MHI, Ltd., Philippines

Energy efficiency [Consumer sector]


Energy saving at convenience stores, Panasonic, Indonesia


High-efficiency refrigerator, Mayekawa MFG, Indonesia

Energy efficiency [Industrial sector]


Optimization in petroleum refining plant, Yokogawa Electric Corp. Indonesia

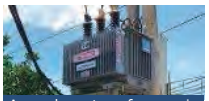

Energy-saving of mobile communications base transceiver stations, KDDI Corp. Indonesia

Effective Use of Energy

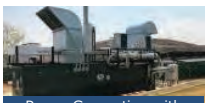

Gas Co-generation System and Absorption Chiller, Kansai Electric Power, Thailand

Energy efficiency [Urban sector]


LED street lighting system with wireless network control, MinebeaMitsumi, Cambodia


Amorphous transformers in power distribution, Yuko-Keiso, Vietnam

Waste Handling and Disposal


Power Generation with Methane Gas Recovery System, NTTDATA, Mexico


Waste to Energy Plant, JFE engineering, Myanmar

Transportation


CNG-Diesel Hybrid Public Bus, Hokusan Co., Ltd., Indonesia

Private-Sector-Led Promotion of Low Carbon Technology

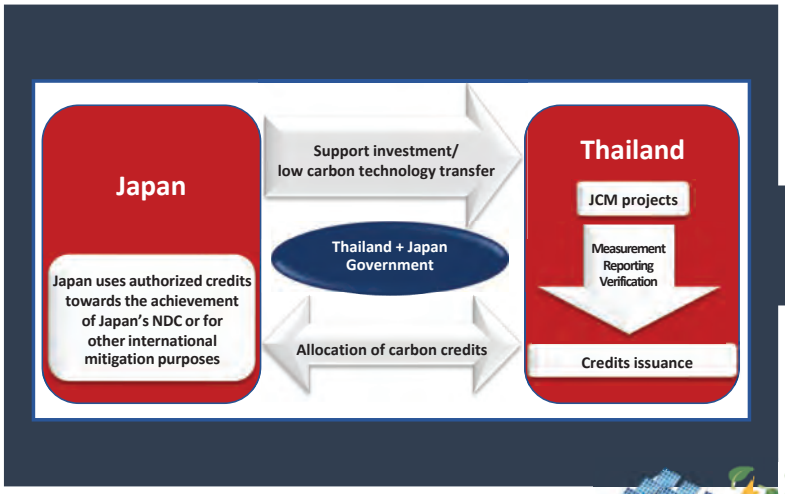
NEDO International expansion support

1. International Demonstration Project on Japan's Technologies for Decarbonization and Energy Transition
2. Program to Facilitate Private-Sector-Led Promotion of Low Carbon Technology Overseas (JCM)
3. Deep-Tech Startup Support Program

	① International Demonstration Project	② Private-Sector-Led Promotion of Low Carbon Technology (JCM)	③ Deep-Tech Startups Support Program
Summary	Contribute to the diffusion and development of energy-related industries, energy transition and decarbonization in Japan and abroad, and energy security in our country	Implement overseas projects utilizing the Joint Crediting Mechanism, etc., to quantify the amount of reduced/absorbed greenhouse gas emissions achieved by using Japan's superior low-carbon technology and systems and will send out the results as its international contribution consequently.	Supporting startups in the deep tech area that are unlikely to generate a cycle of innovation in a natural way, but if realized, will contribute to solving social issues.
Budget/case	**4 billion JPY** (demonstration phase)	**1 billion JPY** (demonstration phase)	**3 billion JPY** (All phase)
Subsidy rate	Large enterprise: **50%** SME: **67% (2/3)**	**100%** (national commissioned)	**67% (2/3)**
Signing of MOU	Required	Required	Optional
Applicant	**Japanese companies** and their **overseas subsidiaries**	**Japanese companies** and their **overseas subsidiaries**	**Startup companies** developing technology in Japan
Call for Proposals	Twice/year	Once/year	4 times/year

100976880.pdf

Additional Benefit for Thai Project Participants from the Development of JCM Projects



Use of carbon credits in Thailand

For offsetting carbon footprint of
- **Organization**
- **Product**
- **Event**
- **individual**

Expected Demand Growth

Climate Action Leading Organization

Disclosure One-Report

Japan - GX ETS

Japan - GX ETS

Reforming to regulatory scheme from Voluntary ETS

• PM Kishida's Policy Speech (30 Jan. 2024): "We will promote the legalization of the carbon pricing system toward its full-scale introduction in FY2026, with a view to making participation mandatory for large companies and establishing a certification system for individual companies' reduction targets".

Eligible Credit

• GX2040Vision: Relocation of industry, industry reform, and GX market

J Credits and JCM

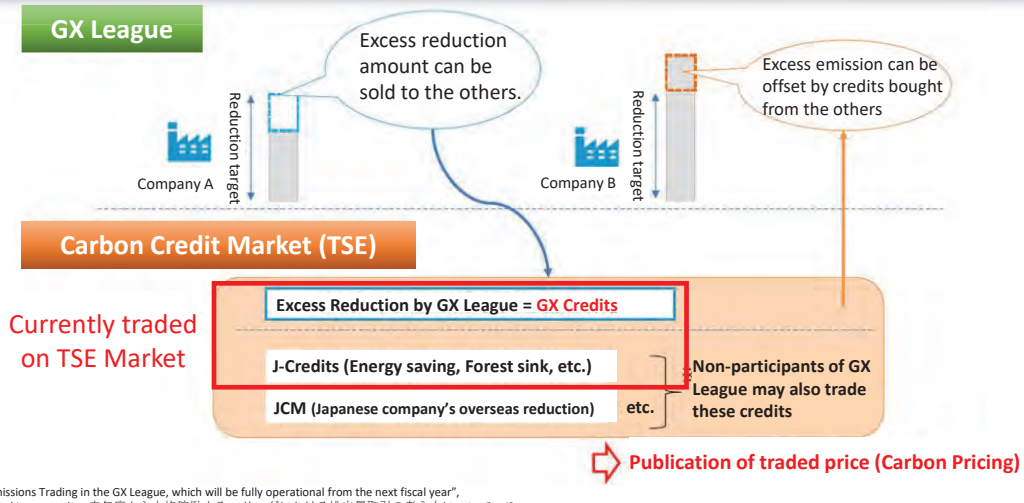
✓ Additional credits (5% limit of total emission)

National Assembly
30 Jan. 2024

Carbon Credit Market at TSE

Relations between GX League and Carbon Credit Market

- GX League initiates the establishment of carbon credit market in which GX League participants can trade excess reduction credits of GX-ETS or other credits available to achieve their own reduction targets of GHG emission.



(Source) METI、" The Direction of Emissions Trading in the GX League, which will be fully operational from the next fiscal year", https://gx-league.go.jp/aboutgxleague/document/02_来年度から本格稼働するGXリーグにおける排出量取引の考え方について.pdf

Implementation of JCM in Thailand

MoC Signing Ceremony

19 Nov 2015

Extension of MoC

4 Nov 2016

Adoption of A6.2 Guidance
- **ITMOs**
- **Corresponding adjustment**
- **Reporting to UNFCCC**

13 Nov 2021

Carbon Credit Management Guideline and Mechanism

16 Mar 2022

New MoC* Signing Ceremony

8 Jul 2024

MoC: Memorandum of Cooperation on JCM Source: https://ghgreduction.tgo.or.th/th/download-jcm/73-2017-11-28-15-33-05.html?start=12

A6.2: Article 6 paragraph 2 of the Paris Agreement Source: https://unfccc.int/process/the-paris-agreement/cooperative-implementation

Current Status of JCM in Thailand

JCM Thailand - Japan

Signed on 19 Nov 2023

	JCM Model Project	Registered project	Issued project
Number of Project	48	11	5
GHG reduction	244,978 tCO_2eq/year	58,096 tCO_2eq/year	4,032 tCO_2eq

49) F-gas Recovery and Destruction Project

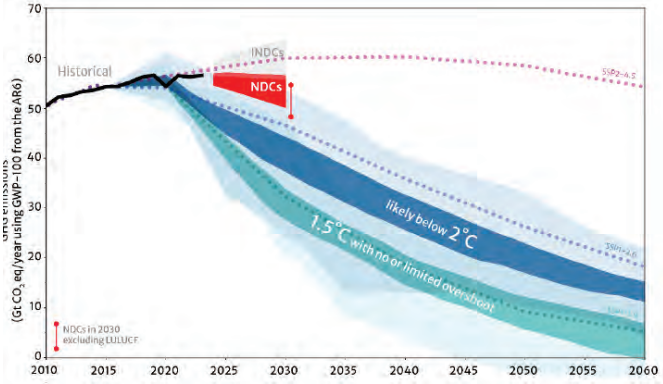
50) Power Grid Utilizing Online Voltage-var (Q) Optimal Control (OPENVQ) with ICT

As of December 31, 2024

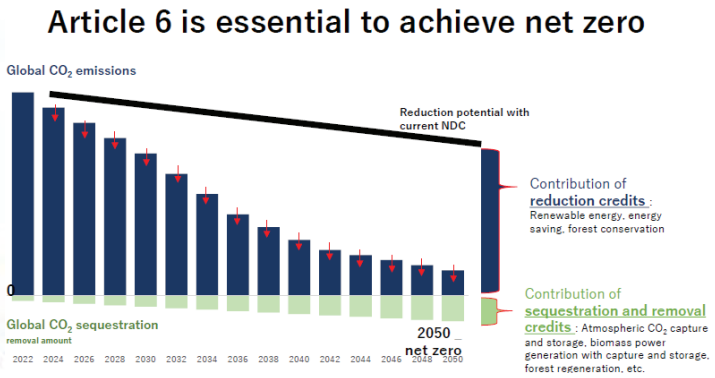
15

Article 6 of the Paris Agreement and net-zero

Article 6 is expected not only to assist achievement of current NDCs but also to contribute to global emission reductions (fill the gap between the current NDCs and net-zero)



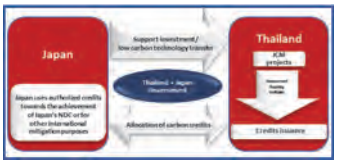
Souse: UNFCCC (FCCC/PA/CMA/2024/10)

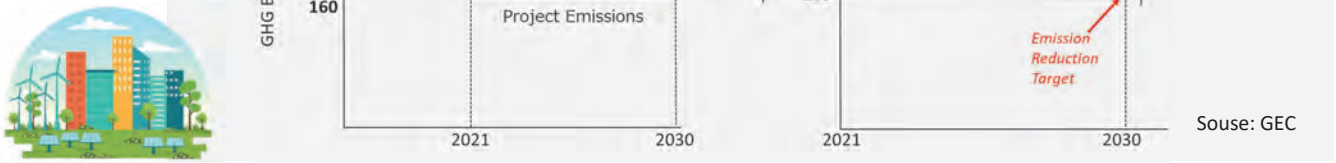


Souse: IGES

Contribution of JCM Projects to Global Emission Reductions

- Actual emissions of country A in 2030 : 160
- Reported emissions of country A in 2030 : 180 (after applying corresponding adjustment of 20)
  - ✓Country A can demonstrate emission reductions under the Paris Agreement
- Actual emissions of country B in 2030 : 180
- Reported emissions of country B in 2030 : 160 (after applying corresponding adjustment of 20)
  - ✓Country B can achieve its emission reduction target under the Paris Agreement
- Sum of plausible emissions of country A and B in 2030 : 360 (200+160)
- Sum of actual emissions of country A and B in 2030 : 340 (160+180)
  - ✓Implementation of Article 6 contributes global emission reductions





Souse: GEC

Project Development Process: JCM Track under Premium T-VER

JCM Planned Project	JCM Project Registration	JCM Credits Issuance	International transfer
Japanese ministry/ PPs submit PIN of a planned project to JC	PPs submit documents to Government of Japan and TGO for registration	PPs submit documents to Government of Japan and TGO for credit issuance	TGO cancels the credits in the special account for the JCM in the Thai registry and notifies the Government of Japan
JC approves planned projects	PPs open an account in the Thai registry	Government of Japan considers and approves the issuance of the credits	Government of Japan issues the corresponding amount of credits in a holding account(s) of the JCM registry of Japan
	Government of Japan approves registration	DCCE considers and approves fulfillment of authorization	Government of Japan provides authorization for the credits, completing the first international transfer (ITMOs)
	PPs submit an authorization request to DCCE/DCCE considers and provides authorization for the credits to be generated from the JCM project	TGO approves and issues credits in special account and holding account (Thai PP)	
	TGO approves and registers the project under Premium T-VER		

PPs – Project Participants
JC – Joint Committee

LoA - Letter of Authorization
PIN - Project Idea Note
ITMOs - Internationally Transferred Mitigation Outcomes
DCCE - Department of Climate Change and Environment
TGO - Thailand Greenhouse Gas Management Organization
T-VER – Thailand Voluntary Emission Reduction Program

Eligible activities: Carbon Credit Management Guideline and Mechanism

- Being a project that leads to reduction of greenhouse gas emissions from sources or enhancement of greenhouse gas sinks and reservoirs in addition to those prescribed in the national greenhouse gas mitigation plans;
- Being a project that supports greenhouse gas reduction in order to achieve the goals of the Nationally Determined Contributions (NDC) and Thailand's Long-Term Low Greenhouse Gas Emission Development Strategy (Thailand LTS);
- Being a project that sets forth a fair allocation of carbon credits, by considering investment contribution or the international rules or framework of an international agreement, or the applicable rules and regulations;
- Being a project with a crediting period not exceeding the timeframe of the NDC implementation period;
- Being a project that promotes development and transfer of advanced technology or innovation and requires a large amount of investment and promotes access to financial resources to address climate change and reduce greenhouse gas emissions from sources or enhance greenhouse gas sinks and reservoirs;
- The greenhouse gas mitigation outcomes from a project operated in Thailand that are used for an international objective shall be certified in tons of carbon dioxide equivalent (tCO_2eq).

Potential activity under the International Cooperation Framework

1. CAPTURE, STORAGE OR UTILIZATION

- Carbon Capture and Storage: CCS
- Carbon Capture and Utilization: CCU
- Bioenergy with Carbon Capture and Storage: BECCS
- Direct Air Capture: DAC

2. RENEWABLE ENERGY OR ALTERNATIVE ENERGY TO FOSSIL FUELS

- Green Hydrogen Energy
- Tidal Energy
- Offshore Wind Power
- Geothermal Energy
- Sustainable Aviation Fuel: SAF
- Green Ammonia Production and Utilization for the Energy Sector

3. ENERGY EFFICIENCY IMPROVEMENT IN BUILDINGS, FACTORIES, OR HOUSEHOLDS

- High-efficiency Electric Furnaces and Electric Boilers as Fossil Fuel Furnace Replacements
- High-efficiency Electric Motors for Industrial Processes

4. ENERGY EFFICIENCY IMPROVEMENT IN POWER GENERATION OR HEAT PRODUCTION

- Energy Storage
- Green Pellet Production from Agricultural Waste for Sustainable Heat and Power Generation

Potential activity under the International Cooperation Framework

5. TRANSPORTATION, ELECTRIC VEHICLES, OR ENGINE EFFICIENCY IMPROVEMENT

- Plug-in Hybrid Electric Vehicles (PHEVs) with a Fuel Cell

6. PROCESS IMPROVEMENT OR INDUSTRIAL WASTE MANAGEMENT

- Carbon Cured Cement
- E-methanol Production from CO_2 and Green Hydrogen

7. PROCESS IMPROVEMENT OR WASTE MANAGEMENT IN AGRICULTURE AND LIVESTOCK

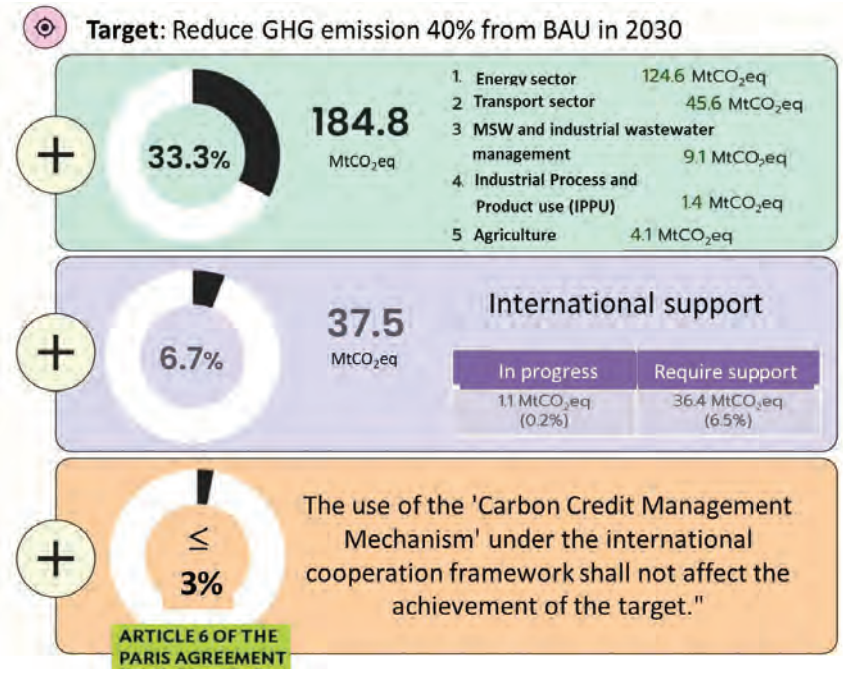
- Livestock Feed Improvement
- Animal Breeding Improvement
- Advanced Biomethanol Production from Agricultural Waste and Residues

Contribution to the Implementation of Thailand's NDC

The Cabinet approved the National Greenhouse Gas Mitigation Action Plan for 2021–2030
on December 11, 2024

Vision:

Thailand has achieved its greenhouse gas reduction target for 2030 under the Paris Agreement, as communicated to the United Nations Framework Convention on Climate Change (UNFCCC).



Contribution to the Implementation of Thailand's NDC and LT-LEDS

Supports greenhouse gas reduction in order to achieve the goals of the Nationally Determined Contributions (NDC) and Thailand's Long-Term Low Greenhouse Gas Emission Development Strategy (LT-LEDS)

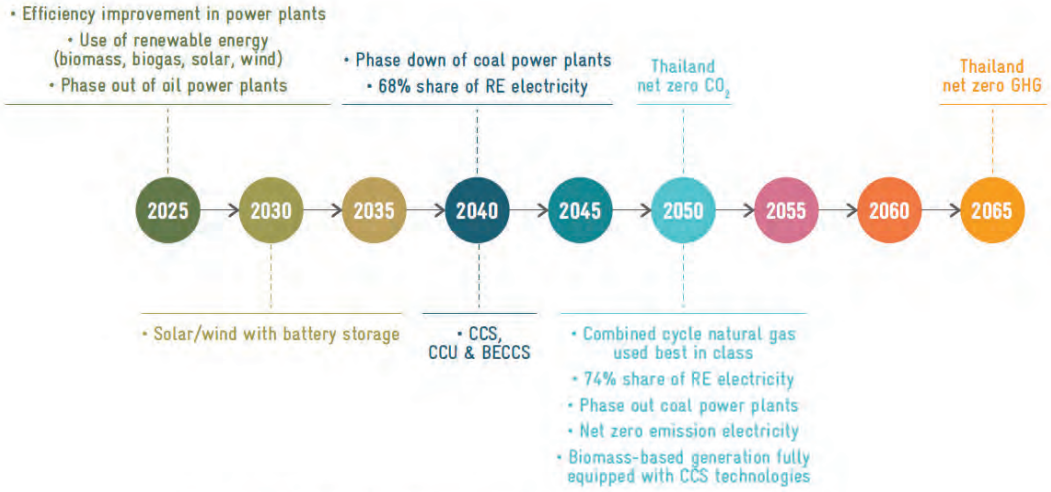


Figure 4-4 Net zero GHG emission timeline for Thailand's power generation

SD & Safeguard

Safeguards

- Results of consideration of various rights (Rights) and compliance with national laws/regulations and international
- Assessment of negative impacts (Safeguards) according to laws/regulations
- Measures to prevent and reduce environmental impacts Society and Economy (Do-no-net-harm)

Sustainable Development

- Projects must contribute to Thailand's Sustainable Development Goals (SDGs) in at least two sides

https://sdgs.un.org/goals

Contributions to sustainable development goals in Thailand

ex. Demonstration Project of Perovskite Solar Cell System with Battery Storage and Energy Management System

Affordable and Clean Energy:
Enable the adoption of green electricity generation and use, energy storage and energy management system for residential use

Industry, Innovation and Infrastructure:
Promote use of advanced low carbon technologies

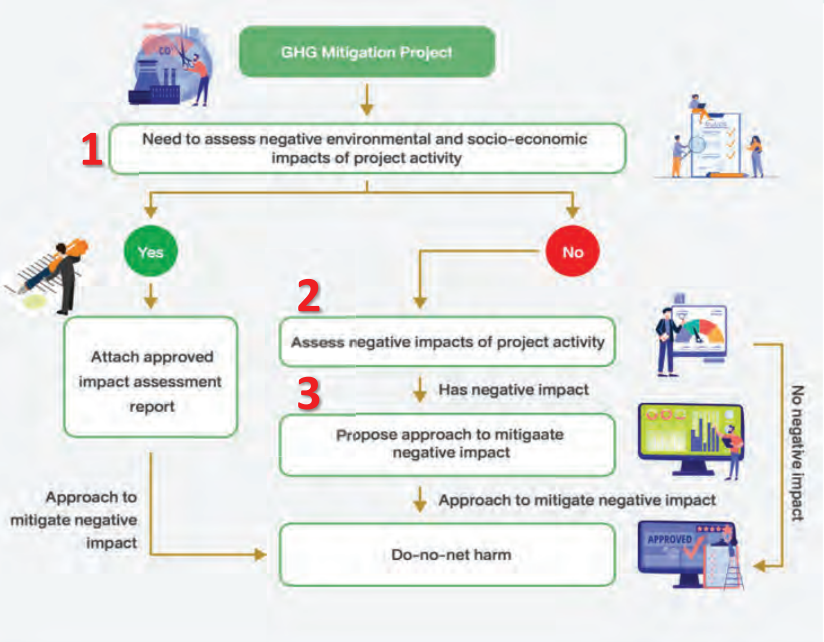
Responsible consumption and production:
Facilitate green electricity generation and use in the residential sector

Partnerships for the Goal:
Enhance international partnerships to drive sustainable development efforts

Safeguards

The prevention of negative project impacts and practices to ensure that the project does not cause negative impacts consists of three main steps:

Step 1: Assessing whether the negative impacts comply with laws/regulations
Step 2: Evaluating the level of negative impacts of the project
Step 3: Proposing measures for managing the negative impacts of the project



https://ghgreduction.tgo.or.th/en/about-premium-t-ver/sustainable-development-assessment.html

添付 4 ユアサグランドフェア関連資料

4.1 都市間連携パネル展示

タイ都市間連携事業 โครงการความร่วมมือระหว่างเมืองในประเทศไทย

NIPPON KOEI　YUASA

都市関連系事業の概要 / ภาพรวมโครงการความร่วมมือระหว่างเมือง

都市間連携事業は2013年より開始され、アジアを中心に13か国の56都市・地域と日本の23自治体が参加しています。

โครงการความร่วมมือระหว่างเมืองเริ่มขึ้นในปี 2013 โดยมีเมืองและภูมิภาครวม 56 แห่งใน 13 ประเทศ ซึ่งส่วนใหญ่อยู่ในภูมิภาคเอเชีย และมีรัฐบาลท้องถิ่น 23 แห่งในญี่ปุ่นเข้าร่วม

本事業は都市レベルでの脱炭素化の推進に向け、海外都市と日本の都市が連携することで、1) 脱炭素を推進する都市における基盤制度の構築支援 および 2) 民間レベルでの脱炭素プロジェクトの形成支援（JCM案件形成等）を目指します。

โครงการนี้มีจุดมุ่งหมายเพื่อส่งเสริมการลดการปล่อยคาร์บอนในระดับเมืองโดยร่วมมือกับเมืองในต่างประเทศและเมืองต่างๆ ในประเทศญี่ปุ่นเพื่อให้ 1) การสนับสนุนสำหรับการสร้างระบบโครงสร้างพื้นฐานในเมืองที่ส่งเสริมการลดการปล่อยคาร์บอน และ 2) การสนับสนุนการลดการปล่อยคาร์บอนในภาคเอกชน เรามุ่งหวังที่จะสนับสนุนการก่อตั้งโครงการ (เช่น การจัดทำโครงการ JCM เป็นต้น)

■支援対象 / เป้าหมายการสนับสนุน：

日本の民間企業や大学等が、本邦自治体と共に、海外の地域・都市の実情に応じて脱炭素社会形成を促進する事業

โครงการที่ได้รับจากเอกชน มหาวิทยาลัย ฯลฯ ของญี่ปุ่นทำงานร่วมกับรัฐบาลท้องถิ่นของญี่ปุ่นเพื่อส่งเสริมการสร้างสังคมที่ลดการปล่อยคาร์บอนตามสภาพจริงของภูมิภาคและเมืองในต่างประเทศ

■支援対象 /ประเทศเป้าหมาย：

開発途上国（JCMパートナー国及び候補国を優先）

ประเทศกำลังพัฒนา (โดยให้ความสำคัญกับประเทศพันธมิตร JCM และประเทศที่เป็นผู้สมัคร)

■対象分野 / ขอบเขตงานตามเป้าหมาย：

燃料の燃焼や、供給または電気や熱の使用にともなって排出されるCO2の削減に資する省エネルギー、再生可能エネルギー、水素等の脱炭素技術 /脱炭素社会形成を促進する事業 /各分野における設備導入等を促進するための制度構築支援

การประหยัดพลังงาน, พลังงานหมุนเวียน, และเทคโนโลยีลดคาร์บอนโดยใช้ ไฮโดรเจนที่ช่วยลดการปล่อยคาร์บอนไดออกไซด์ที่เกิดจากการเผาไหม้เชื้อเพลิงการและการใช้ ไฟฟ้าและความร้อนที่จ่ายให้ / ธุรกิจที่ส่งเสริมการสร้างสังคมปลอดคาร์บอน / การสนับสนุนการสร้างระบบเพื่อส่งเสริมการติดตั้งอุปกรณ์ในธุรกิจแต่ละสาขา

大阪市でのビジネスワークショップ
การสัมมนาทางธุรกิจที่โอซาก้า

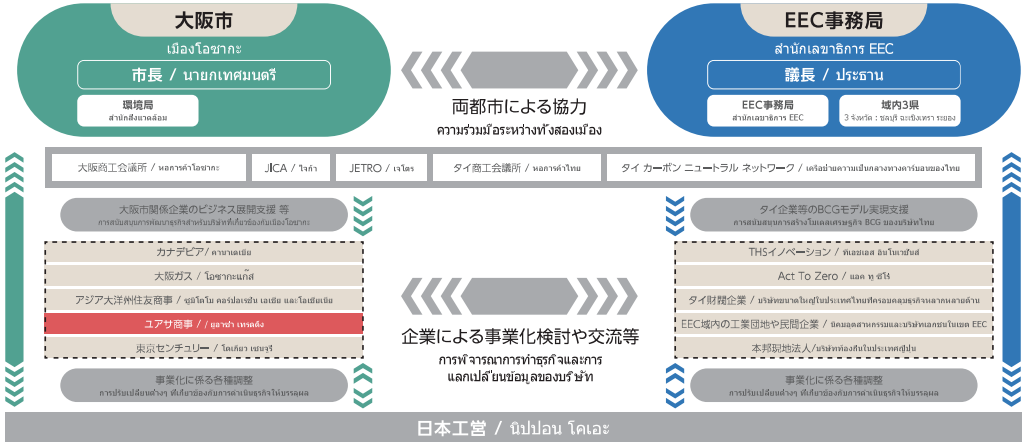
大阪市での政策対話の様子
การสนทนานโยบายที่โอซาก้า

大阪市とタイ王国・東部経済回廊(EEC)は、2019年10月から都市間連携を実施、2022年2月には「カーボンニュートラル実現に向けた協力覚書」を締結しています。

เมืองโอซากะและระเบียงเศรษฐกิจพิเศษภาคตะวันออก (EEC) ของราชอาณาจักรไทยได้ดำเนินการร่วมกันระหว่างเมืองต่าง ๆ นับตั้งแต่เดือนตุลาคม 2019 และในเดือนกุมภาพันธ์ 2022 โดยได้ลงนามใน "บันทึกความร่วมมือเพื่อบรรลุความเป็นกลางทางคาร์บอน"

本事業では、両国企業のビジネス機会を支援するプラットフォームとして、タイ政府の掲げるBio-Circular-Green(BCG)経済モデルおよびタイ版脱炭素ドミノの実現に向け、脱炭素ノウハウの共有や脱炭素技術の普及展開、JCM設備補助事業の形成を支援しています。

ความร่วมมือดังกล่าวเป็นแพลตฟอร์มที่สนับสนุนโอกาสทางธุรกิจของบริษัททั้งสองประเทศ โดยแบ่งปันความรู้ความชำนาญในการลดคาร์บอน ถ่ายทอดและพัฒนาเทคโนโลยีการลดคาร์บอน และสนับสนุนโครงการสนับสนุนด้านอุปกรณ์ JCM เพื่อบรรลุโมเดลเศรษฐกิจ Bio-Circular-Green (BCG) ที่รัฐบาลไทยกำหนดขึ้นและการผลักดันการลดคาร์บอนตามแนวทางของประเทศไทย



EECの概要 / ภาพรวมของ EEC

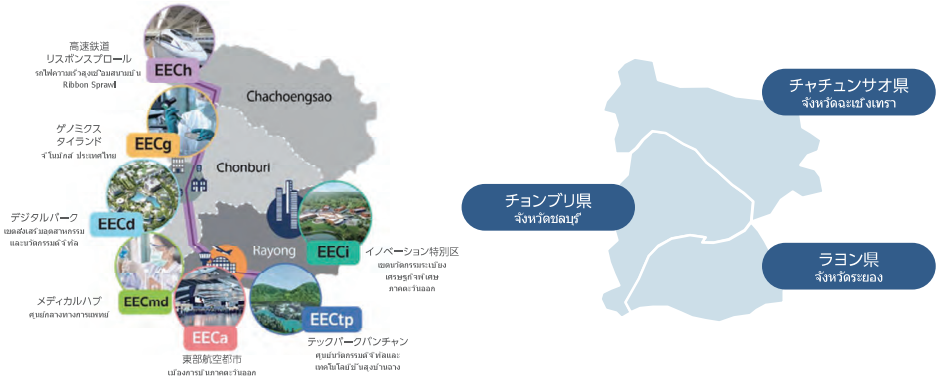
EECはタイの国家戦略「タイランド4.0」の中核地域で、バンコク都東部の3県（チョンブリ県、チャチュンサオ県、ラヨン県）が対象。

EEC เป็นพื้นที่หลักของแผนยุทธศาสตร์ชาติ " ประเทศไทย 4.0" ของประเทศไทย โดยมีการกำหนดเป้าหมายเป็น 3 จังหวัดในภาคตะวันออกของกรุงเทพมหานคร (จังหวัดชลบุรี จังหวัดฉะเชิงเทรา และจังหวัดระยอง)

域内GDPはタイ全体の約15%程度を占める。　GDP ของภูมิภาคคิดเป็นประมาณ 15% ของ GDP ทั้งหมดของประเทศไทย

重点産業として12分野、またこれらの促進区域として特定産業特別区を指定。

มีการกำหนดอุตสาหกรรมจำนวน 12 สาขาที่สำคัญให้เป็นอุตสาหกรรมหลัก และกำหนดพื้นที่เฉพาะสำหรับอุตสาหกรรมดังกล่าวให้เป็นเขตอุตสาหกรรมพิเศษ



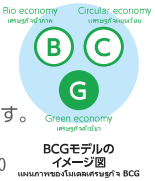
BCGモデルに資する投資機会 / โอกาสในการลงทุนที่สอดคล้องกับโมเดลเศรษฐกิจ BCG

EECとは、タイ政府が推進するBCG（バイオ・循環型・グリーン）経済モデルの推進地域のことです。

EEC เป็นเขตพัฒนาที่รัฐบาลไทยส่งเสริมโมเดลเศรษฐกิจ BCG (Bio, Circular, Green)

EECはグリーン・循環型経済投資促進のための5か年実行計画（2024-2028）を策定し、2030年までに産業分野におけるGHG排出量20%削減及びEECにおける新規投資40%増加を目標とします。

EEC ได้จัดทำแผนดำเนินงานเป็นระยะเวลา 5 ปี (ค.ศ. 2024-2028) เพื่อส่งเสริมการลงทุนด้านเศรษฐกิจสีเขียวและเศรษฐกิจหมุนเวียน โดยมีเป้าหมายเพื่อลดการปล่อยก๊าซเรือนกระจกในภาคอุตสาหกรรมลง 20% และเพิ่มการลงทุนใหม่จำนวน 40% ในเขตพัฒนา EEC ภายในปี 2030



BCGモデルのイメージ図
แผนภาพของโมเดลเศรษฐกิจ BCG

日本工営 会社概要 / ประวัติบริษัท นิปปอน โคเอะ

●会社名 / ชื่อบริษัท：日本工営株式会社 / บริษัท นิปปอน โคเอะ จำกัด
●設立 / วันที่จัดตั้ง：1946年6月7日 / 7 มิถุนายน ค.ศ. 1946
●資本金 / เงินทุนจดทะเบียน：500 百万円 / 500 ล้านเยน
●従業員数 / จำนวนพนักงาน：2,479名 / 2,479 คน
●事業内容 / เนื้อหาทางธุรกิจ：コンサルティング事業（国内・海外）/ ธุรกิจให้คำปรึกษา (ในประเทศ・ต่างประเทศ)
●会社サイト / เว็บไซต์ของบริษัท：https://www.n-koei.co.jp/consulting/english/

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9 รัชดาภิเษก เขตดินแดง กรุงเทพมหานคร ประเทศไทย

Phone / โทรศัพท์：
+66-2-246-4041

JCMを中心とした脱炭素事業のサポート
การสนับสนุนโครงการลดคาร์บอนโดยมุ่งเน้นที่โครงการ JCM เป็นหลัก