Paris Session 2022

Cost benefit analysis for avoiding system congestion by utilizing local flexibility (NEDO commissioned project)

SC C6

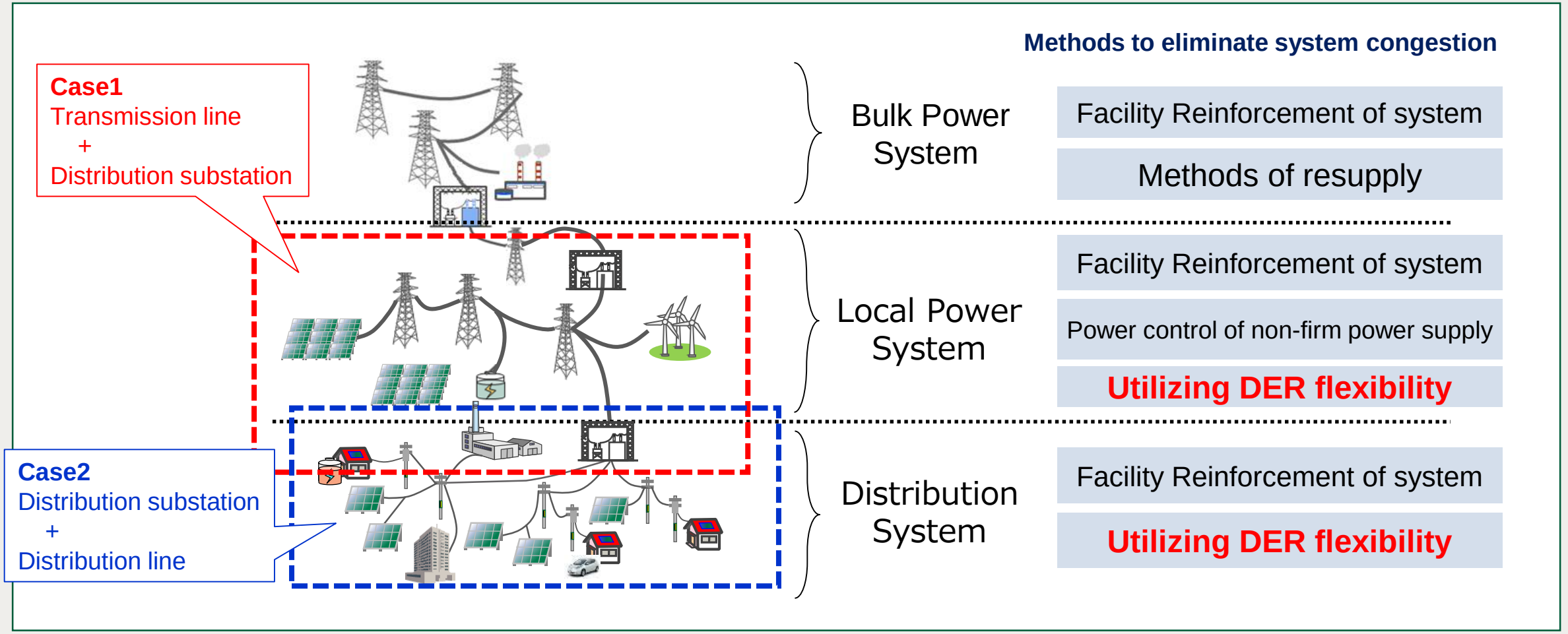
PS 2 and Question 4

Noriaki KANO（JAPAN）

KYOCERA
TEPCO Tokyo Electric Power Company Holdings
Kansai Electric Power power with heart
Mitsubishi Research Institute
WASEDA University

Utilizing Local flexibility in Japan

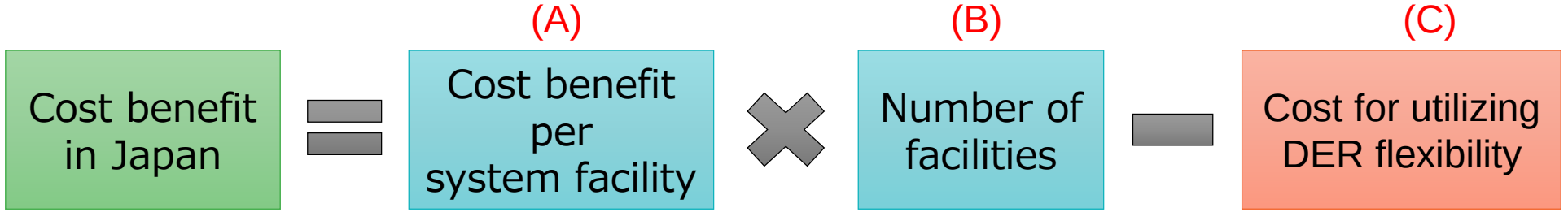
➢ Various methods to resolve system congestion by utilizing local flexibility are being considered in Japan.



Calculation conditions

➢ We calculated the cost benefit of avoiding the facility reinforcement by DER flexibility.

Calculation formula

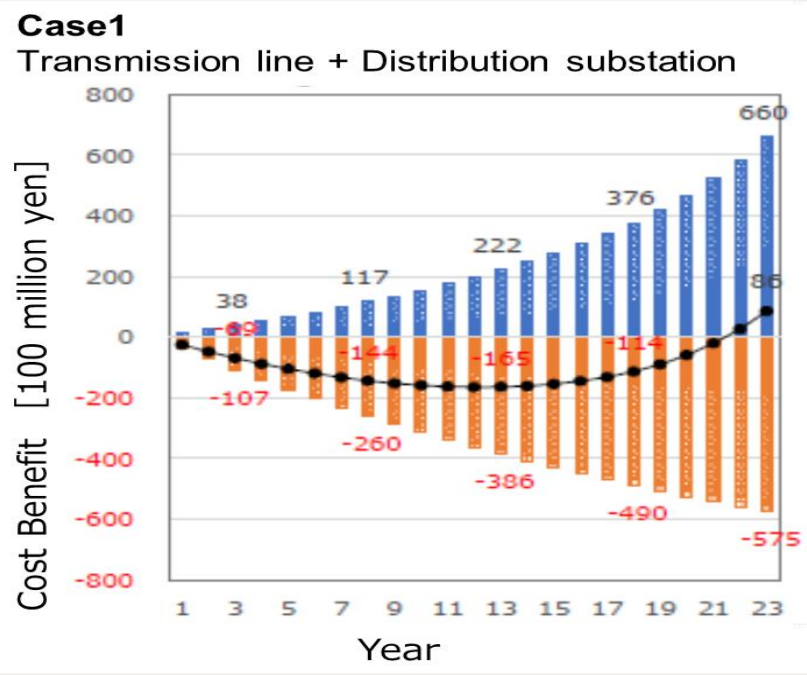


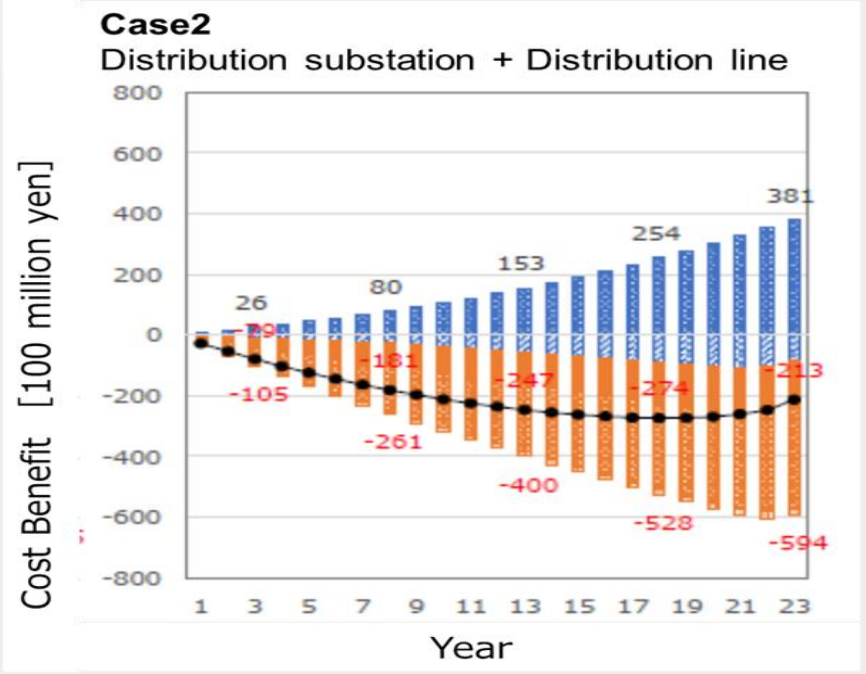
Calculation conditions

- ➢ The period of calculation is from 2028 to 2050.
- ➢ The amount of PV and EV installed in the 6th Energy Basic Plan is applied.
- ➢ Calculate the cost benefit for each system facility when system congestion is avoided ･･･(A)
- ➢ Estimate the number of facilities that may exceed capacity in Japan ･･･････････････････(B)
- ➢ Estimate costs for utilizing local flexibility (e.g., platform construction costs, operating costs)･･･(C)

Results

- As for transmission lines or distribution substations, utilizing DER will not require additional costs but bring cost benefits by avoiding facility reinforcement.
- As for distribution facilities, utilizing DER requires more costs to install sensing equipment until 2050 than cost benefits by avoiding facility reinforcement.
- Utilizing DER requires the cost to build a platform for managing DER and replace TSO/DSO's existing system for monitoring and controlling DER.





: Cost benefit in Japan
: Cost benefit per facility × Number of facilities
: Cost for utilizing DER flexibility