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Sustainability Conference

VIENNA 2016

Strategy for Energy and Environment in JR East

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Key Presentation Take-Aways

- Summary, process of the company
- JR East Group Management Vision V
- Station activities in the past
- Energy-saving stations “ecoste”

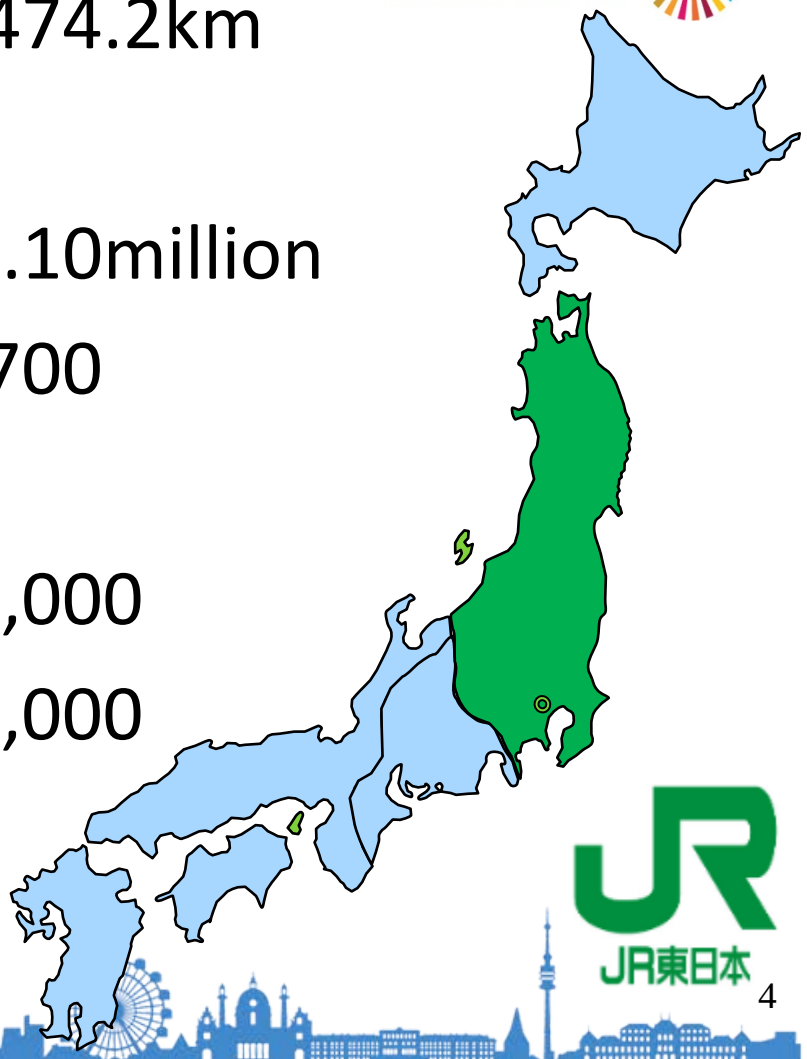
Summary, process of the company

<History>

- In April 1987, East Japan Railway Company (JR East) was established through division and privatization of the public Japanese National Railways.
- Initial aim of privatization was to maintain stable railway management.

Summary, process of the company

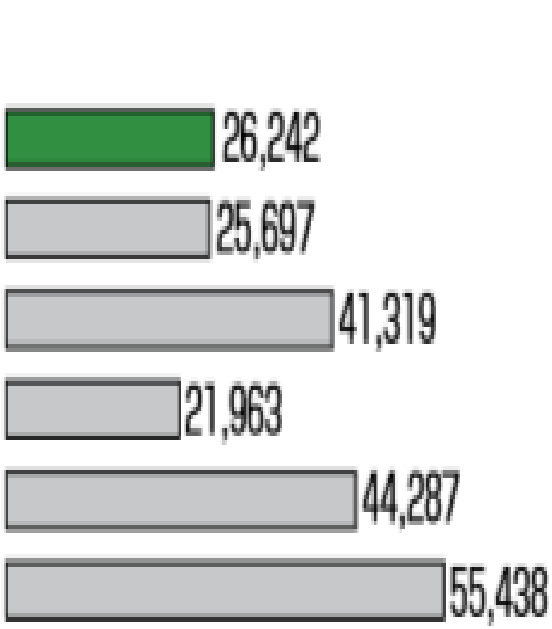
Passenger line network	:7,474.2km
Total number of passengers per day	:17.10million
Number of stations	:1,700
Average number of trains per day	:13,000
Number of employees	:60,000



JR東日本

Financial comparison

【Operating Revenues】



JR East

IAG

Lufthansa

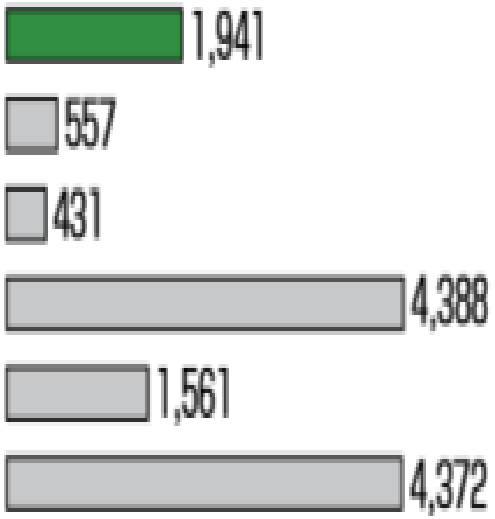
Union Pacific

FedEx

UPS

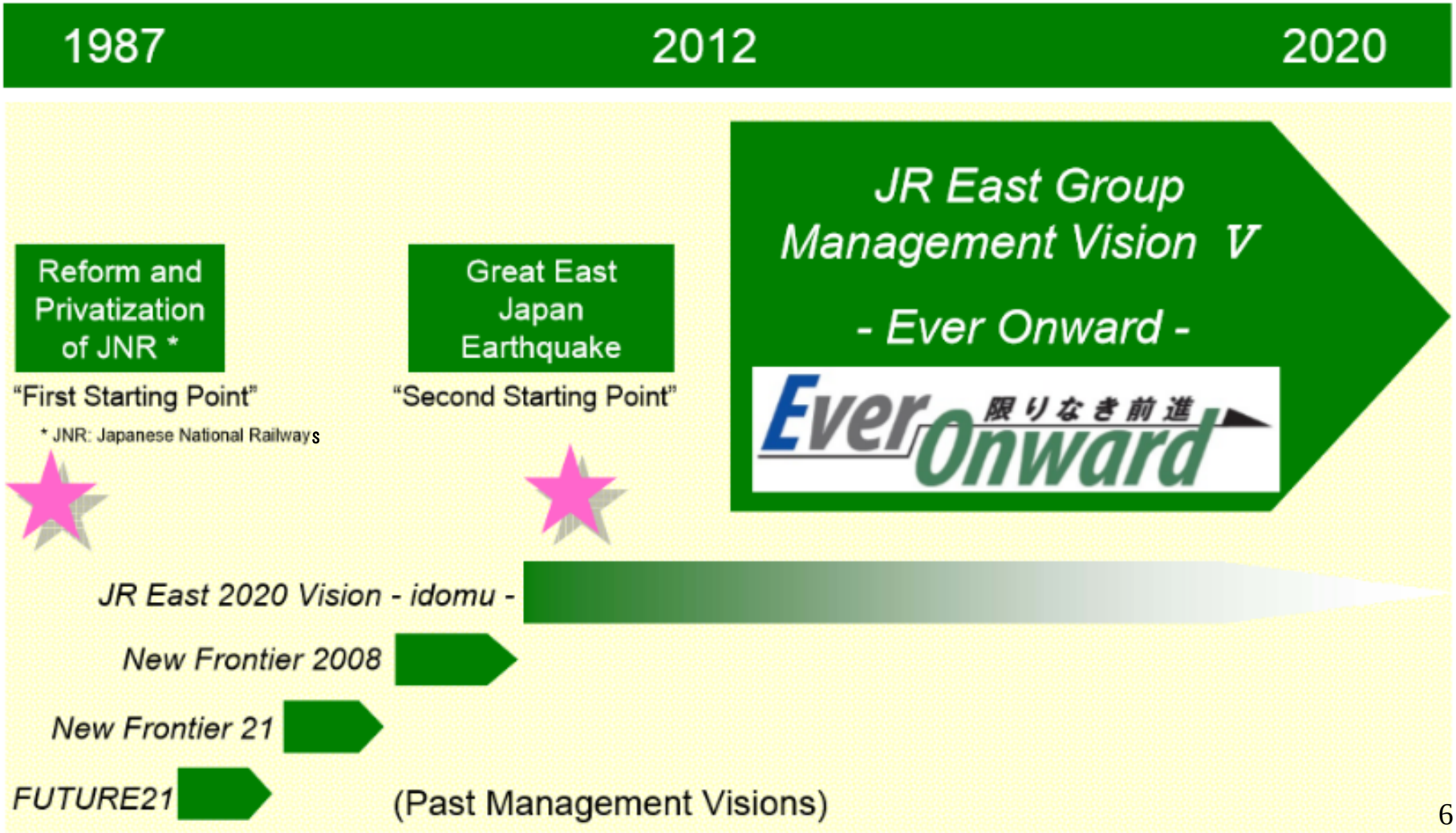
（US $ million）

【Net Income】



（US $ million）

JR East Group Management Vision V



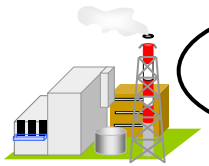
Energy and environmental strategies

<Promoting energy creation>

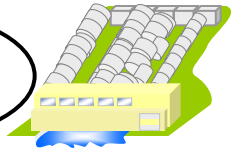
<Promoting energy conservation>

<Introducing smart grid technology to railway power systems>

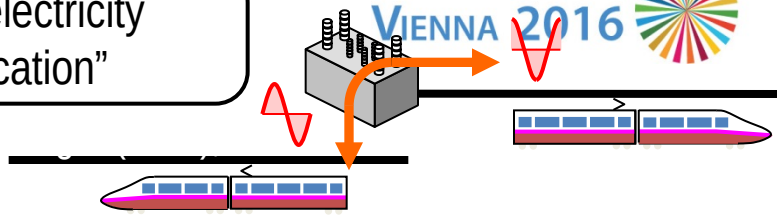
Energy and environmental strategies



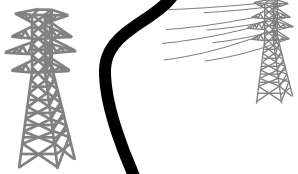
JR East's power plant

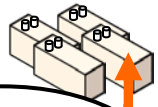


"Using surplus electricity at a distant location"



Introducing smart grid technology

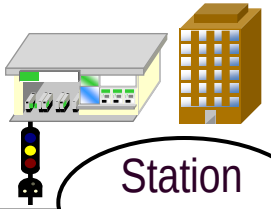




"Storing and using surplus electricity"

Regenerative power storage, etc.

Substation for electric trains



Station buildings

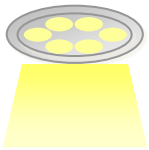
Promoting energy creation

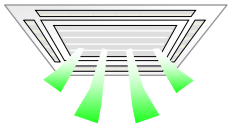
Electric company

R&D activities focused on new renewable energy sources

Introduction of solar power generation

Promoting energy conservation



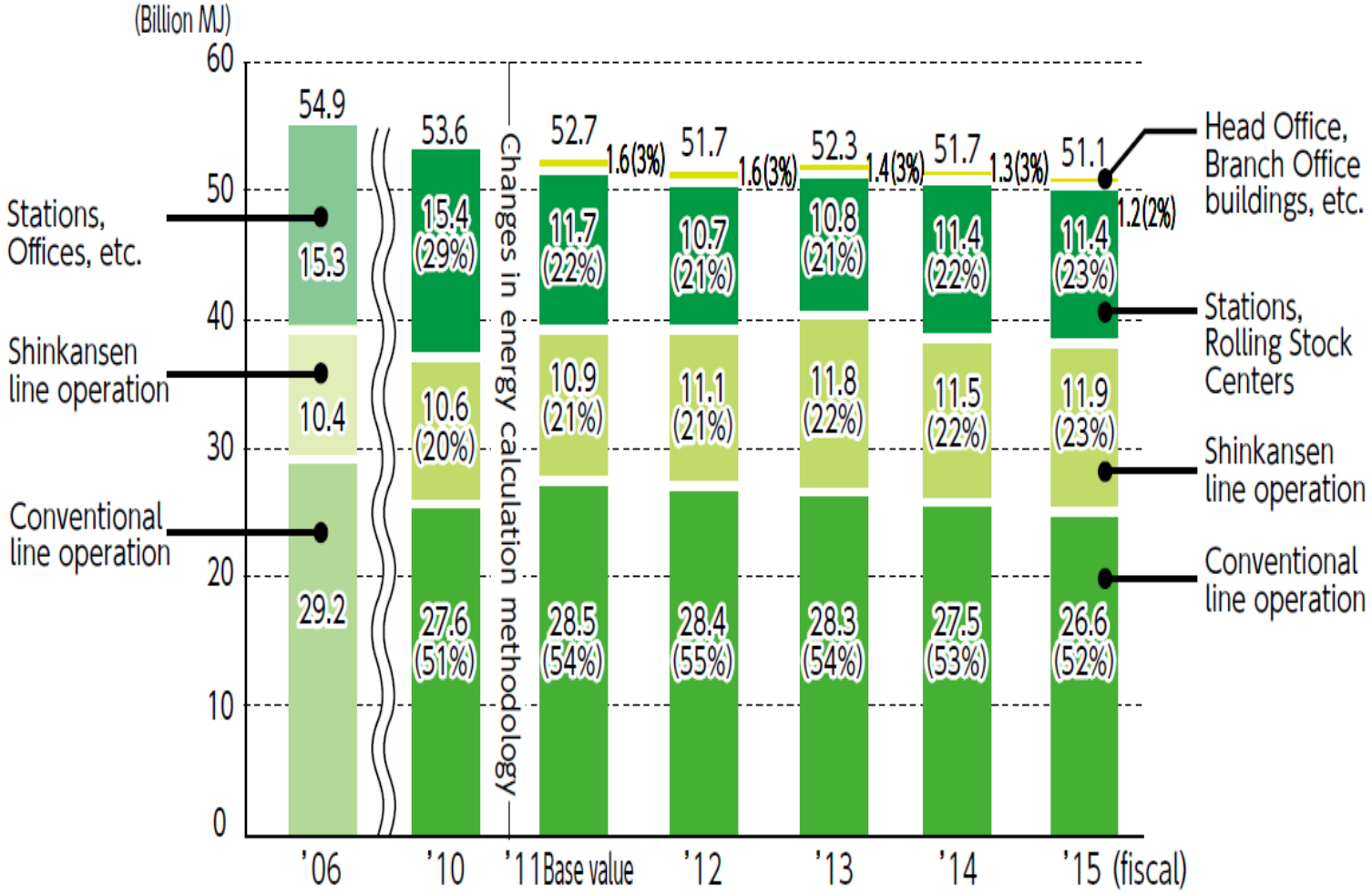


Adopting LED lights, and achieving high efficiency for equipment

Environmental Targets

Item	Targets to be met by FY2021
Energy consumption from railway business activities	8% reduction (MJ: relative to FY2011 level) (52.7 billion MJ ⇒ 48.5 billion MJ)
CO_2 emissions per unit of electricity generated by JR East's own power plants	30% improvement (kg-CO_2/kWh: relative to FY1991 level) (0.457 kg-CO_2/kWh⇒0.320 kg-CO_2/kWh)

Composition of energy consumption by JR East



Past activities at stations (Promoting energy conservation)

Introducing LED lighting for platform

Introducing flat screen LED information displays

Traditional product

The fluorescent lighting

Flat screen LED information displays

LED lighting

Actions for energy saving

Past activities at stations (Promoting energy creation)

Solar power system over the Tokaido line at Tokyo station

Year and month installed
February 2011

Panel area
Approx. 3,846 m²

Power output
453kW

Other solar power systems installed at stations:

- Tokyo station Shinkansen line platform (March 1993)
- Takasaki station Shinkansen line platform (March 2001, February 2004)

energy-saving stations “ecoste”

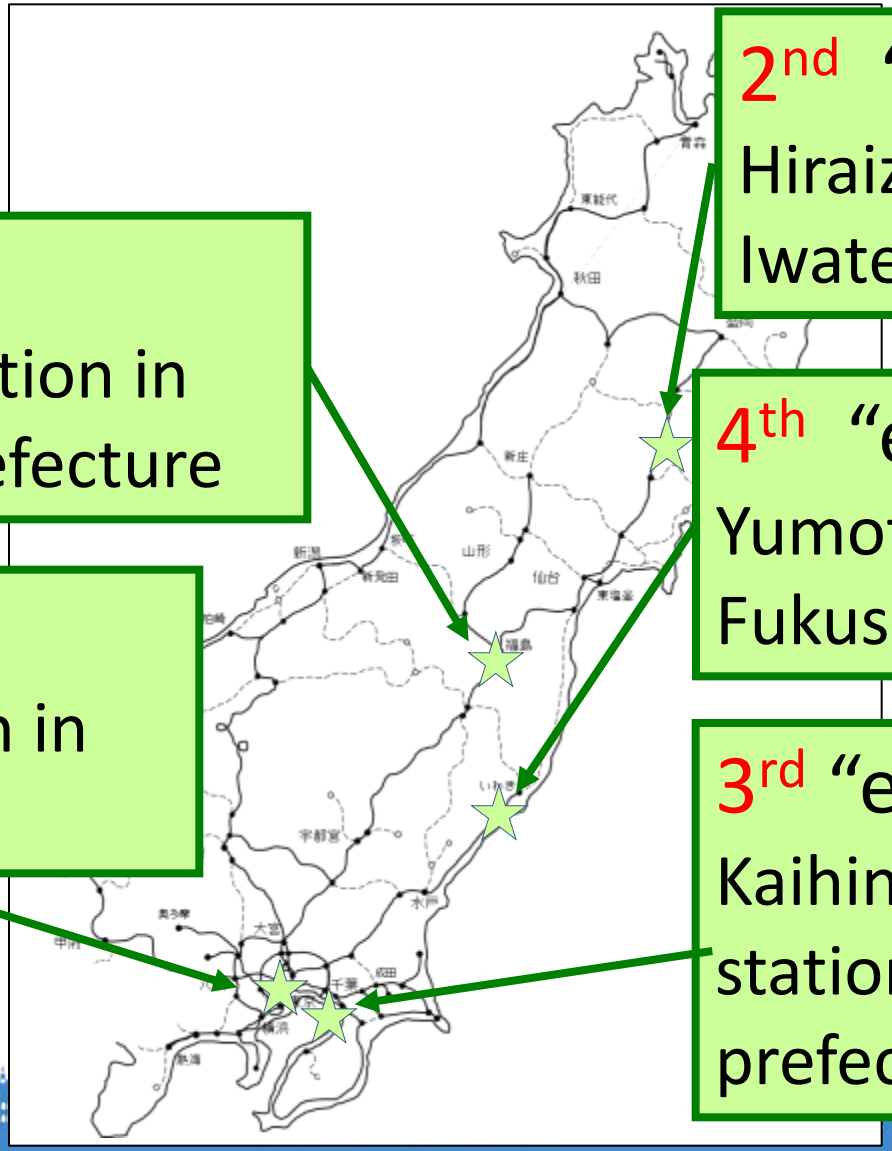
- “Ecoste” model stations introduce various technologies for environmental preservation, including energy conservation and use of renewable energies, aiming to appeal to passengers.

- We will create ”ecoste” in different areas making use of regional characteristics.

“ecoste” ~Four pillars~

	Four pillars
1	Energy conservation :Promoting more advanced energy conservation
2	Energy creation :Actively implementing renewable energy
3	ECO-Awareness :Preparing facilities that make users eco-aware
4	Environmental Harmonization :Creating vitality through an environment that is in harmony with people

In-service “ecoste” stations



2nd “ecoste”
Hiraizumi station in Iwate prefecture

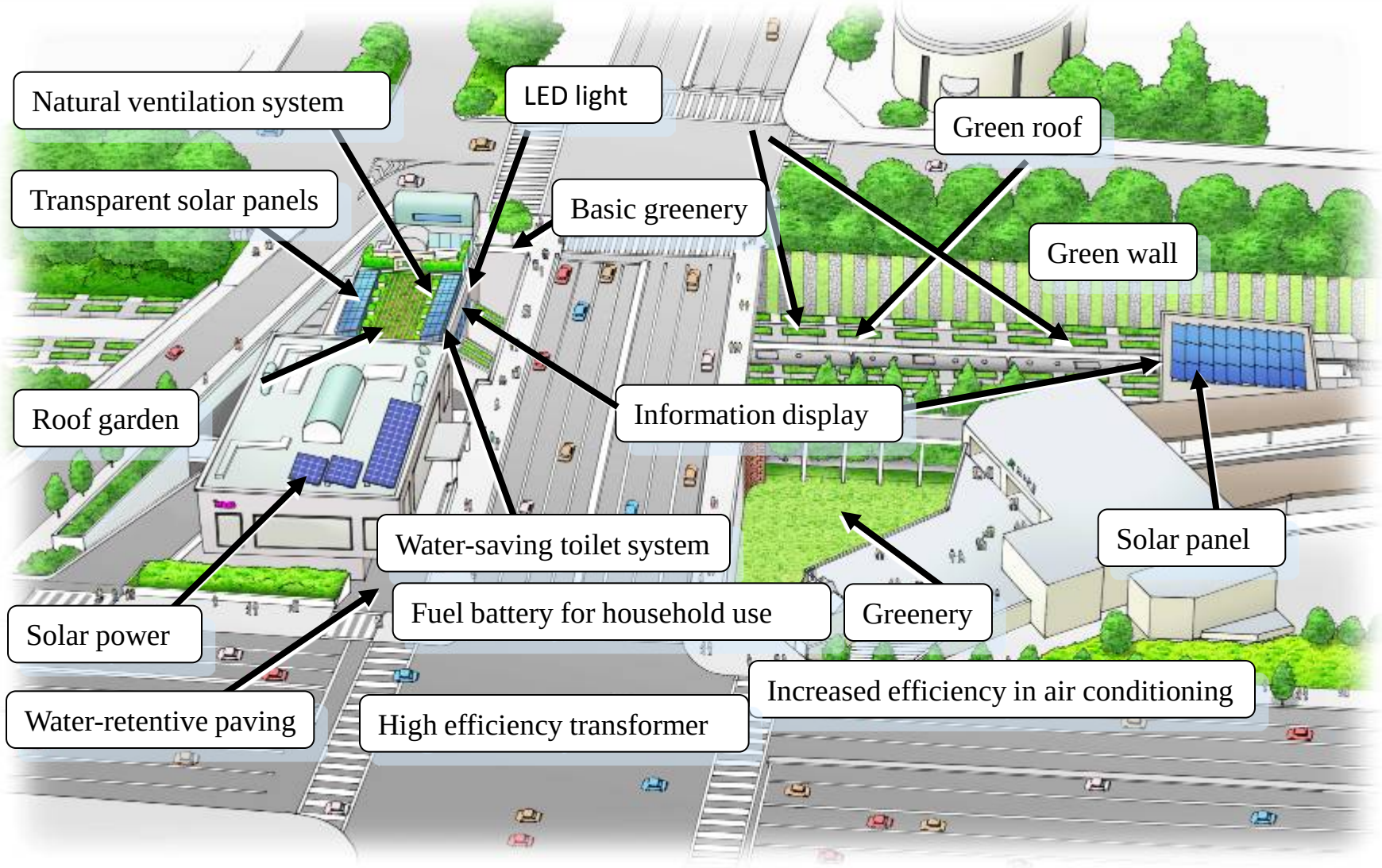
4th “ecoste”
Yumoto station in Fukushima prefecture

3rd “ecoste”
Kaihin-Makuhari station in Chiba prefecture

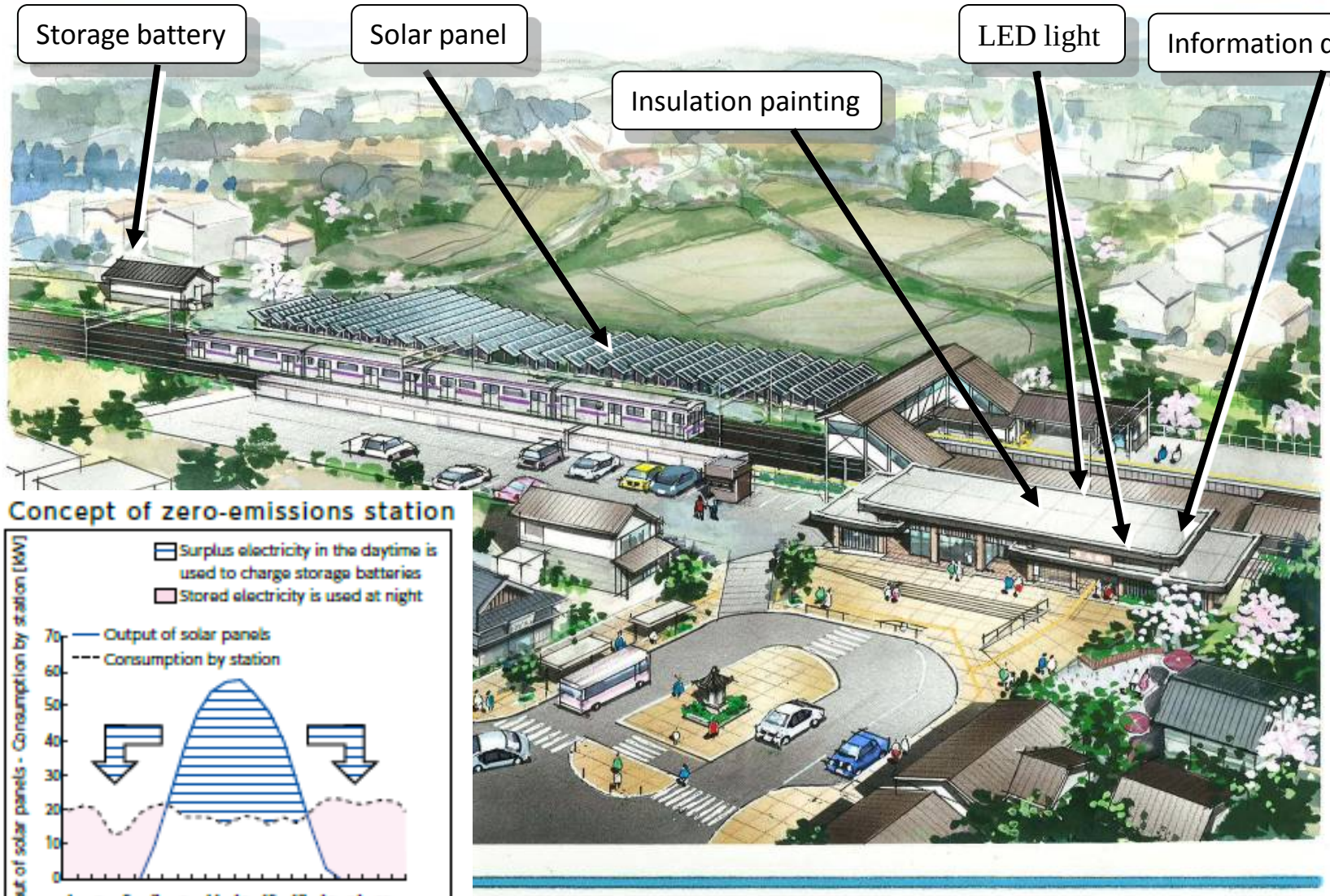
5th “ecoste”
Fukushima station in Fukushima prefecture

1ST “ecoste”
Yotsuya station in Tokyo

1st ecoste model station (Yotsuya)

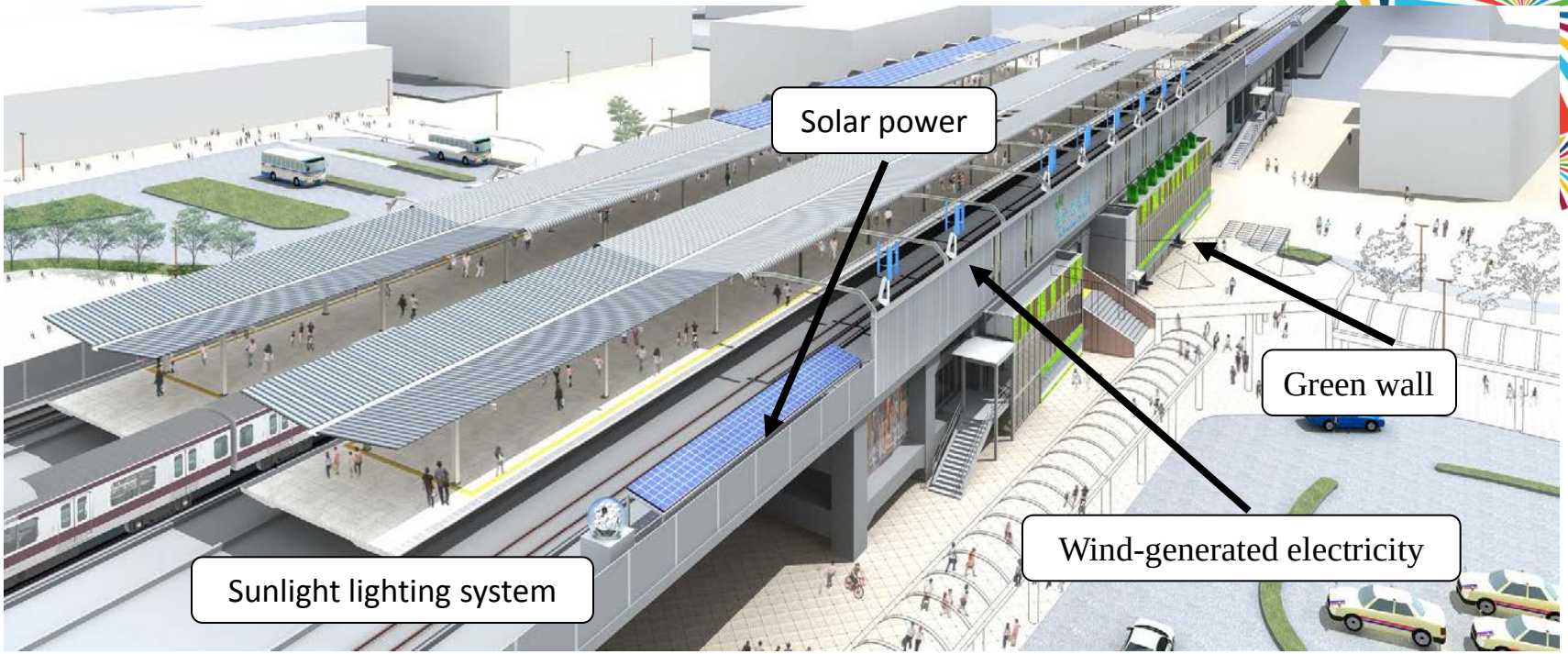


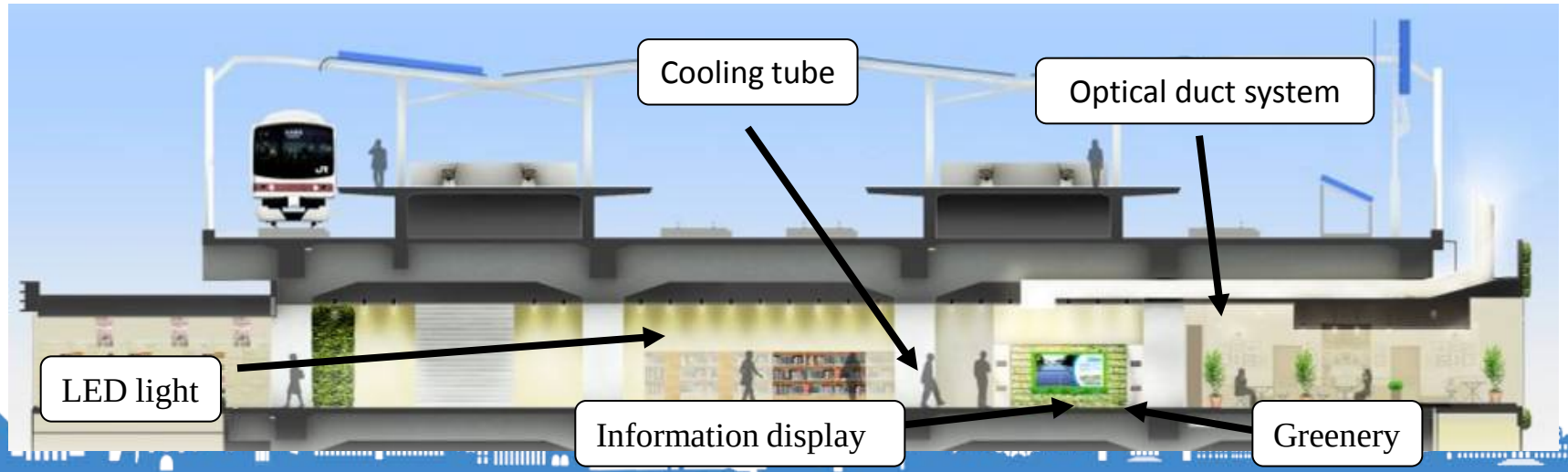
2nd ecoste model station (Hiraizumi)



Concept of zero-emissions station

3rd ecoste model station (Kaihinmakuhari)



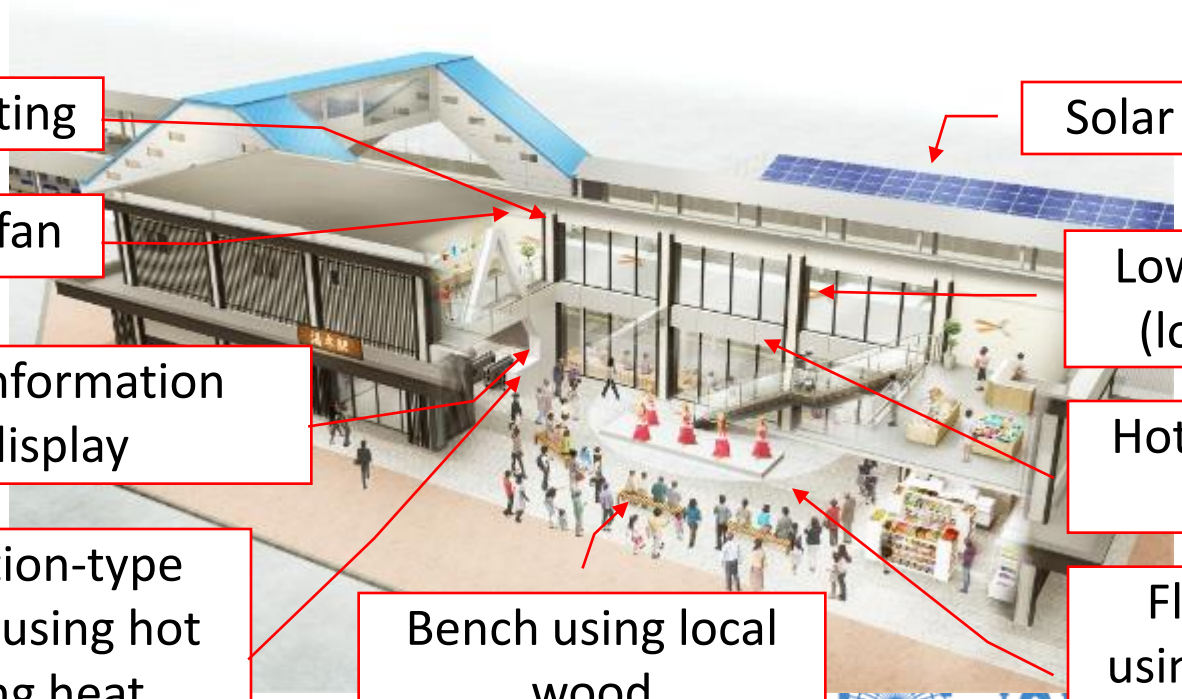


4th ecoste model station (Yumoto)

In service since March 29,2015

Concept : The utilization of community resources

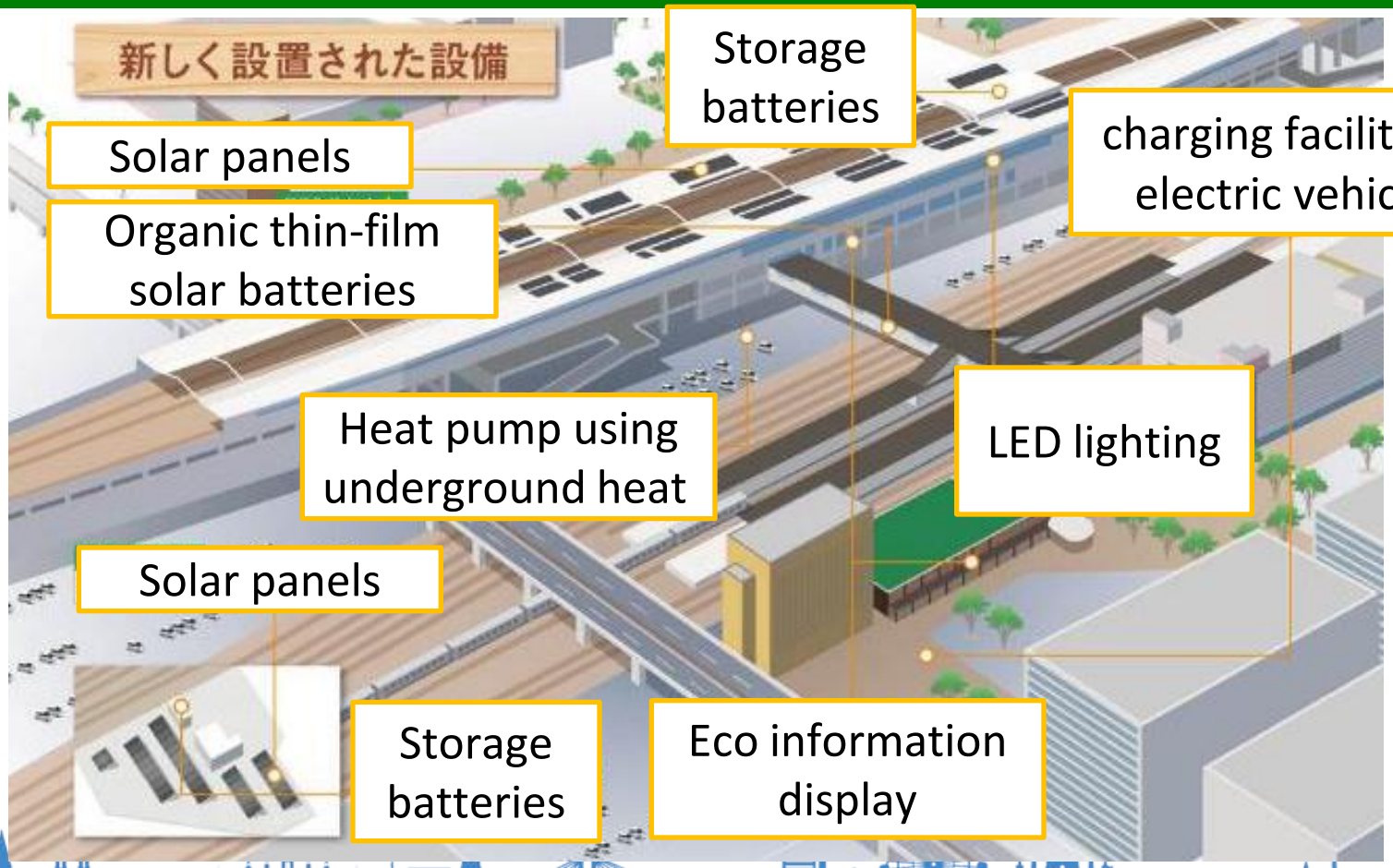
(hot-spring heat, local wood, solar power)



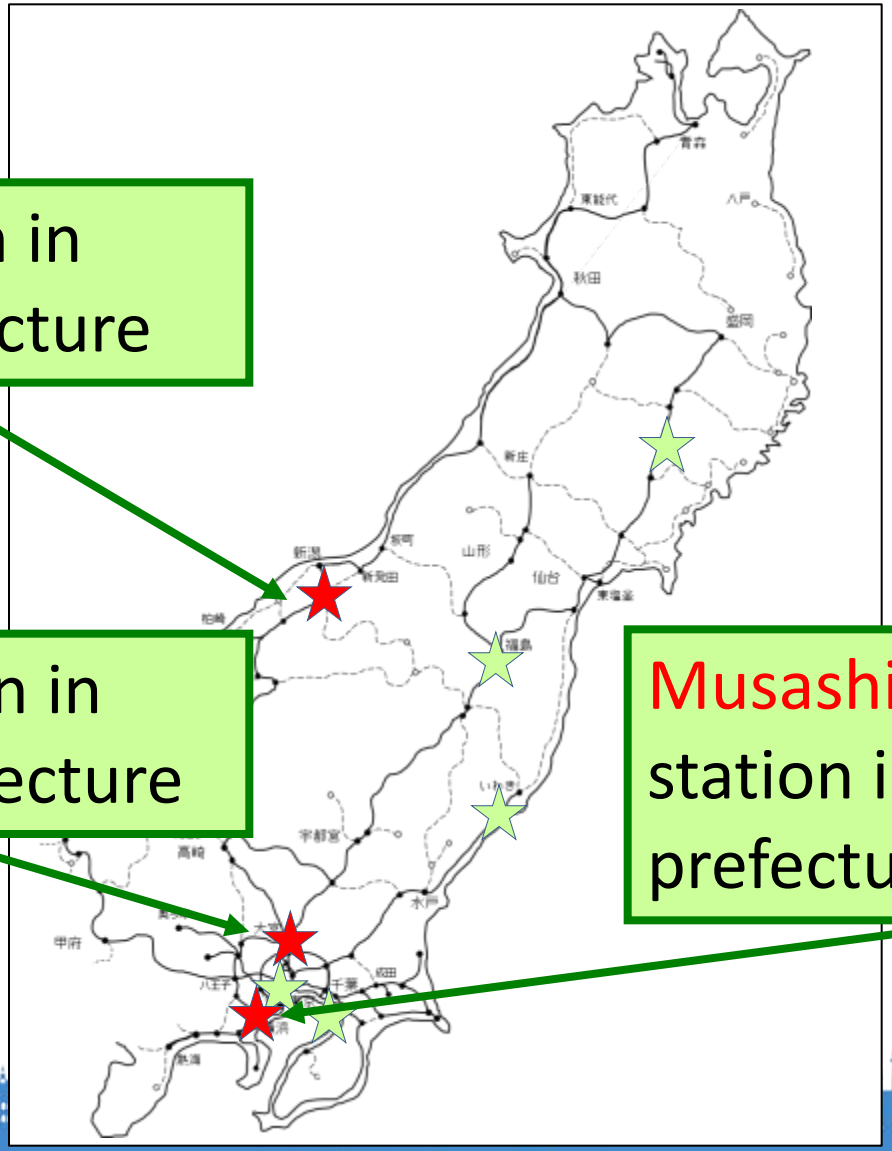
5th ecoste model station(Fukushima)

In service since April 5,2015

Concept : Collaboration with Fukushima prefecture



New “ecoste” stations



Niitsu station in Niigata prefecture

Urawa station in Saitama prefecture

Musashi-Mizonokuchi station in Kanagawa prefecture

New ecoste model station (Urawa)

CO_2 emissions reduction target:
▲40% (relative to 2015 level)

Energy Management System

LED lighting

Solar panels

LED lighting

Sprinkler system on the platform

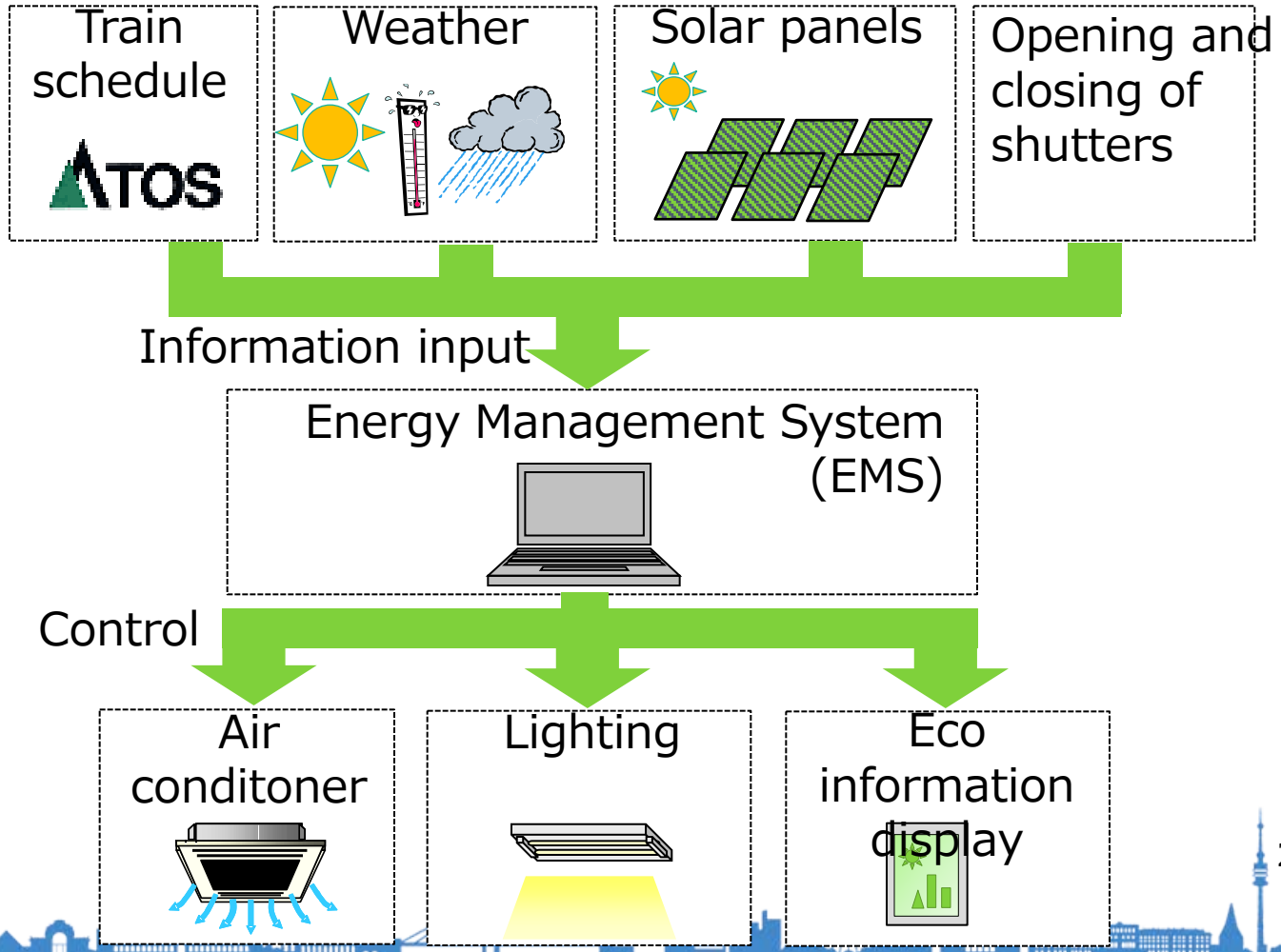
"Eco bench"

Eco information display

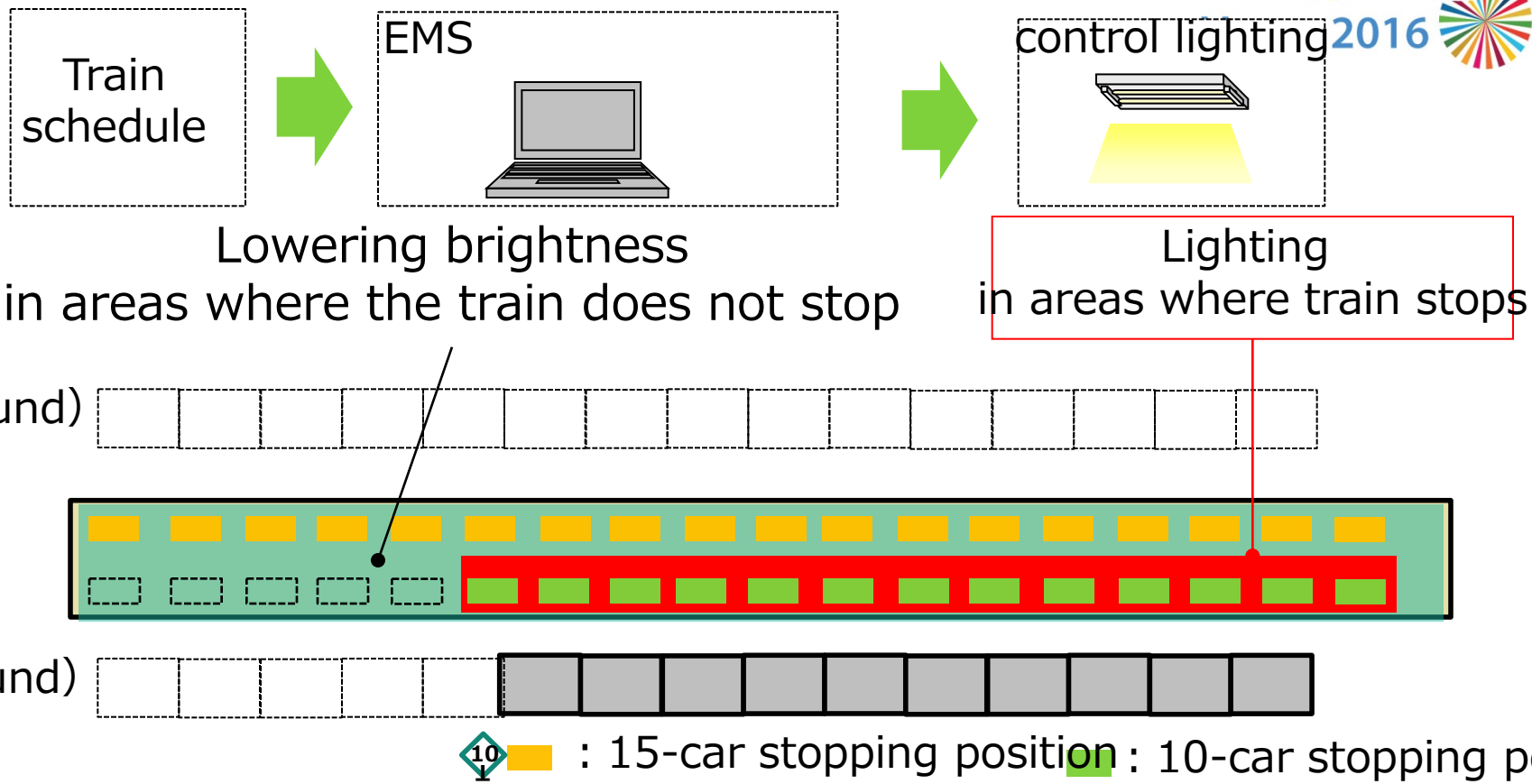
The concourse

Concept of Urawa “ecoste” : Energy Management System

Energy management system configuration



Control of lighting on the platform in conjunction with trains



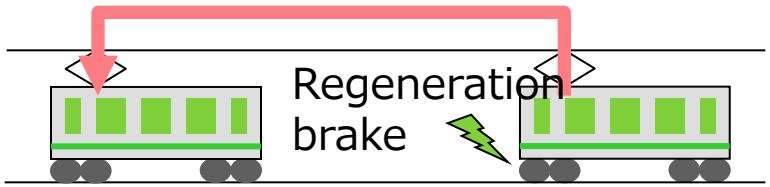
LED lighting shows length of arriving train

Concept of Niitsu “ecoste”

:Effective utilization of regenerative power

【Current】

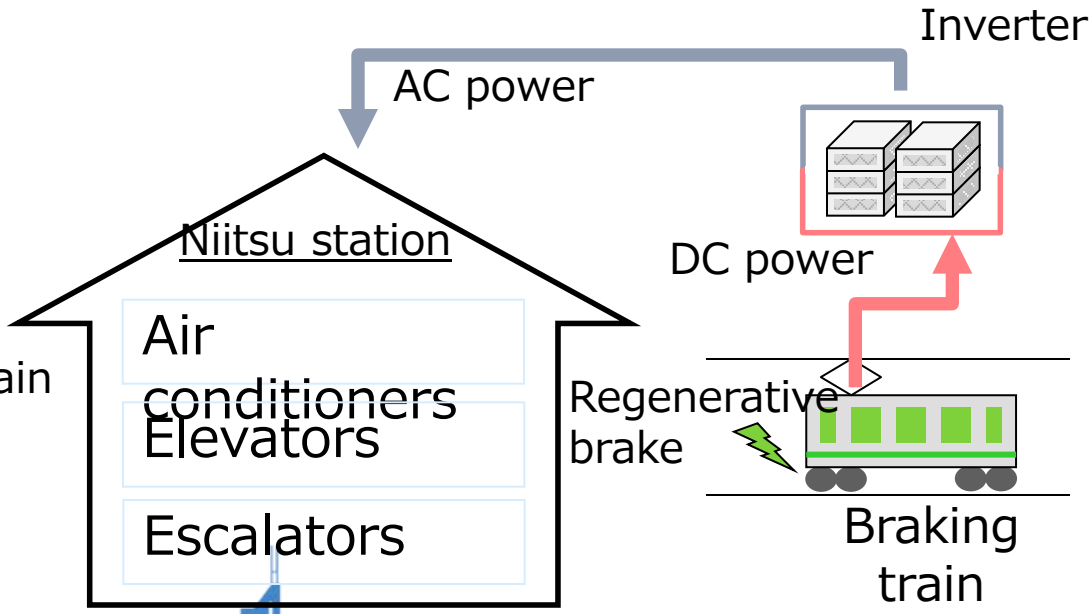
Regenerative system power for train running in vicinity



※Lost as heat when there is not a train running in the vicinity

【Future system】

Regenerative power for station equipment even without running train in vicinity



New “ecoste” model station (Niitsu)

CO_2 emissions reduction target:
▲41% (relative to FY2014 level)

New “ecoste” model station (Musashi-Mizonokuchi)

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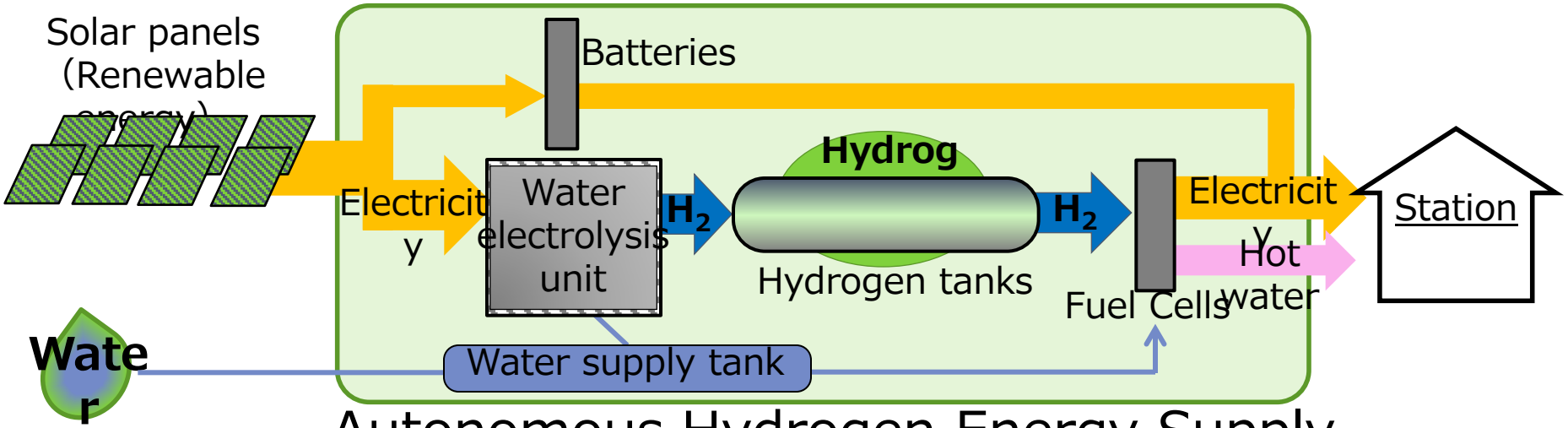
Concept : CO_2-free hydrogen

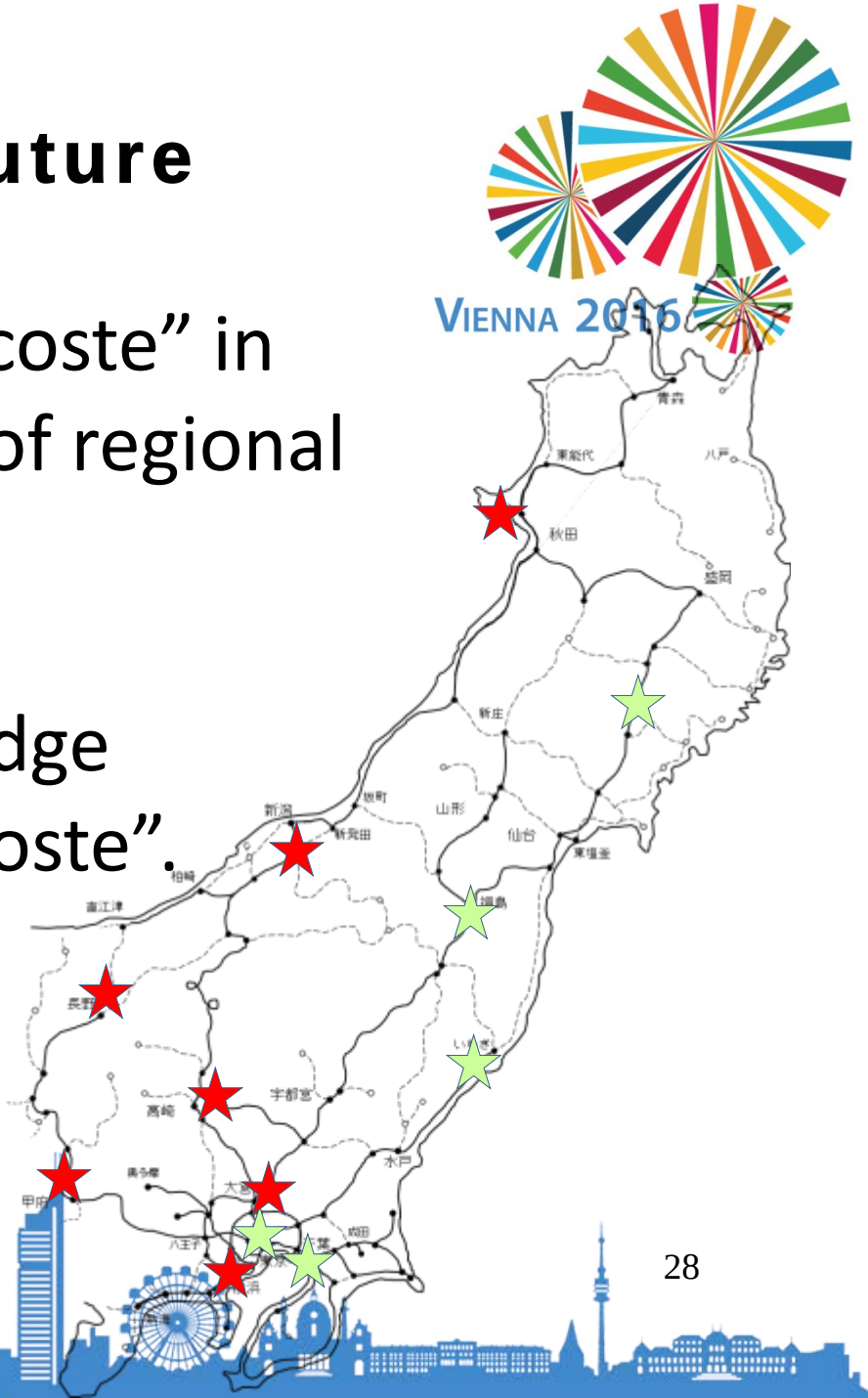


Autonomous Hydrogen Energy Supply System

In the future

We will create more new “ecoste” in different areas, making use of regional characteristics.

We will make use of knowledge provided by our existing “ecoste”.



Global standardization of the management

Adopt global CSR standard such as GRI in the near future

Improvements of the whole management

Makes us keep sustainable growth

Thank you
for your attention



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