

Study for Low Carbon Society by the Introduction of Energy Saving Equipment in Industry Sector of Semarang City through JCM City-to-City Collaboration with Toyama City

- 1) Introduction of Nippon Koei Co., Ltd.**
- 2) Our supports on city-to-city collaboration**
- 3) Objective and Introduced technologies**
- 4) Implementation structure**
- 5) International consortium**
- 6) Outline of the city-to-city collaboration**
- 7) Schedule**
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July 24, 2018 in JKT

Nippon Koei Co., Ltd.

1. Introduction of Nippon Koei Co., Ltd. (NK)

- ▶ **Japan's No.1 International Engineering Consultants** plays a role in nation building around the world through our consulting.



No.1

Sales among
civil consulting
firm in Japan

160

Countries
where we
operate

over

5,500

Number of
orders per year

- ▶ **Environmental Dept. conducts projects on many environmental aspects**

Air/Water

Solid waste

**Renewable
energy**

**Forestry/
Biodiversity**

**Environmental
impact
assessment**

**Climate
change**

Mitigation

- ▶ GHG emission reduction, JCM

Adaptation

- ▶ Taking appropriate action to prevent or minimize the damage

2. Our supports : the city-to-city collaboration projects

- ▶ NK have a lots of experiences on the city-to-city collaboration projects. (The followings are the current projects by NK support.)

Yangon – Kawasaki
(2015~)



Ho Chi Minh - Osaka
(2018~)



Semarang - Toyama
(2018~)



Batam – Yokohama
(2016~)



Jakarta – Kawasaki
(2017~)



Bali - Toyama
(2018~)



- ▶ The goal is to realize a low-carbon society by utilizing each Japanese city's experiences/knowledge and formulating JCM model projects.



3. Objective and Introduced technologies (1/2)

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1-1. Objective

- ▶ Project formulation for energy saving such as **(1) high efficiency boilers and fuel switch to gas** and **(2) chillers** are to be promoted in Semarang industrial parks
- ▶ **Achievement of low carbon industry sector** in Semarang City utilizing experiences of Toyama with the policy measures of Environment City
- ▶ Establishment of **energy saving model factory** in Semarang through JCM model project

1-2. Introduced technologies

Equipment	Outline	Image
High-efficiency OT boiler	<p>(e.g : IHI Once Through (OT) boiler K-2000LE)</p> <ul style="list-style-type: none">▶ Capacity 2t/h, efficiency: 95%▶ Controlling multiple boiler, optimized load operation▶ Co-benefit (low NOx, CO), low noise▶ Fuel Switch from Diesel Oil/Coal to Gas	
High Efficiency Centrifugal Chiller	<p>(e.g : EBARA REFRIGERATION EQUIPMENT & SYSTEMS CO., LTD.RTBF050)</p> <ul style="list-style-type: none">▶ COP(Standard Condition): 6.40▶ Economizer cycle, small compressor▶ Refrigerant: Zero Ozon-depleting coefficient,▶ Automatic absorption, leakage prevention	







*The above technologies are just example, and proper manufacturers/ equipment/ specification will be determined based on the result of this study

3. Outline and Introduced technologies (2/2)

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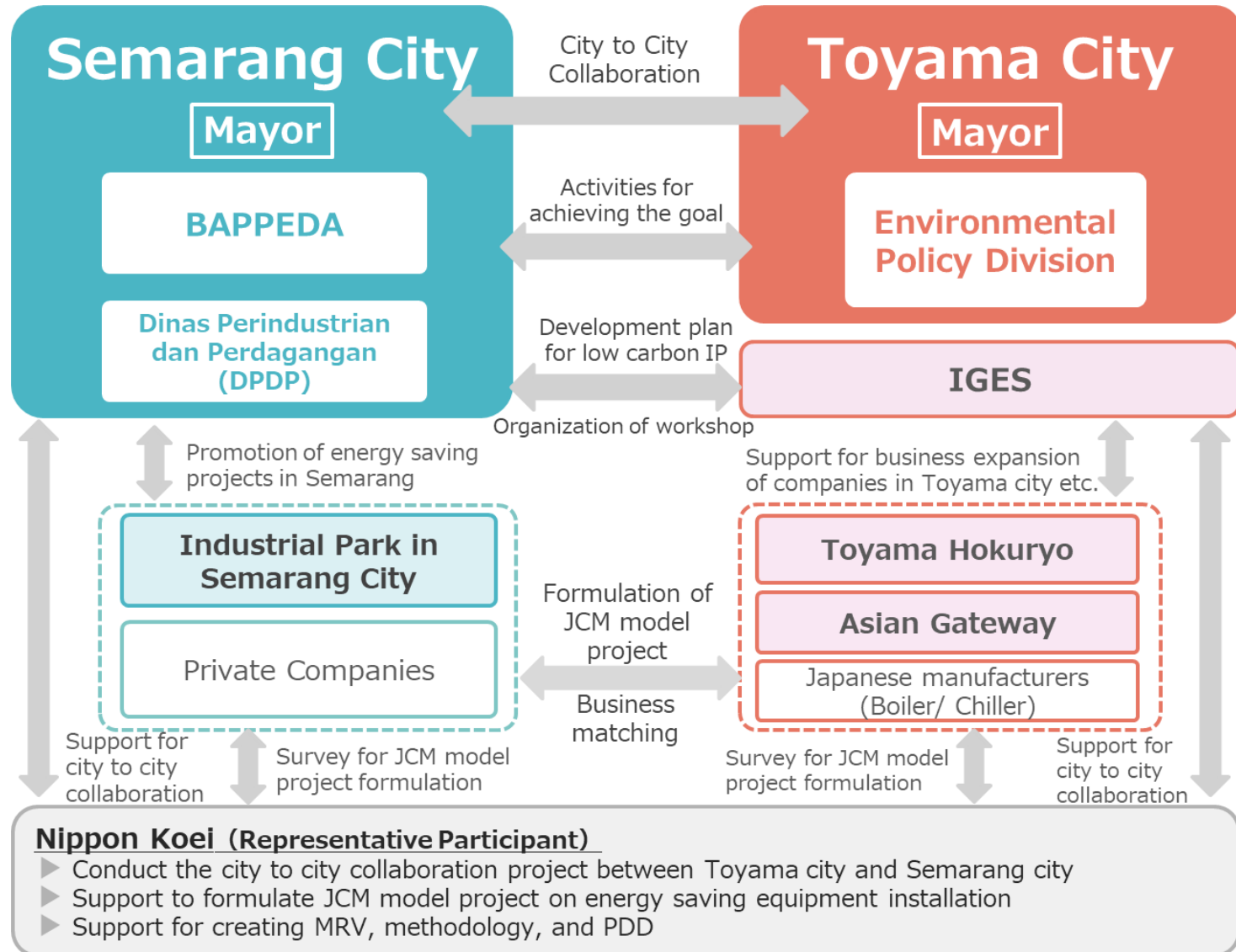
1-3. Target Industrial Park (IP) in Semarang

- ▶ Semarang city has 9 IPs, to which 3 IP natural gas pipeline are connected and interested in installation of energy saving equipment and fuel switching.
- ▶ The following 3 IPs are the priority target areas as a first step.

Industrial Park	Kawasan Industri Tugu Wijaya Kusuma(KITW)	Bukit Semarang Baru (BSB)	Kawasan Industri Candi
Area	250 ha	250 ha	300 ha
Overview	 	 	 

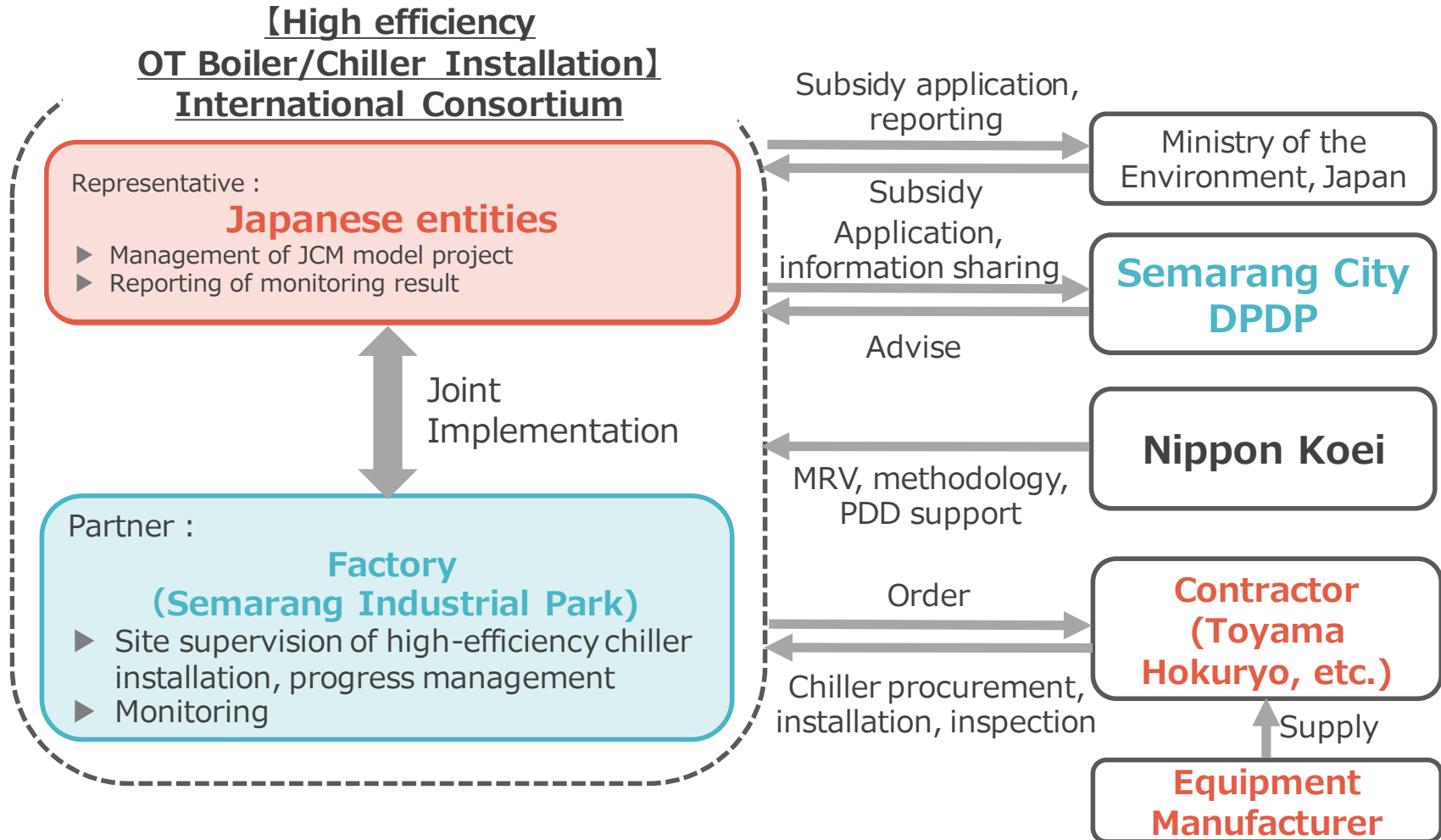
4. Implementation structure

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5. International consortium

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OT Boiler: Once-through Boiler

6. Main target & Outline of the city to city collaboration (1/2)

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4-1. Process of the city to city collaboration between Semarang and Toyama

Date	Outline
8 th Aug 2017	<ul style="list-style-type: none">▶ FY2017 JCM City-to-City Collaboration Study has been conducted.▶ The collaboration aimed to realize “Resilient City” (environment, energy, disaster prevention) and “Compact City” (public transportation)
14 th Dec 2017	<ul style="list-style-type: none">▶ The technical cooperation agreement between Toyama and Semarang for low-carbon society



4-2. Activities of Toyama and expected outcomes by city-to-city collaboration



Toyama City ~Compact City~

International and National Recognition

- ▶ Environmental Model City (2008)
- ▶ Environmental Future City (2011)
- ▶ The UN Sustainable Energy for ALL (SE for ALL) “Model city for improving energy efficiency”(2014)
- ▶ Host city for G7 Environment Minister’s Meeting

Advanced Activities

- ▶ Sharing experiences/knowledge by utilizing package of knowledge as “**Environmental Future city Toyama** ” for city to city collaboration
- ▶ Development of “**Toyama ECO-Town**” (Utilization of biomass, thermal, and other forms of energy)

Semarang



Energy saving promotion program in IP

Target setting of emission reduction

Policies for promotion of energy saving

Natural gas infrastructure plan

6. Main target & Outline of the city to city collaboration (2/2)

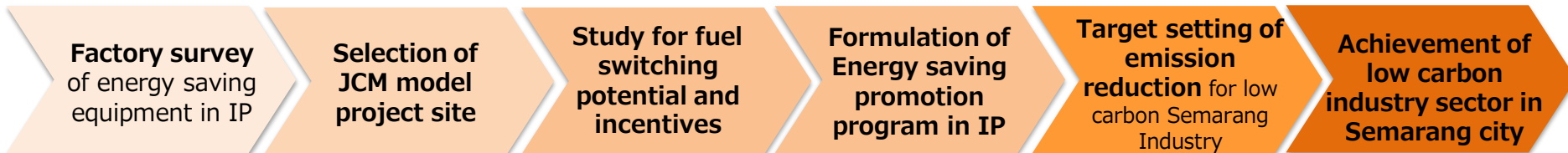
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4-3. Goal of the city to city collaboration

GOAL

- ▶ **Selection of model factories for energy saving** by JCM model project formulation
- ▶ Support for **business expansion of the companies in Toyama city** having energy saving technologies under the city to city collaboration
- ▶ **Promotion of energy saving equipment installation & fuel switching** in Semarang Industrial Park
- ▶ **Achievement of low carbon industry sector in Semarang City**

4-4. Strategic steps for achievement of low carbon society



▶ Especially, key steps in the above strategy are as follows.

Selection of JCM model project site

- ▶ **Energy saving equipment installation into factories using JCM scheme** (Large scale factories will be selected as a model)

Study for potential and incentives of fuel switching

- ▶ **Financial analysis** for fuel cost reduction and O&M cost reduction by energy saving equipment
- ▶ **To clarify GHG emission reduction due to fuel switching** to gas

Target setting of emission reduction

- ▶ For low carbon IP, **target setting of emission reduction of industry sector**

7. Schedule

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Item		2018								2019	
(1) Study Item		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Selection of JCM Model Project in Industrial Park										
2	Preparation of International Consortium										
3	Confirmation of environmental approval and SDIP										
4	Energy saving equipment installation potential study										
5	Study for gas pipeline condition and plan										
6	Business matching of Toyama companies										
7	Study for setting fuel switch incentives										
8	Formulation of energy saving promotion program										
(2) Field survey/ Workshop		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Kick-off meeting										
2	Meeting with Semarang City/ Field survey										
3	Workshop										
(3) Monthly report ・ Meeting in Japan ・ Conference etc.		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Monthly report										
2	Meeting in Toyama City										
3	Progress meeting (MOEJ)										
4	JCM seminar organized by MOEJ										
5	Invitation of Semarang city officers to Japan										
6	Final report										

8. Challenges and issues

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Through this study, we are going to consider the followings.

- 1) Low carbon society:
To contribute to realization of low carbon society in Semarang city based on the technical cooperation agreement.
- 2) Overseas expansions by Toyama entities:
To support overseas expansions of the Toyama private entities from the point of view of sustainable business.
- 3) Approach to Indonesian public sector:
To consider how to approach a public scheme project.
- 4) Horizontal expansion:
To develop JCM model projects not only in Semarang city but also in other Indonesian cities. It is necessary to consider (i) players and/or (ii) ways of dissemination.