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Toward decarbonized industrial park through efficient utilization of waste and renewable energy resources

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Three pillars for de-carbonized society

Alternate resources

Expand use of waste and Renewable resources

Waste recycling & energy recovery



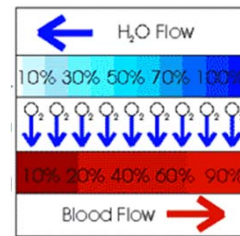
Biomass use



Zero emission power

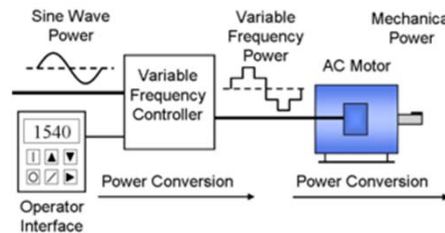
Maximize efficiency

Energy efficiency improvement (Exergy improvement)



Insulation & exhaust heat recovery

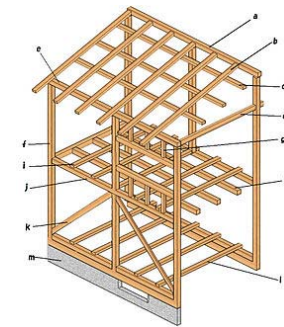
Optimum operation



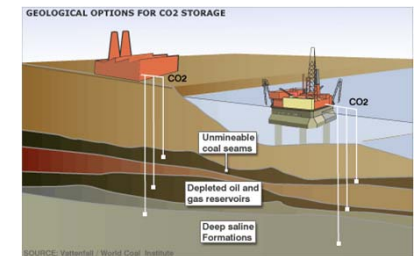
Heat pump

Supplementary

Carbon sequestration



Long time use of wood materials



Carbon capture & storage

Technologies to realize decarbonization

Upgrade of waste to energy is an essential technology among varieties of technologies

Alternate resources

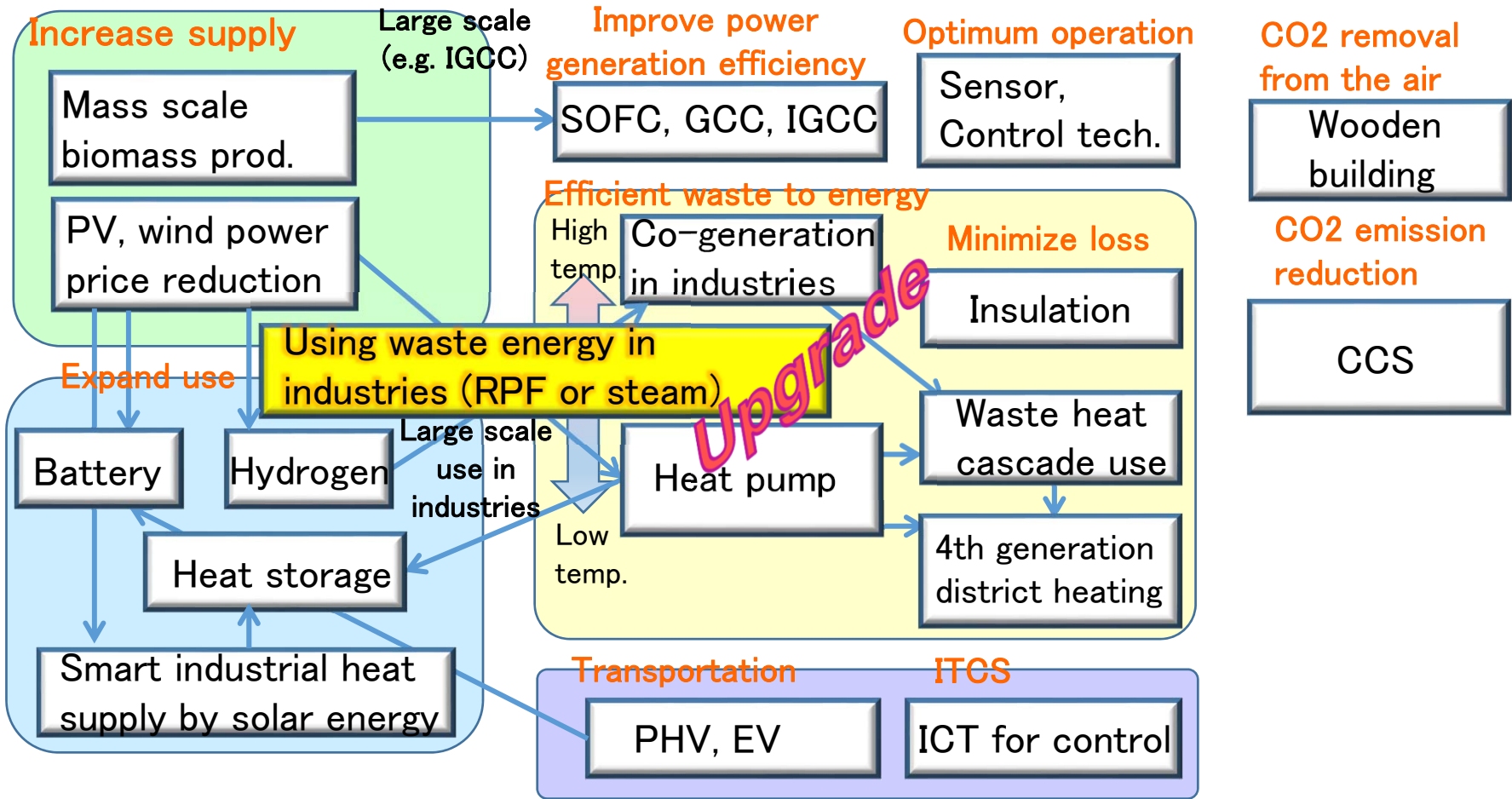
Expand use of waste and Renewable resources

Maximize efficiency

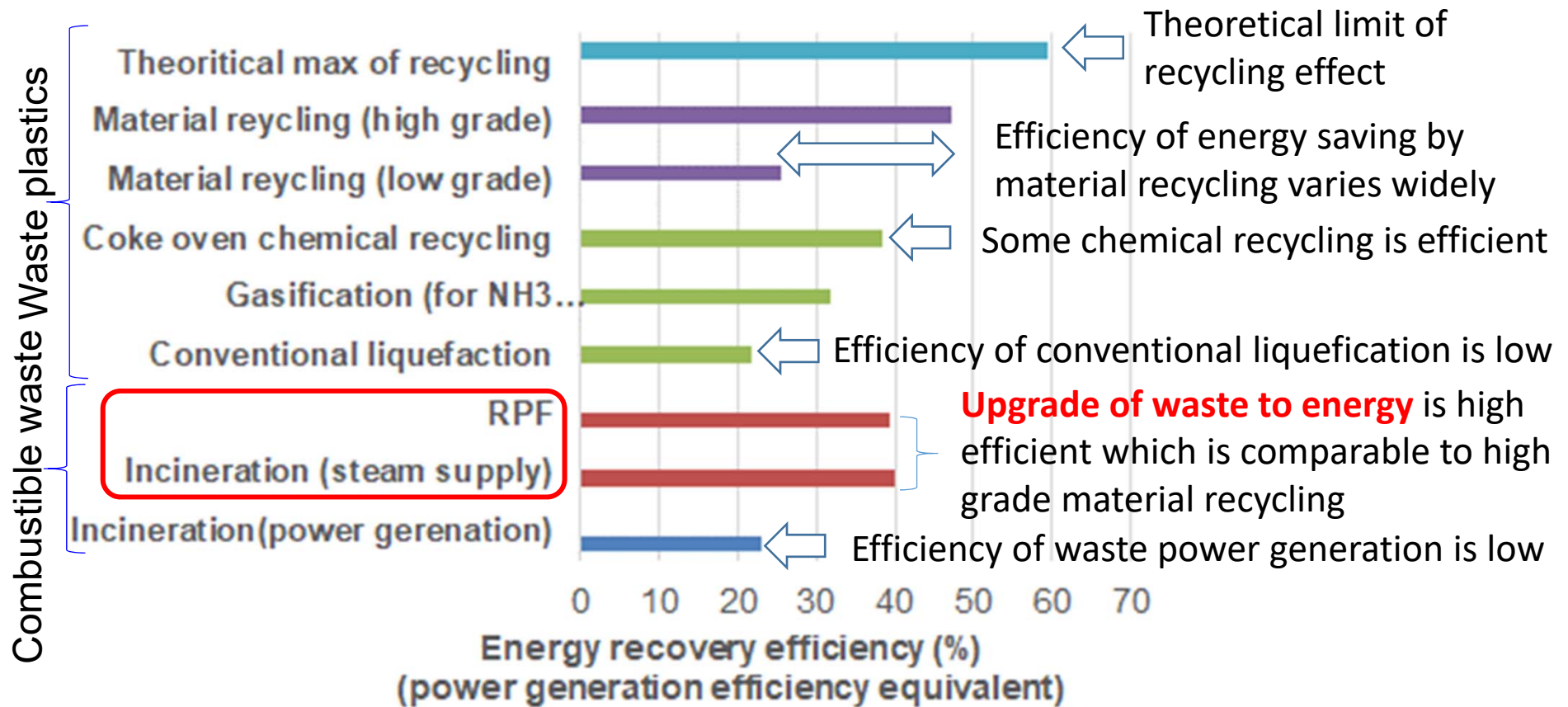
Energy efficiency improvement (Exergy improvement)

Supplementary

Carbon sequestration

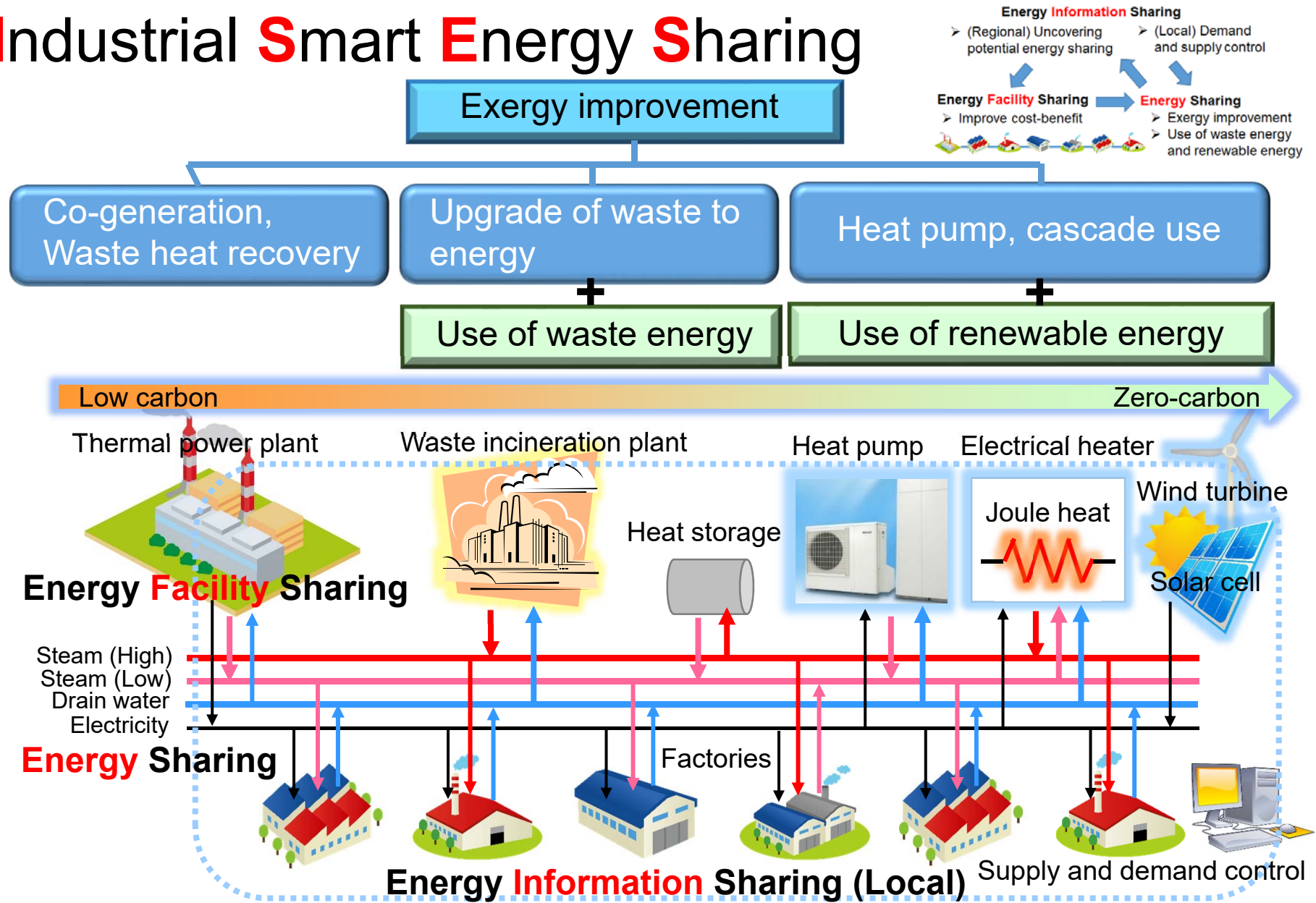


High performance of upgrade of waste to energy



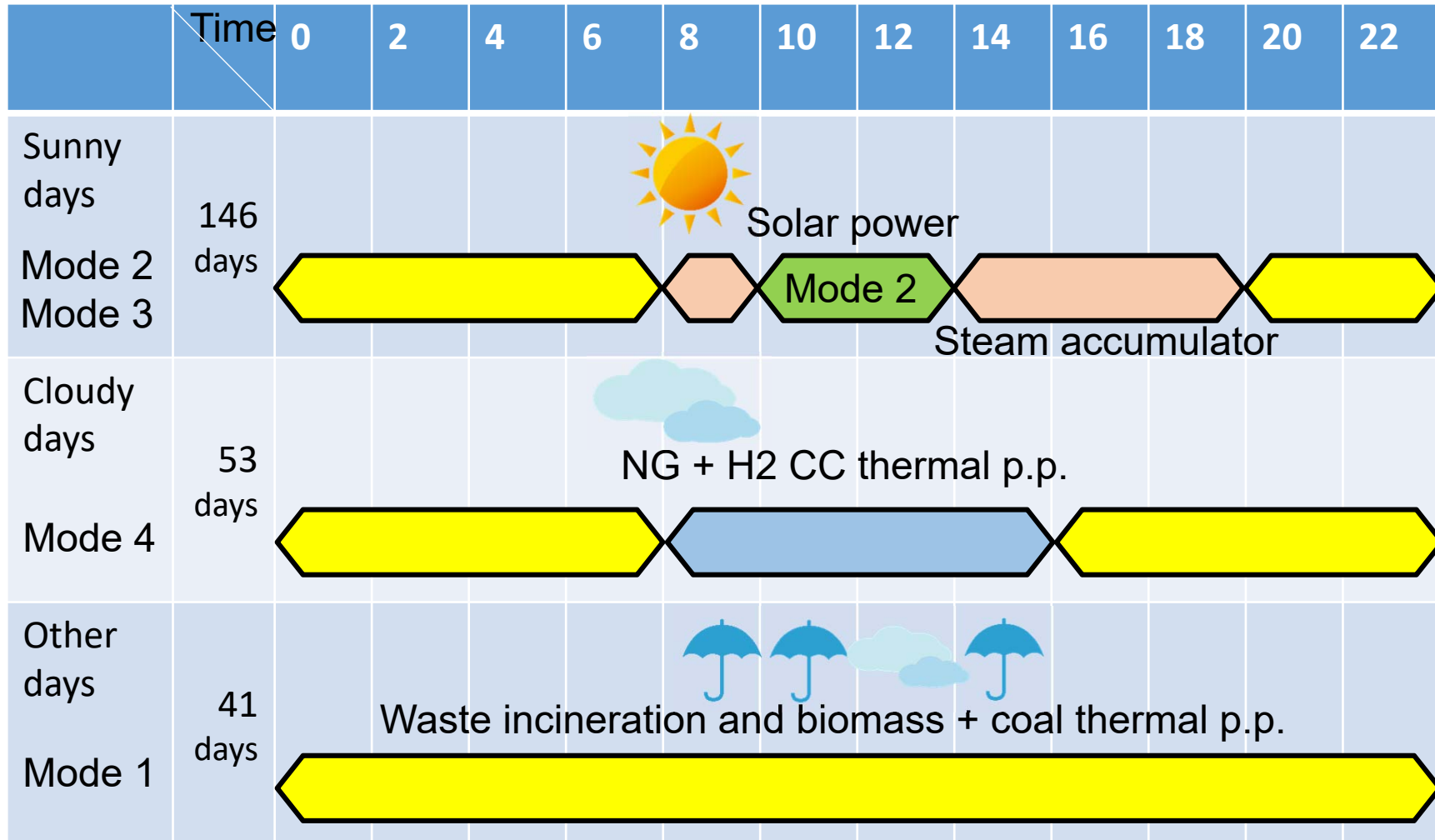
The author calculated based on the Report of Japan Containers and Packaging Recycling Association (2012)

Industrial Smart Energy Sharing



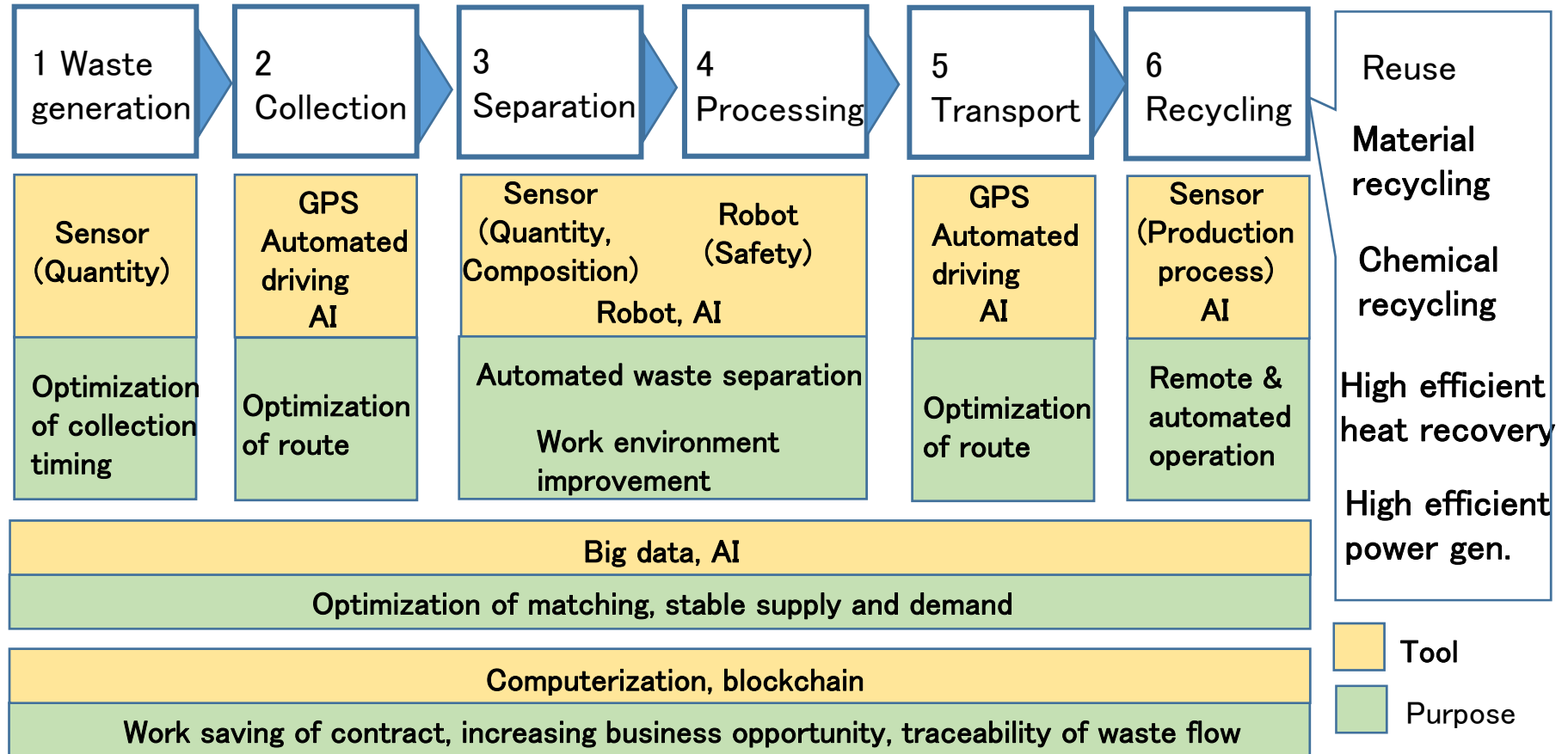
The potential to replace boilers with co-generation power plants and waste incineration plants is around 50 M t-CO₂/year. If co-generation plants are replaced by renewable energies, we can expect further CO₂ reduction potential

Operation schedule of each mode



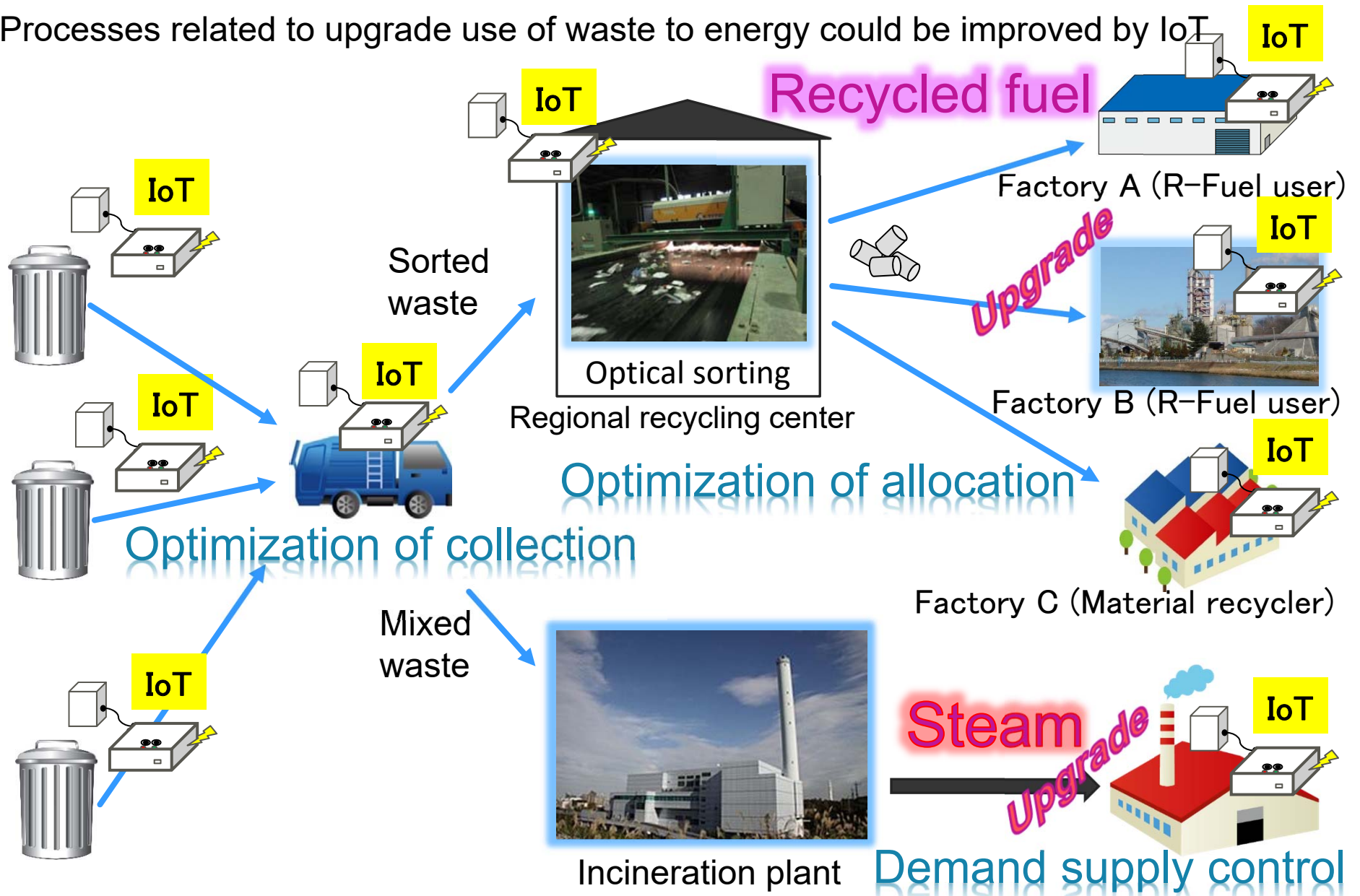
Annual operating days of factory: 240 days/year

IoT & AI applications to the lifecycle of waste management

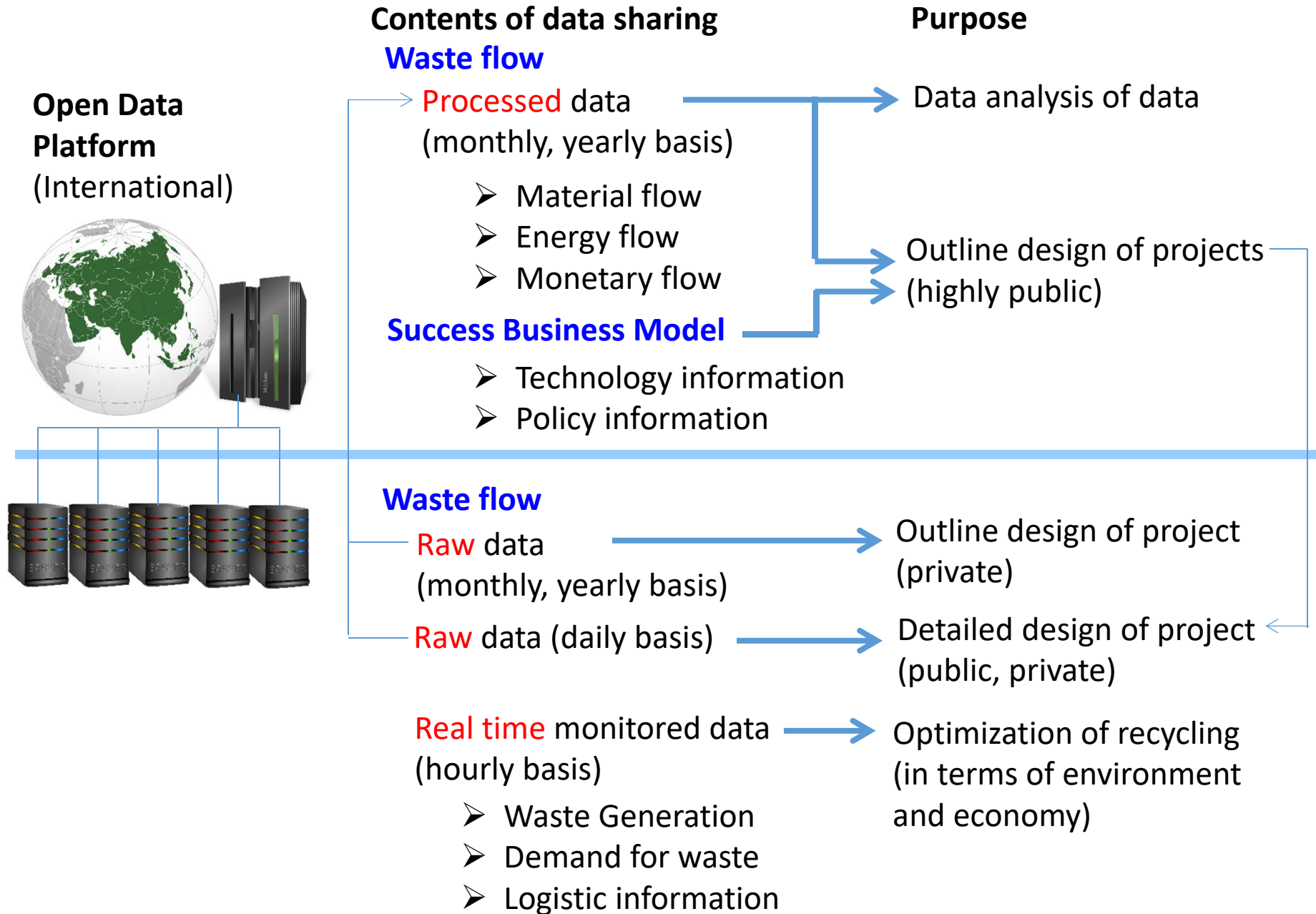


Optimization of demand & supply matching by IoT

Processes related to upgrade use of waste to energy could be improved by IoT

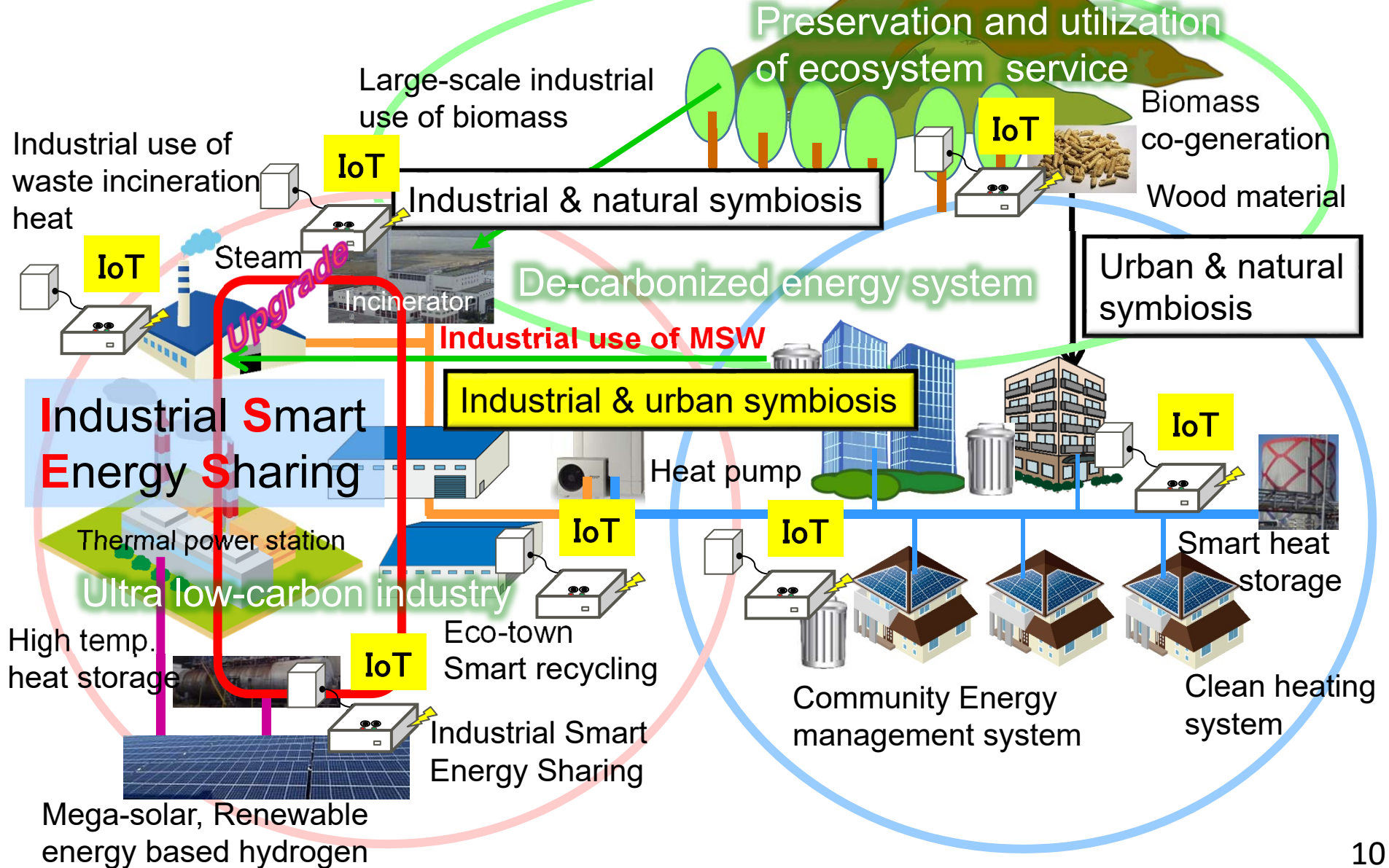


Information sharing platform for better recycling of wastes



Symbiotic energy system for sustainable city

High efficient waste to energy and ICT to support optimum material and energy flow are one of key factors for establishing decarbonized industrial city





Thank you very much for your kind attention

Acknowledgement:

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