CSD
Customer Solutions Development

Local energy production for local consumption
Community Energy Management System (CEMS)
at CHIBA Mutsuzawa Energy Co., Ltd.

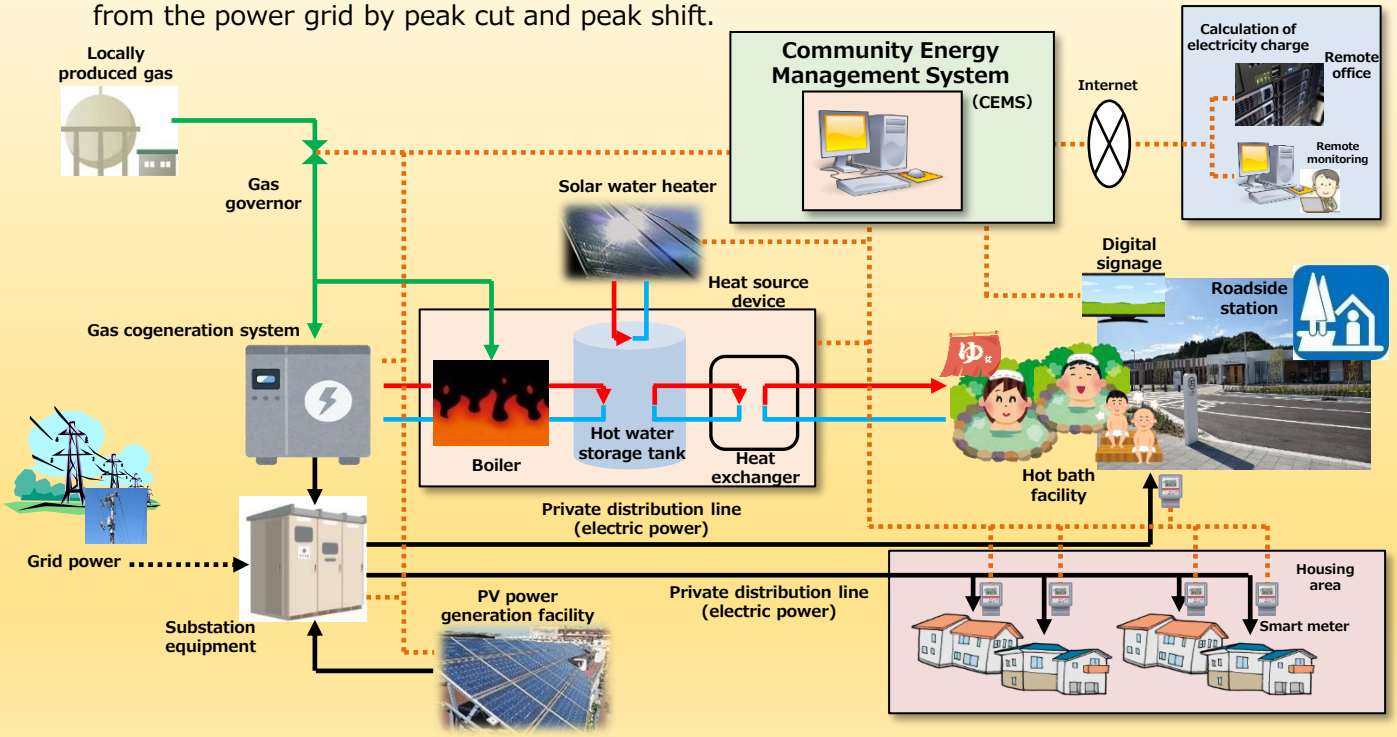
Optimal management of community-based energy has made environmental, social, and economic impacts: realization of low carbon community, advanced disaster resilience, and reduced energy cost.

Overview of smart town

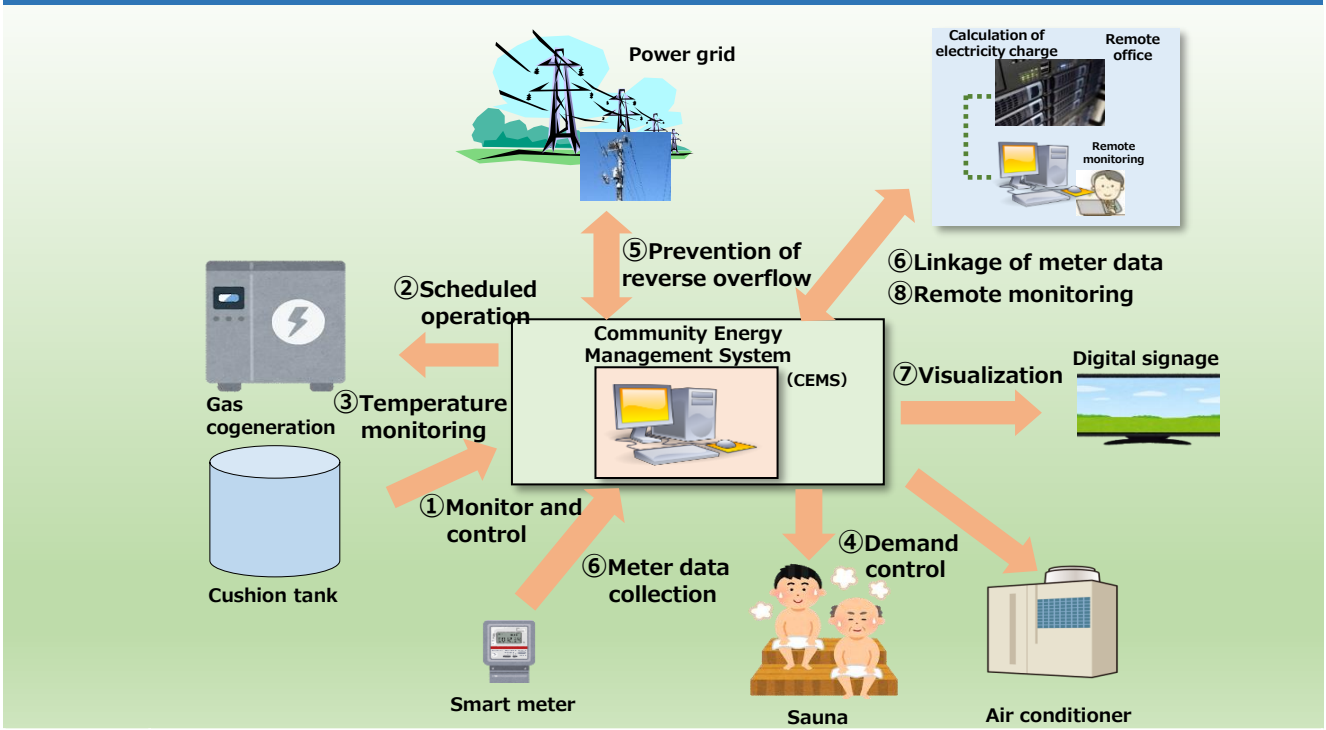
- Complex facility consisting of a roadside station and a housing area
- Electricity and heat, which are generated by photovoltaic power, solar heat, and gas cogeneration system that uses natural gas produced in surrounding areas, are supplied via private distribution line for self-consumption in the smart town (Local production for local consumption)
- Excess heat from generator is supplied to hot bath facility next to the roadside station
- In a wide-area disaster, this area serves as a local disaster prevention center
- Electric cables of private distribution line are put underground to maintain landscape and

Community Energy Management System (CEMS)

- CEMS measures and monitors electrical and thermal energy, carries out optimal management of energy use and achieves visualization of energy supply and demand. Optimal management of energy use includes optimum operation control of gas cogeneration for combined heat and power, and control of energy demand to minimize received power from the power grid by peak cut and peak shift.



Functions of Community Energy Management System (CEMS)



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①	Monitoring, measuring, and control of electric energy (electric power receiving, cogeneration, photovoltaic power, etc.) and heat energy (cogeneration, solar heat, boiler, etc.) equipment
②	Scheduled operation of cogeneration
③	Controls start and stop of cogeneration equipment by monitoring temperature of the lower layer of cushion tank
④	Minimization of received power amount through peak cut and peak shift (CEMS automatically controls air conditioning load and demand for electrically heated sauna at the roadside station)
⑤	Controls start and stop of cogeneration equipment to prevent reverse power flow to power grid
⑥	Collection of 30-minutes meter readings from smart meters and linkage of data to electricity fare system
⑦	Providing content for digital signage (Visualization of energy usage)
⑧	Remote monitoring of the entire system

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