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Sakishima Smart Community Osaka Japan

Perfect Smart City Project

Sakishima Smart Community Alliance, City of Osaka,
Osaka City University, Obayashi Corporation

21/05/2014

Greeting & Self-introduction

Tsuyoshi NAGAIRO
Chairman
Sakishima smart
community alliance
Deputy director of
URBENES of Osaka city
university



Sakishima Smart Community Alliance

Chair person: Tsuyoshi NAGAIRO

Partnership

Perfect Smart City



About SSICA

Industry

Obayashi Corporation
Azbil Corporation
BYD Company Limited
connectFree k.k.
DAI-DAN Co., Ltd.
Hitachi, Ltd., Infrastructure Systems Company
Hitachi Zosen Corporation
NTT Communications Corporation
NTT FACILITIES, INC.
TAIKA logistics Solution LLC.
Takasago Thermal Engineering Co., Ltd.
Teral Inc.
TOKYO ELECTRON DEVICE LIMITED
TOSHIBA CORPORATION
YACHIYO Electrical Construction Co., Ltd.
Yasui Architects & Engineers, Inc.
Other 2 companies,

Joining
SSICA

Academia

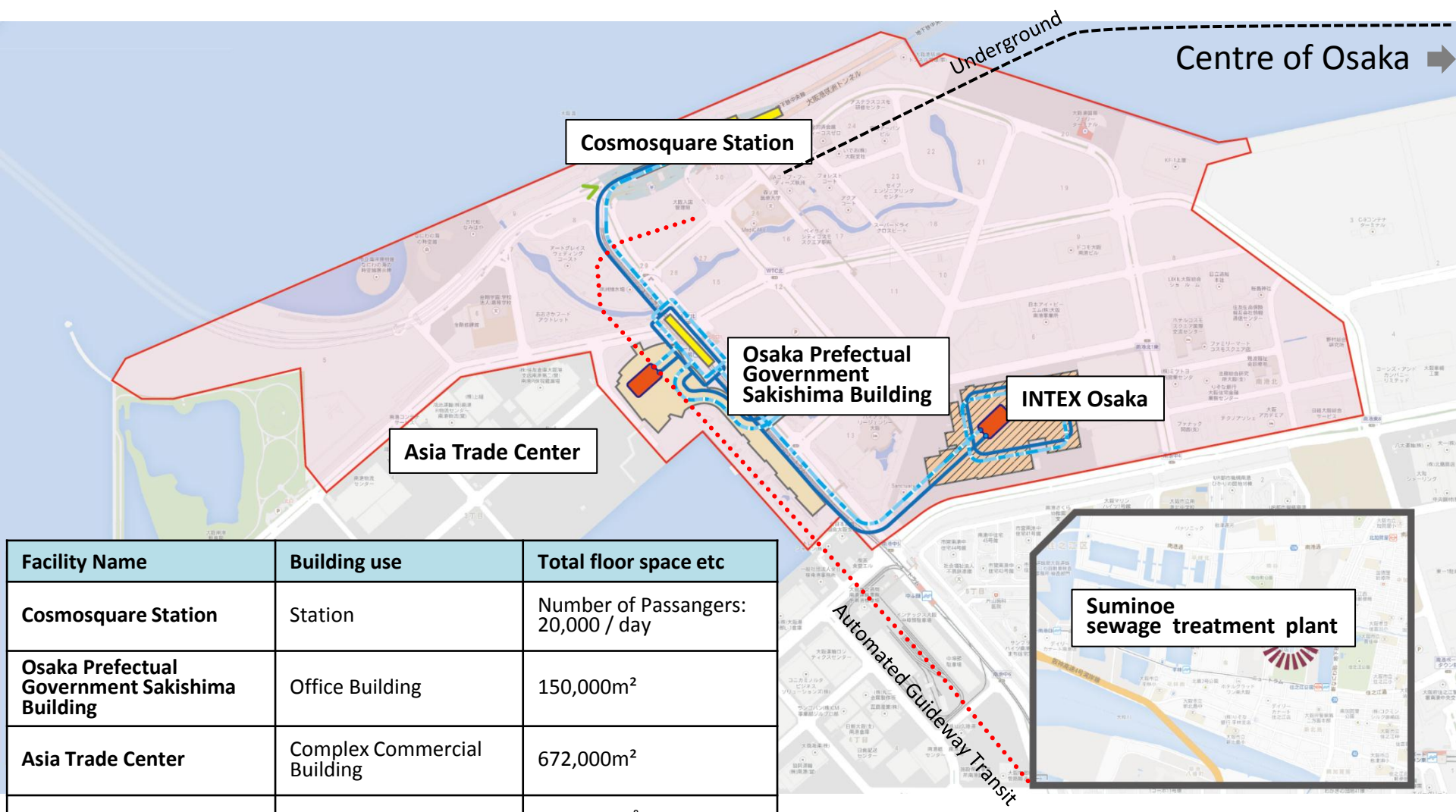
Osaka City Univ
Osaka Pref Univ
Kyoto Univ
Ritsumeikan Univ
Tokyo Univ
etc

Coordination

City of Osaka

Government

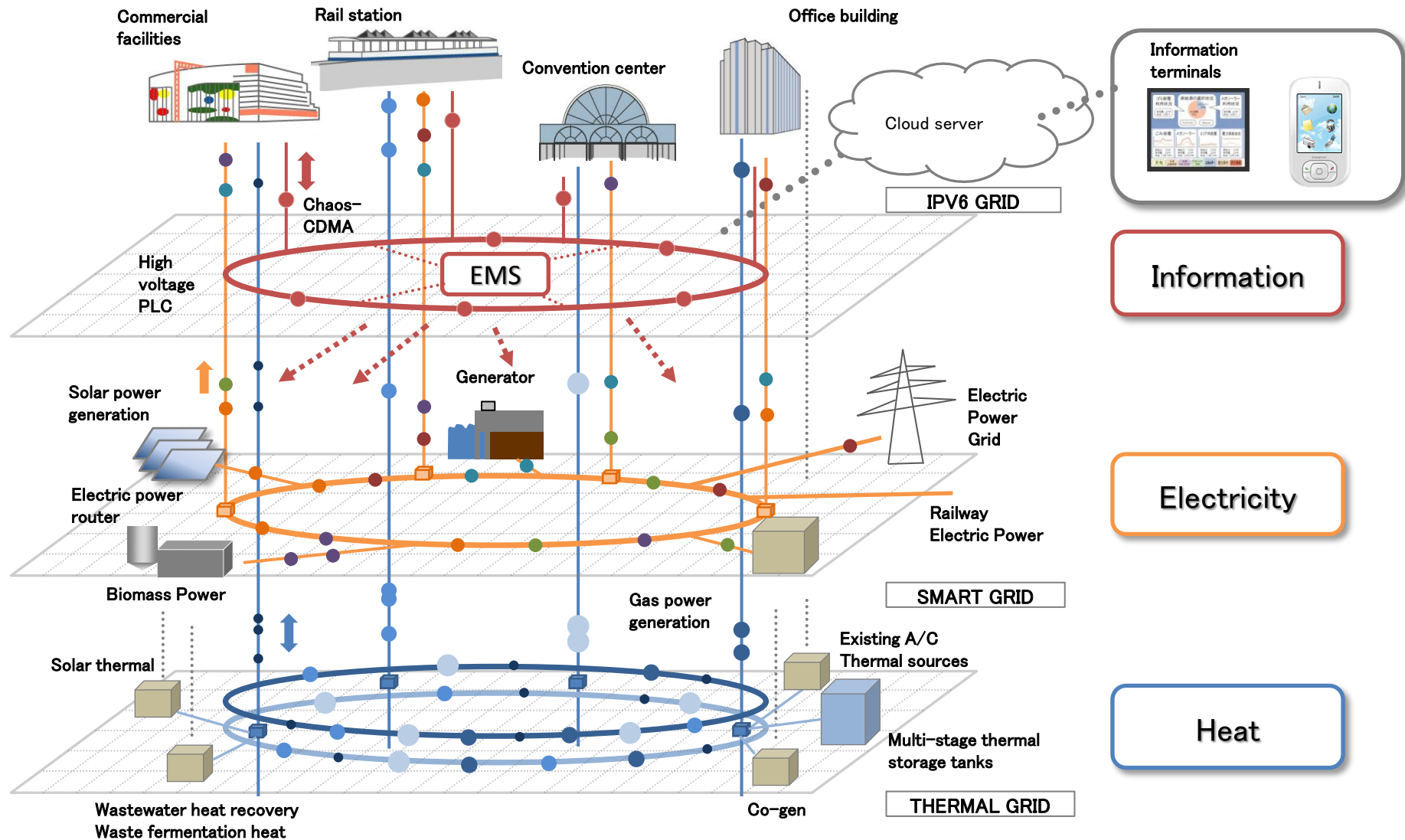
District information



Facility Name	Building use	Total floor space etc
Cosmosquare Station	Station	Number of Passangers: 20,000 / day
Osaka Prefectural Government Sakishima Building	Office Building	150,000m ²
Asia Trade Center	Complex Commercial Building	672,000m ²
INTEX Osaka	Convension Hall	133,000m ²
Suminoe sewage treatment plant	sewage treatment plant	Water treatment capacity: 220,000m ³ /day,

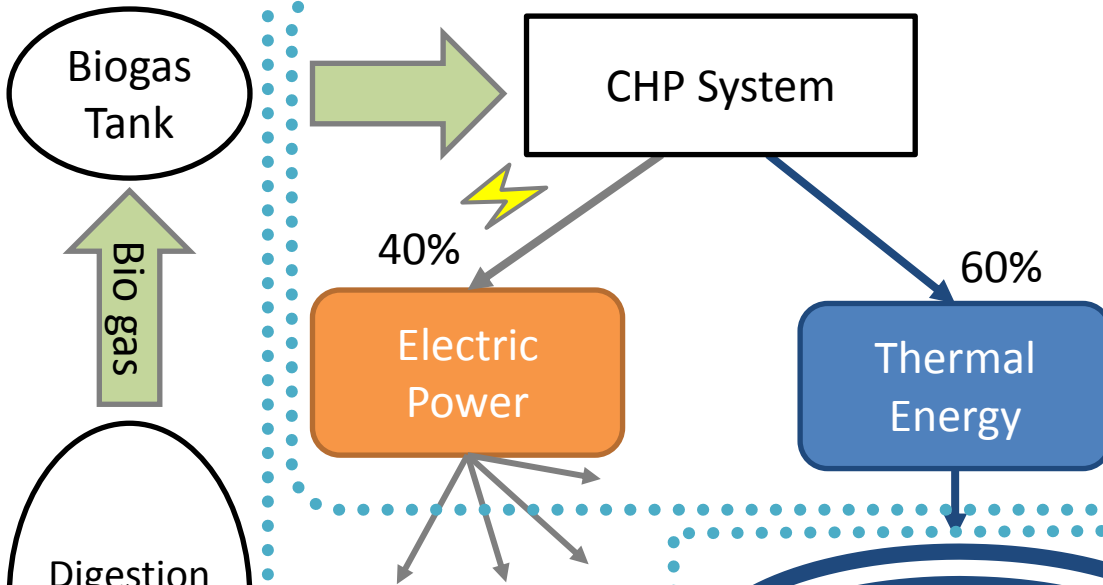
Vision of smart energy system

Aiming to stabilize energy demand supply and improve disaster prevention preparedness.

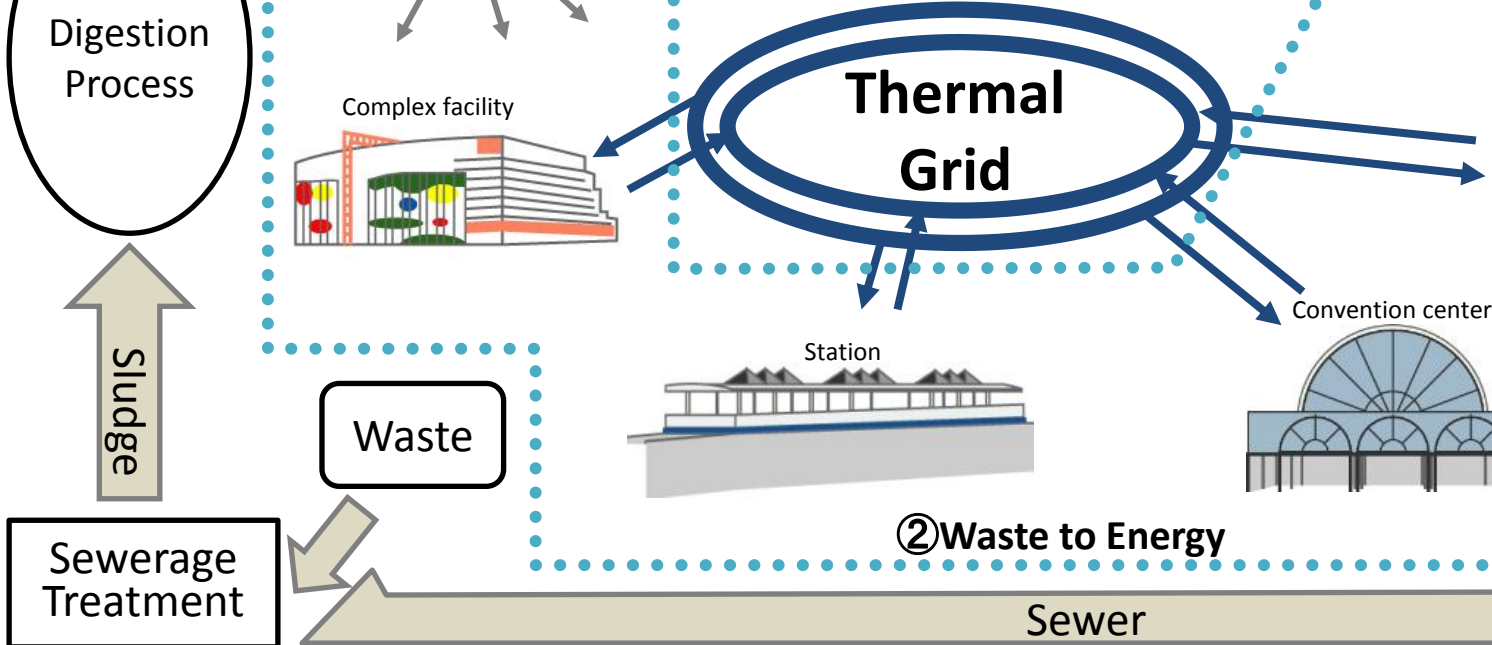
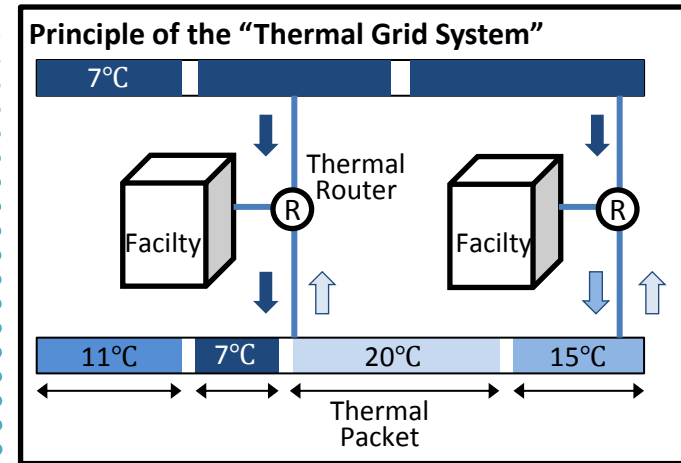


Project Outline and Technologies

① Combined heat and power



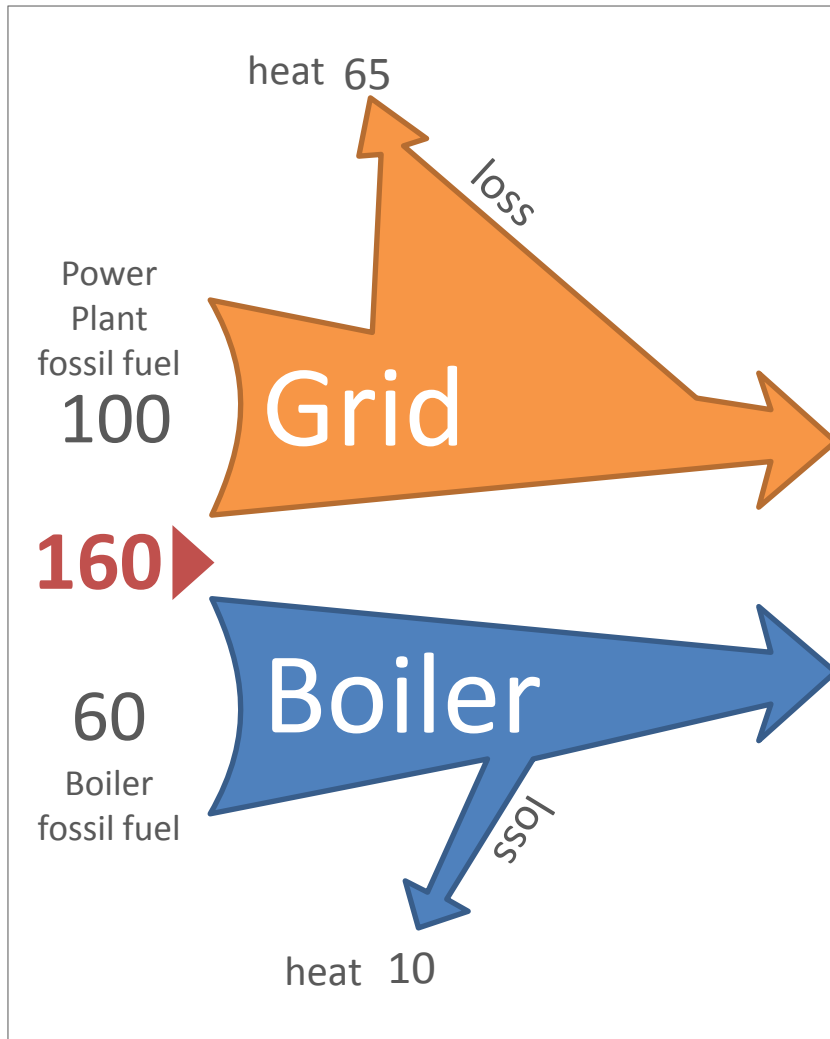
③ Thermal Grid



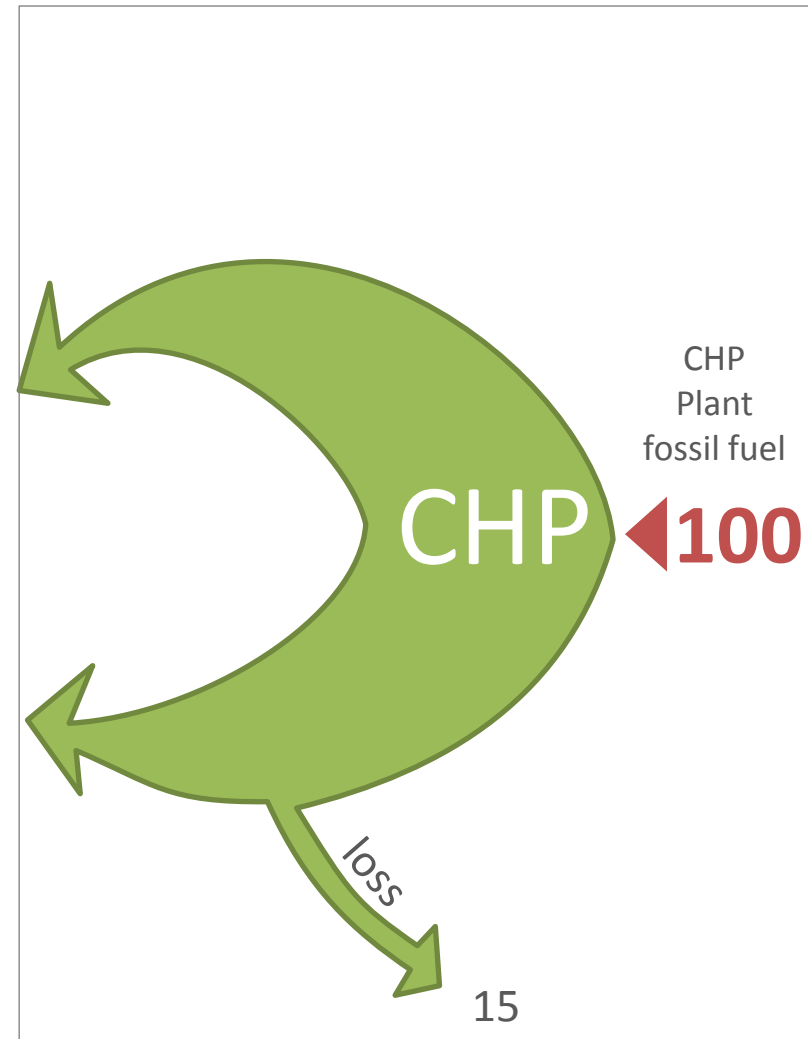
Our Challenges-①

① Combined heat and power

Conventional utility generation and boiler



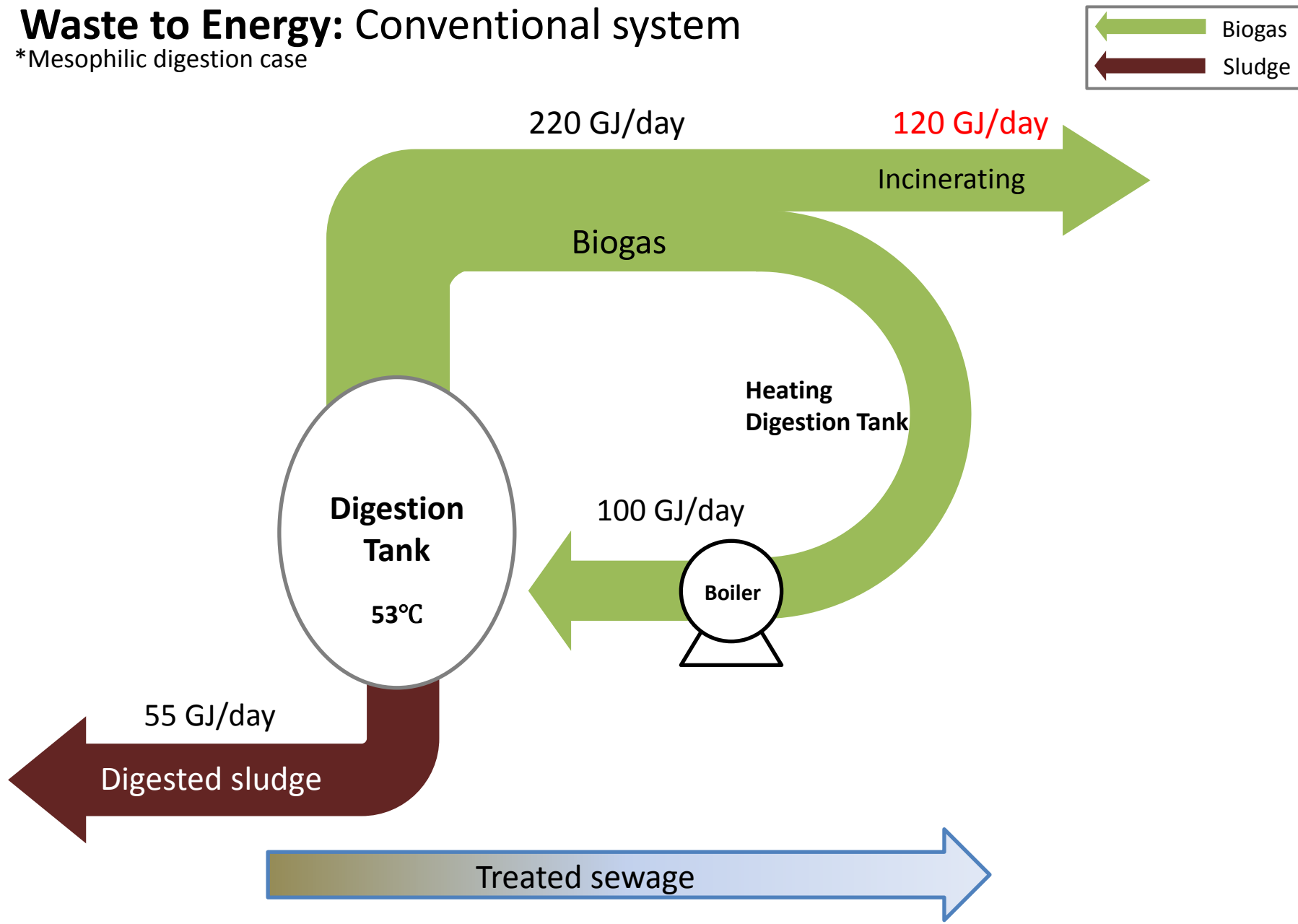
Combined heat and power



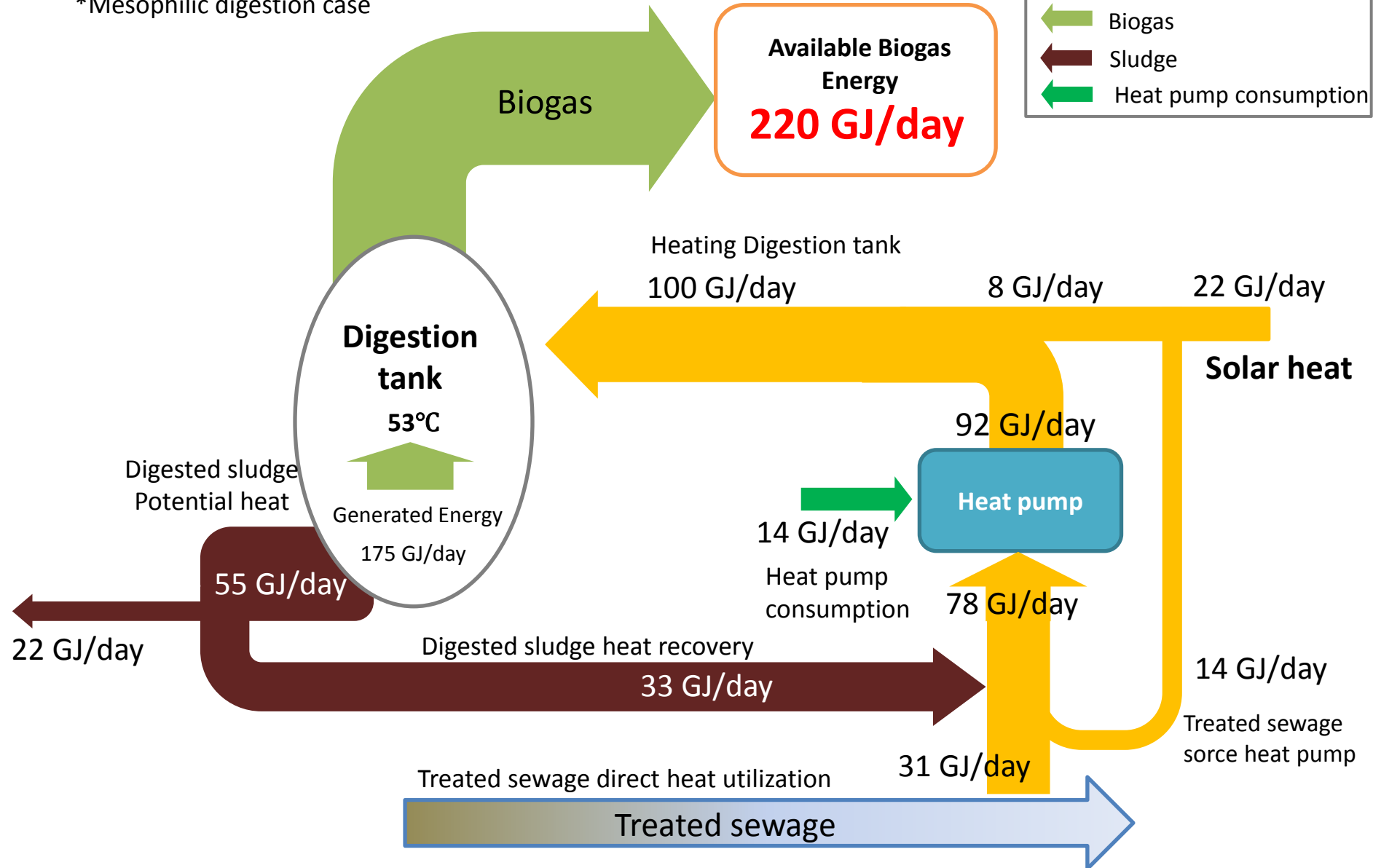
Our Challenges-②

② **Waste to Energy:** Conventional system

*Mesophilic digestion case



*Mesophilic digestion case



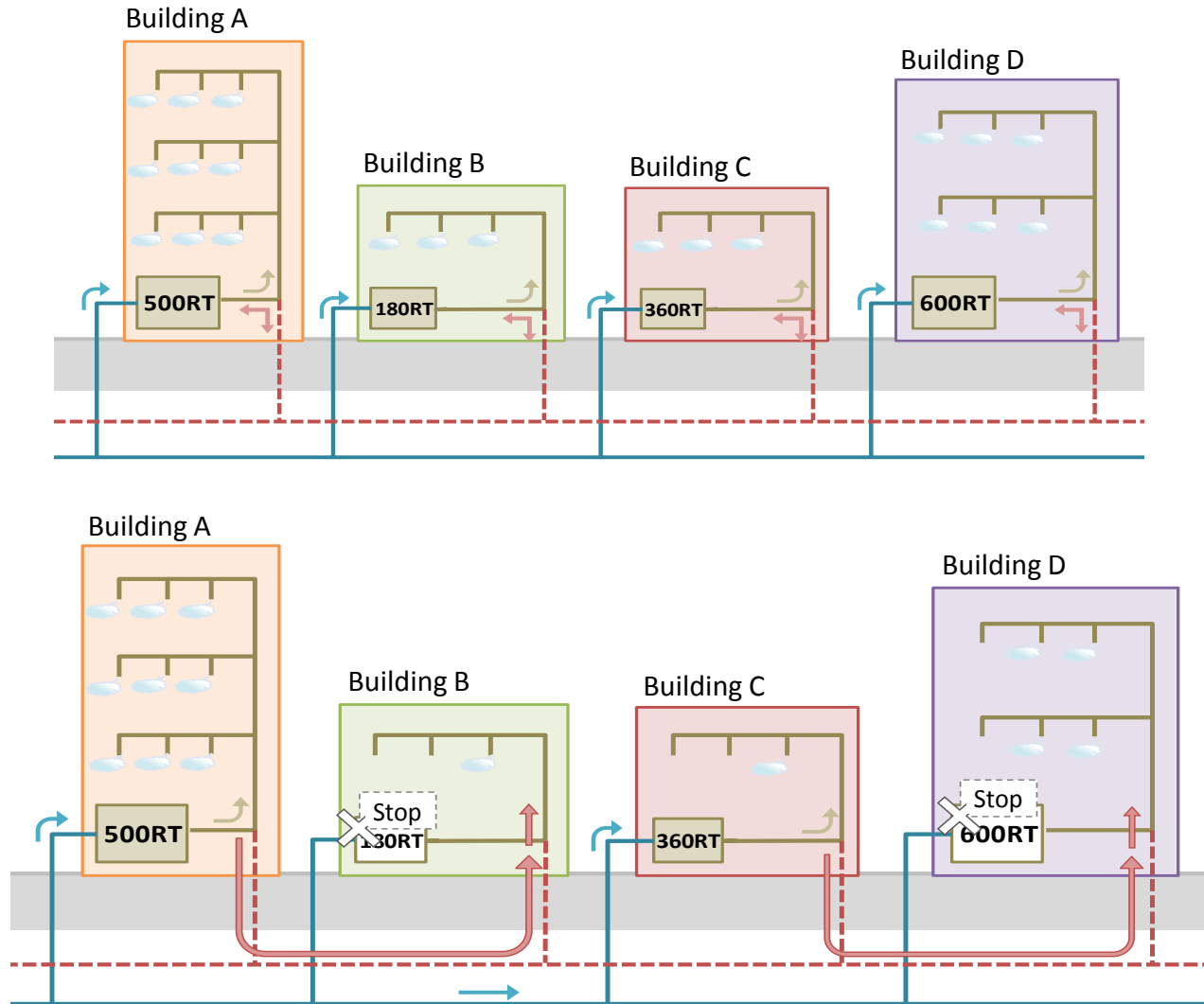
③Thermal Grid

Features

1. To connect buildings (chillers and loads) via loop pipes.
2. To bring diversity effect into real energy conservation operation
3. To realize chilled water cascade use or serial use, which require flow route changer, and which allow large temperature difference operation
4. To select chillers to be operated from a number of chillers in buildings in optimum manner
5. To plan variable chilled water temperature operation

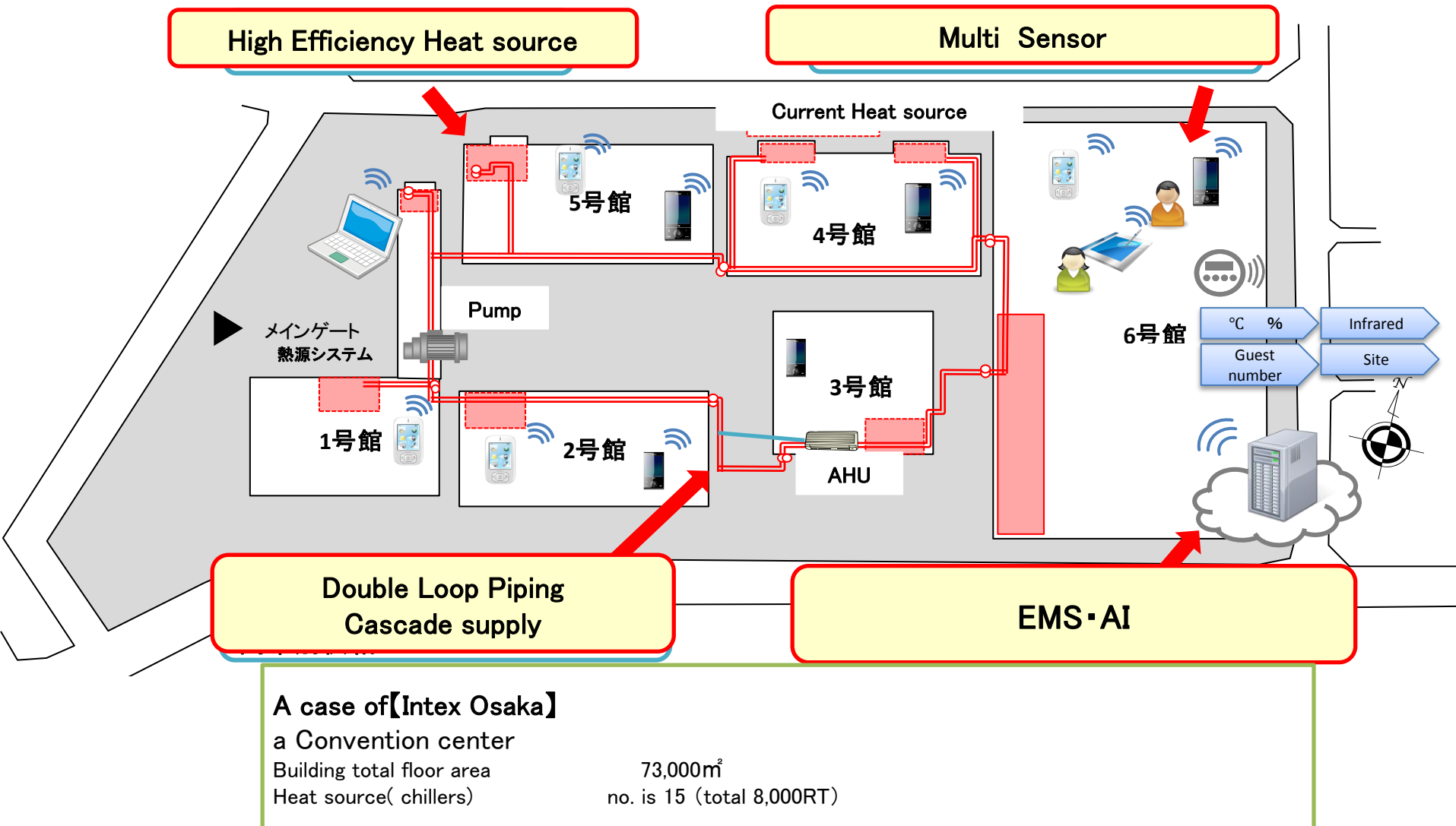
Our Challenges-③

③ Thermal Grid; To connect buildings via loop pipes



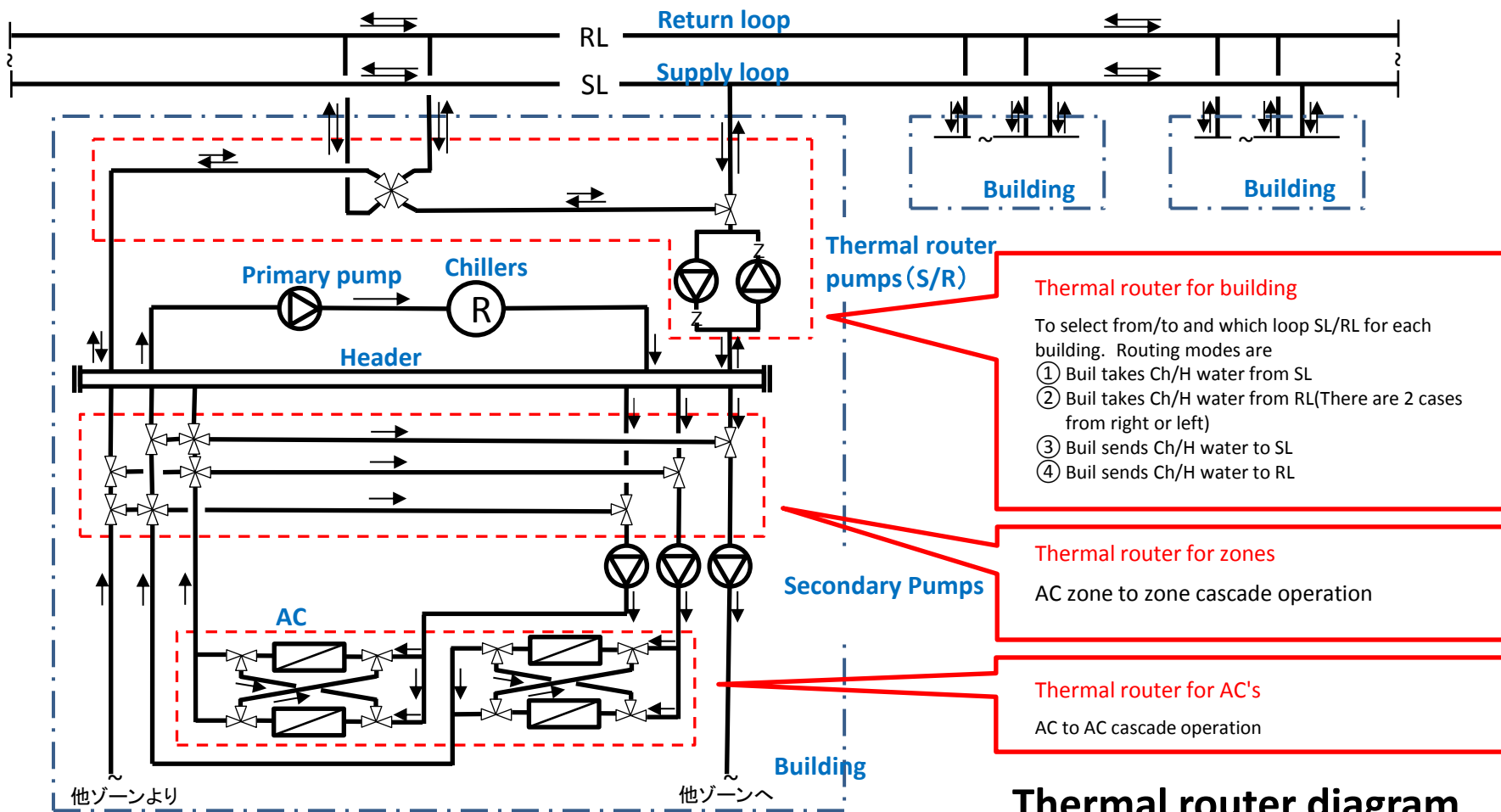
Our Challenges-③

③Thermal Grid; To connect buildings via loop pipes



Our Challenges-③

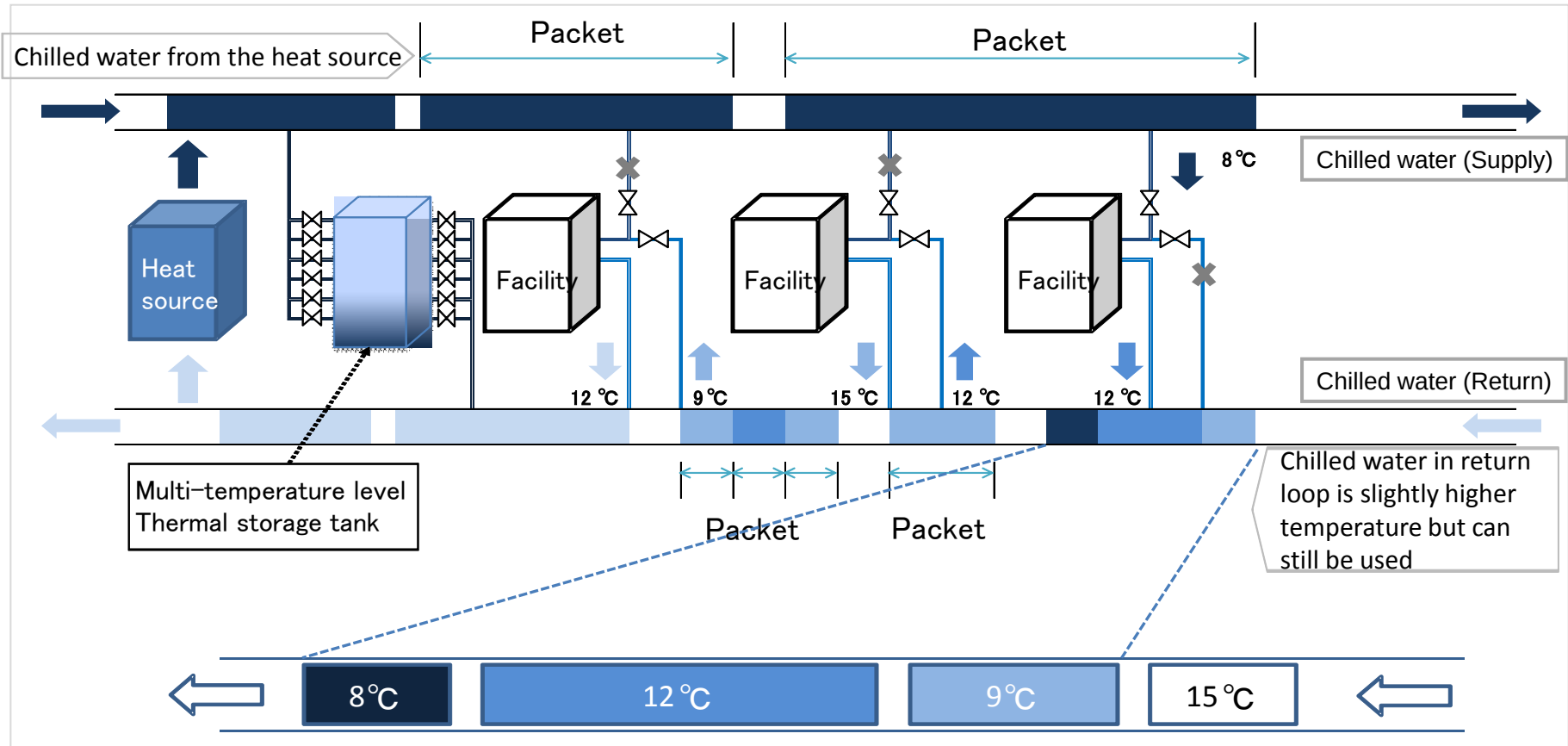
③Thermal Grid; To connect loop pipes and buildings via thermal router



Thermal router diagram

Our Challenges-③

③ Thermal Grid; Various temperature supply with packet concept



10,000 t_{-CO2eq}

per year

Technologies required in Sakishima

Investor

Business chance

Energy Infrastructure

Waste as a Resource

Thermal
Grid

Micro
Biogas
CHP system

solar heat

Storage battery

Micro
Grid

Photovoltaics

Insulated
pipe

Power
Router

Advanced Metering
Infrastructure

Sensor
System

sludge heat
exchanger

Energy
Management
System

Building
Automation
System

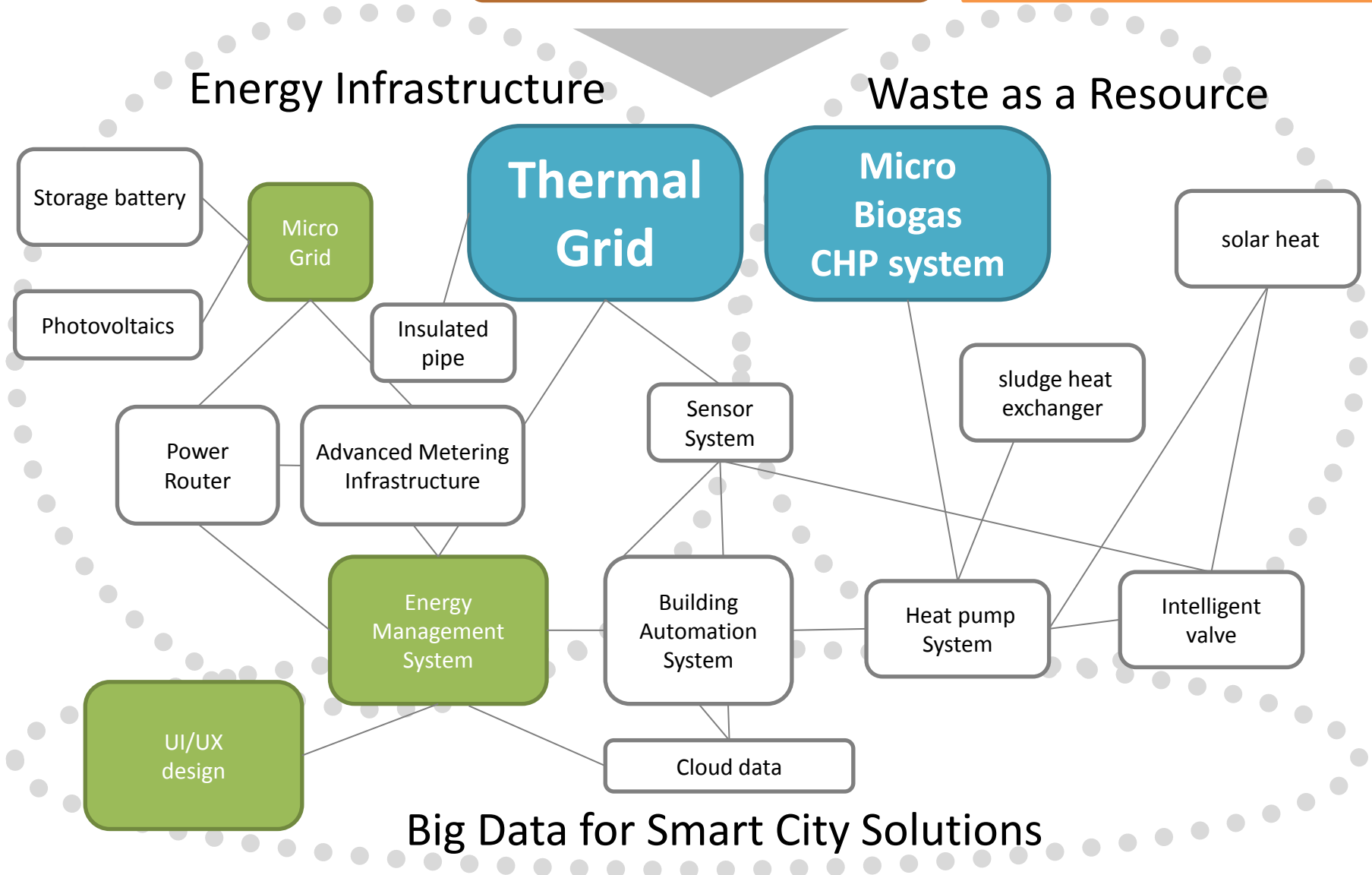
Heat pump
System

Intelligent
valve

UI/UX
design

Cloud data

Big Data for Smart City Solutions



Thank you for your kind Attention!

Sakishima Asia Smart Community Alliance

sakishima-smart.jp