



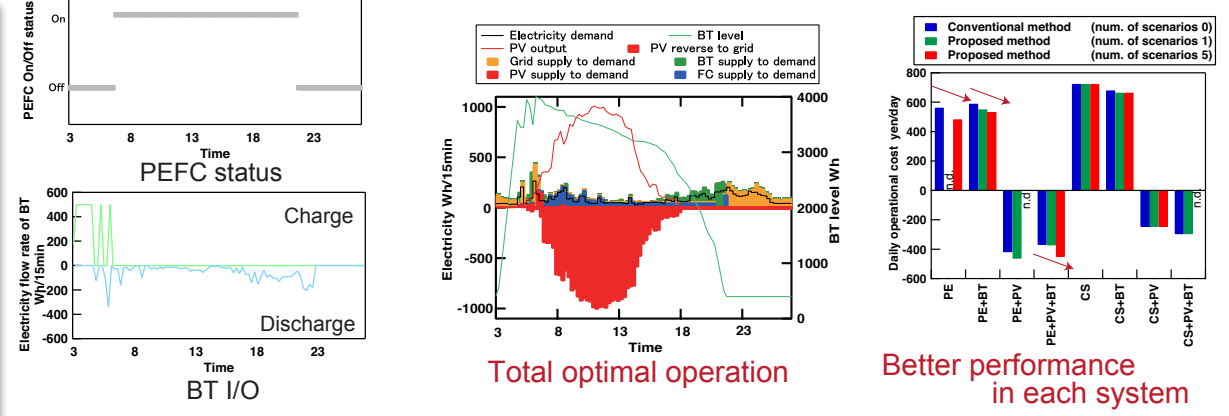
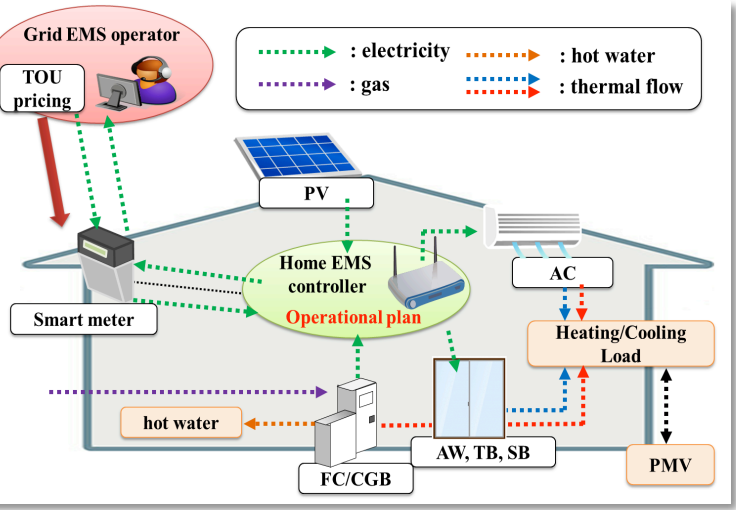
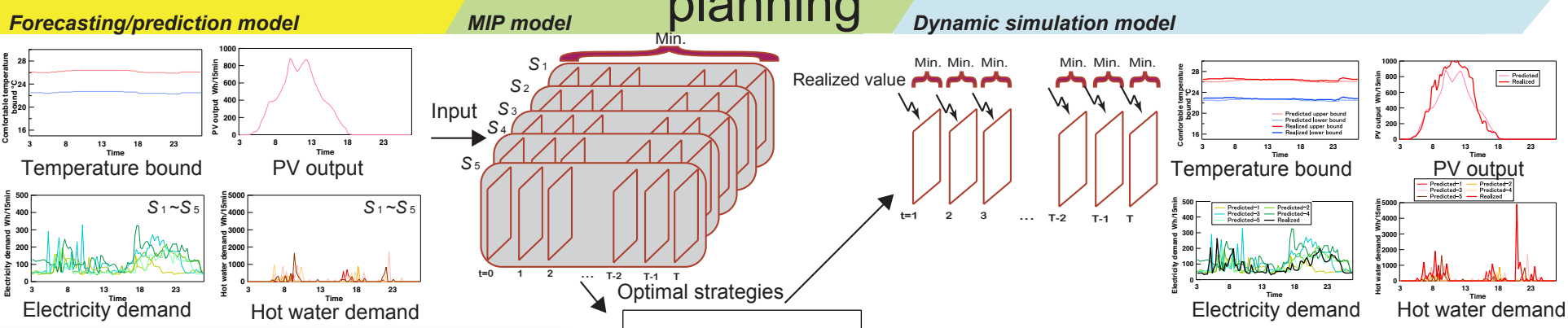
Evaluation of Stochastic Optimization of Operational Planning Scheme for Residential Energy Systems

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Prediction

Operational planning

Operation



Model validation

Test facility for validation of equipment

Equipment shown includes **PV & PCU**, **PEFC-CGS(750We / 1080Wth)**, and **Li-Ion BT(4.65kWh)**. Other HVAC systems (Air conditioner, CO2 Heat pump, Condensing Gas boiler, electric blind, etc) are also present.

Prediction phase:

Forecasting/prediction model
(Renewable energy output and energy demand in house)

Operational planning phase:

MIP model
(superstructure of residential energy systems)

Operation phase:

Dynamic simulation model
(superstructure of residential energy systems)

We can validate the "MIP model" and "Dynamic simulation model" with various commercial systems in our test facility. However, it is difficult to validate the effect of the robustness of the prediction/forecast method. That is why we build the **simulation framework** including three phases above.

