City to City Cooperation for JCM Project Toyama and Semarang

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Overview of Toyama City

- Total Area: 1241.77 ㎢
- Population: 418,686 (2015 census)
- Diverse topography ranging from a sea level of -1000 m (Toyama Bay) to 2,986 m (Mt. Suishodake)
- General Account Budget: ¥156.8 billion (FY2018)

2008 Designated as “ Eco Model City”
2011 Designated as “ Future City”
2018 Designated as “ SDGs Future City”

Major Policies of Toyama City

Compact City

Toyama city construct a compact city with centralized bases based on public transportation by vitalizing public transportation including railways and accumulating various urban functions, such as residence, commerce, business, culture, on a railroad.

[Three Pillars of Toyama's Compact City Strategy]

① Revitalizing public transportation
② Encouraging dwelling along public transport lines
③ Revitalizing the city center

Renewable Energy

Toyama City is actively promoting renewable energy. One example is generating hydroelectric power by taking advantage of the abundant amount of melted snow from Mount Tateyama.

The city is also implementing micro hydroelectric generation and geothermal energy as part of advanced agriculture efforts, and developing smart residential communities with efficient and effective energy systems.

International Cooperation

Toyama City's technology/knowledge

Tabanan, Bali, Indonesia

2014.3 Cooperation Agreements
Micro hydro power, agricultural technology

Iskandar, Malaysia

2015.2 Cooperation Agreements
Micro hydro power, solar power generation

Semarang, Indonesia

2017.12 Cooperation Agreements
Renewable Energy, Transportation

Kota Kinabalu, Malaysia

2018.2 Cooperation Agreements
Micro hydro power, agricultural technology

City to City Cooperation Toyama and Semarang

Semarang, Republic of Indonesia

Semarang, the capital of Central Java, was selected as one of The Rockefeller Foundation's 100 Resilient Cities (100RC), just like Toyama City. Semarang approached Toyama City for a cooperation agreement. And in 2017, with the support from the Ministry of the Environment, Toyama City became the first Asian 100RC to embark on a feasibility study to assess how Toyama City and its private sector can bring technology and know-how to Semarang. The mayor of Semarang visited Toyama City to sign the cooperation agreement in December 2017.


Resilient City Summit 2016


Conclusion of a cooperation agreement (2017)

PIONEERED BY THE ROCKEFELLER FOUNDATION 100 RESILIENT CITIES

Feasibility Study (2017)

1. Transportation
2. Renewable energy
3. Energy Efficiency

Apply to Financial Programme for JCM Model Project

Feasibility Study (2018)

Energy Efficiency

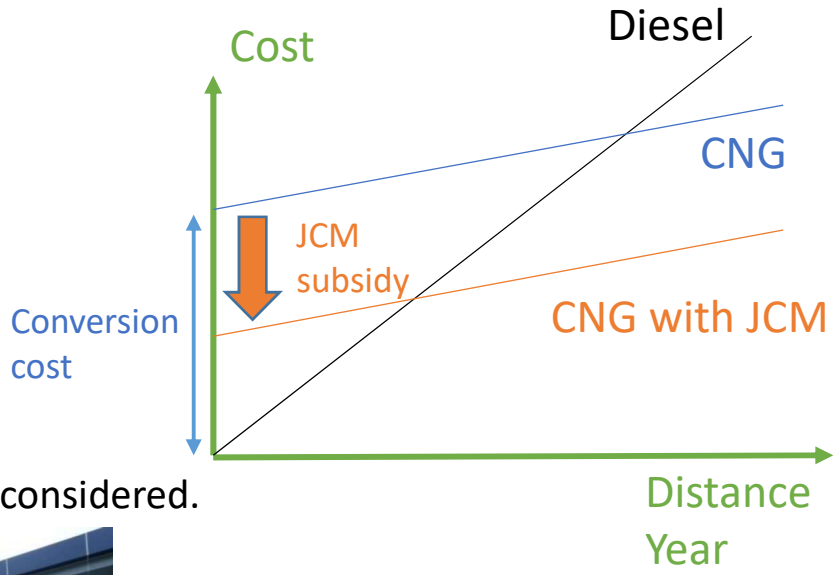
Ongoing

Overview of Transportation Project (1)

"Introduction of CNG-Diesel Hybrid Equipment to Public Bus in Semarang"
(Representative Participant :Hokusan Co., Ltd.)

- The Indonesian government is actively promoting the usage of natural gas in order to reduce pollution and diversify fuel in the public transportation sector.
- Trans Jakarta has switched to BBG(Bahan Bakar Gas).

- Compared to Diesel, CNG is cheaper per distance.

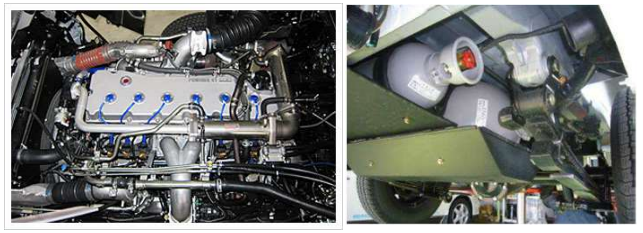


- For providing CNG, there are several measures to be considered.

Mobile Refueling Unit (MRU)

Gas Fuel Station (SPBG)

Conversion equipment



Overview of Transportation Project (2)

"Trans Semarang" have 72 buses.

	Bus	Fuel efficiency	Annual Mileage
Large size	25	2.0km/L Diesel	1,862,960km
Medium size	47	3.5km/L Diesel	3,906,595km

Present Condition

	Annual Amount of usage Diesel	Annual CO2 Emission
Large size	931,480 L	6,348 tCO2
Medium size	1,116,170 L	

Condition CNG facility installed (average)

	Annual Amount of usage Diesel	Annual Amount of usage CNG	Annual CO2 Emission
Large size	150,900 L	603,599 L	4,478 tCO2
Medium size	180,820 L	723,278 L	

1 year Expected CO2 Emission Reduction
1,870 tCO2/year

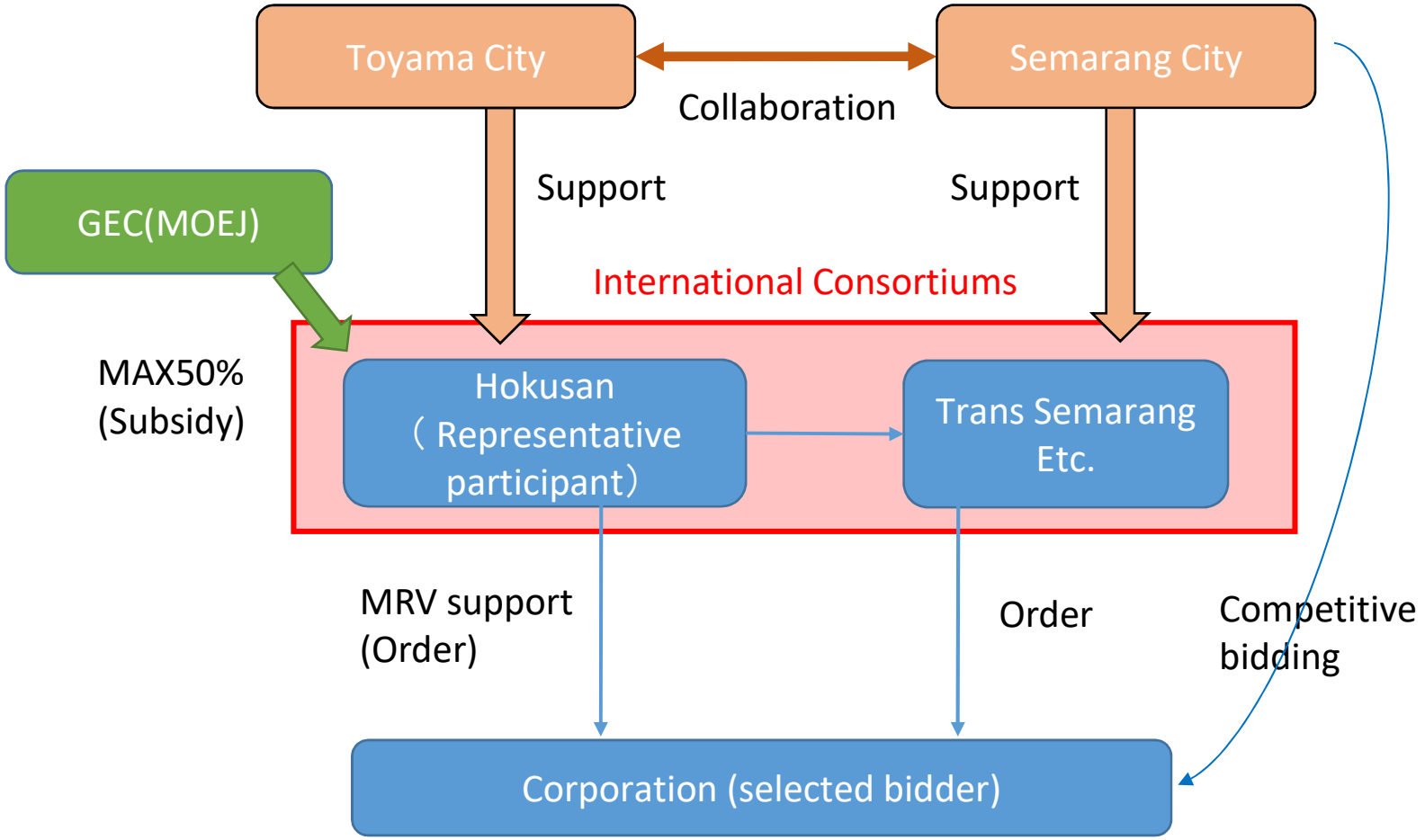
5years Expected CO2 Emission Reduction
9,348 tCO2/year

Project period is 5 years. (Durability of the facility is 5 years)

Schedule of the project

	2018.7	8	9	10	11	12	2019.1	2	3	4	5	6	7
Competitive bidding	preparation			Public offering									
Contraction													
Plan and Machine Procurement													
Adaptation													
Test drive													
Project Start													

JCM Project Organization chart



The data necessary for monitoring is summarized by Trans Semarang once a month, and reports fuel usage and mileage to the company