

\Orchestrating a brighter world

NEC

Energy Management Solutions

pursuing energy efficiency

Smart Energy Business Unit
NEC Corporation
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Prepared for CAREC Energy Program

Orchestrating a brighter world

NEC brings together and integrates technology and expertise to create the ICT-enabled society of tomorrow.

We collaborate closely with partners and customers around the world, orchestrating each project to ensure all its parts are fine-tuned to local needs.

Every day, our innovative solutions for society contribute to greater safety, security, efficiency and equality, and enable people to live brighter lives.



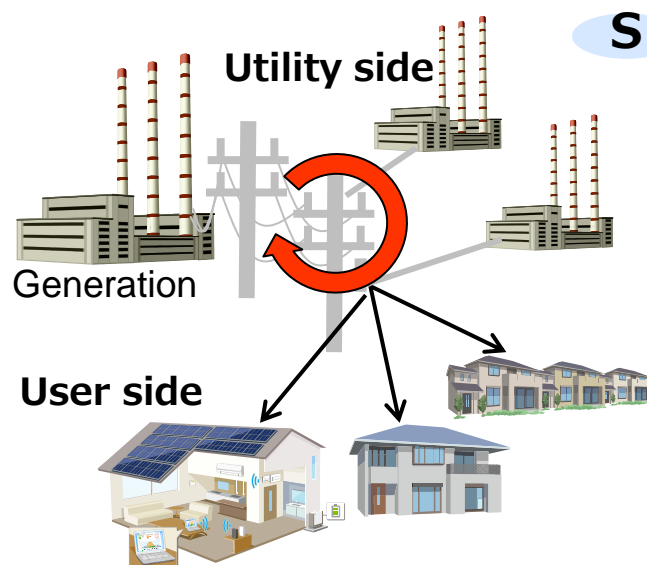
Environment - Paradigm Shift in Electricity System

Expansion of Renewable Energy changes Electricity System

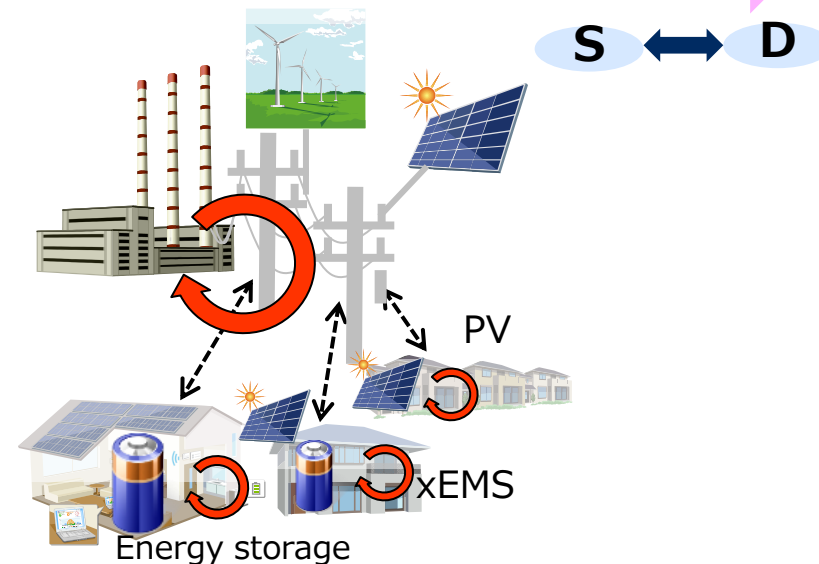
Environmental concerns, Shortage of electricity generation and Increasing electricity price are accelerating the renewable energy, i.e. Wind and Solar, expansion all over the world.

Traditional system
(Centralized control by Utility)

Now and Future
(Centralized + Independent control)

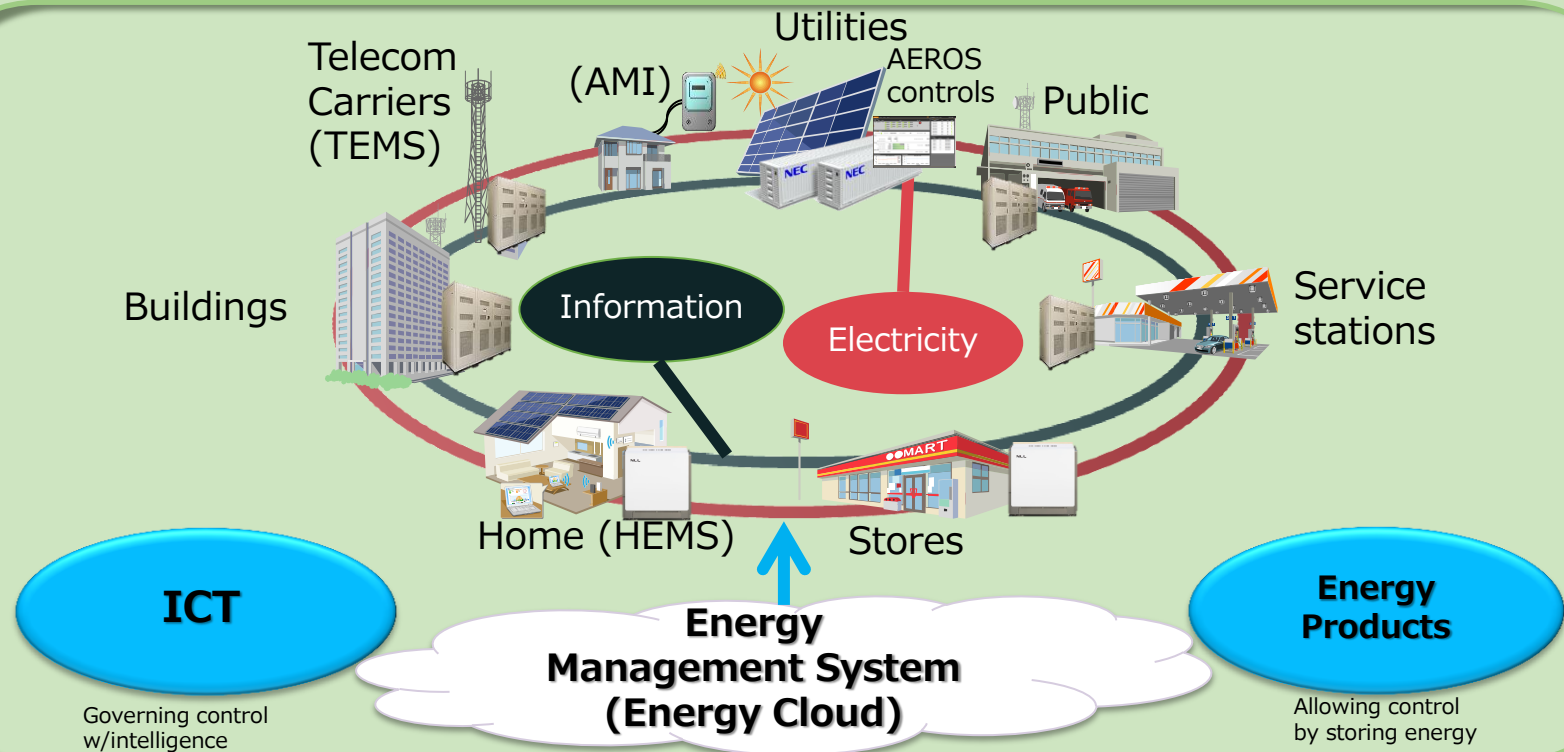


Electricity supply is centrally controlled by Utilities



Uncontrollable renewable energy generation is increasing.
User side also owns generation and storage function,
and independently controls their energy.

Social Value Innovations by ICT and Energy



Safety
安全

Protect the safety by ensuring minimum power required for disaster



Efficiency
効率

Utilize power effectively by supply and demand prediction and control with high accuracy



Security
安心

Support safe life by stable power supply connecting with renewables and other sources

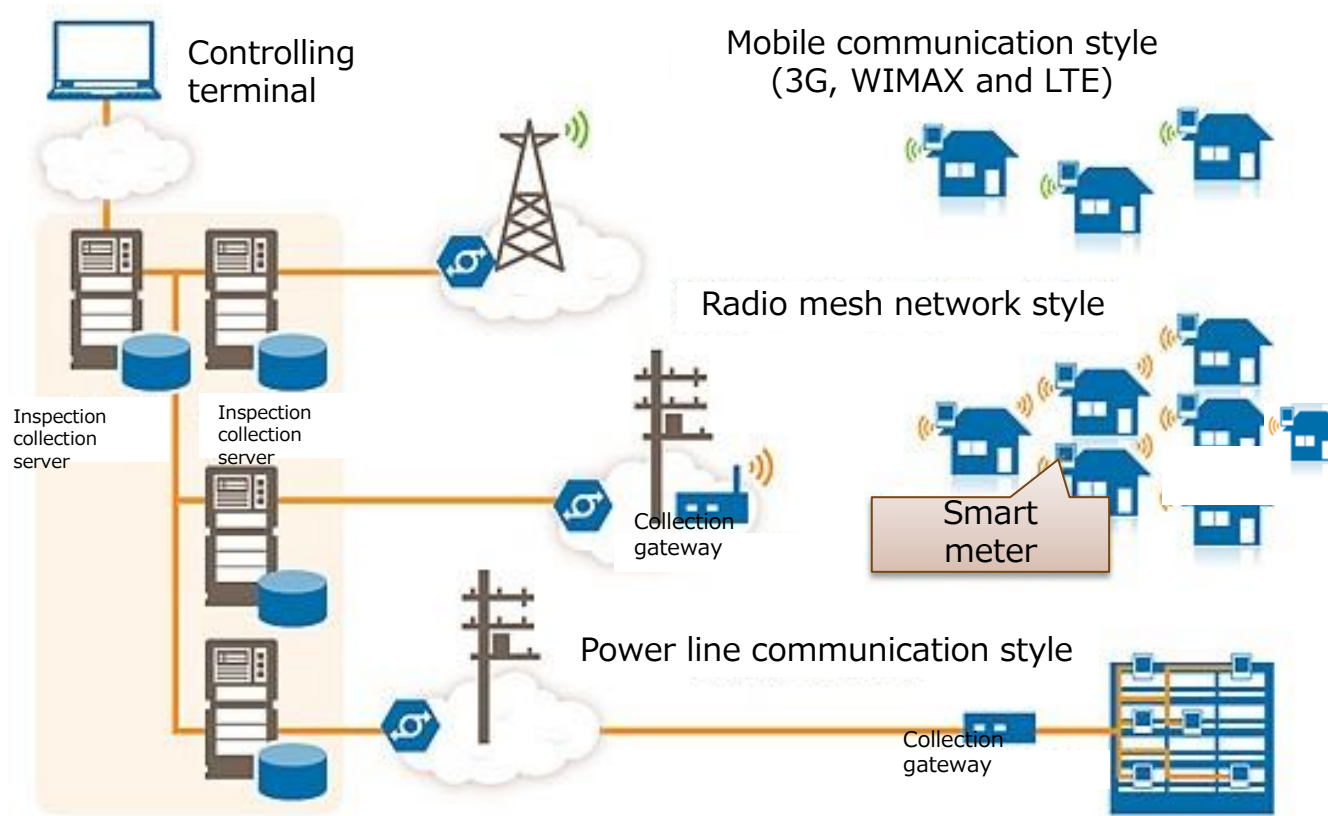


Equality
公平

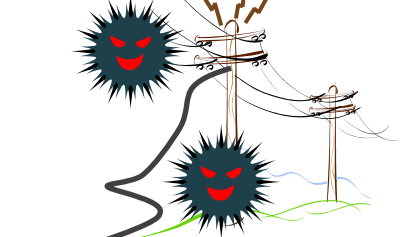
Create society where all people can use energy equally from downtown to isolated islands

Application 1 Advanced Metering Infrastructure

AMI



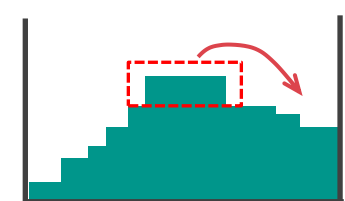
Reduction of power loss



Reliable charge collection



Power load control

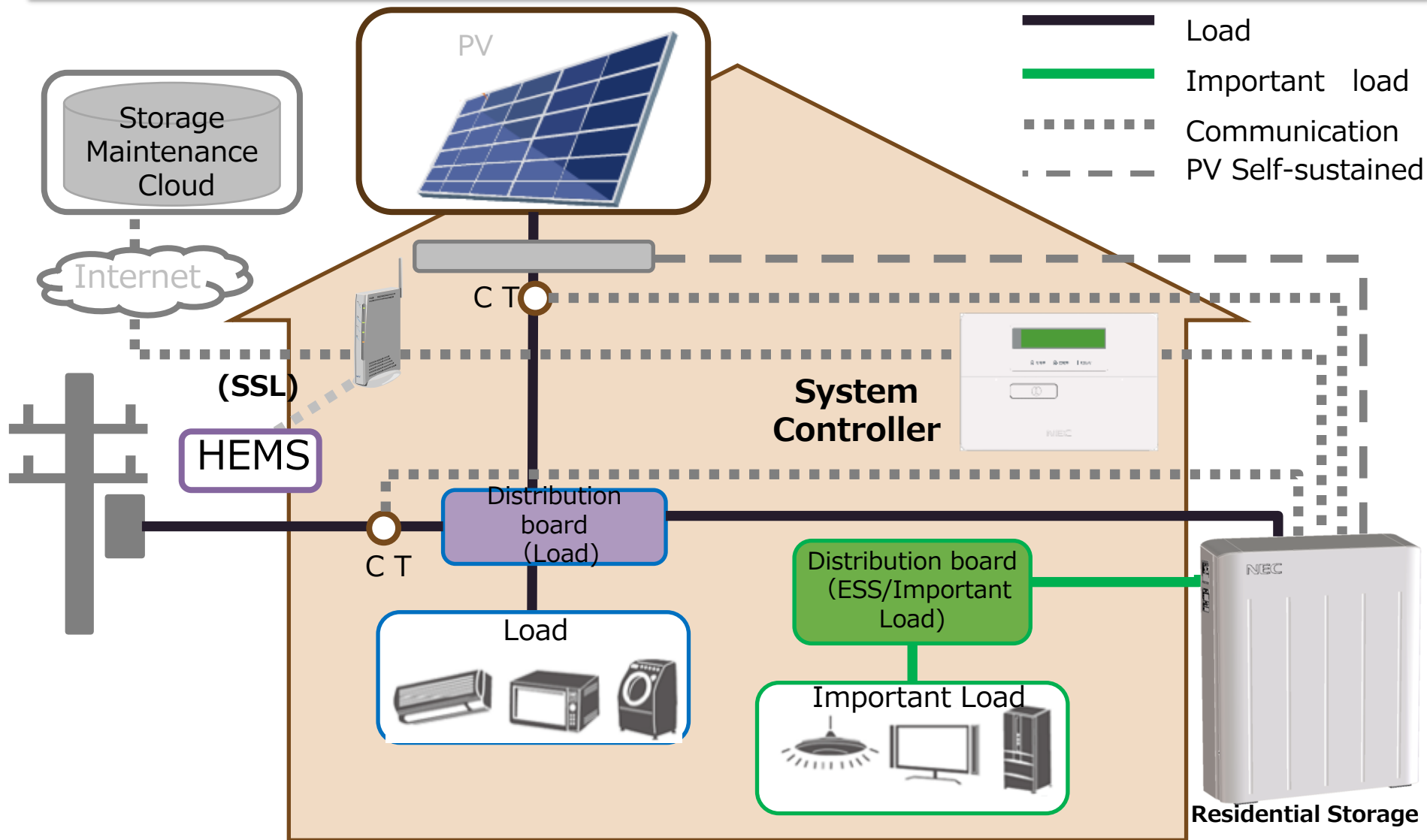


- Inspection data capture management
- Network and equipment management
- Remote control operation
- Data processing and transfer for business system

- Periodic inspection in whole households
- Maintenance of inspection data
- Establishment of network
- Sending/forwarding of inspection data

Application 2 Home Energy Management Systems

HEMS



What's happening in telecom energy?

Many telecom sites built to support mobile network, and each site is ...



Understandably, each site needs to be available for 24/365.



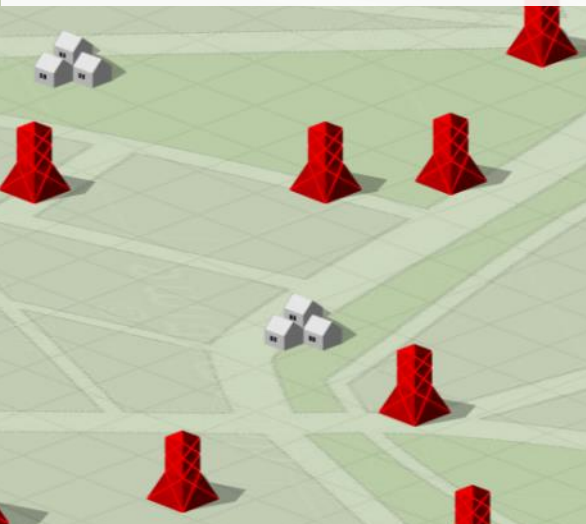
There are many sites where blackouts occur frequently or electricity is out of reach.



Energy cost gets very high due to use of diesel generators as a backup.



As a result, the CO2 emission increases and becomes the social problem.

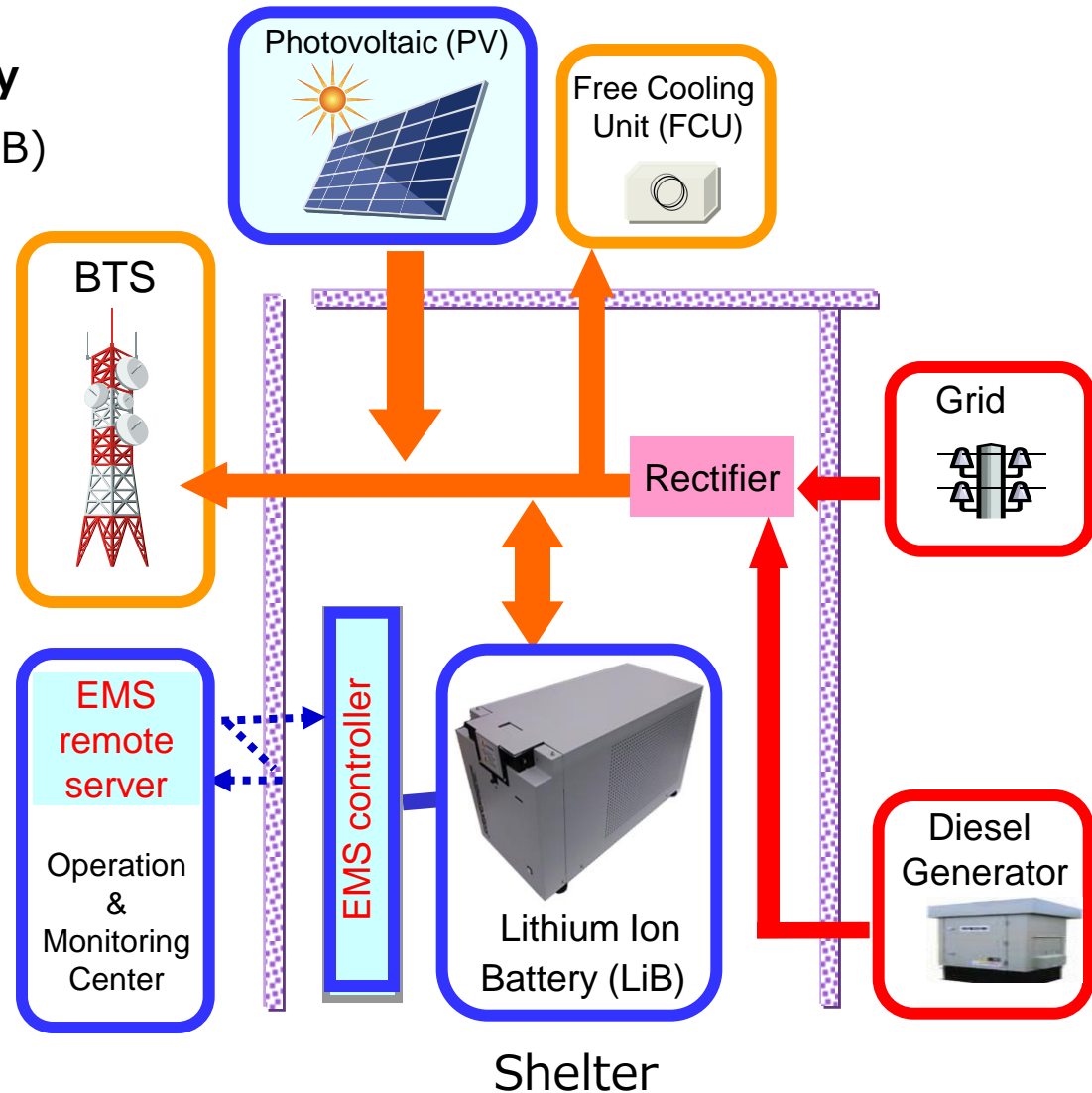
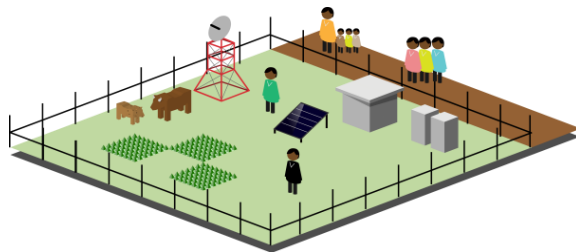


Application 3 NEDO Project in India – Key features

TEMS

Key features for energy efficiency

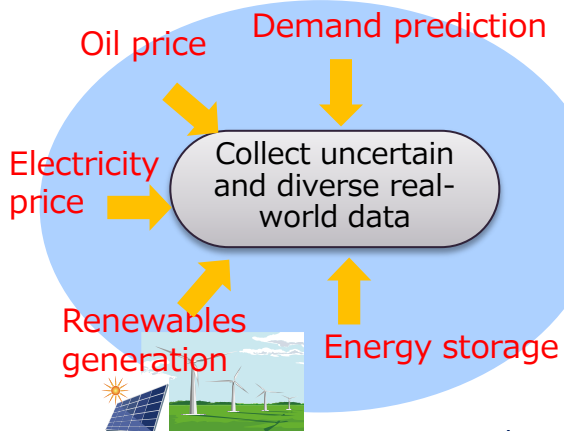
- Combination of Li-Ion battery(LiB) and Server-Client model Energy Management System (EMS).
- EMS manages the lowest cost power source selection and energy efficient charge to LiB.
- EMS remote server realizes centralized monitoring and analysis of operation data and send energy control parameter to EMS controllers.



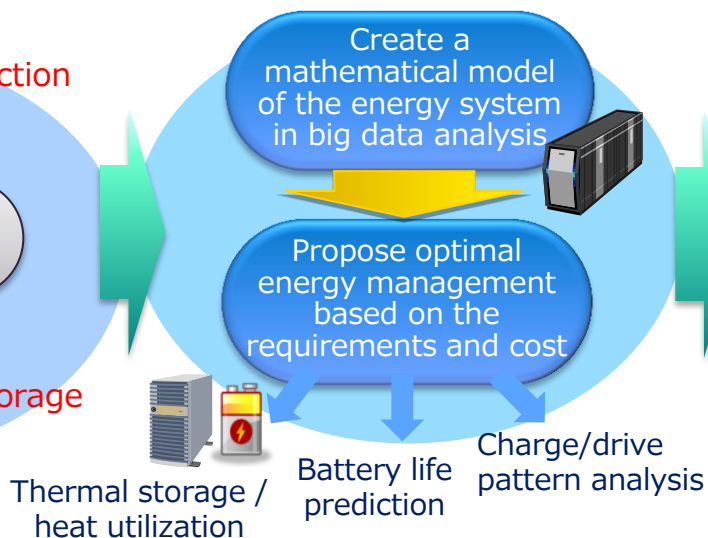
Energy Management – creating values thru ICT

- Brings both comfortable and energy friendly life which optimize energy supply with the integration of visualization, prediction and control functions.

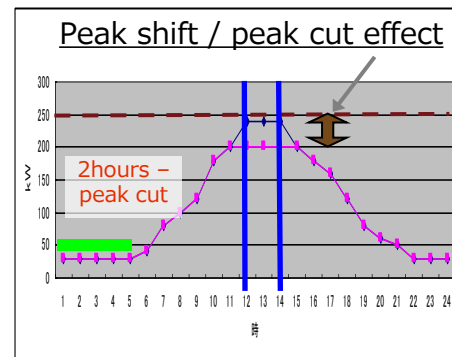
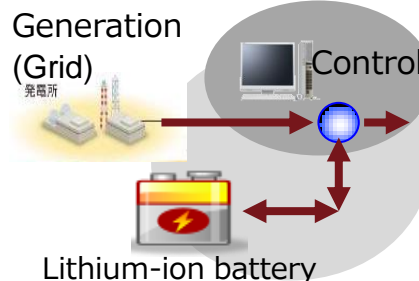
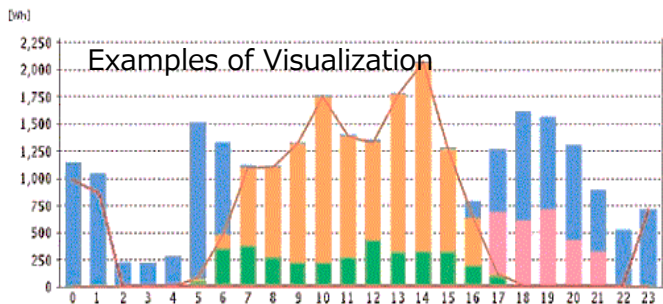
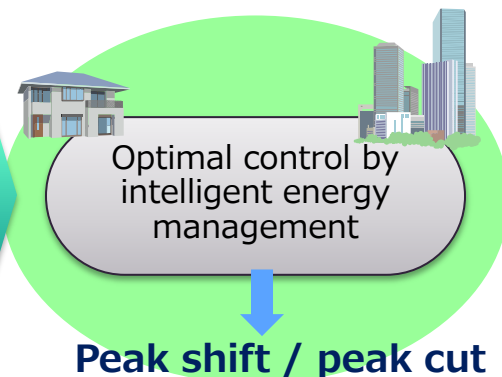
Visualization



Analysis & prediction



Optimization & problem-solving



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