

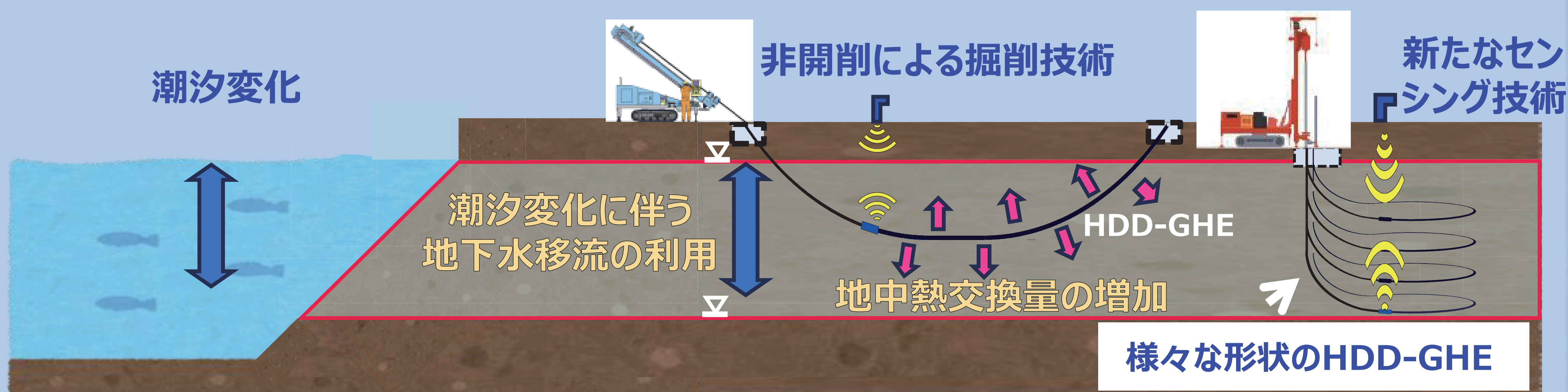
Renewable Heat Utilization



取り組み内容

Improving the performance of horizontal geothermal heat exchangers using non-open-cut method that take advantage of tidal changes

In order to reduce the installation cost of a geothermal heat pump system and improve system performance, we are developing a new method for installing a geothermal heat exchanger, and developing technology that aims to increase the amount of geothermal heat exchange by taking advantage of regional characteristics.

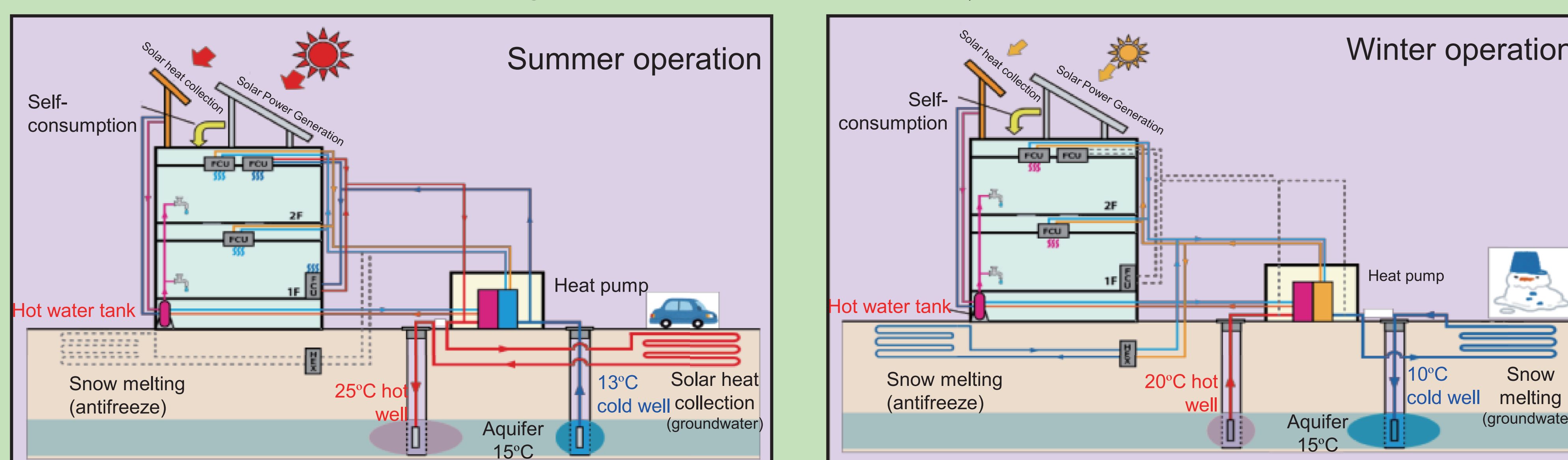


▲潮汐変化に伴う地下水移流を利用した非開削による地中熱交換器設置概念図

Development of low-cost, high-efficiency, unit-type heat pump systems

[Implemented by Japan Groundwater Development Co., Ltd., Zeneral Heatpump Industry Co., Ltd.]

By storing cold and warm exhaust heat in the aquifer and unifying multiple heat sources (geothermal and solar heat), We developed a total heat supply system which provides air conditioning, hot water supply, and non-sprinkled snow melting. As a result of introduction in an actual building, it was proven to be extremely effective for conversion to ZEB.



▲ Aquifer thermal energy storage system

【Visualization tool for renewable energy surface utilization systems using digital twins / Introduction effect evaluation simulator / Optimal Operation Emulator】

【Implemented by Hokkaido University (Division of Architecture and Urban Planning), Hokkaido University (Division of Environmental Engineering), The University of Tokyo】

We are working on the establishment of planning / design methods and optimal operation systems for the use of renewable energy heat with large-scale underground thermal storage.

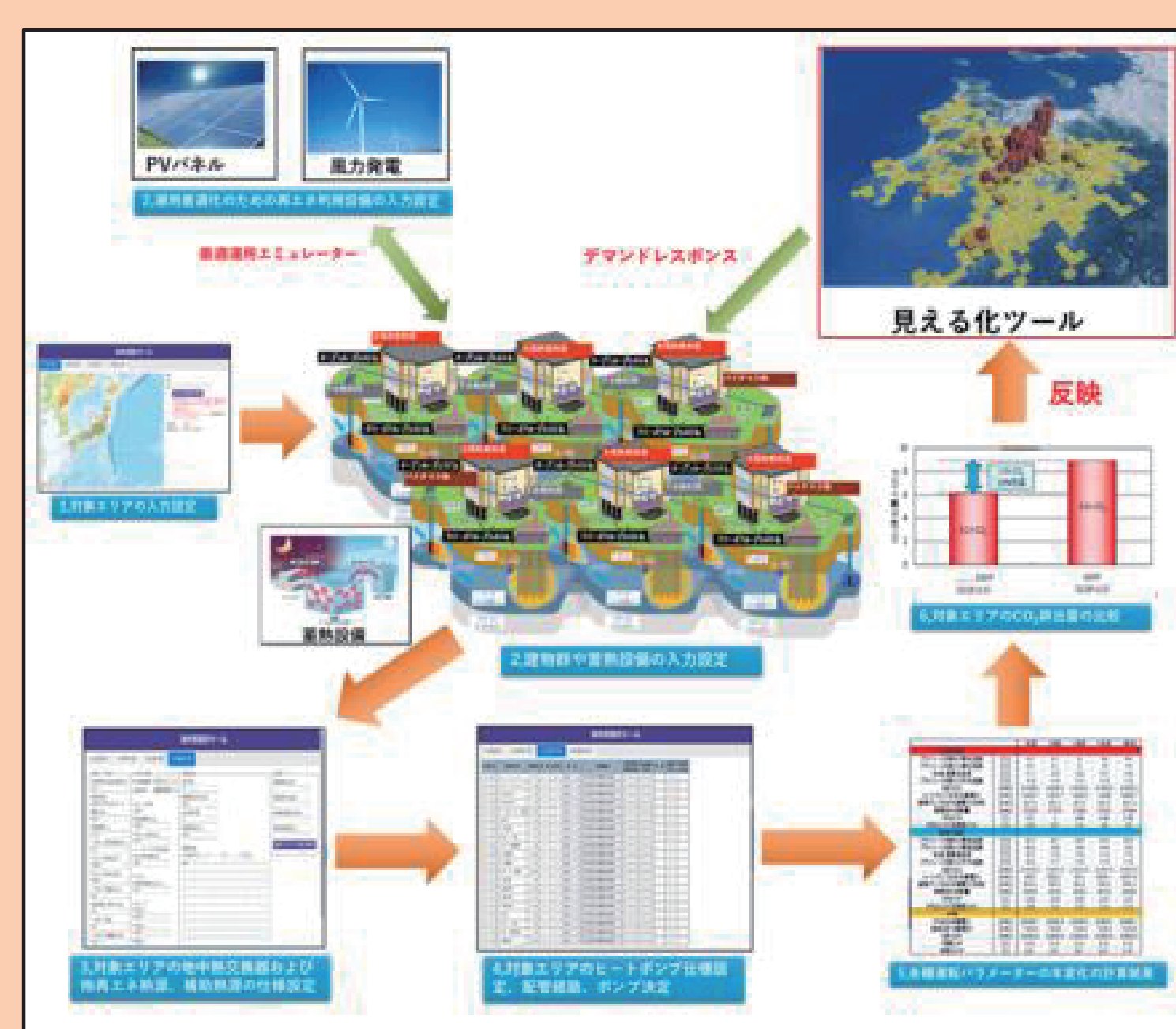


Image of surface utilization system

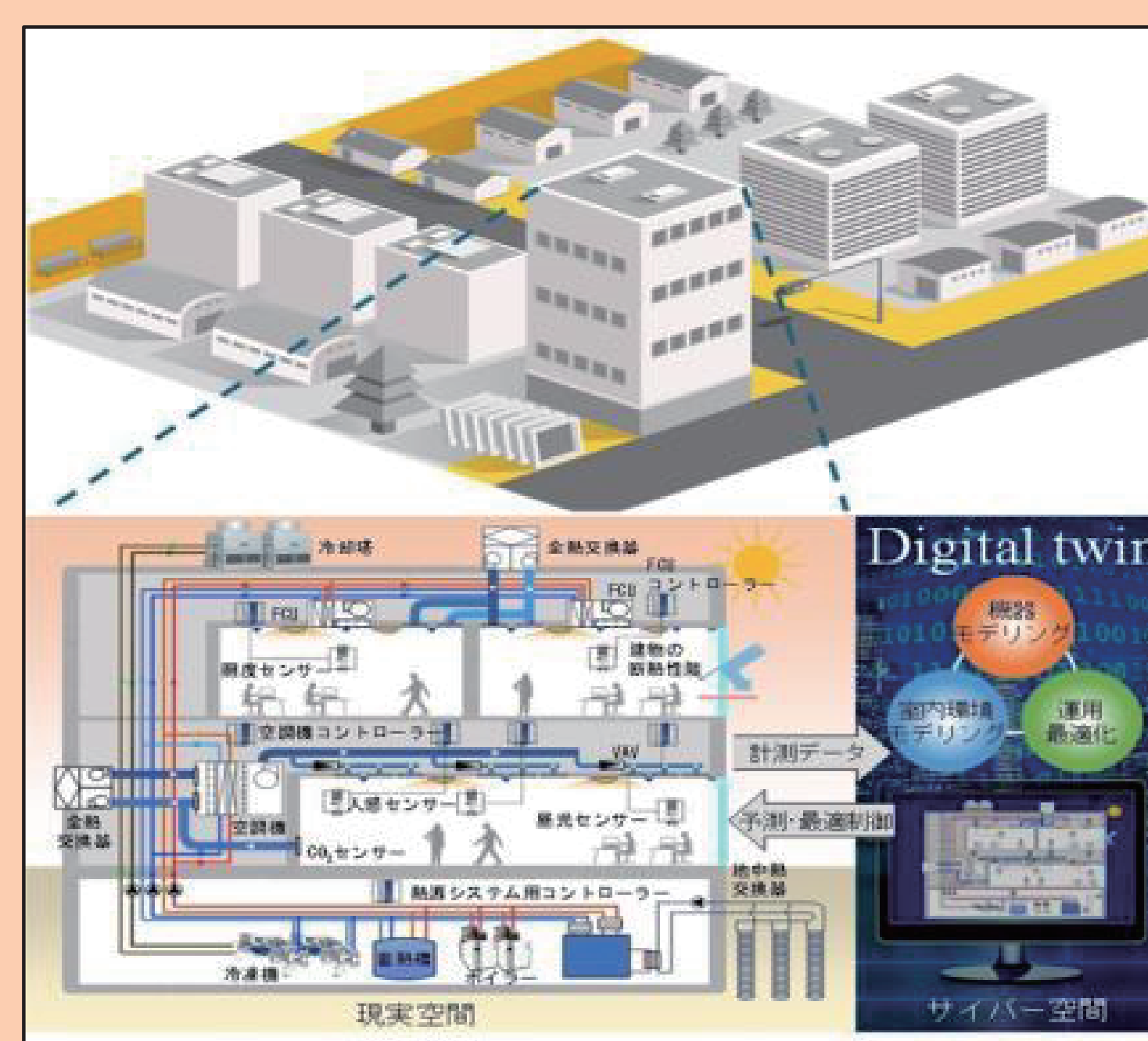


Image of optimal operation emulator