

JAPAN-INDONESIA BUSINESS FORUM FOR ENERGY EFFICIENCY, CONSERVATION AND RENEWABLE ENERGY

Session II - Energy Efficiency in Indonesia

PT. YOKOGAWA Indonesia

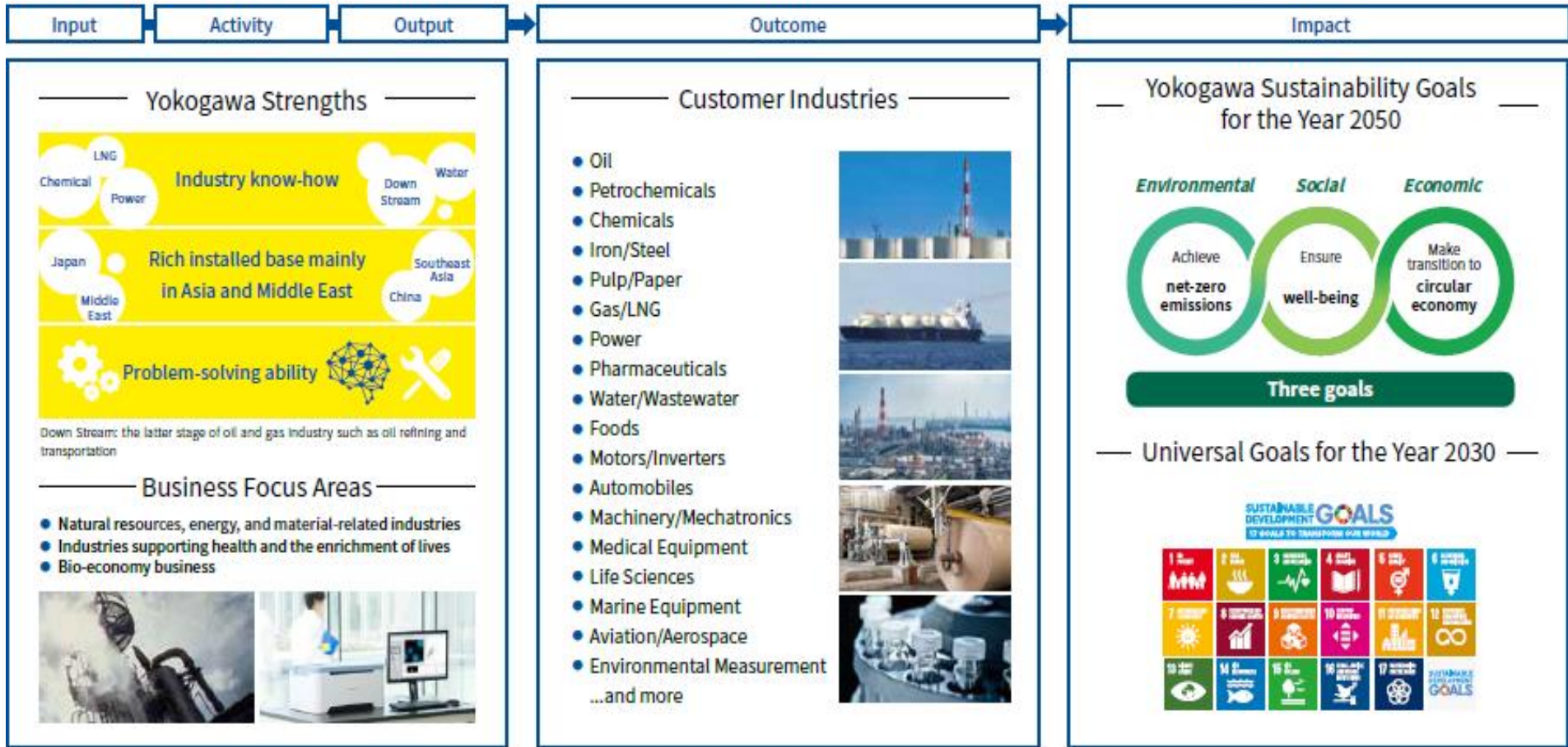
Presenter:

Sudarto Ramli, Technical Director

14 November 2018

@ Hotel Indonesia, Kempinski, Jakarta, Bali Room

Our Vision



Agenda

1. The first smart community project (F-Grid) in Japanese industrial complex
 - ◆ With our CEMS Technology
2. Energy Saving by Optimum Operation in an Indonesian Major Oil Refinery
 - ◆ With our APC Technology

1. The first smart community project (F-Grid) in Japanese industrial complex

◆ With our CEMS Technology

F-Grid Power/Steam Supply Concept

Industrial Complex

Factory-A

Factory-B

F-Grid
Center

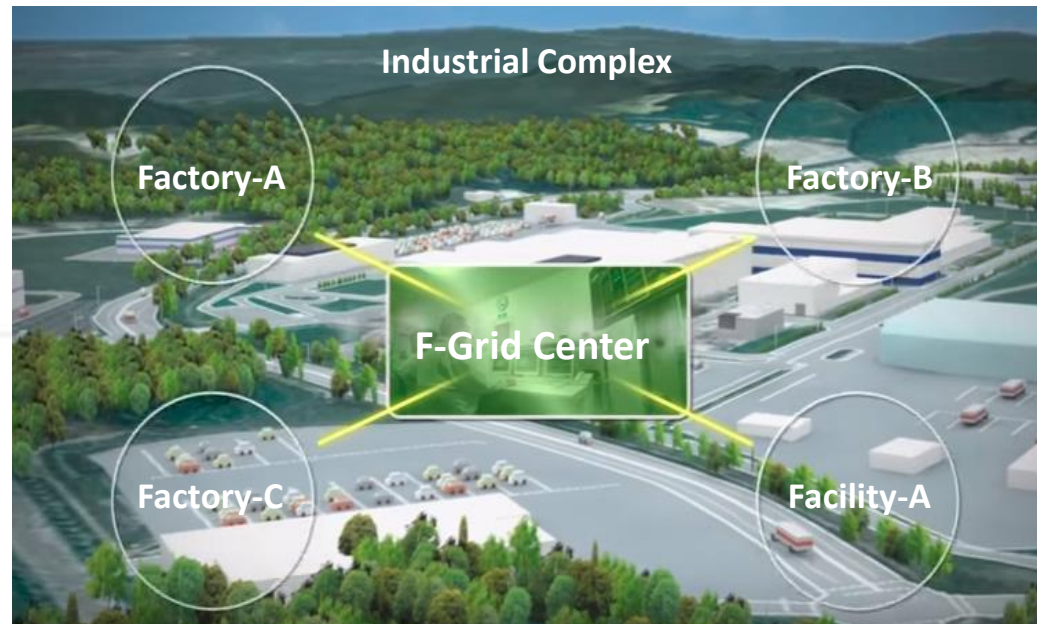
Factory-C

Factory-D

F-Grid Ohira, Miyagi LLP



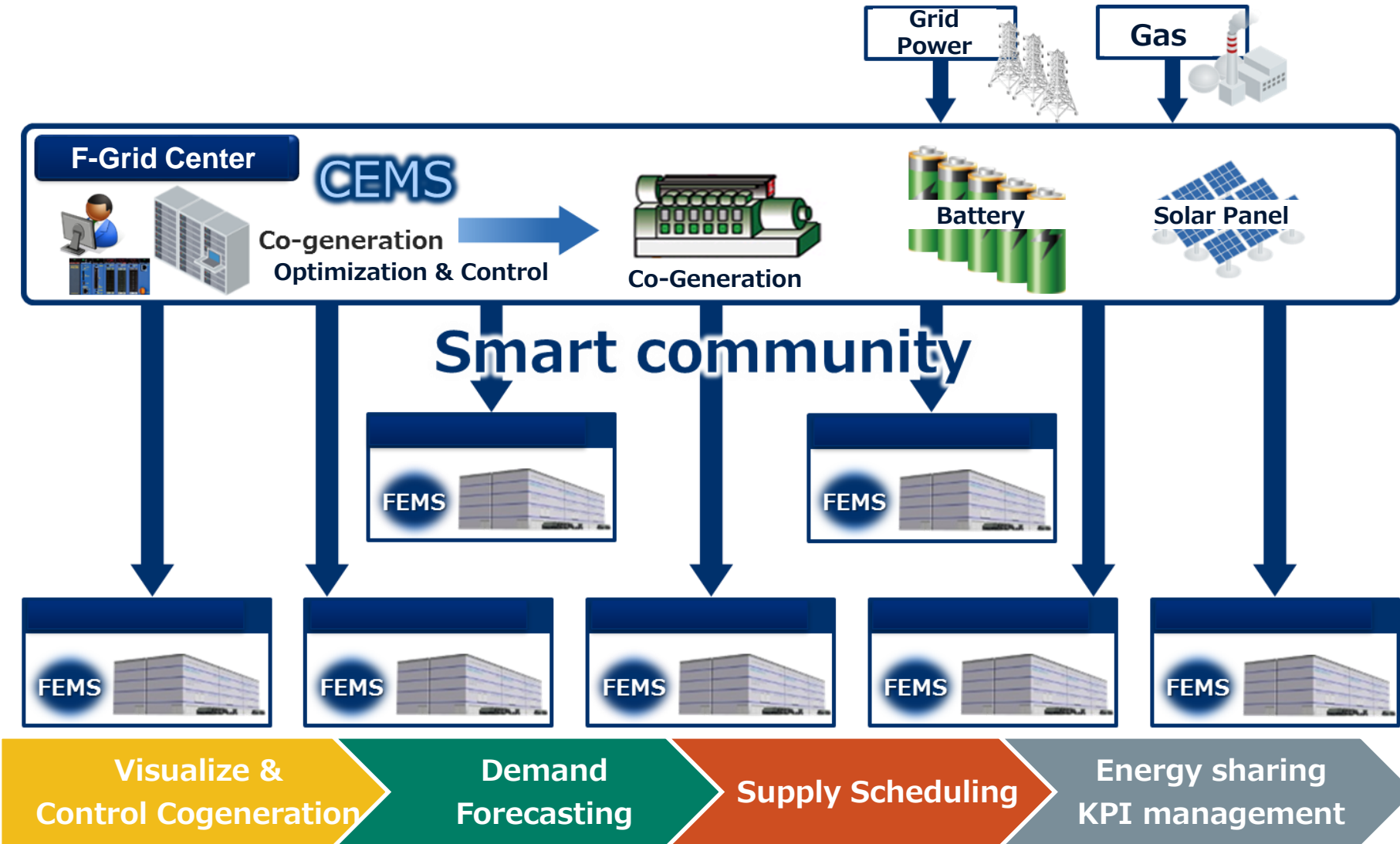
F-Grid Ohira, Miyagi LLP is composed with Toyota Motor Corporation and 9 other companies in nearby Industrial Park. It runs **the first smart community project** for an industrial complex in Japan.



YOKOGAWA supplied CEMS in F-Grid Center



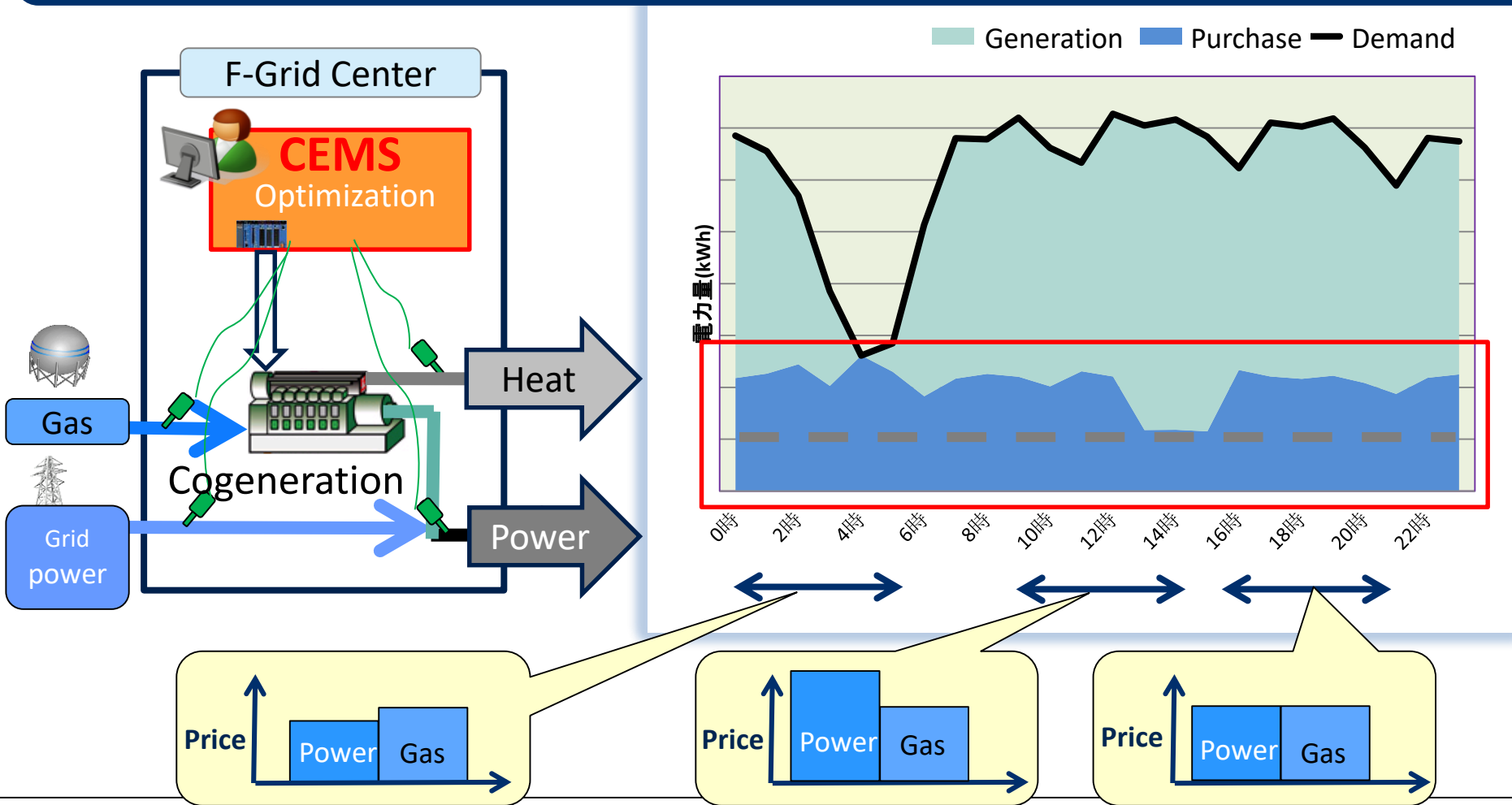
CEMS / FEMS Configuration



Cogeneration real time optimization

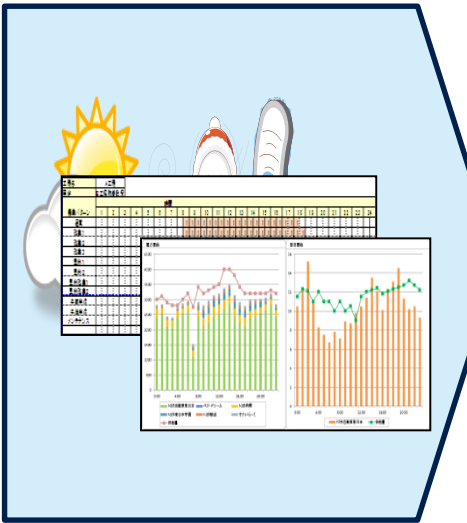
After CEMS: Changeable power purchase and captive cogeneration

→ Cost effective

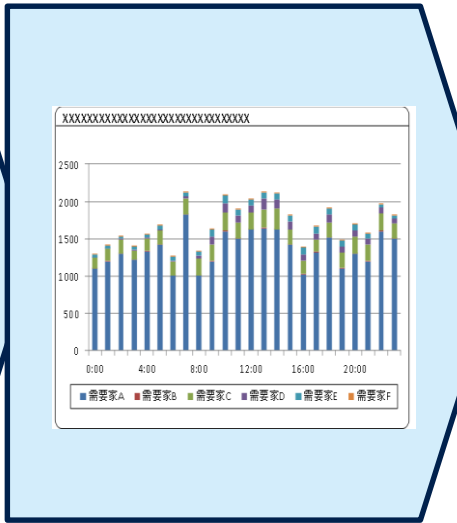


Demand forecasting and Supply Optimization

Collect predictive factors



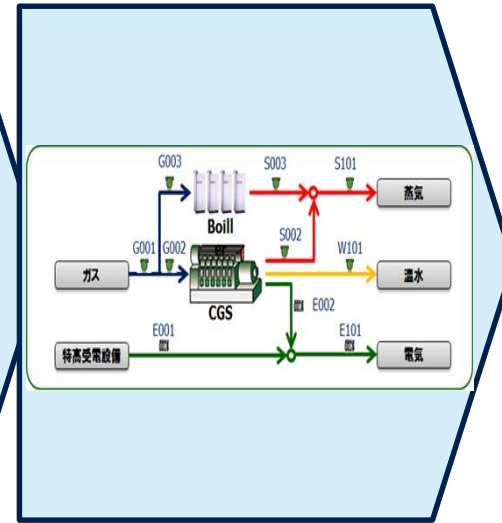
Forecast demand



Make demand & supply plan



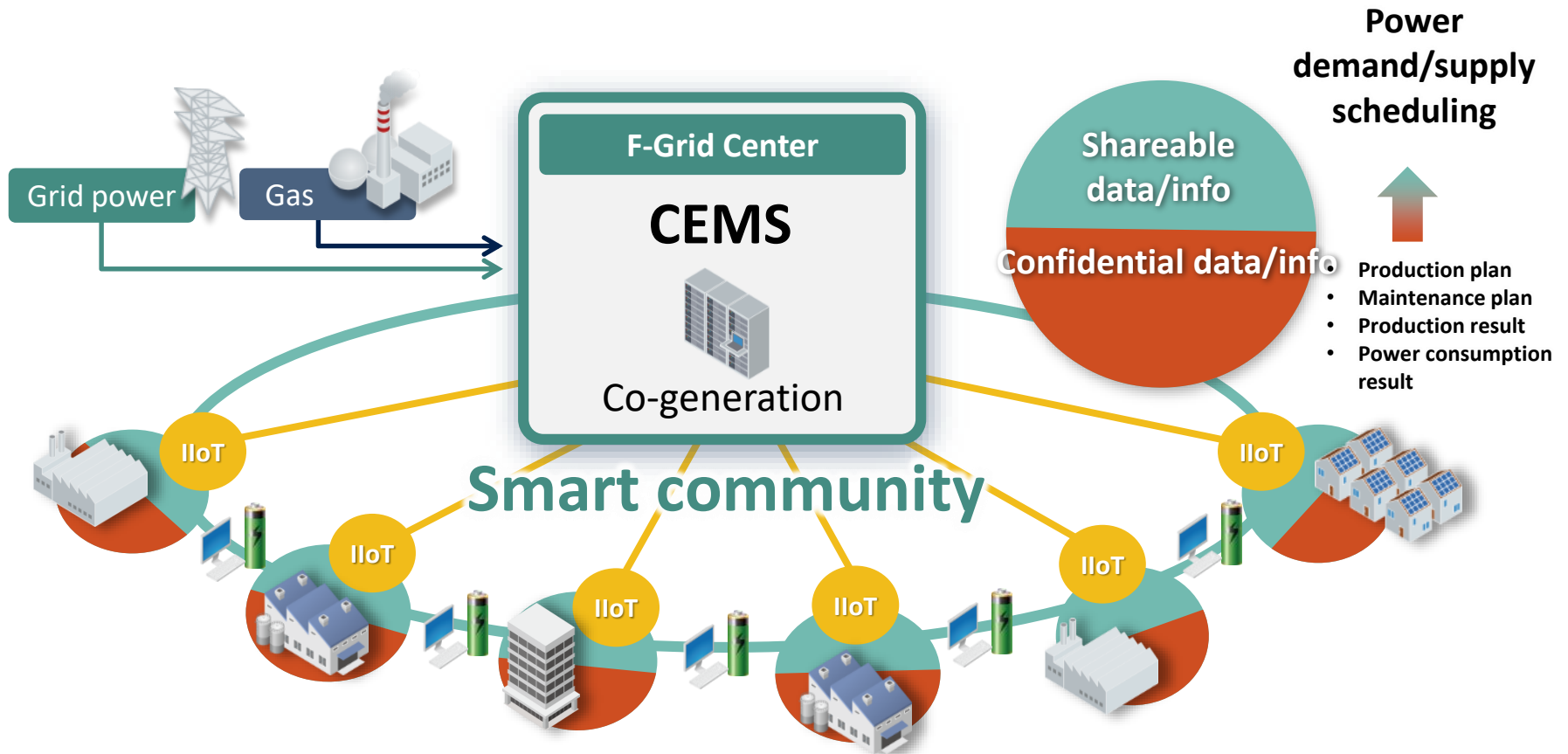
Control energy facilities



Demand forecasting

Power Supply Optimization

Overall energy optimization reduced
20% of original cost!



2. Energy Saving by Optimum Operation in an Indonesian Major Oil Refinery

◆ With our APC Technology

Outline of Project

Outline

- This JCM Demonstration Projects is a Japanese governmental project. And this project is sponsored by NEDO.

NEDO: New Energy and Industrial Technology Development Organization

- Yokogawa introduces Advanced Process Control(APC) system to PERTAMINA Balikpapan Refinery Unit.

APC is technology which is proven at Japan and global oil majors for sustainable CO2 emission reduction by fossil fuel reduction.

Purpose

- Yokogawa trains both operators and engineers in PERTAMINA who utilize the APC, then prove effectiveness of energy saving and verify sustainability of the effectiveness.

APC system introduction



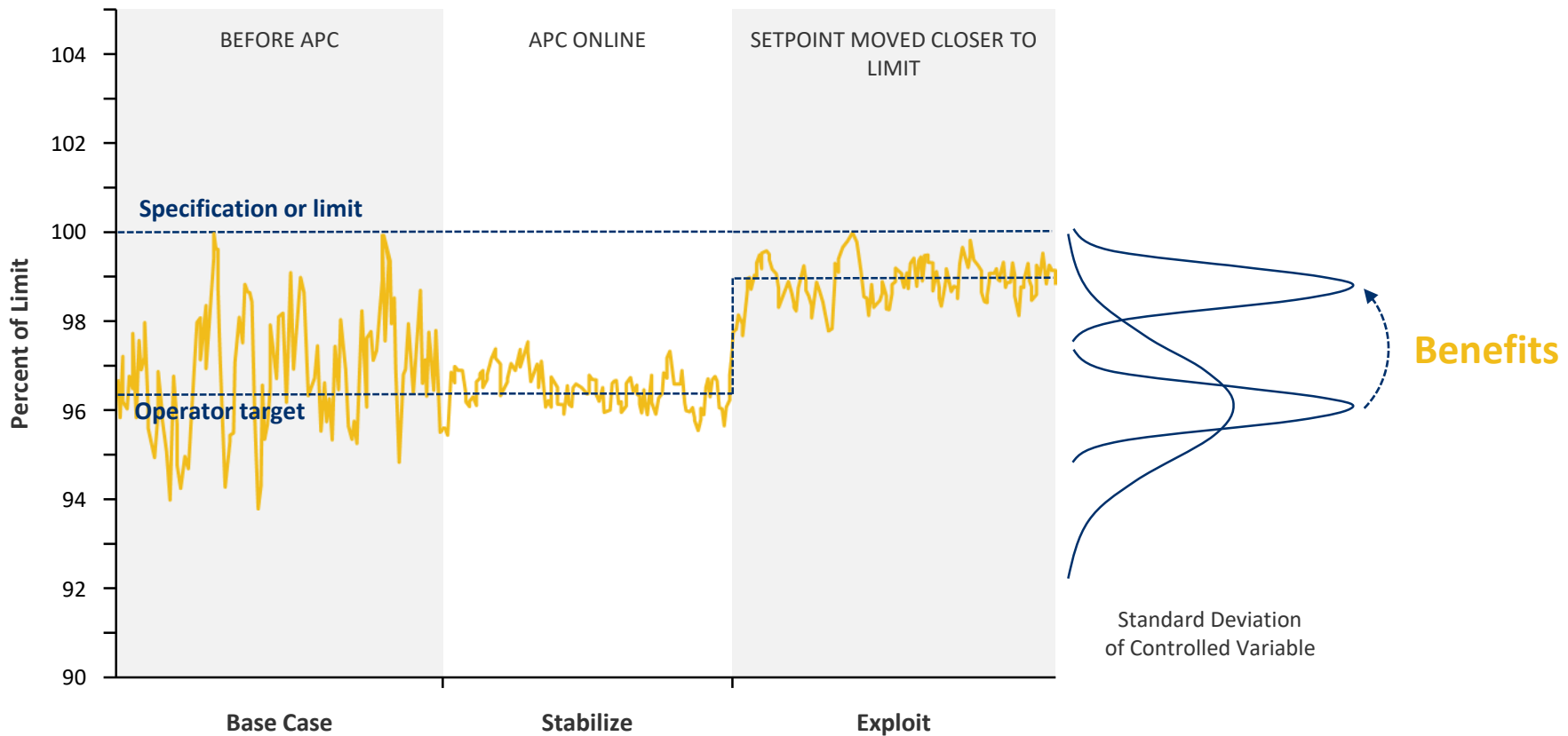
1. CO2 emission reduction ↔ Fuel reduction

2. Sustainable effect by training PERTAMINA's people



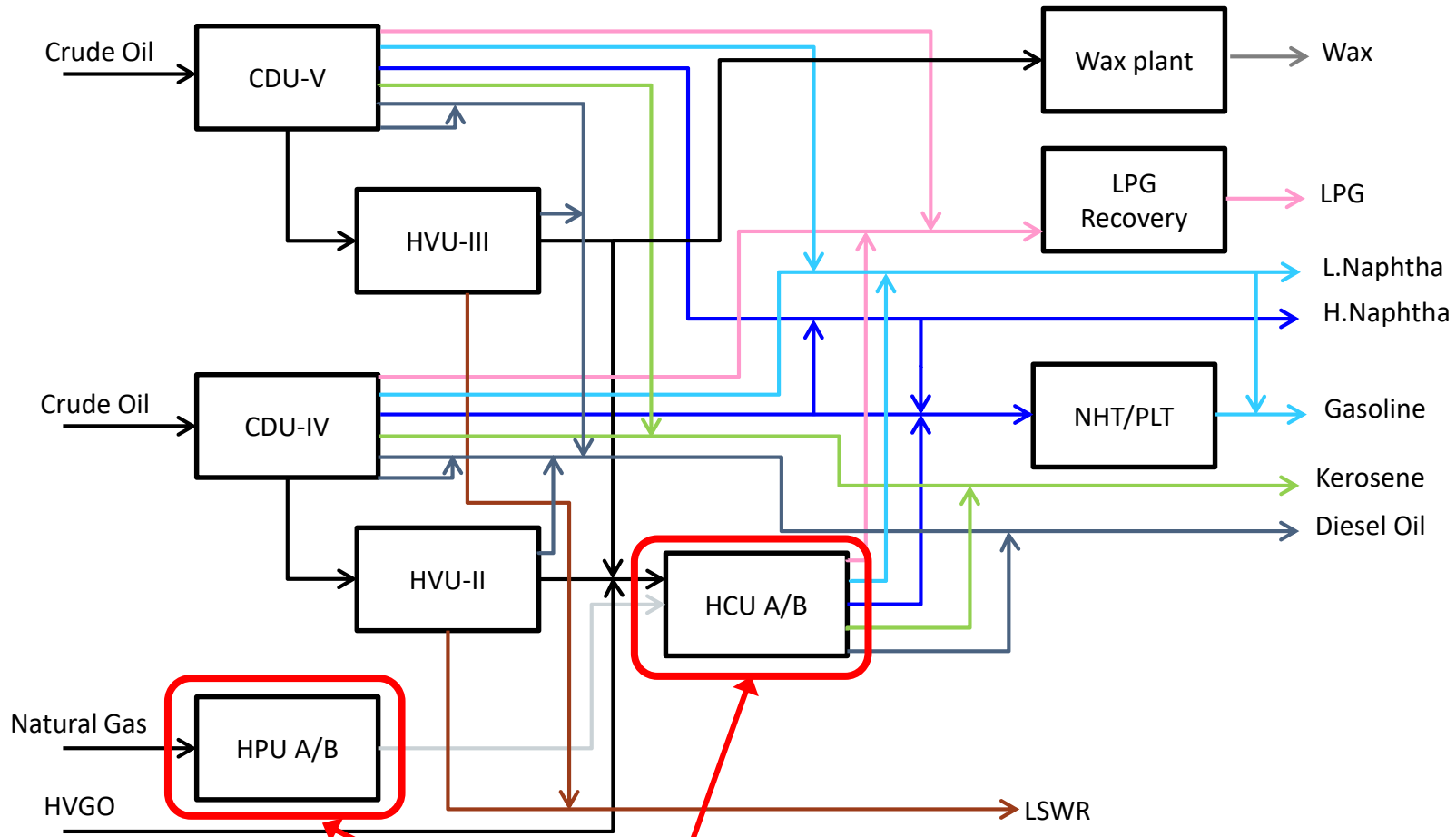
What is Advanced Process Control (APC)

APC enables eliminates dead time and stabilizes control loops, enabling the set point to be moved closer to the optimum



Facilities to be applied APC

Refinery Unit V

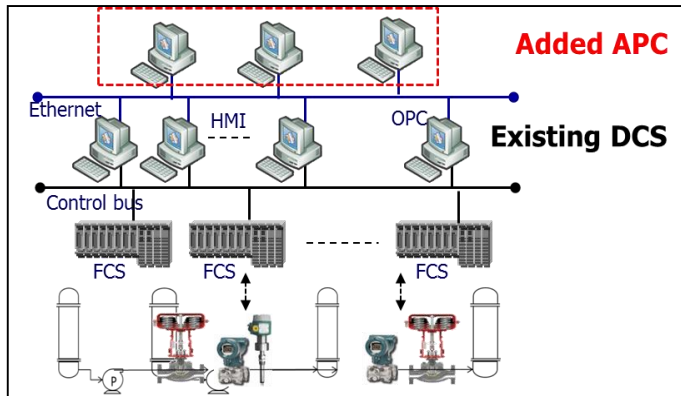


Scope of the Project

**Emission reduction by APC
3,400 t-CO₂/y**

Efficiency of APC only in 2 weeks!

APC Off → On operation (2 week) From July to August
 CO2 Emission reduction amount (Actual value) [t-CO2/2W]



CO2 Emission reduction amount	Function				Total
	A	B	C	D	
Train A	132	206	59	105	502
Train B	244	505	580	120	1,449
Total	377	710	639	225	1,950



Energy reduction amount (Actual) [GJ/2w]

Energy reduction amount	Function				Total
	A	B	C	D	
Train A	2436.4	3784.4	1085.6	1929.8	9236.3
Train B	4500.3	9292.3	10679.0	2209.9	26681.5*
Total	6936.7	13076.7	11764.6	4139.8	35917.8

Co-innovating tomorrow™

Thank you for your attention

Our Vision

