



CEFIA
Cleaner Energy
Future Initiative
for ASEAN
ASEAN+3

Microgrid Flagship



1. Introducing the members of the Microgrid Flagship Project!
2. Historical Evolution of “**K-EMS**” over last 10years
3. Stable renewable power to microgrid through hybrid generation!
4. “K-EMS” is Answer for Microgrid and Off-Grid system

In October 2025, Kyudenko changed its name to



Demonstration project site (planned) at Nunukan Island, Kalimantan Utara

1. Introducing the members of the Microgrid Flagship Project!



Why Lead-Acid ?

Stable supply

- No rare metals

Easy recycled product

- 99 % recyclable

Safety

- Superior heat resistance high temperatures
- Non-flammable electrolytes

Easy maintenance

- No need to refill electrolytes
- Constant monitoring is not required

THE FURUKAWA BATTERY CO., LTD.

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A leading company in lead-acid battery technology



A leading infrastructure company in Japan, participating as an advisor.



Japan’s leading engineering & construction company, formerly Kyudenko, renamed to Kraftia in October.



2. Historical Evolution of "K-EMS" over the last 10 years



Off-Grid EMS in Municipal hall Building(2025)
(Nagashima Island, Kagoshima, Kyushu Japan)

Off-Grid EMS in City hall Building(2022)
(Ogi city, Saga, Kyushu Japan)

On-grid EMS demonstration facility(2017)
(Sumba Island, NTT Indonesia)

The 1st off-grid EMS demonstration facility(2015)
(Huis Ten Bosch, Nagasaki Kyushu Japan)



Hybrid RE Power plant DEMO by EMS
(Nunukan Island , North Kalimantan
Indonesia)

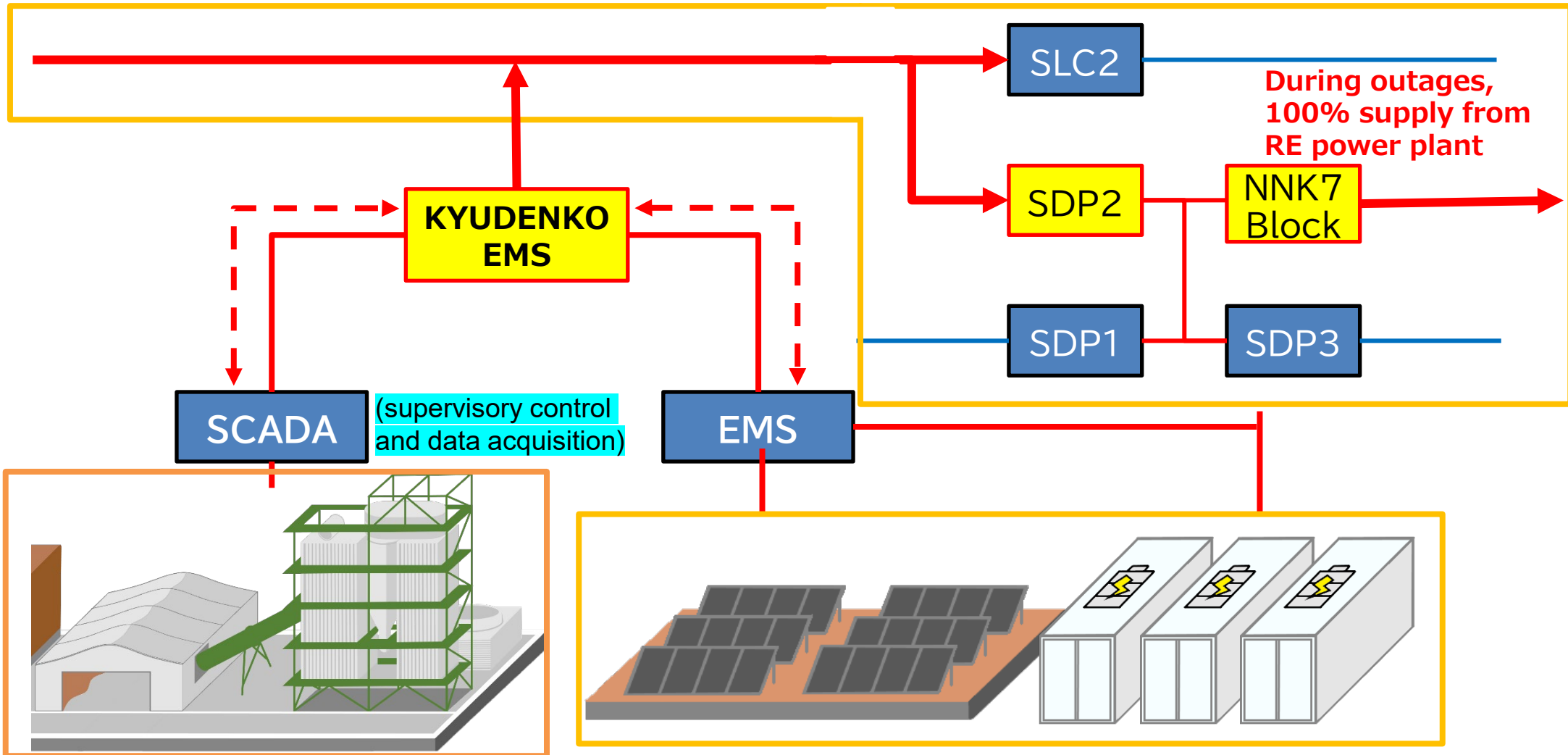


Through our EMS projects both in Japan and Indonesia,
We have refined our technology to stabilize renewable energy.
All our empirical knowledge will be crystalized in Nunukan Island

3. Stable renewable power to microgrid through hybrid generation!

PLN Express Feeder(22,000V)

SLC: Sei-Lanchan S/W station
SDP: Sedadap S/W station



Overview of Demonstration Technology

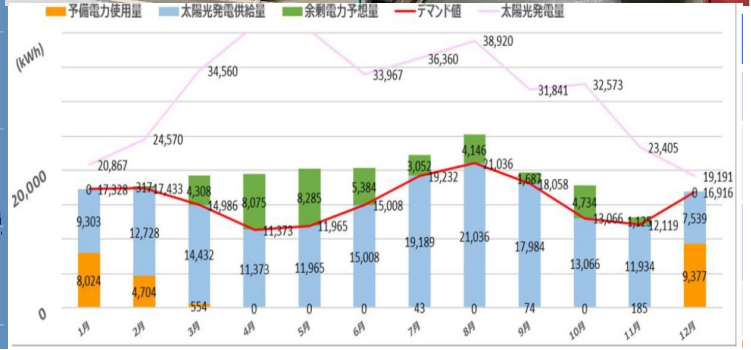
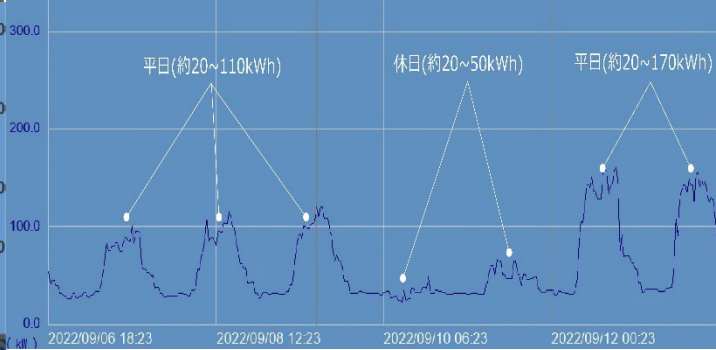
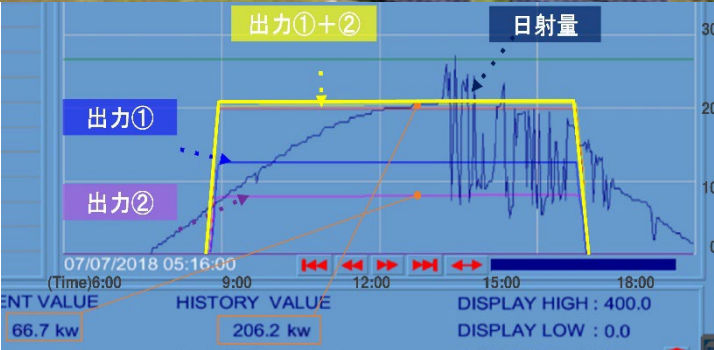
Normal: Biomass, PV, and batteries supply power to the grid.

In case of Outage: EMS controls outputs to supply critical loads with renewable energy only into NNK7 Block.

4. "K-EMS" is Answer for Microgrid and Off-Grid system



Stabilization of RE On Micro-grid	Off-Grid & Resilience For City hall Buildings	Off-Grid & Resilience For Town hall Buildings
Sumba, NTT, Indonesia	Ogi city, Saga Japan	Nagashima T, Kagoshima Japan
PV: 400 kW	PV: 552 kW	PV: 302 kW
Battery 1,152 kWh	Battery 3,456 kWh	Battery 3,456 kWh
Transmission of 200kW To Local PLN grid	100% covered by Renewable Energy to city hall buildings	90% covered by Renewable Energy to town hall buildings



Peak-cut of Diesel generators

Resilient system by renewables
72h emergency backup during disasters

Hybrid system maximizing renewables
with flexible grid backup

Thank you



In October 2025, Kyudenko changed its name to

KRAFTIA

K + CRAFT + I + A



Kyushu /
Kyudenko



Craft
Technology, skill, craftsmanship



Innovation



Action

keeping the same identity represented by

Human Red / **Technical Blue** / **Environmental Green**