

Support for the Realization of Zero Carbon Society to Achieve Thailand 4.0

City-to-City Collaboration between Eastern Economic Corridor (EEC) and Osaka City Government

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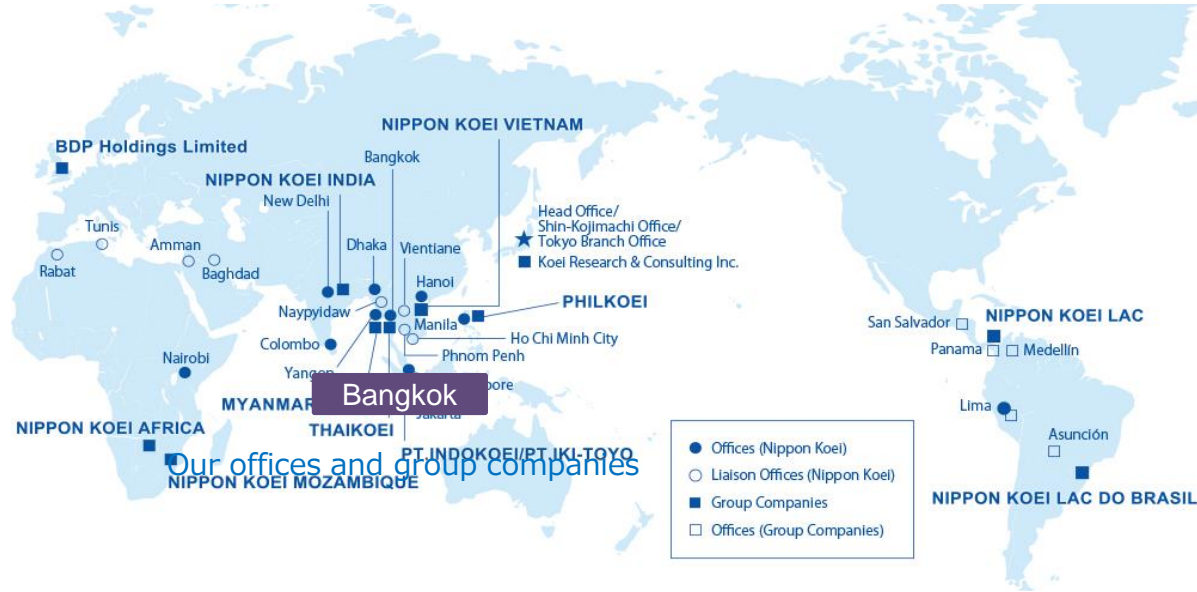
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NIPPON KOEI

1 : Introduction

Nippon Koei Co., Ltd. is the Japan's No.1 International Engineering Consultants who plays a role in nation building around the world through our consulting.



Since 2015, Nippon Koei has joined MOEJ scheme of city-to-city collaboration with Kawasaki, Yokohama, Toyama, Osaka, Fukuoka cities. Nippon Koei is supporting the following cities in this fiscal year (see right).



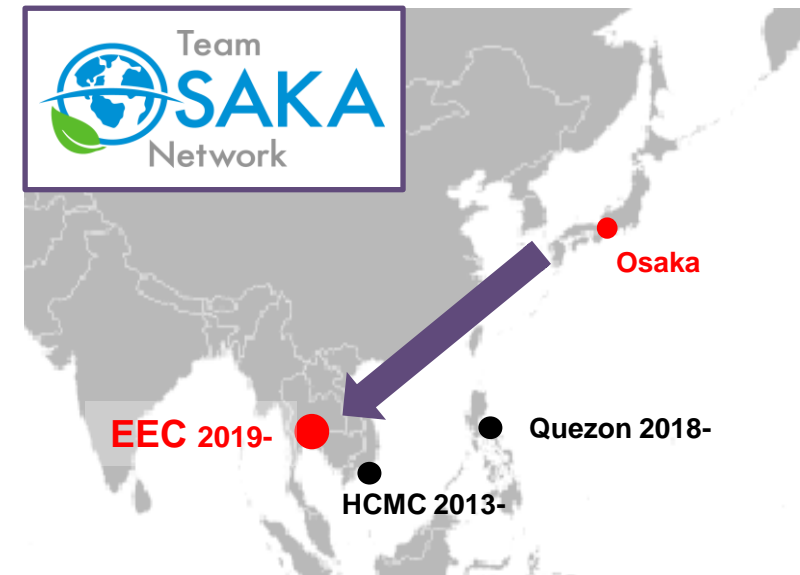
2 : EEC-Osaka city-to-city collaboration - Osaka City Government -

Osaka City Government is a designated city on the Kansai region (western part) of Japan which is the third largest city in Japan, following Tokyo and Yokohama.

Items	Osaka	EEC Chachoengsao, Chonburi, Rayong
Population [person]	2,756,034 [2021]	2,973,815 [2018]
Area [km2]	225	11,282
GDP, nominal [billion USD]	183.68 [2018]	79.45 [2019]



Support of technical and institutional aspects to realize zero carbon city



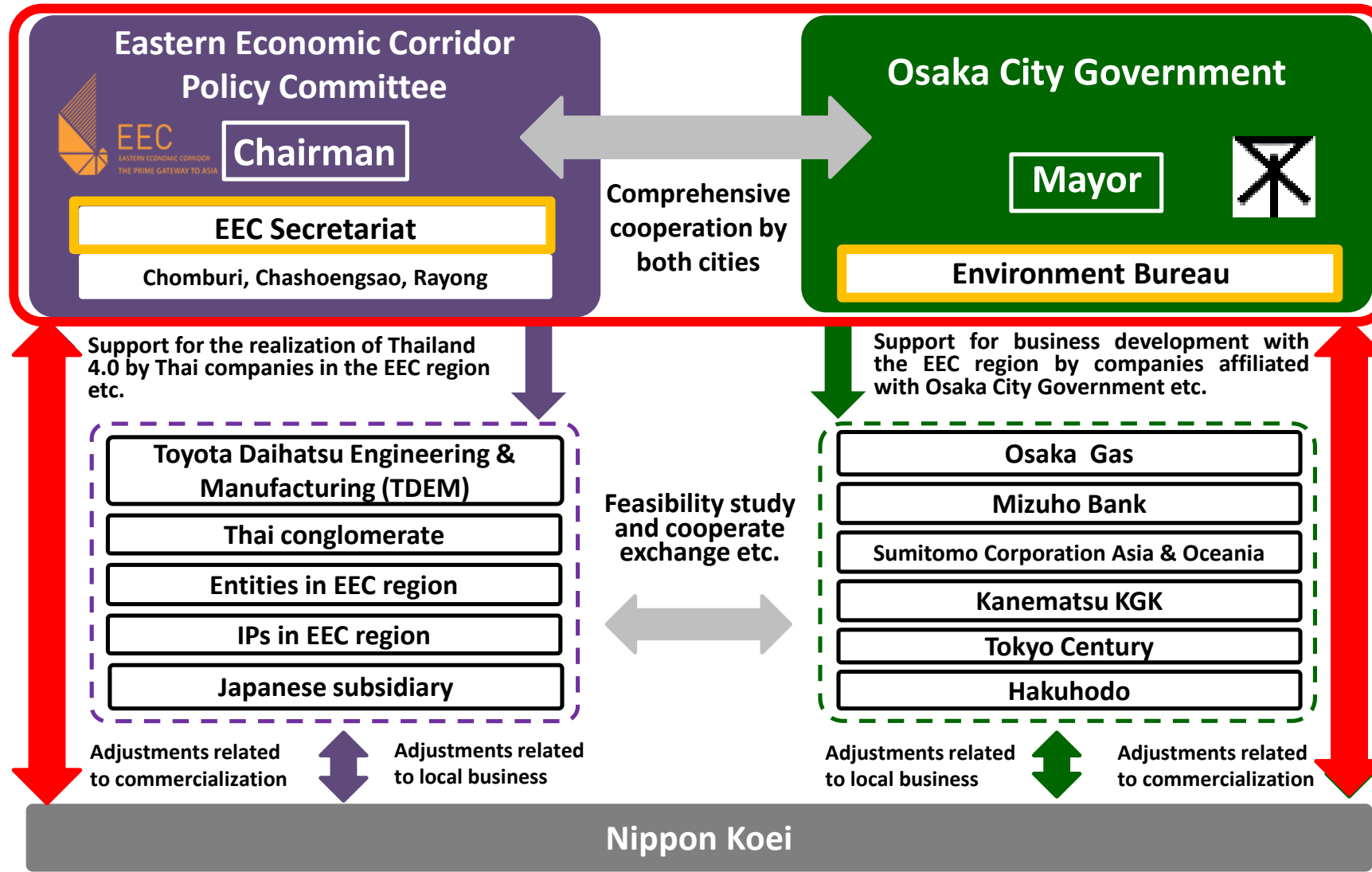
2 : EEC-Osaka city-to-city collaboration - Chronology -

Since 2019 EEC and Osaka City Government has deep collaboration on zero carbon enhancement. Following activities have been implemented between Osaka City Government, EEC secretariat and private companies so far.

- 1) Support for holding discussions between the EEC Secretariat and Osaka
- 2) Participation of JCM seminar in Tokyo
- 3) Implementation of business matching with Team OSAKA Network members
- 4) Discussions with Japanese companies regarding smart cities expected by the EEC
- 5) Support for JCM model project in electric vehicle (EV) introduction business
- 6) Support for studying JCM in fuel conversion promotion projects for factories, etc.



2 : EEC-Osaka city-to-city collaboration - Structure -

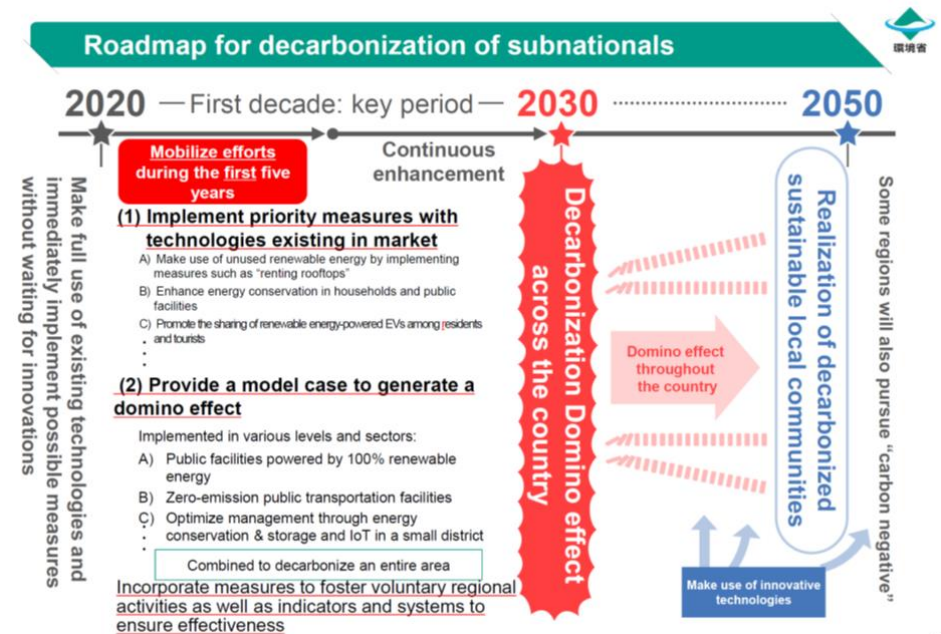


TDEM : Toyota Daihatsu Engineering & Manufacturing

3 : City-to-city collaboration

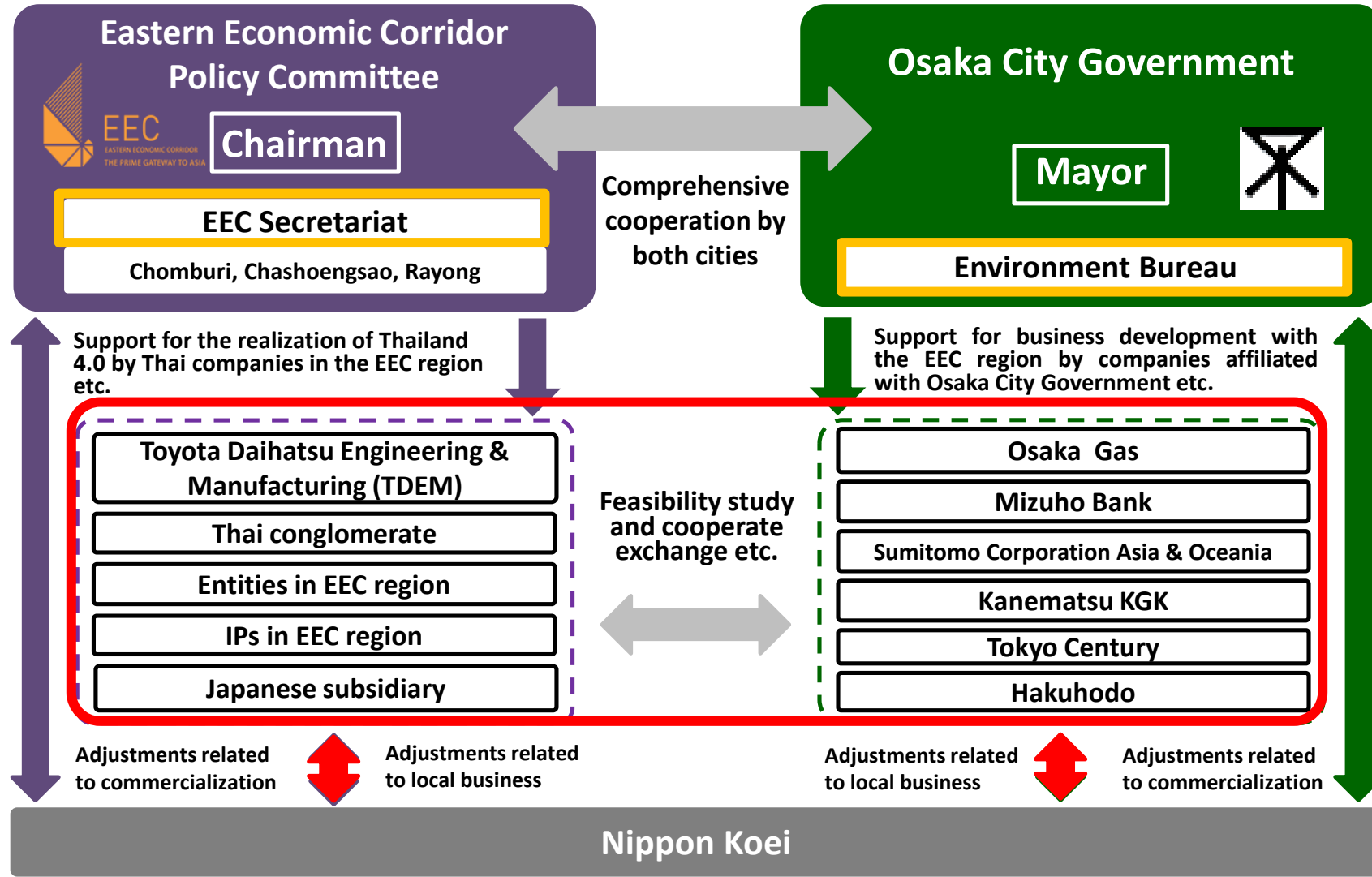
This year, Osaka City Government and Nippon Koei are planning to conduct the following menus as City-to-city collaboration with EEC Secretariat.

- 1) Introduction of companies in Osaka City Government utilizing Team OSAKA network, in order to support EEC's needs
- 2) Sharing know-how related to environmental measures
- 3) Implementation of the city-to-city collaboration to realize the decarbonization dominoes, which achieve net zero GHG emission by 2050, in EEC region
- 4) Support for business formation to create green recovery that meets EEC needs, e.g., recovery from Covid-19 pandemic etc.
- 5) Support for emergence of SDGs business for sustainable regional economic development in EEC



Source : MOEJ

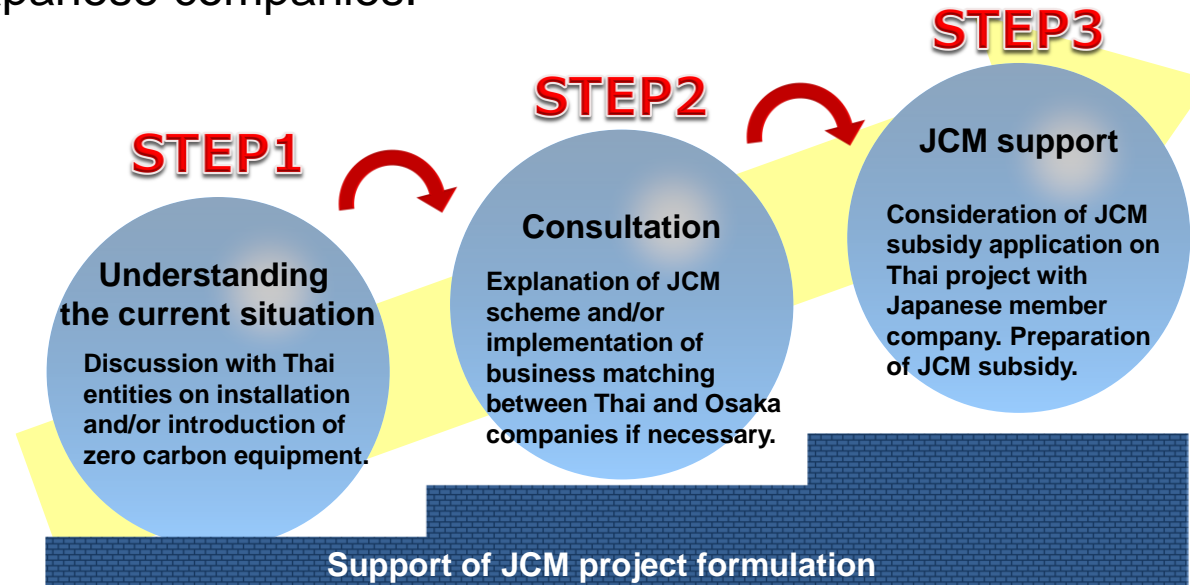
4 : Support on JCM project formulation (1/3)



TDEM : Toyota Daihatsu Engineering & Manufacturing

4 : Support on JCM project formulation (2/3)

Nippon Koei has been conducting overall support to Thai entity on JCM project formulation with Osaka City Government and Japanese companies.



- 1) Fuel conversion and Methanation promotion project
- 2) Biogas refining technology introduction and dissemination project
- 3) Local production for local consumption EV promotion project
- 4) Support for creating added value for smart city development
- 5) Support for creating added value project for EEC Secretariat
- 6) Introduction of decarbonization technology to Thai developer
- 7) Overall JCM scheme introduction to Thai industrial park developer
- 8) Thai market research on decarbonization

4 : Support on JCM project formulation (3/3)

Introduction of High Efficiency Once Through Boiler to Garment Factory

International consortium:

Representative participant : Osaka Gas Co., Ltd.

Partner participant : Osaka Gas (Thailand) Co., Ltd.
Parfun Textile Co., Ltd.

Outlines:

This project saves energy consumption by replacing existing water tube boilers with high-efficiency once-through boilers (boiler efficiency 98%) at a garment factory. It also reduces GHG emissions by switching fuel from coal to natural gas.

GHG emission reduction:

2,665 tCO₂-eq./year

= Reference CO₂ emissions (7,837 tCO₂/year)

– Project CO₂ emissions (5,172tCO₂/year)

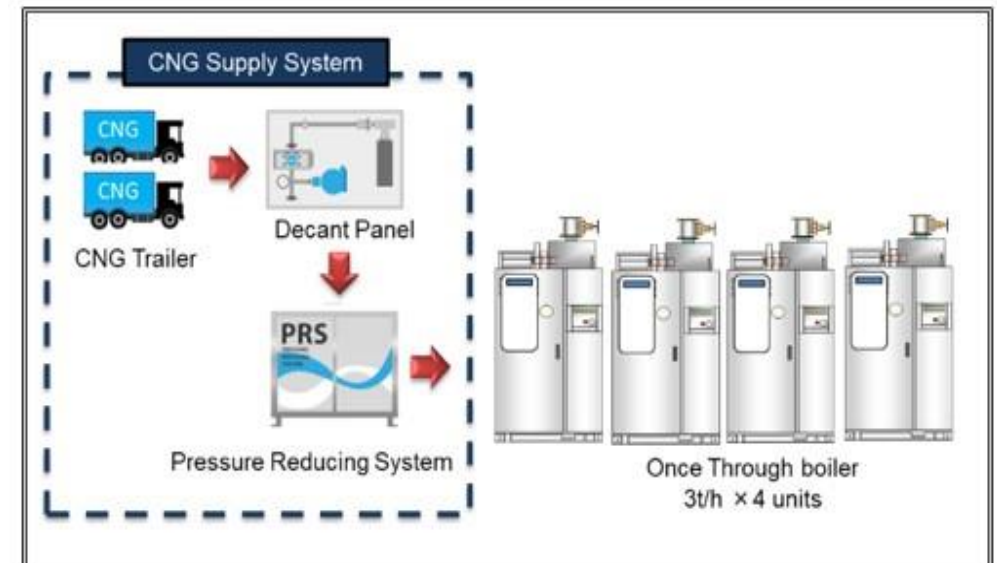
- Reference CO₂ emissions
= Fuel consumption of Reference boiler × CO₂ Emission Factor of Reference fuel type
+ Electricity consumption of Reference boiler × Electricity grid Emission Factor
- Project CO₂ emissions
= Fuel consumption of Project boiler × CO₂ Emission Factor of Project fuel type
+ Electricity consumption of Project boiler × Electricity grid Emission Factor



Approx. 40km west of Bangkok city



Map Data ©2021 Google



Source : GEC website (https://gec.jp/jcm/projects/21pro_tha_01/)

5 : Schedule

#	Items	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Overall											
1	Discussion btw EEC and Osaka, Online mtg	▽		▽		▽		▽		▽	
2	Discussions/Preparation on MOU		■								
3	Conclude of MOU									▽	
4	Online WS between EEC and Osaka				▽						
5	City-to-City Collaboration seminar (Online)							▽			
6	Visit in Thailand, if possible					■					
City-to-city Collaboration											
1	Knowledge sharing of Zero Carbon Policy making and Promotion in EEC region		■								
2	Support on Green Recovery Project			■							
3	Knowledge sharing of SDGs Activities				■						
JCM Project Formulation*											
1	Discussions with Thai entity etc.	■									
2	Analysis on GHG emission reduction etc.				■						
3	Support on JCM application						■				
Miscellaneous											
1	Meeting with MOEJ					▽			▽		
2	Preparation of Final Report to MOEJ									▽	

Note : Candidate JCM projects are: 1) Local production for local consumption EV promotion project, 2) Fuel conversion and Methanation promotion project, 3) Biogas refining technology introduction and dissemination project, 4) Support for creating added value for smart city development, and 5) Introduction of decarbonization and low carbon technology in Thai conglomerate IP.