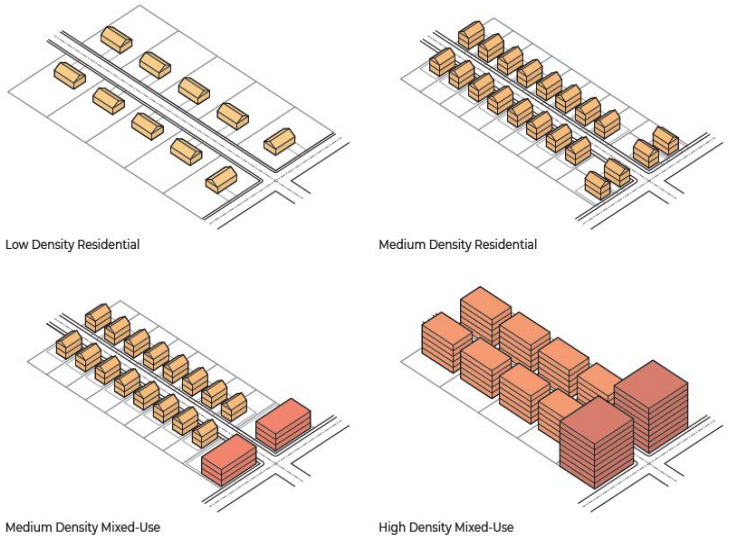
Cary Smith CEM CGD CEA CGI AEE Fellow

President Sound Geothermal Corporation

- 26 Years in Oil & Gas Industry, 27 years in Groundsource.
- AEE Fellow and founding Member of The GreyEdge Group.
- Primary design-developer of Ambient Temperature Loops (ATL) one-pipe district systems.
- Chair - IAPMO USHGC Code and ATL Standard Committee Member IAPMO Uniform Mechanical Code Committee.
- Working on innovative low, medium and high temperature ground source systems.

SGT is an innovative design group focusing on energy saving building technologies utilizing ground source heat pump systems and/or other renewable energy systems as a core technology. SGT has contributed to the development and innovation of low temperature geothermal applications.

Ambient Temperature Loops (ATL's): The Thermal (Energy) Highway



ATL District Systems Overview

Energy *harvested*, *moved*, and *reused*

Cary Smith CGD CEM CEA CGI

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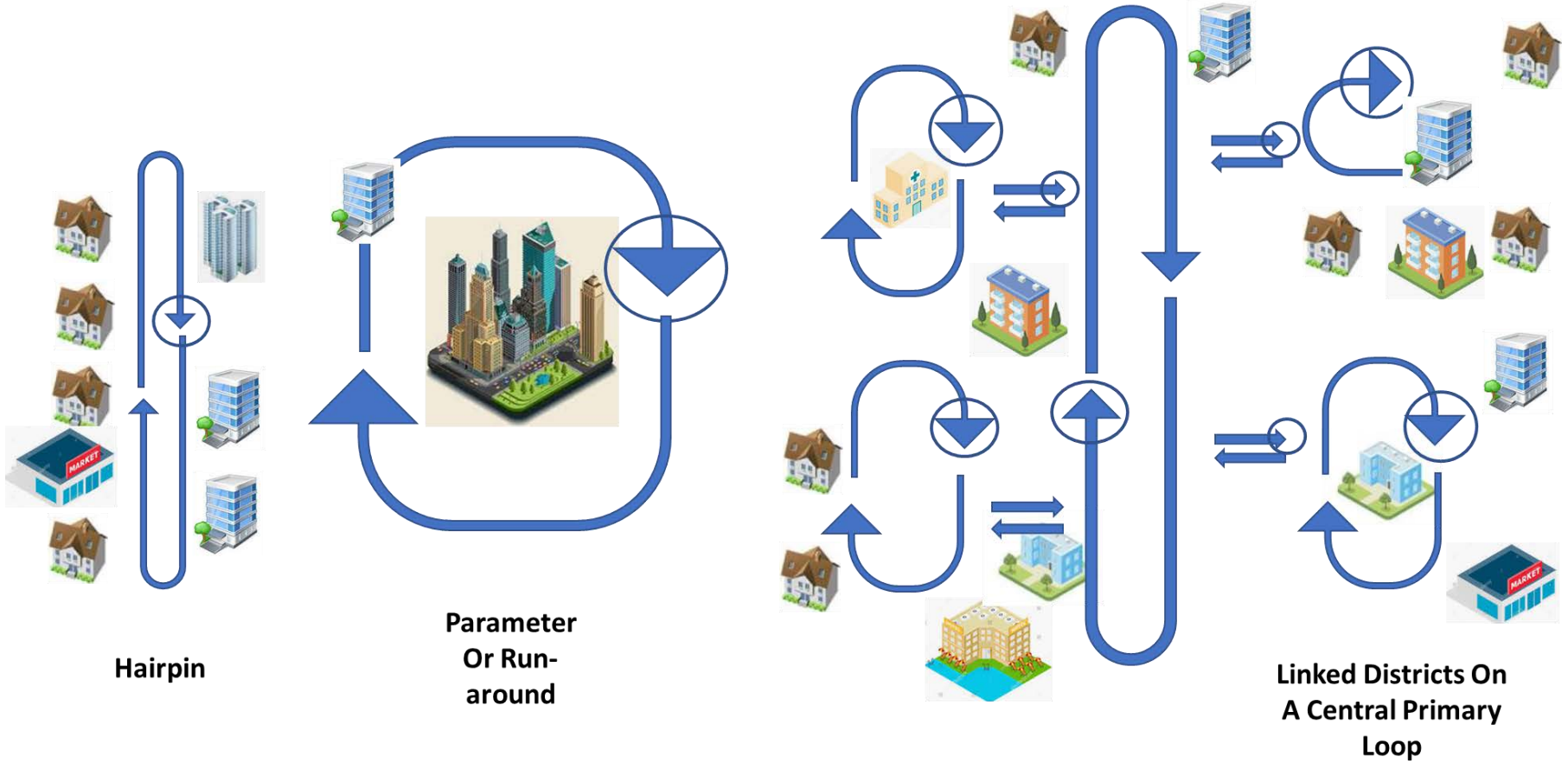
ATL - A Subset of TENs

Ambient Temperature Loops are a unique and versatile solution.

- One-pipe system
- Captures diversity
- Emphasizes borehole thermal storage
- Distributed part load assets
- Low temperature, no antifreeze

Ambient Temperature One-Pipe District Loops

Primary / Secondary MicroDistrict Configurations

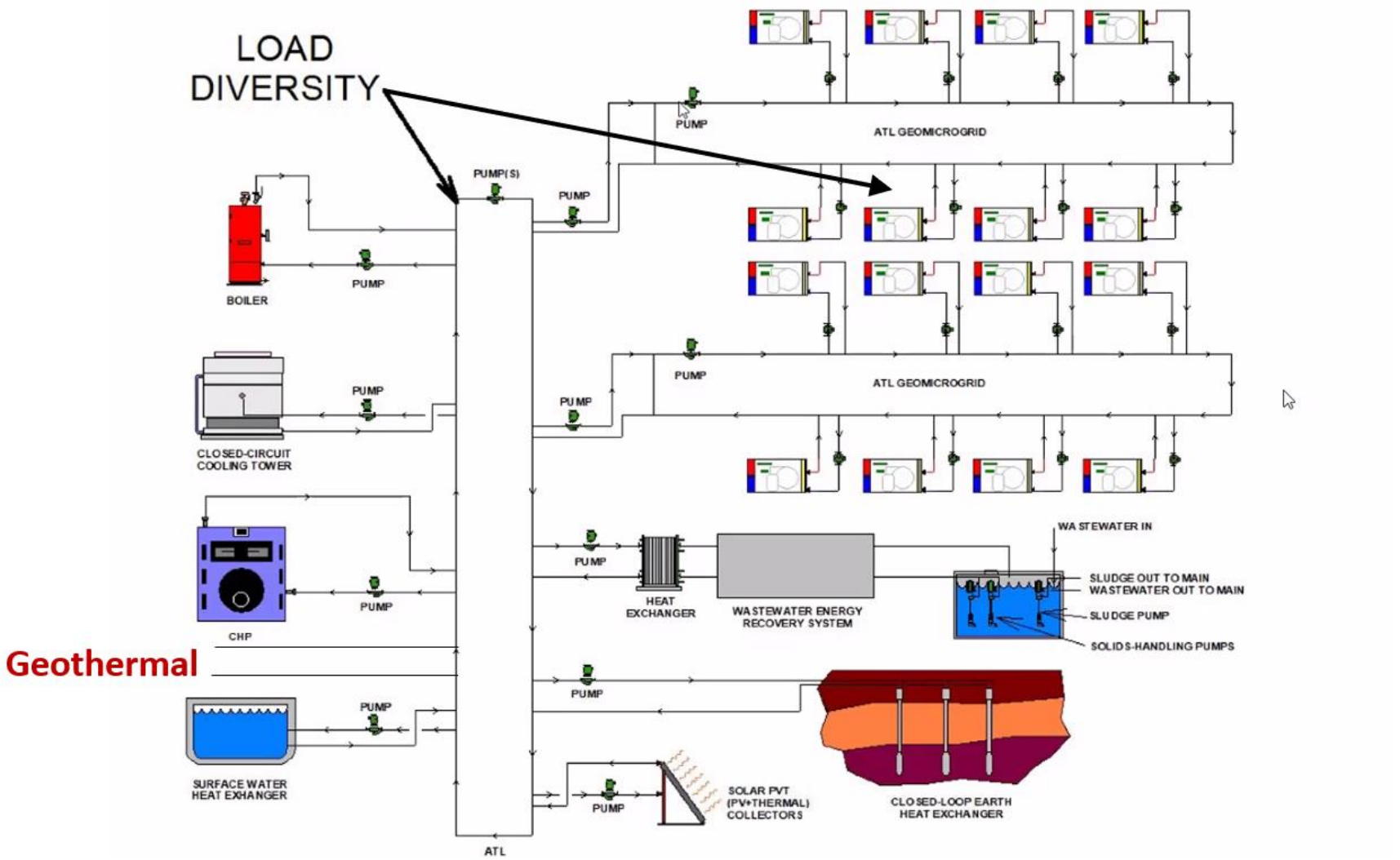


Hairpin

Parameter Or Run-around

Linked Districts On A Central Primary Loop

ATL One-pipe Plug and Play Diagram - Assets



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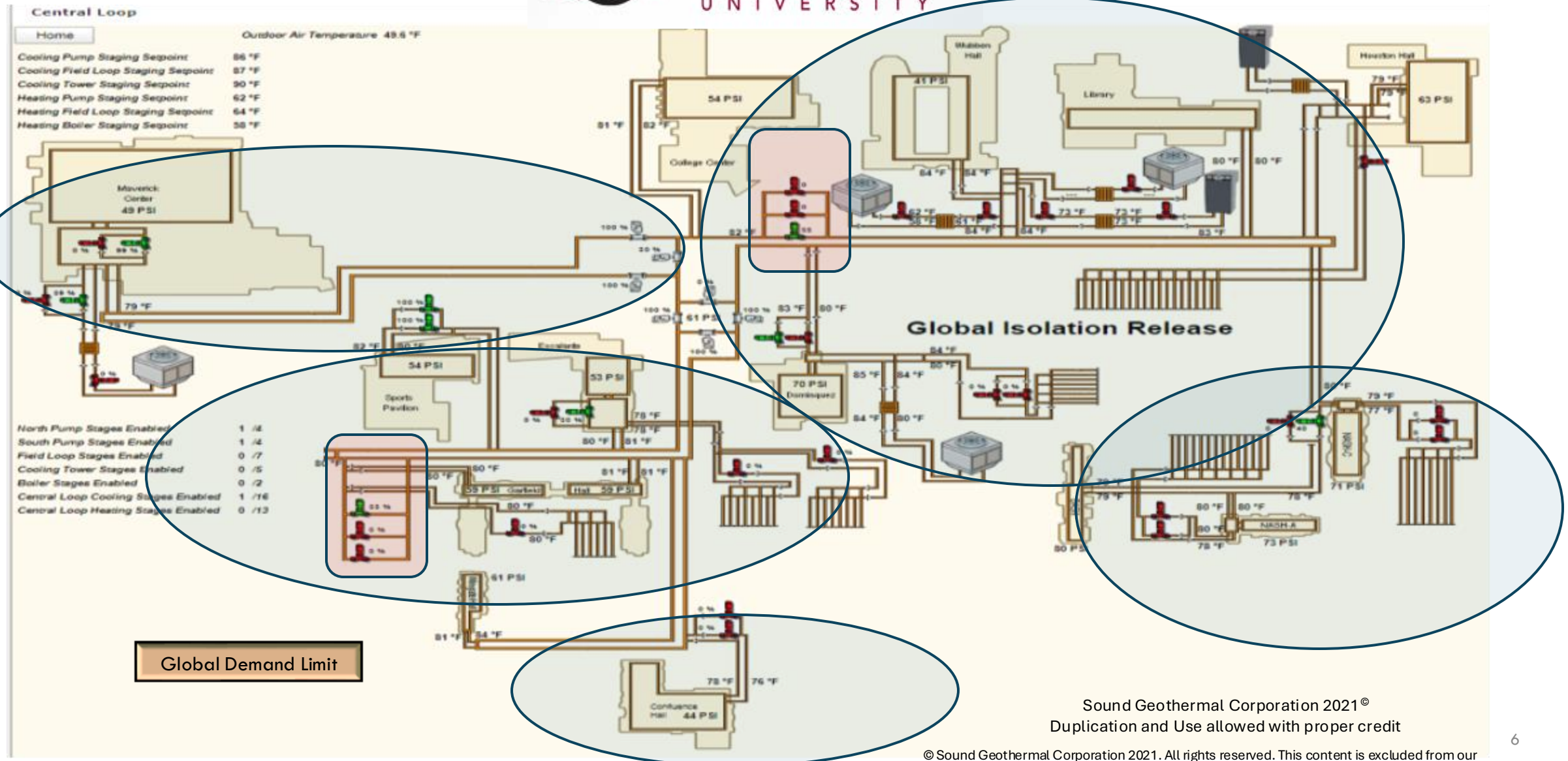
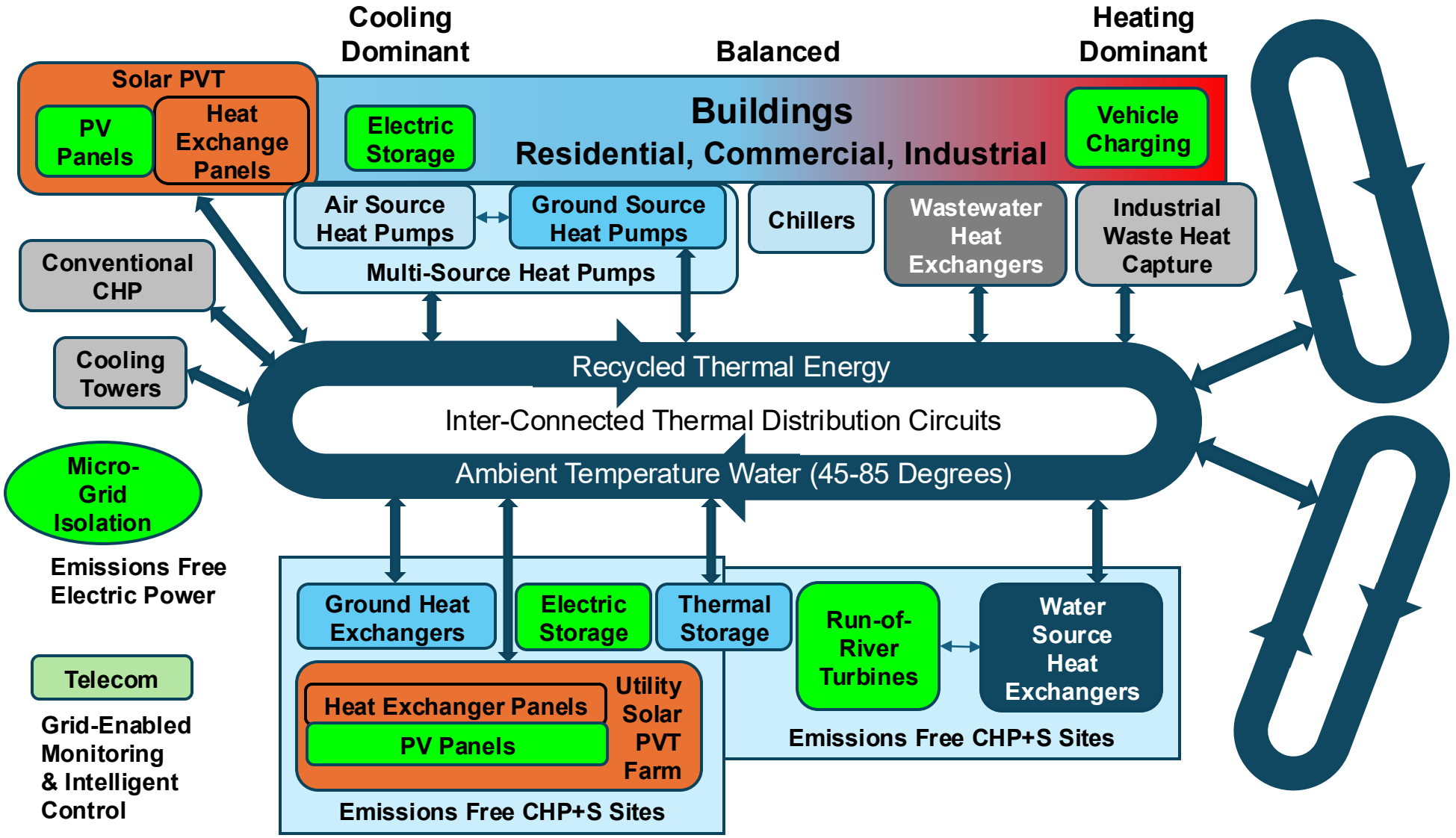
CMU's Central Loop & GMS



Integrated Plug and Play
Electric / Thermal Energy Systems



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https://ocw.mit.edu/

RES.ENV 007 Geothermal Energy Networks (GENs): Transforming our Thermal Energy System

IAP 2025