
Design
a Better
Future
SMITHGROUP

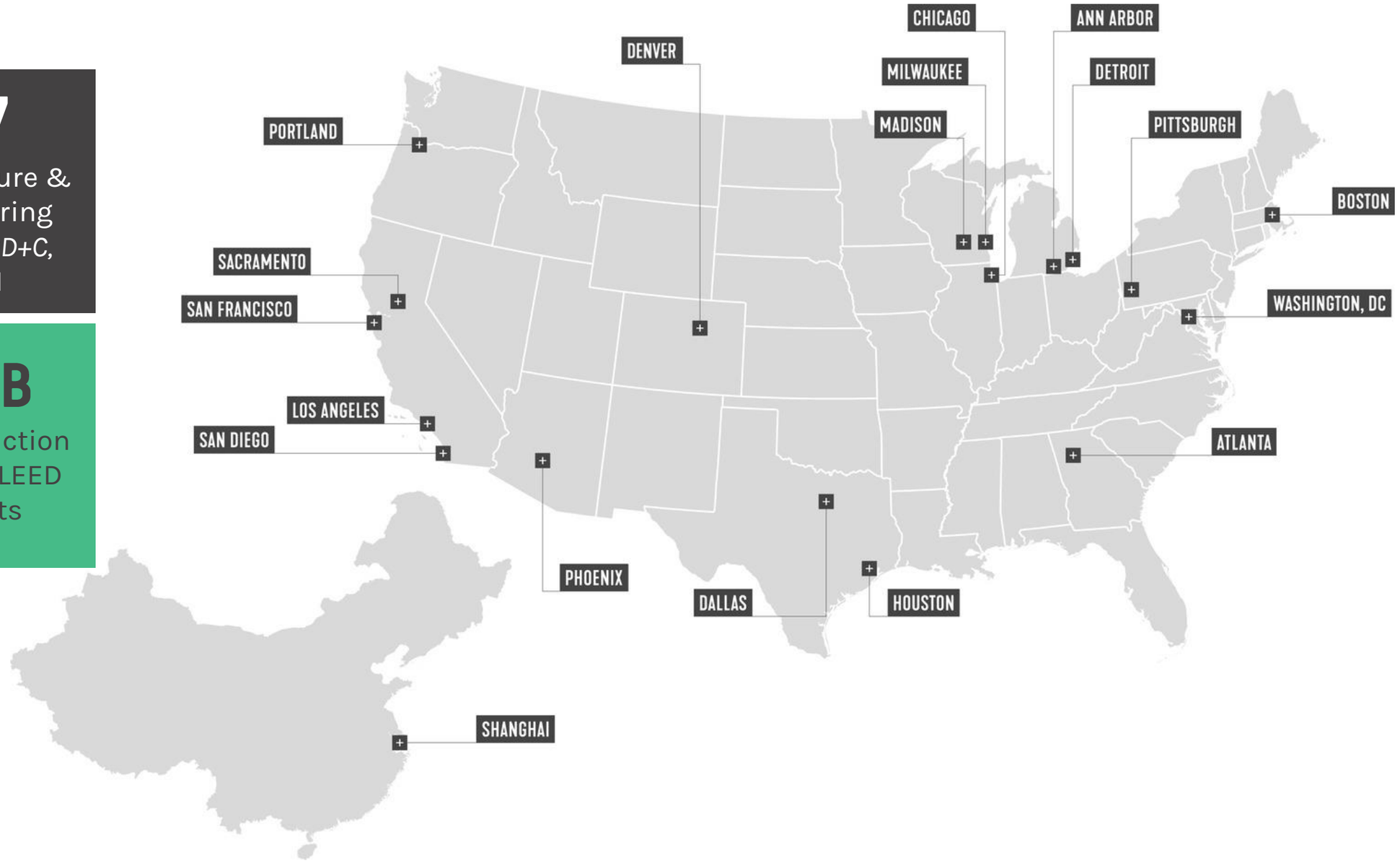
A BIT ABOUT US

1,300
Multi-disciplinary Professionals

#7
Architecture & Engineering Firms, *BD+C*, 2021

7
Fast Company Innovation by Design Awards in 4 Years

$83B
in construction costs for LEED projects



REDEFINING DESIGN EXCELLENCE

AWARD-WINNING DESIGN THAT GOES BEYOND AESTHETICS ALONE

HIGH PERFORMANCE BUILDING POWERED BY WASTEWATER

DC Water & Sewer Authority Headquarters

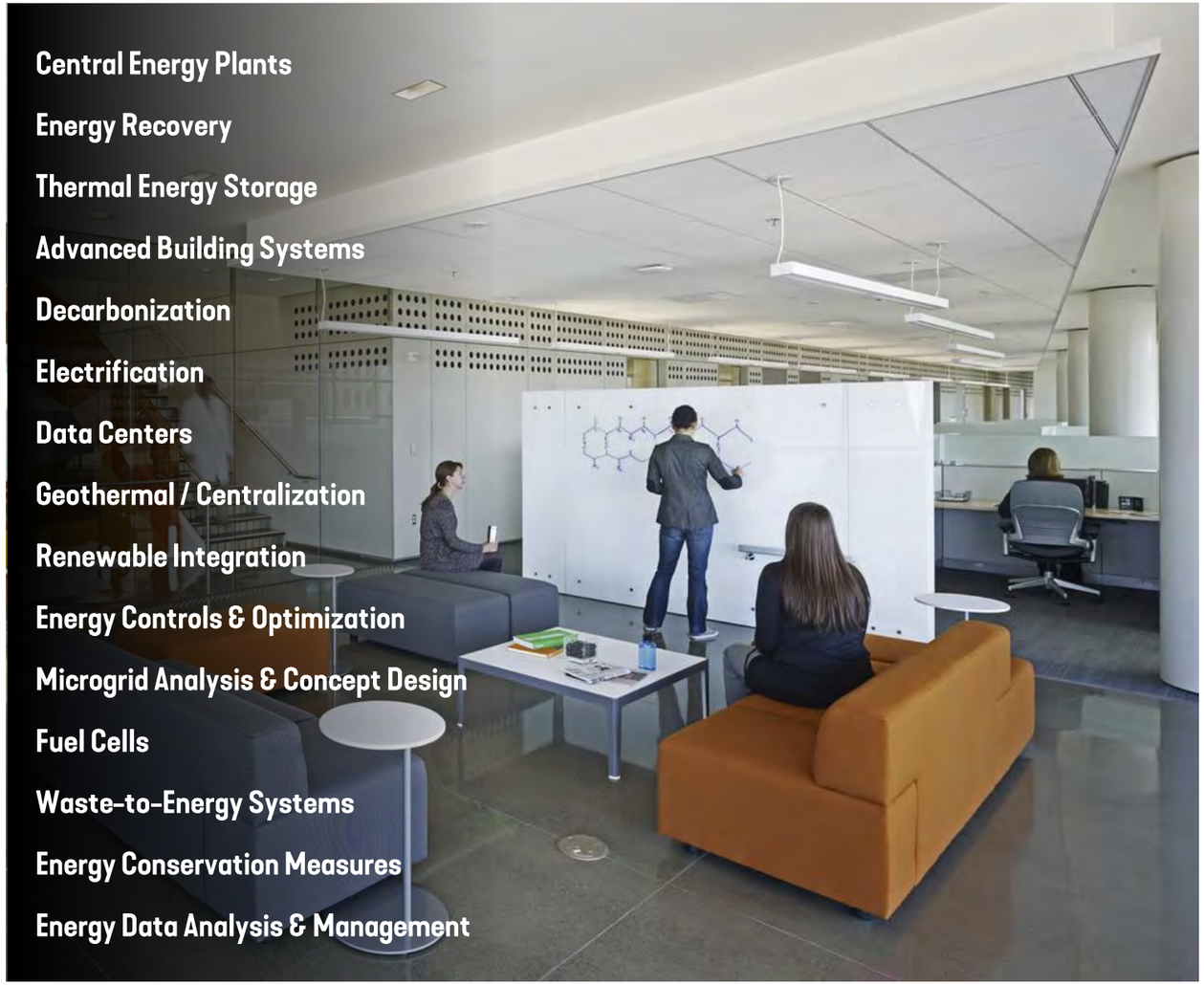
SMITHGROUP

INTEGRATED DESIGN

OUR INFRASTRUCTURE EXPERIENCE

Infrastructure Engineering

Breadth and Depth



SUSTAINABILITY

SUSTAINABILITY IS AT THE CORE OF WHAT WE DO

262
LEED Certified Projects

40 MIL
Square Feet of LEED Certified Projects

SMITHGROUP

MARKETS

Cultural

Government

Health

HIGHER EDUCATION

Hospitality

Mixed-Use

Parks & Open Spaces

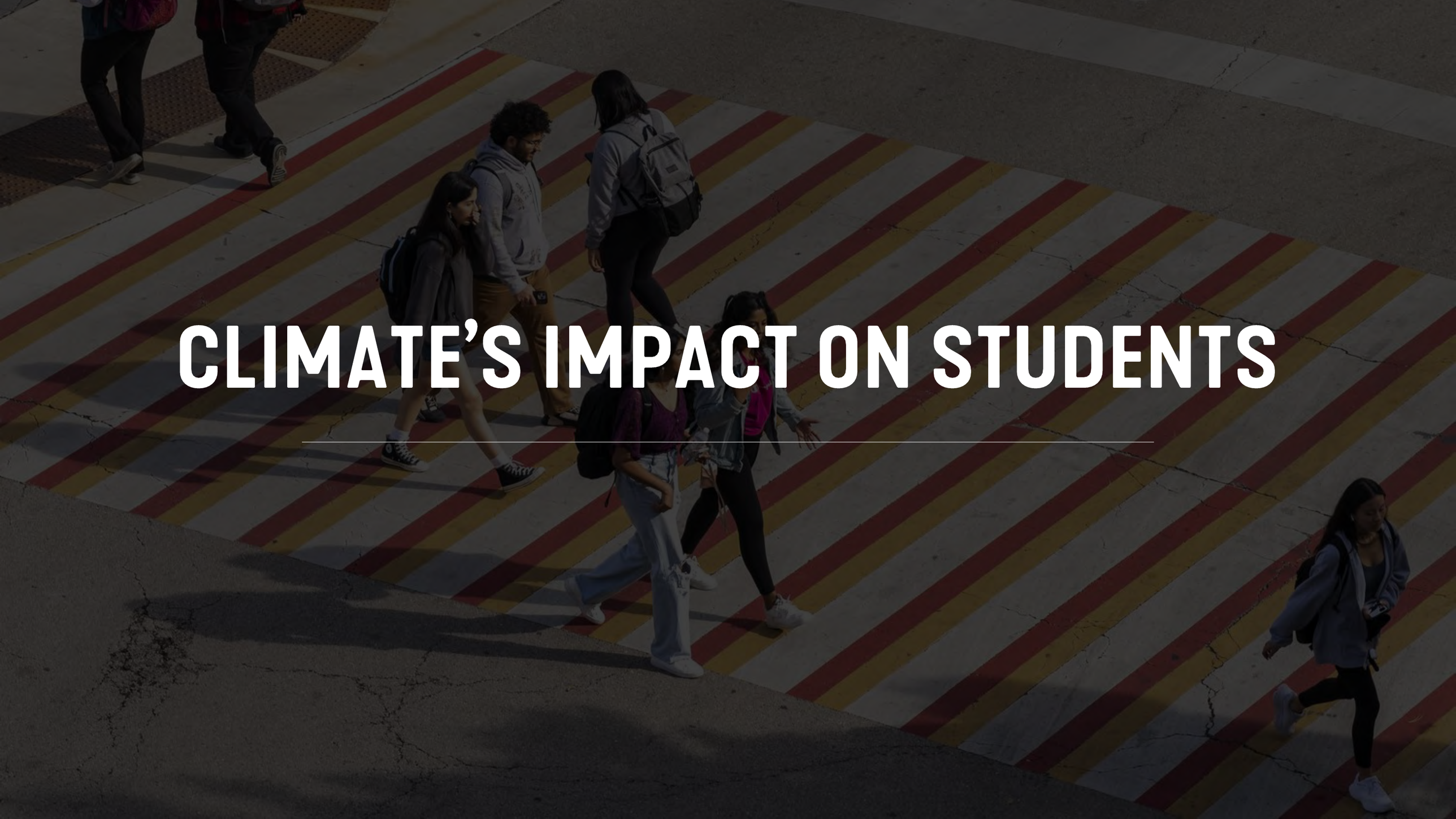
SCIENCE & TECHNOLOGY

Waterfront

Workplace

UTPB D. KIRK EDWARDS FAMILY HUMAN PERFORMANCE CENTER

ACC SAN GABRIEL CAMPUS MASTERPLAN & PHASE I BUILDING



CLIMATE'S IMPACT ON STUDENTS

STUDENTS CARE ABOUT CLIMATE

Students protest the climate emergency. Foley Square, NYC, NY | Gabriele Holtermann Gorden via AP

- **97%** of U.S. students ages 13 to 19 agree it is important to learn about global issues including Climate
- **70%** said they would like to pursue a career where they can make a positive contribution to solving global issues
- **76%** will consider what potential employers' attitudes are to key global issues when applying for jobs

Source: Cambridge International

MENTAL HEALTH

CLIMATE GRIEF & ANXIETY

- 60% of college students meet criteria for at least one mental health problem[1]
- ~3/4 of all students report moderate or severe psychological distress[2]
- Between 2009 and 2015, need for mental health services increased 40% on college and university campuses[3]
- 45% of surveyed young people (ages 16-25) say their feelings about climate change impact their daily lives[4]

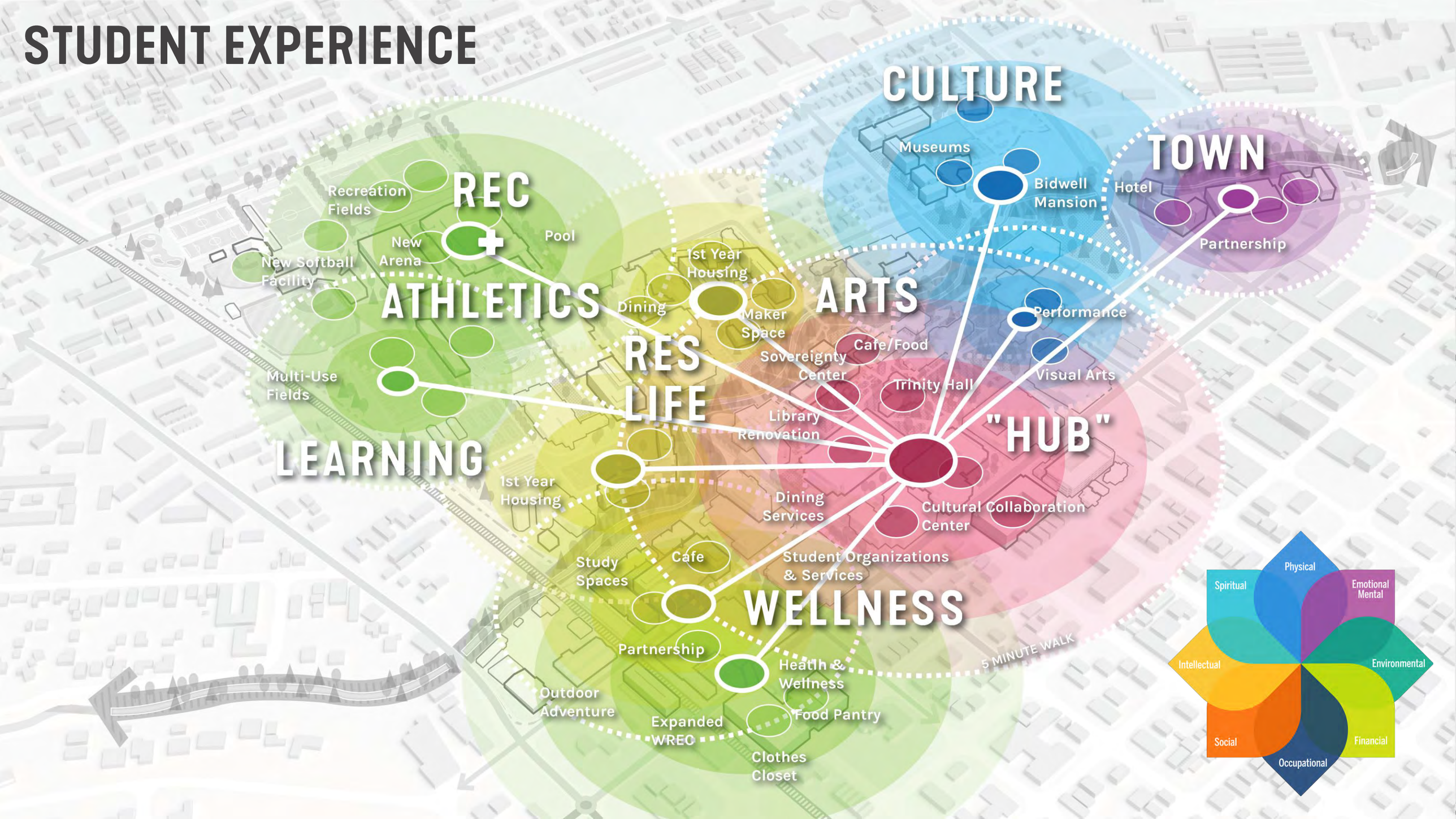
1: Lipson, Sarah Ketchen, et al. "Trends in College Student Mental Health and Help-Seeking by Race/Ethnicity: Findings from the National Healthy Minds Study, 2013–2021." *Journal of Affective Disorders*, Elsevier, 18 Mar. 2022.

2: ACHA & NCHA Fall 2021 Reference Group Executive Summary. NCHA-III_FALL_2021_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf (acha.org)

3: Penn State University Center for Collegiate Mental Health 2021 Annual Report.

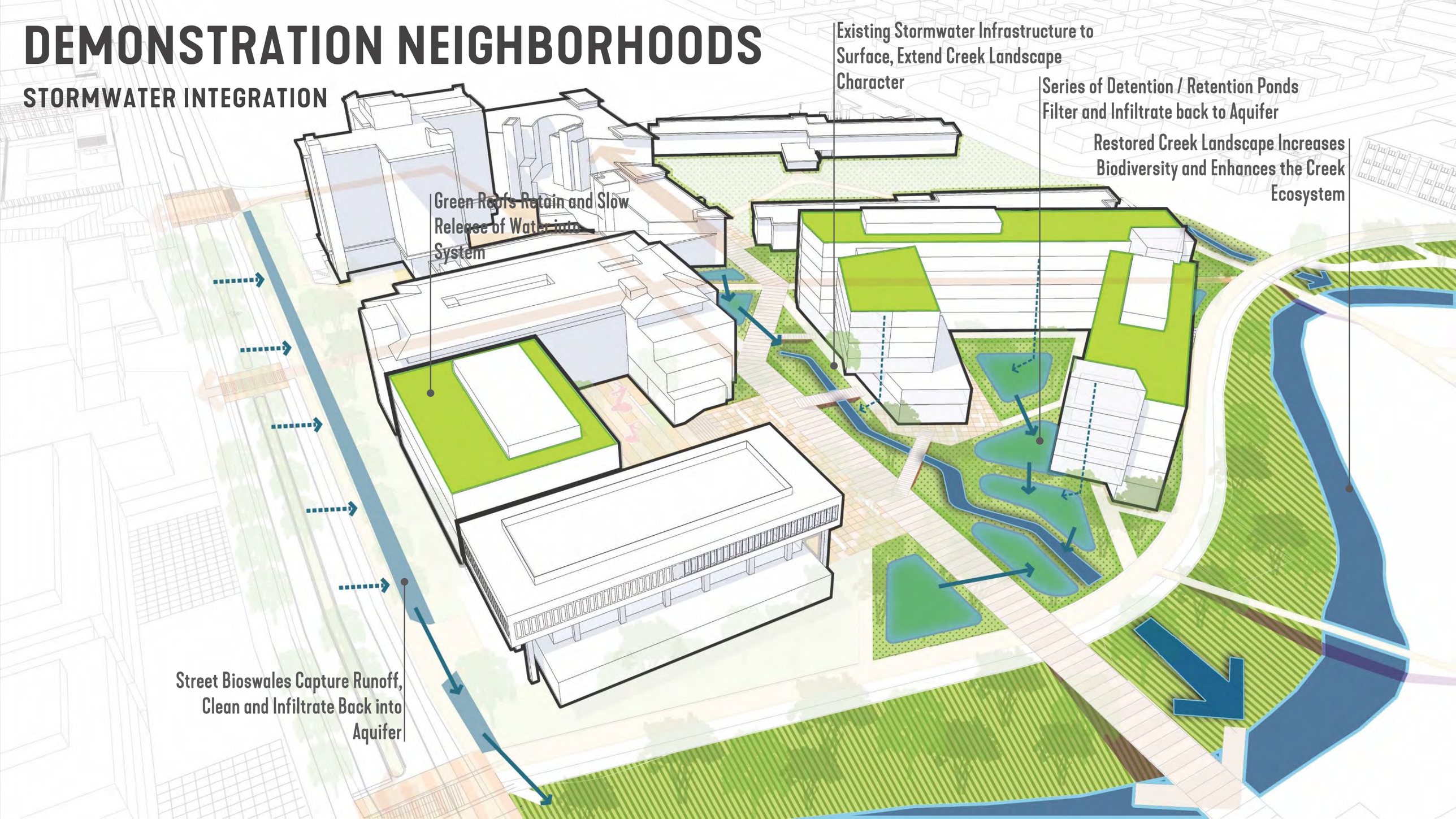
4: Hickman, Caroline, et al. "Young People's Voices on Climate Anxiety, Government Betrayal and Moral Injury: A Global Phenomenon." SSRN Electronic Journal. 10.2139/ssrn.3918955.

STUDENT EXPERIENCE



DEMONSTRATION NEIGHBORHOODS

STORMWATER INTEGRATION



EXPERIENTIAL NEIGHBORHOODS

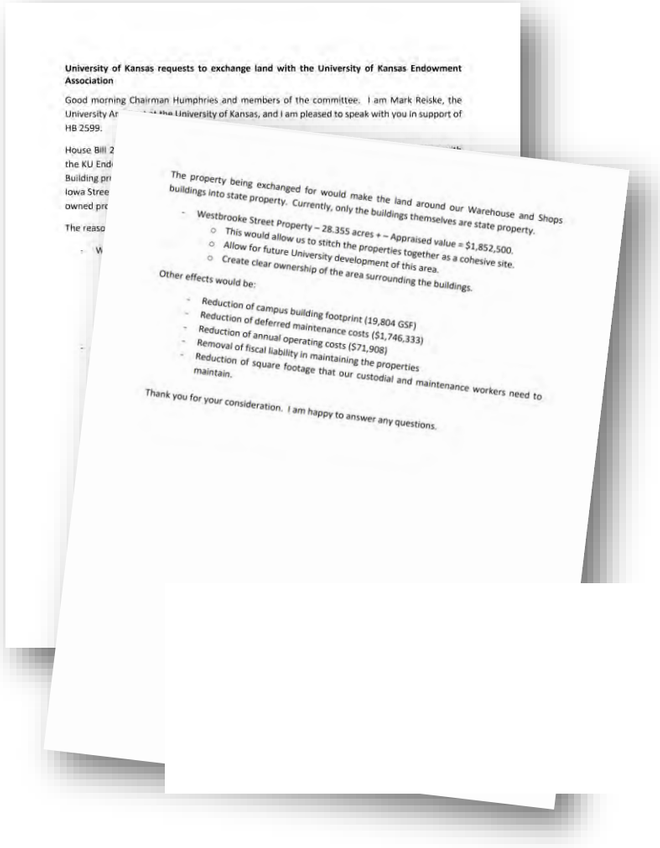
MEMORIES AND TRADITION

FACILITY'S REALITY

CHALLENGES

EVALUATING DEFERRED MAINTENANCE & FACILITY COSTS

KU THE UNIVERSITY OF KANSAS



University of Kansas requests to exchange land with the University of Kansas Endowment Association

Good morning Chairman Humphries and members of the committee. I am Mark Reiske, the University Ar… the University of Kansas, and I am pleased to speak with you in support of HB 2599.

House Bill 2… the KU Endo… Building pr… Iowa Stree… owned pro…

The reaso…

The property being exchanged for would make the land around our Warehouse and Shops buildings into state property. Currently, only the buildings themselves are state property.

- Westbrooke Street Property – 28.355 acres +/- Appraised value = $1,852,500.
  - This would allow us to stitch the properties together as a cohesive site.
  - Allow for future University development of this area.
  - Create clear ownership of the area surrounding the buildings.

Other effects would be:

- Reduction of campus building footprint (19,804 GSF)
- Reduction of deferred maintenance costs ($1,746,333)
- Reduction of annual operating costs ($71,908)
- Removal of fiscal liability in maintaining the properties
- Reduction of square footage that our custodial and maintenance workers need to maintain.

Thank you for your consideration. I am happy to answer any questions.

TRADELINE

Conferences Speaking Training Reports News Directory

Space Reduction and Strategic Relocation at University of Missouri

Missouri's Flagship University is Eliminating 1 Million gsf from its Columbia Campus

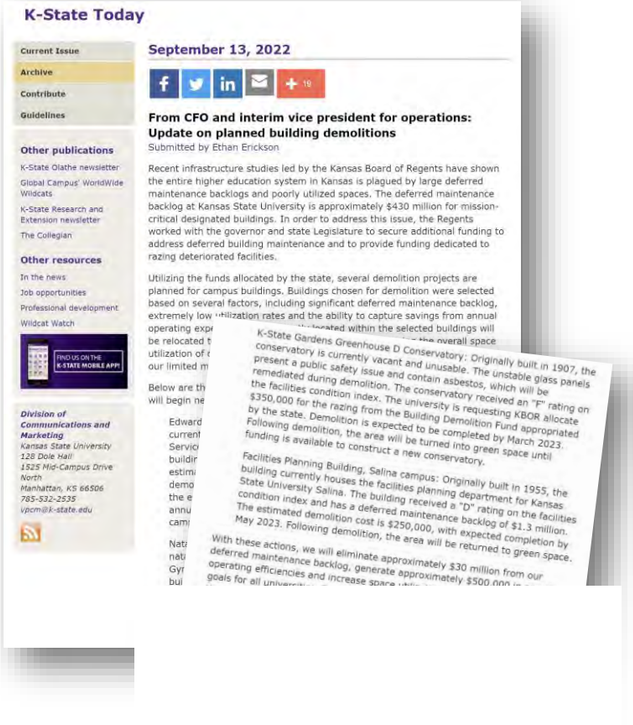
NOT WORTH KEEPING

Fifty-three education and general buildings on the University of Missouri main campus had a Facility Condition Needs Index (FCNI) score of 0.40 or greater, which made them good candidates for demolition or divestment.

Image courtesy of University of Missouri

The University of Missouri (MU) has …
eliminating 1 million gsf by 2024—2…
school faced an $881 million backlo…
state has experienced financial chal…
up the difference needed for proper…
current deferred maintenance and c…
the stated goals are met. By the end…

KANSAS STATE UNIVERSITY



K-State Today

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Global Campus' WorldWide Wildcats
K-State Research and Extension newsletter
The Collegian

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In the news
Job opportunities
Professional development
Wildcat Watch

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September 13, 2022

From CFO and interim vice president for operations: Update on planned building demolitions

Submitted by Ethan Erickson

Recent infrastructure studies led by the Kansas Board of Regents have shown the entire higher education system in Kansas is plagued by large deferred maintenance backlogs and poorly utilized spaces. The deferred maintenance backlog at Kansas State University is approximately $430 million for mission-critical designated buildings. In order to address this issue, the Regents worked with the governor and state Legislature to secure additional funding to address deferred building maintenance and to provide funding dedicated to razing deteriorated facilities.

Utilizing the funds allocated by the state, several demolition projects are planned for campus buildings. Buildings chosen for demolition were selected based on several factors, including significant deferred maintenance backlog, extremely low …ilization rates and the ability to capture savings from annual operating exp… …located within the selected buildings will be relocated t… …the overall space utilization of t… conservatory is currently vacant and unusable. The unstable glass panels our limited m… present a public safety issue and contain asbestos, which will be remediated during demolition. The conservatory received an "F" rating on the facilities condition index. The university is requesting KBOR allocate $350,000 for the razing from the Building Demolition Fund appropriated by the state. Demolition is expected to be completed by March 2023. Following demolition, the area will be turned into green space until funding is available to construct a new conservatory.

Below are th… will begin ne…

Edward… current… Servic… buildir… estimi… demo… the e… annu… cami…

Facilities Planning Building, Salina campus: Originally built in 1955, the building currently houses the facilities planning department for Kansas State University Salina. The building received a "D" rating on the facilities condition index and has a deferred maintenance backlog of $1.3 million. The estimated demolition cost is $250,000, with expected completion by May 2023. Following demolition, the area will be returned to green space.

Nati… nati… Gyr… bui…

With these actions, we will eliminate approximately $30 million from our deferred maintenance backlog, generate approximately $500,000 in… operating efficiencies and increase space… goals for all university…

EVALUATING DEFERRED MAINTENANCE & FACILITY COSTS

THECB data indicates Texas public institutions had $740M+ in deferred maintenance backlog in 2012 up 41% from 2009

Demolish 230,000sf of existing buildings

$195M deferred maintenance backlog

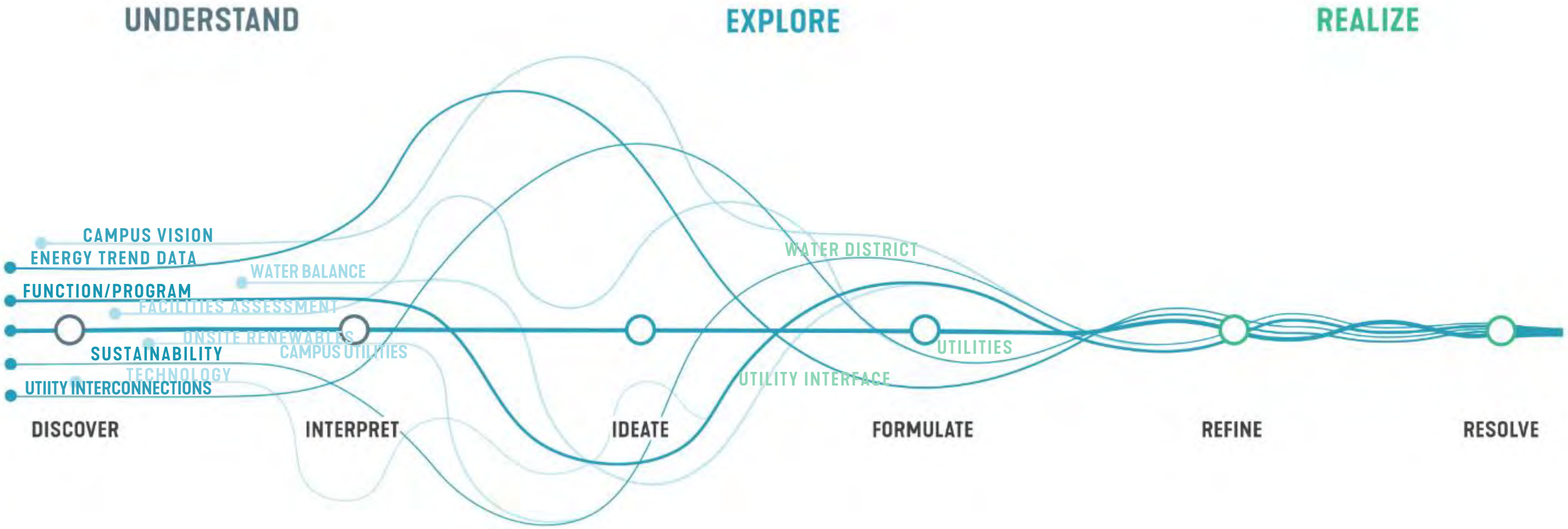
$881M deferred maintenance backlog

Eliminate $30M of deferred maintenance backlog

Generate $500,000 in annual operating efficiencies

INTEGRATED PLANNING

PROCESS


UNDERSTAND
EXPLORE
REALIZE
CAMPUS VISION
ENERGY TREND DATA
FUNCTION/PROGRAM
SUSTAINABILITY
UTIITY INTERCONNECTIONS
WATER BALANCE
FACILITIES ASSESSMENT
ONSITE RENEWABLES
CAMPUS UTILITIES
TECHNOLOGY
WATER DISTRICT
UTILITIES
UTILITY INTERFACE
DISCOVER
INTERPRET
IDEATE
FORMULATE
REFINE
RESOLVE

INTEGRATED SOLUTIONS

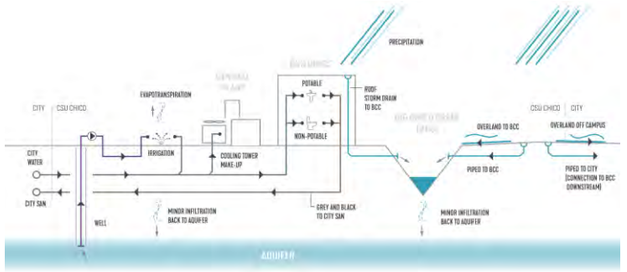
California State University, Chico

University of Illinois Campus Master Plan

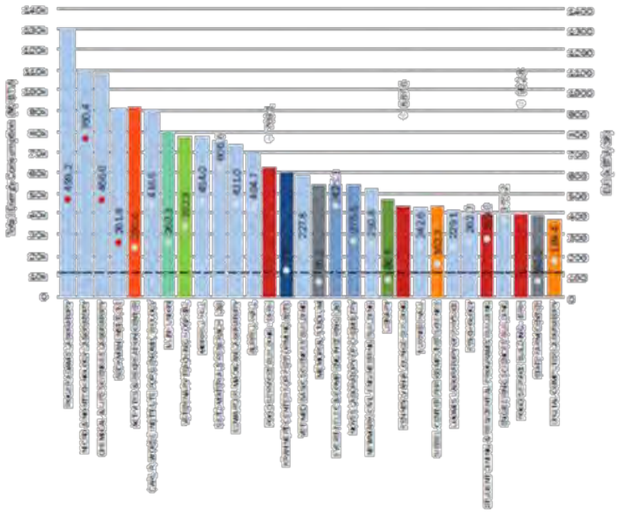
NREL Campus Energy Systems Integration

Virginia Tech Innovation Campus

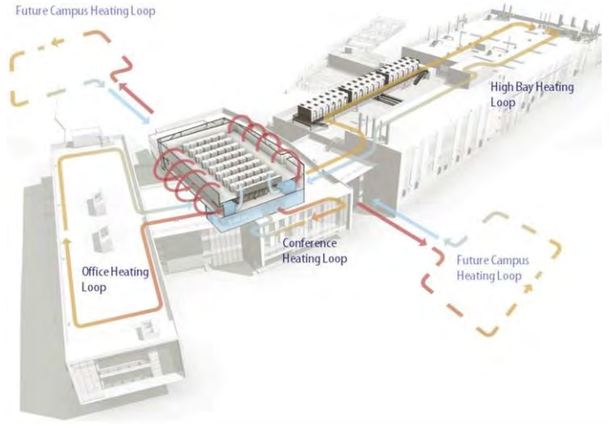
HIGH PERFORMANCE CAMPUS



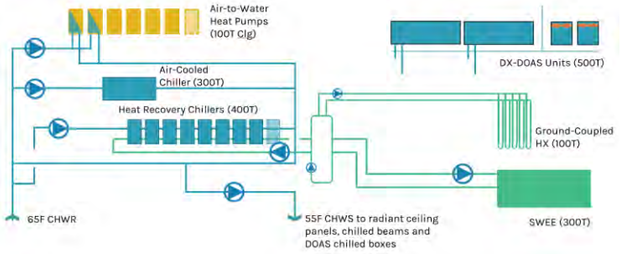
iCAP. NO NET NEW GROWTH



ENERGY RECOVERY

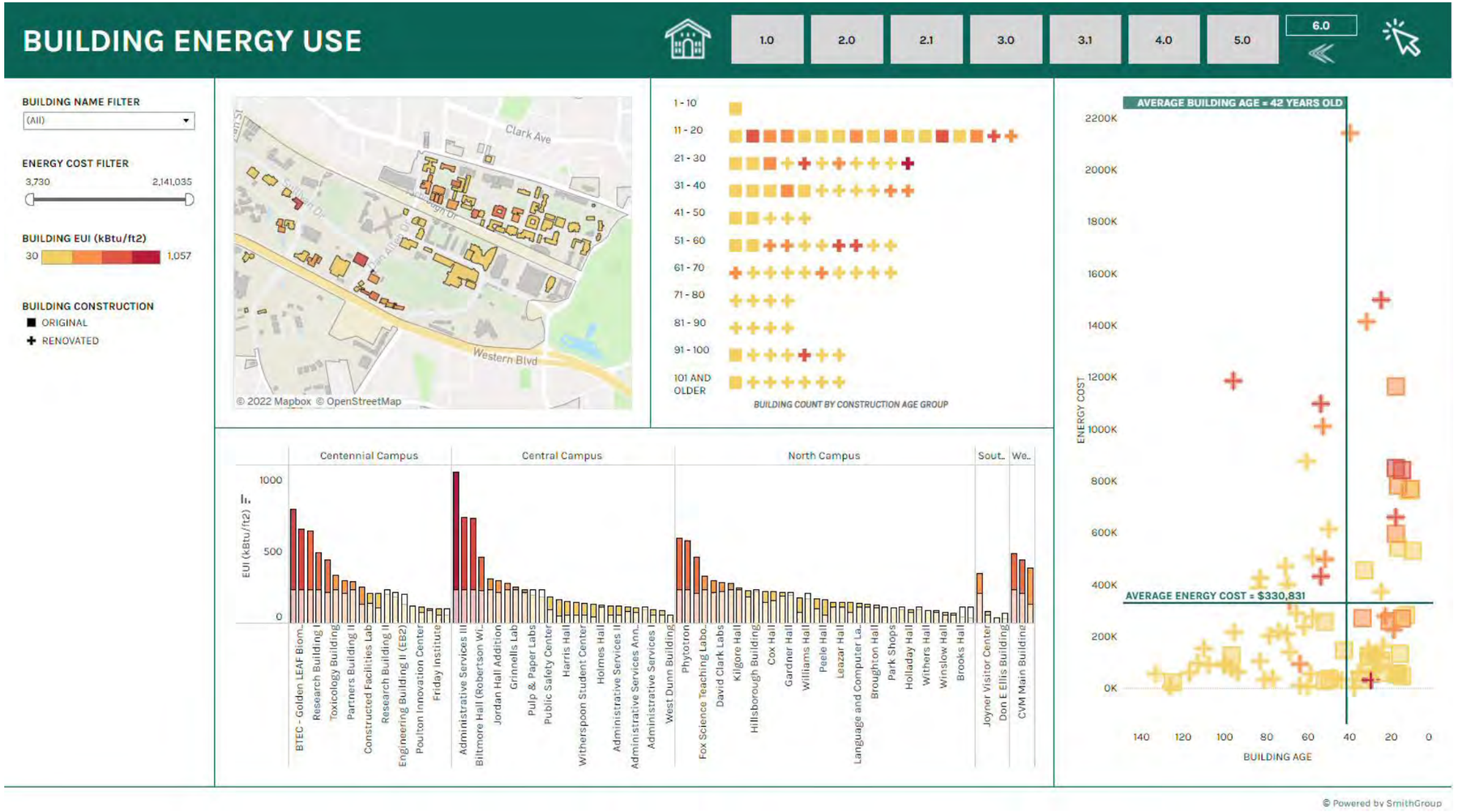


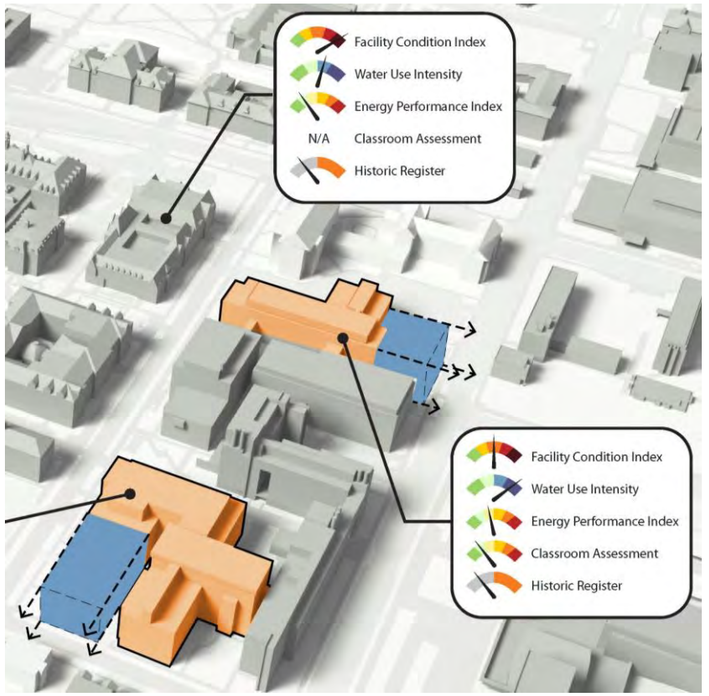
SEWAGE WASTE ENERGY / 100% ELECTRIC



INTEGRATING SPACE, CONDITION, ENERGY, AND COSTS

DATA DASHBOARDS

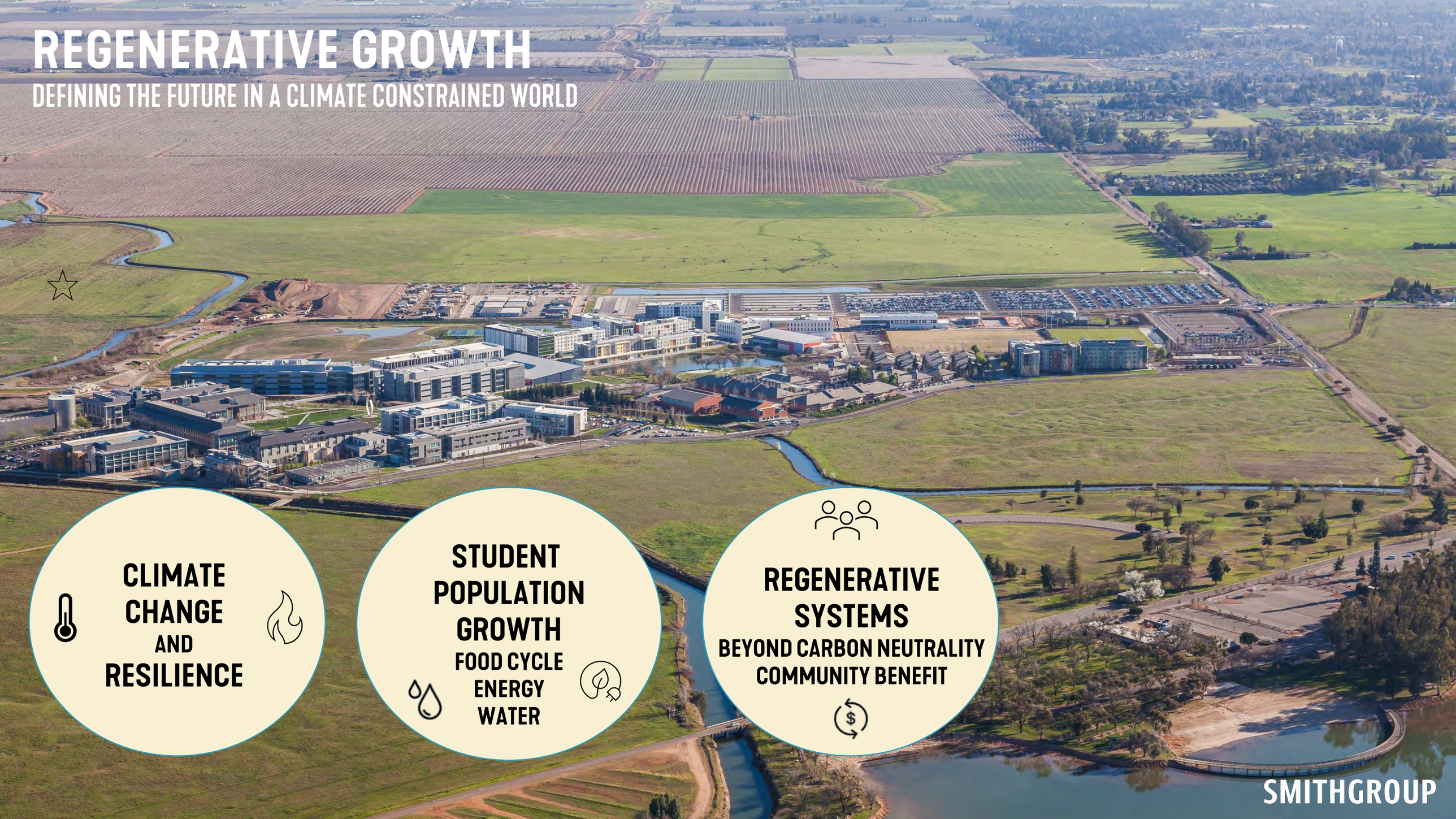




REGENERATIVE INFRASTRUCTURE

REGENERATIVE GROWTH

DEFINING THE FUTURE IN A CLIMATE CONSTRAINED WORLD



CLIMATE CHANGE
AND
RESILIENCE

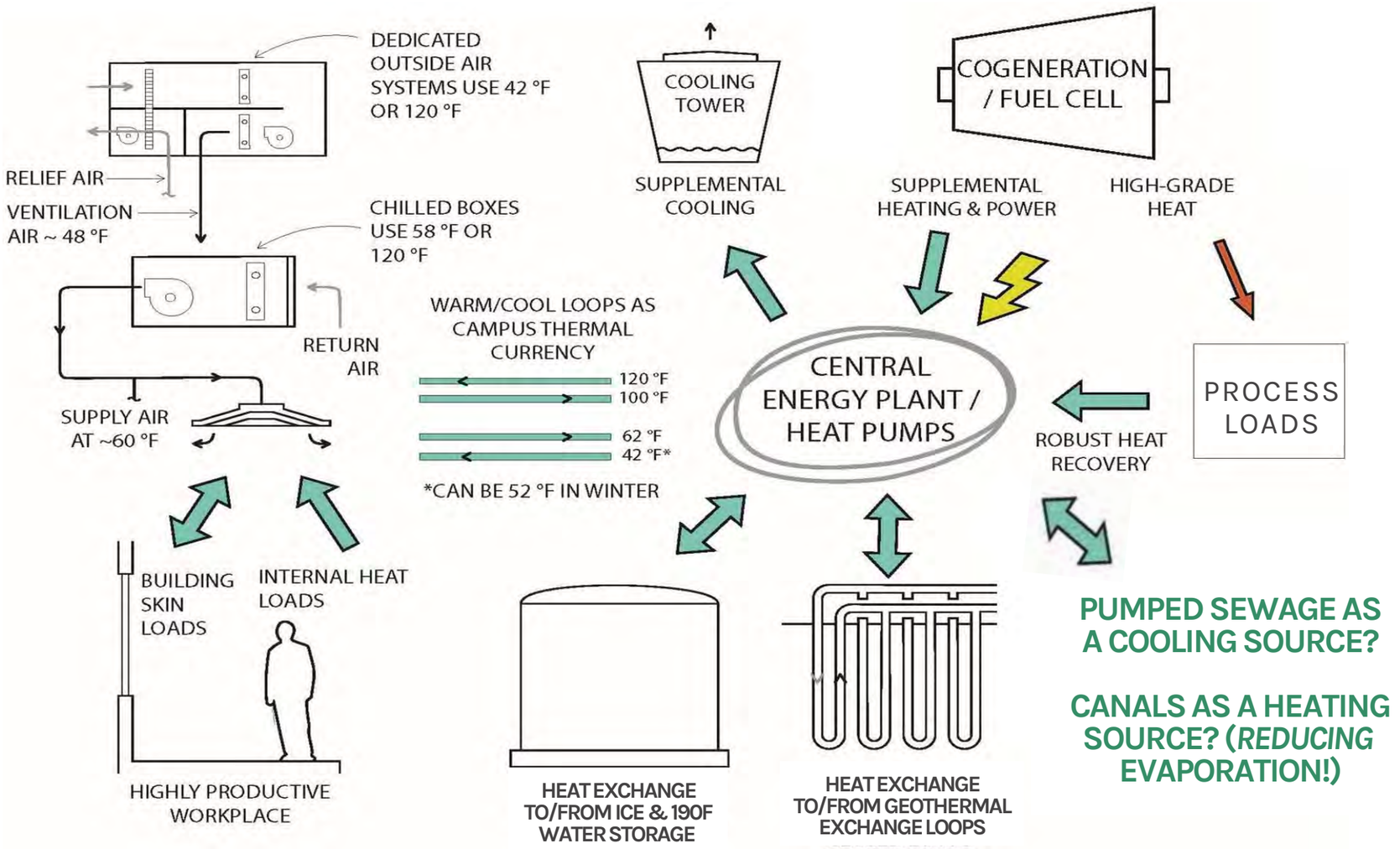
STUDENT POPULATION GROWTH
FOOD CYCLE
ENERGY
WATER

REGENERATIVE SYSTEMS
BEYOND CARBON NEUTRALITY
COMMUNITY BENEFIT

SMITHGROUP

“THERMAL CURRENCY” FOR A LOW-ENTROPY CAMPUS

CONNECTING ENERGY SILOS WITH WARM & COOL WATER LOOPS



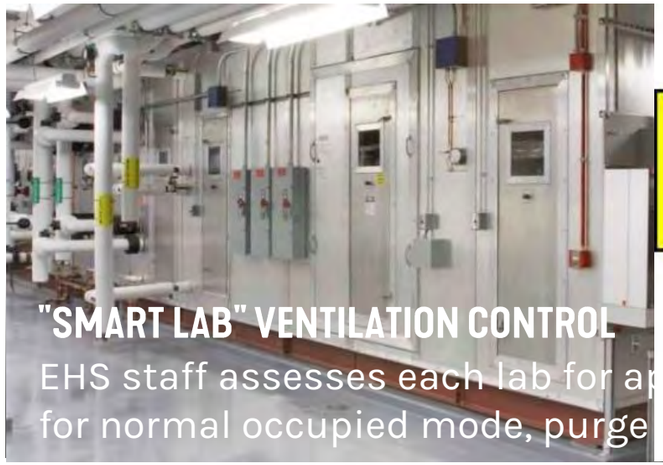
PUMPED SEWAGE AS A COOLING SOURCE?

CANALS AS A HEATING SOURCE? (*REDUCING* EVAPORATION!)

FORD DEARBORN MASTER PLAN

MANAGING AIR—AND ITS EMBEDDED ENERGY

IN-BUILDING ENERGY REUSE

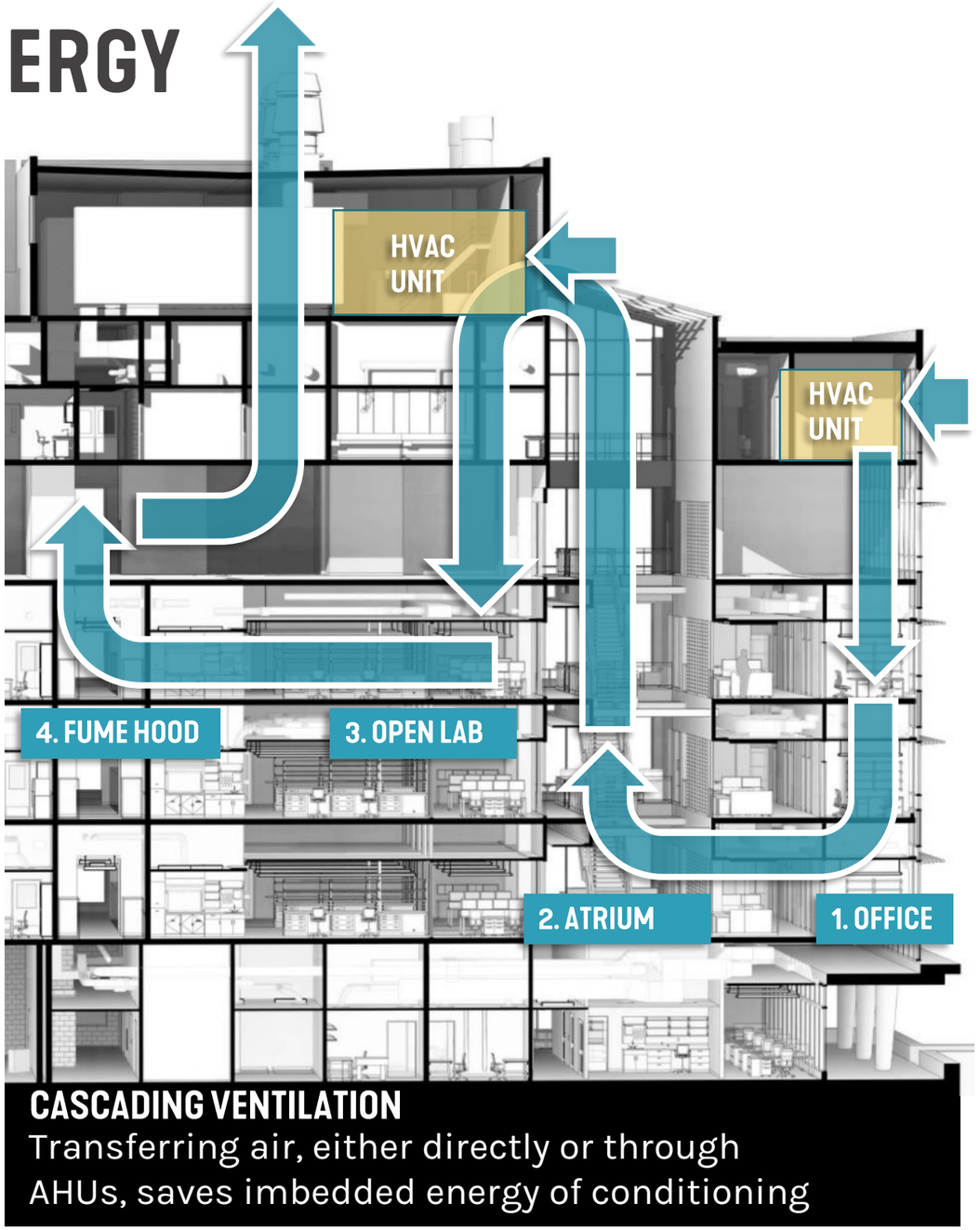


"SMART LAB" VENTILATION CONTROL

EHS staff assesses each lab for appropriate ACH for normal occupied mode, purge mode, and unoccupied mode

EXHAUST AIR HEAT RECOVERY TO OUTSIDE AIR INTAKE

U of Texas-Southwestern lab exhaust employs the same set of AHU coils for both outside air preheat and run-around heat recovery

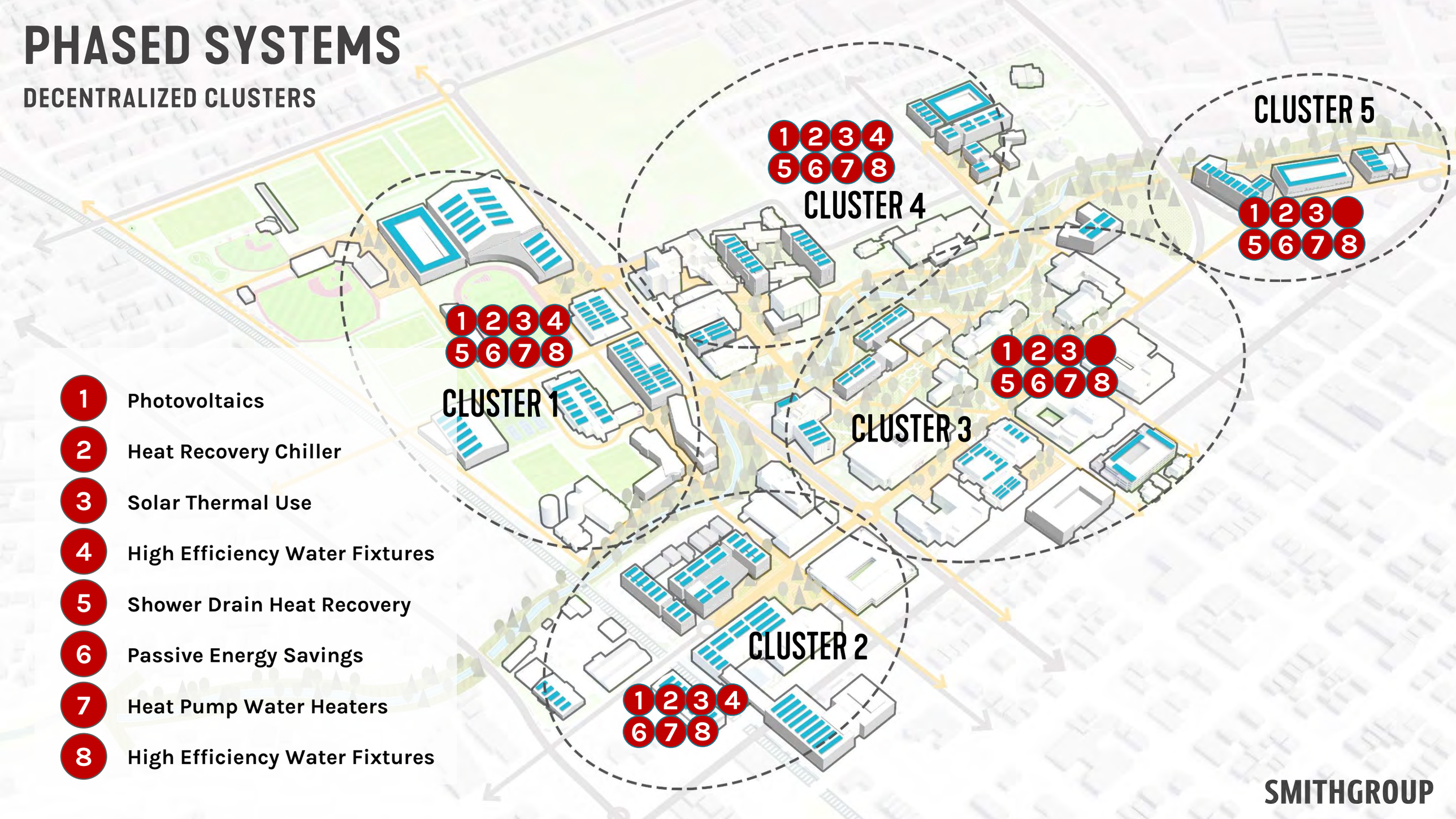


CASCADING VENTILATION

Transferring air, either directly or through AHUs, saves imbedded energy of conditioning

PHASED SYSTEMS

DECENTRALIZED CLUSTERS



1. Photovoltaics
2. Heat Recovery Chiller
3. Solar Thermal Use
4. High Efficiency Water Fixtures
5. Shower Drain Heat Recovery
6. Passive Energy Savings
7. Heat Pump Water Heaters
8. High Efficiency Water Fixtures

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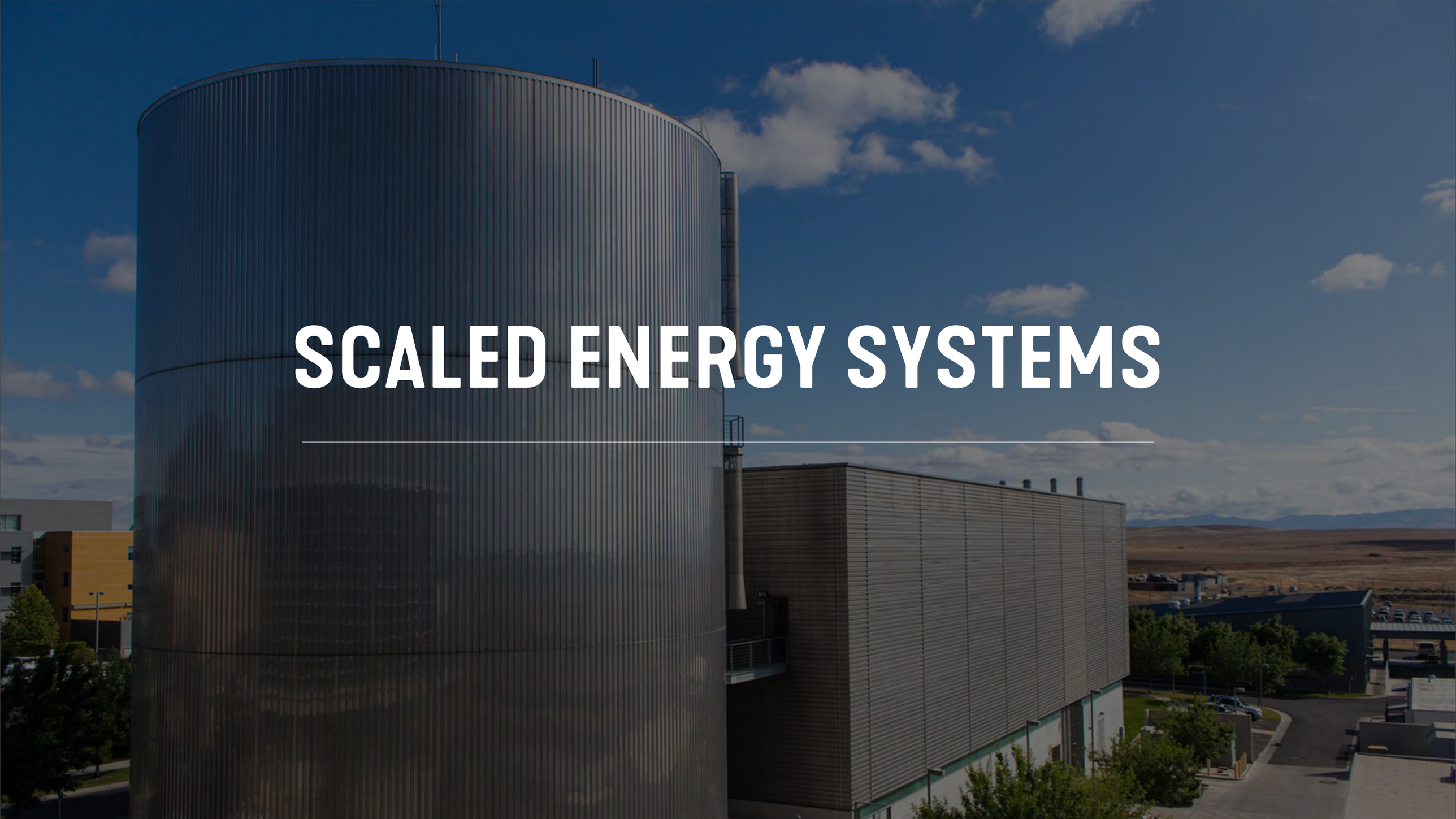
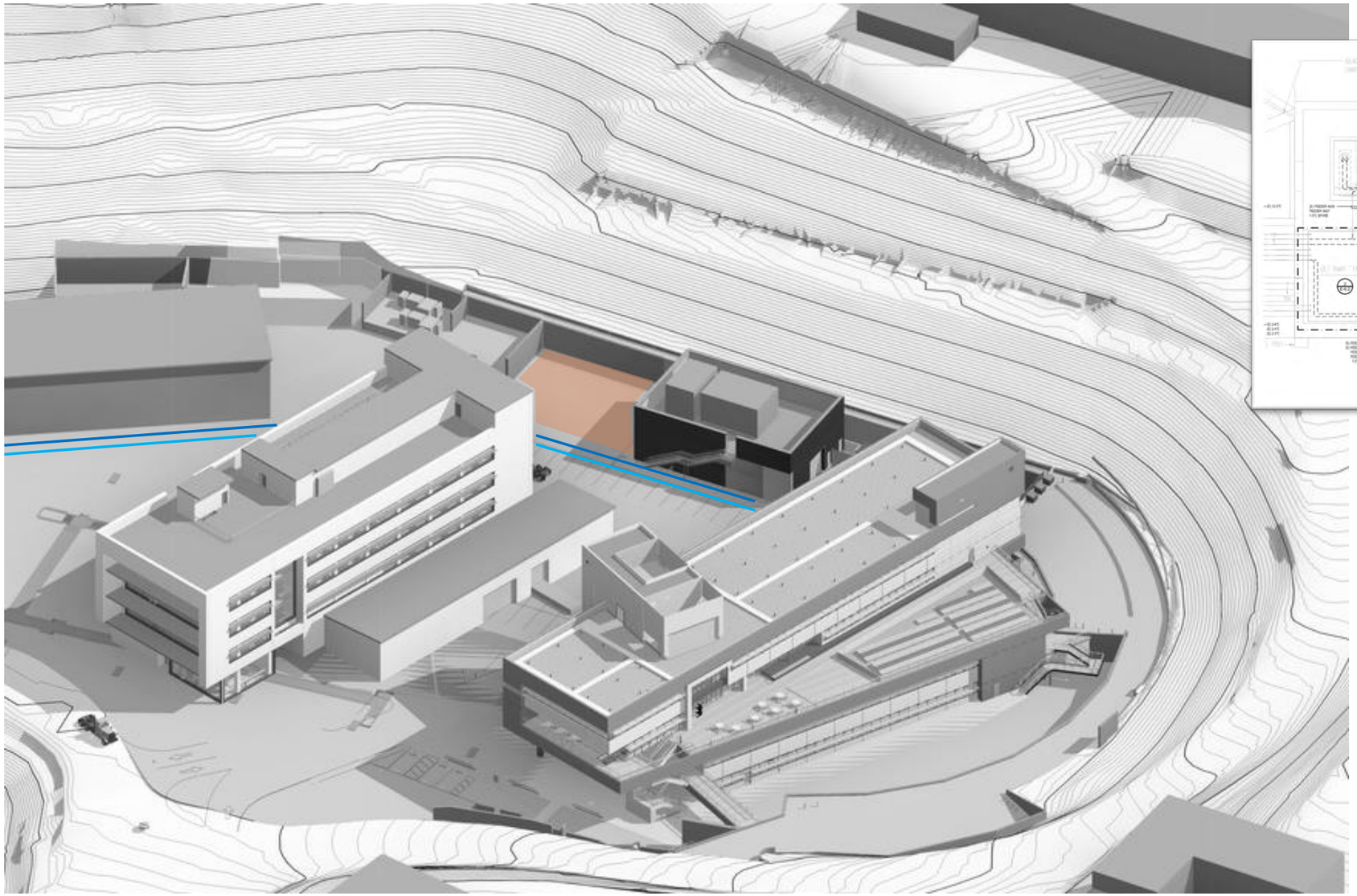
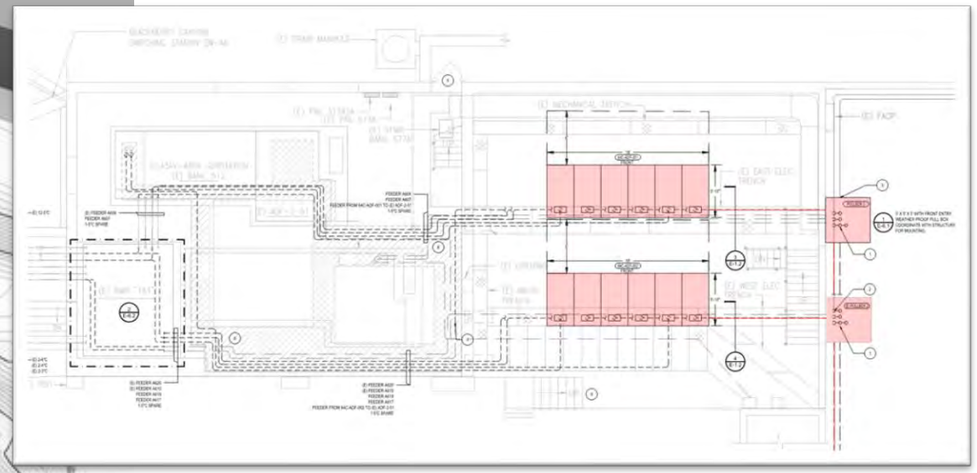
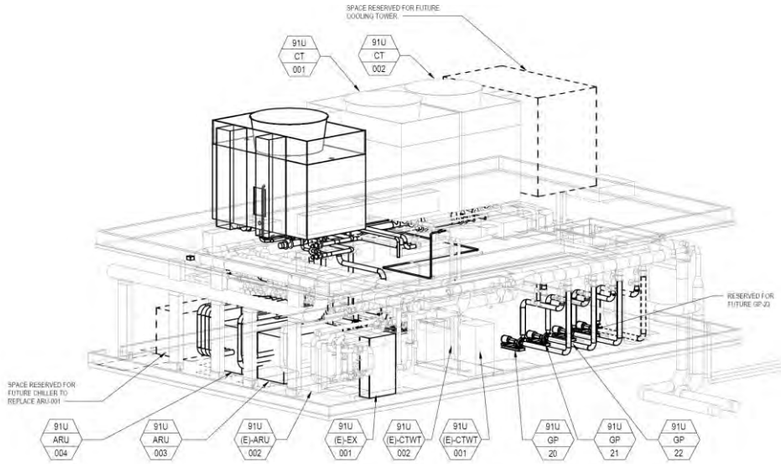

SCALED ENERGY SYSTEMS

THE CHALLENGE OF PHASING & GROWTH

MODULAR UTILITY PLANT – LAWRENCE BERKELEY NATIONAL LABORATORY

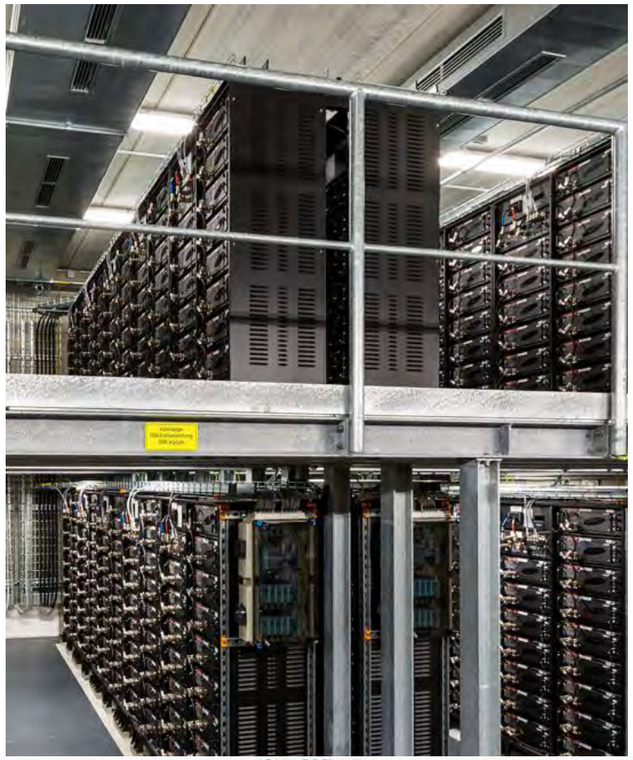


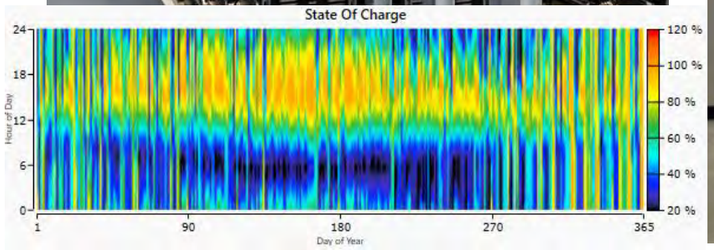




ENERGY STORAGE

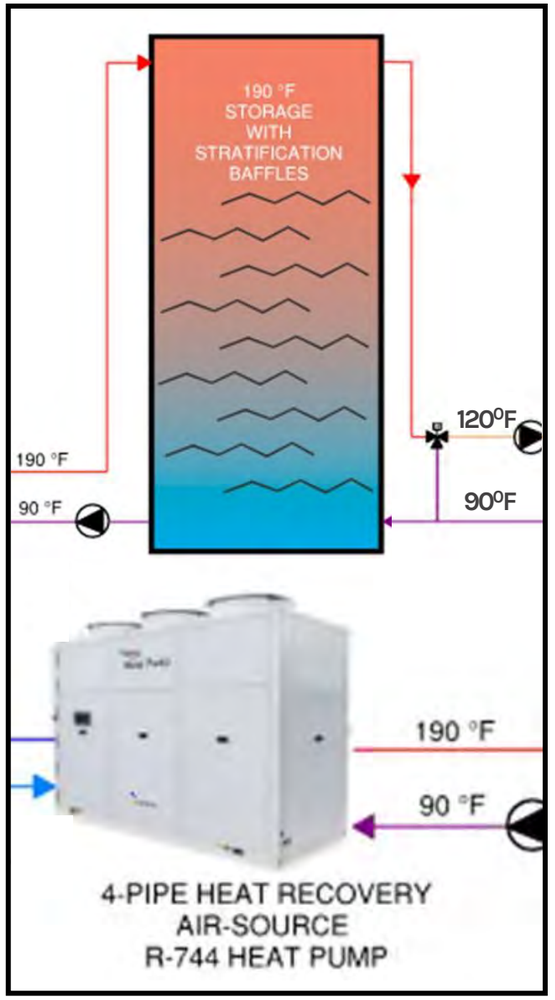
ALIGNING WITH RENEWABLES & LOW CARBON GRID HOURS





LITHIUM-ION BATTERIES

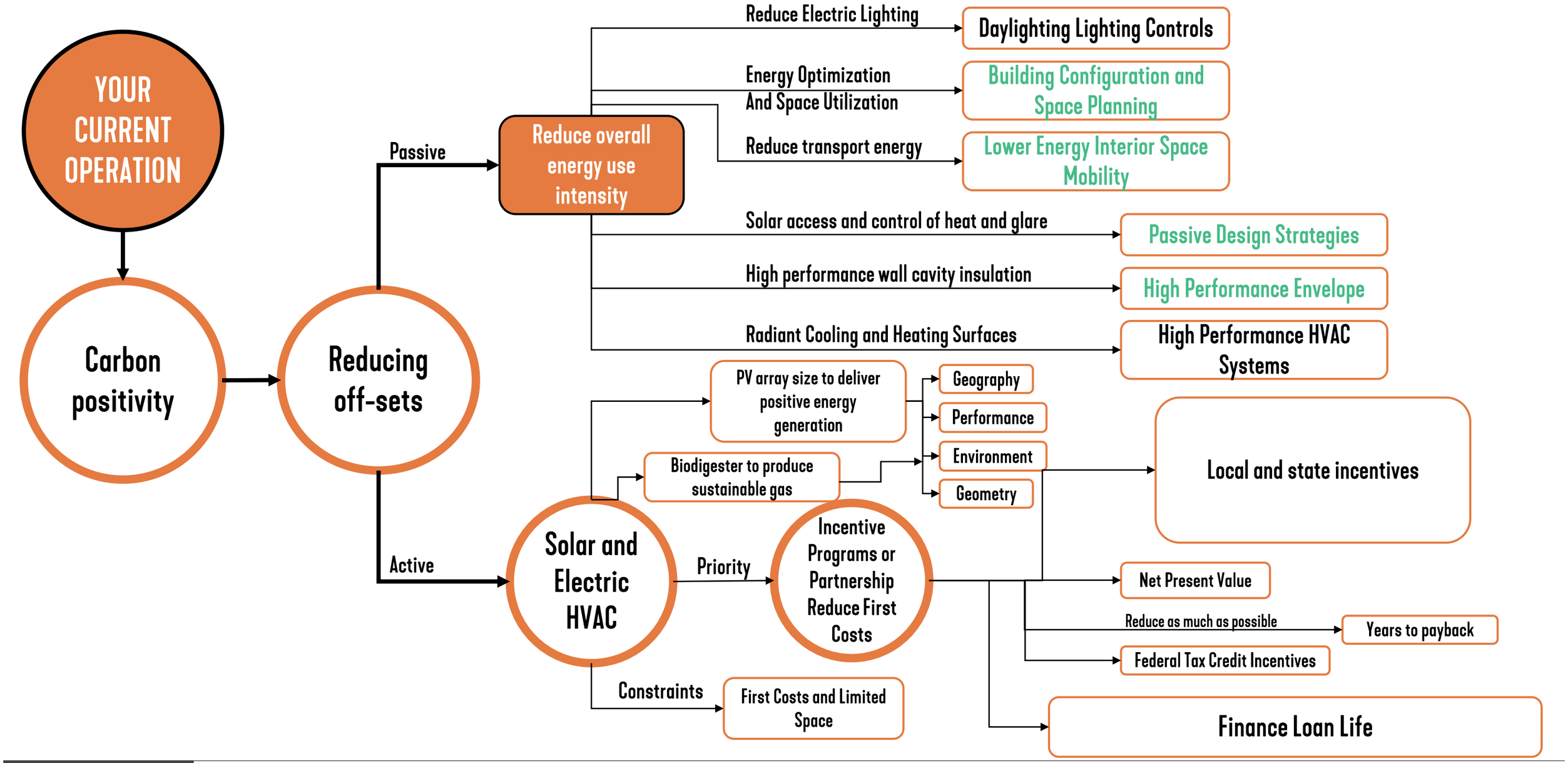
THERMAL STORAGE



190°F WATER STORAGE

GREEN HYDROGEN & BIOGAS STORAGE

TOTAL FINANCIAL PLANNING




MICROGRID

CRITICAL LOAD BACK UP

NATIVE SEEDS OF CALIFORNIA

REFIGERATOR

LAB EQUIPMENT

HVAC FANS SERVING THE LABS

ALL ELECTRIC REALIZATION

24 HR. BACK UP POWER

Diesel Generator

BURNS FOSSIL FUELS

~~DECARBONIZATION~~

~~ELECTRIFICATION~~

~~NET ZERO~~

MICROGRID

Photovoltaic

+

Battery

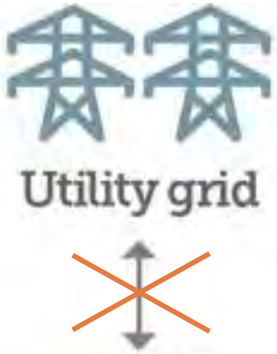
MICROGRID

WHAT IS MICROGRID?

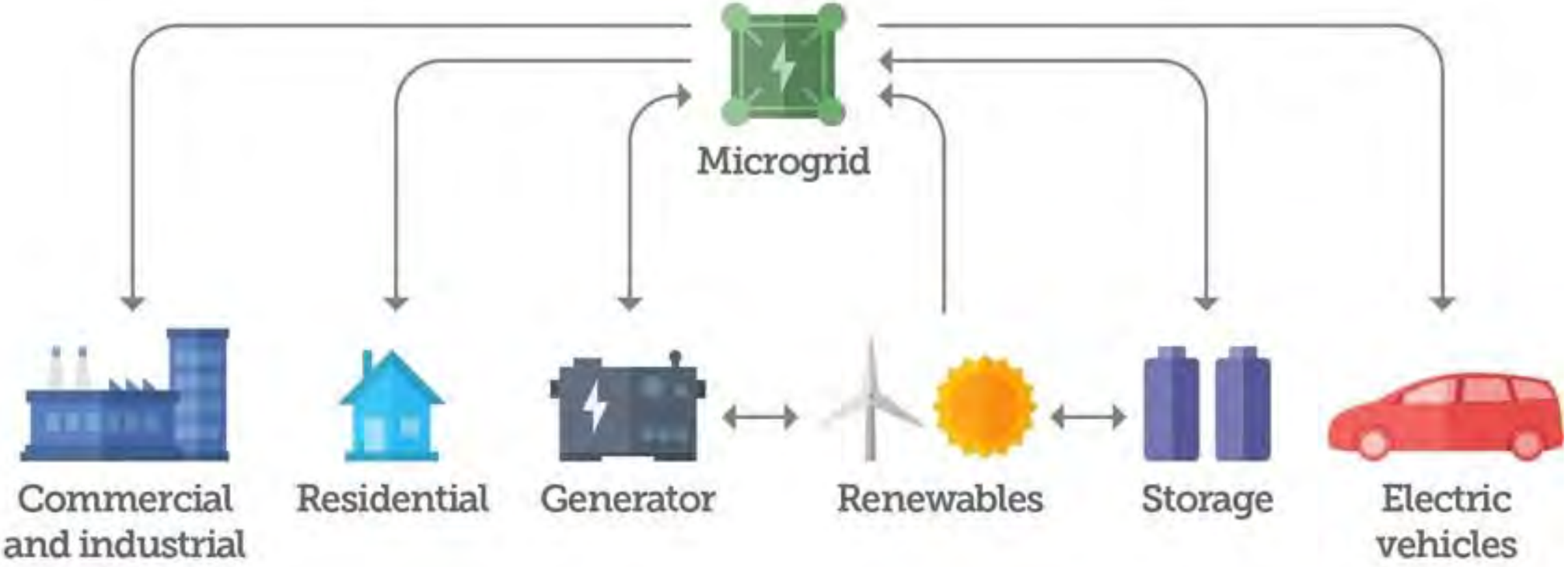
- PROVIDES RESIELENCY DURING UNRELIABLE GRID, FOREST FIRE, FLOODS

- DEMAND CHARGE REDUCTION

Unreliable Grid-Once in 10 days?

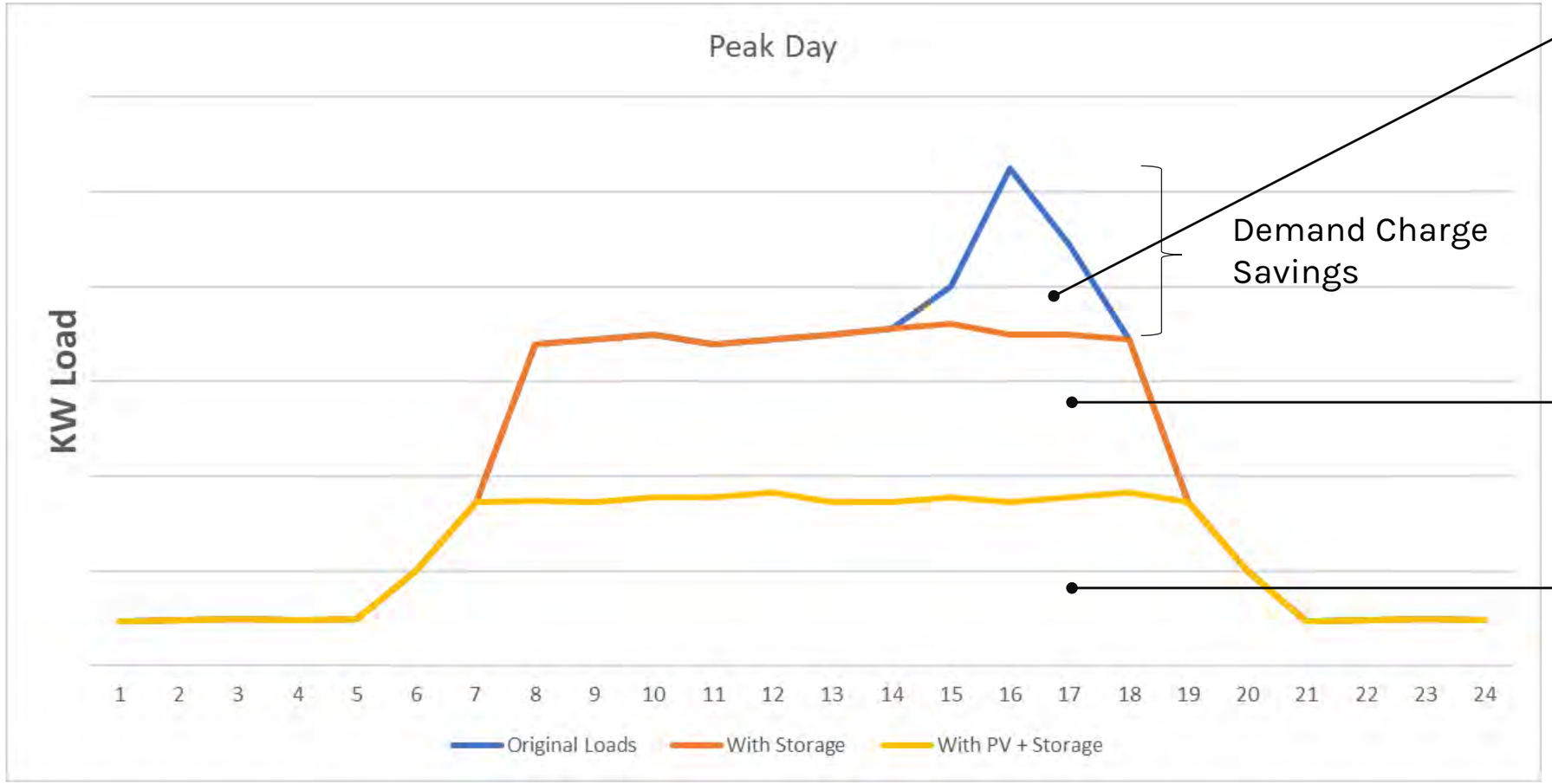


Once in 10 years?

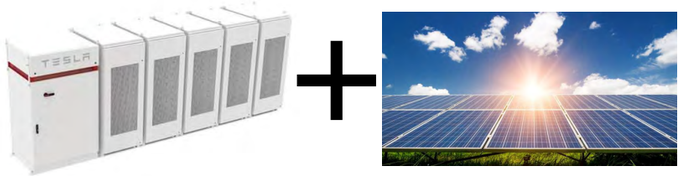


HOW TO REDUCE DEMAND CHARGES

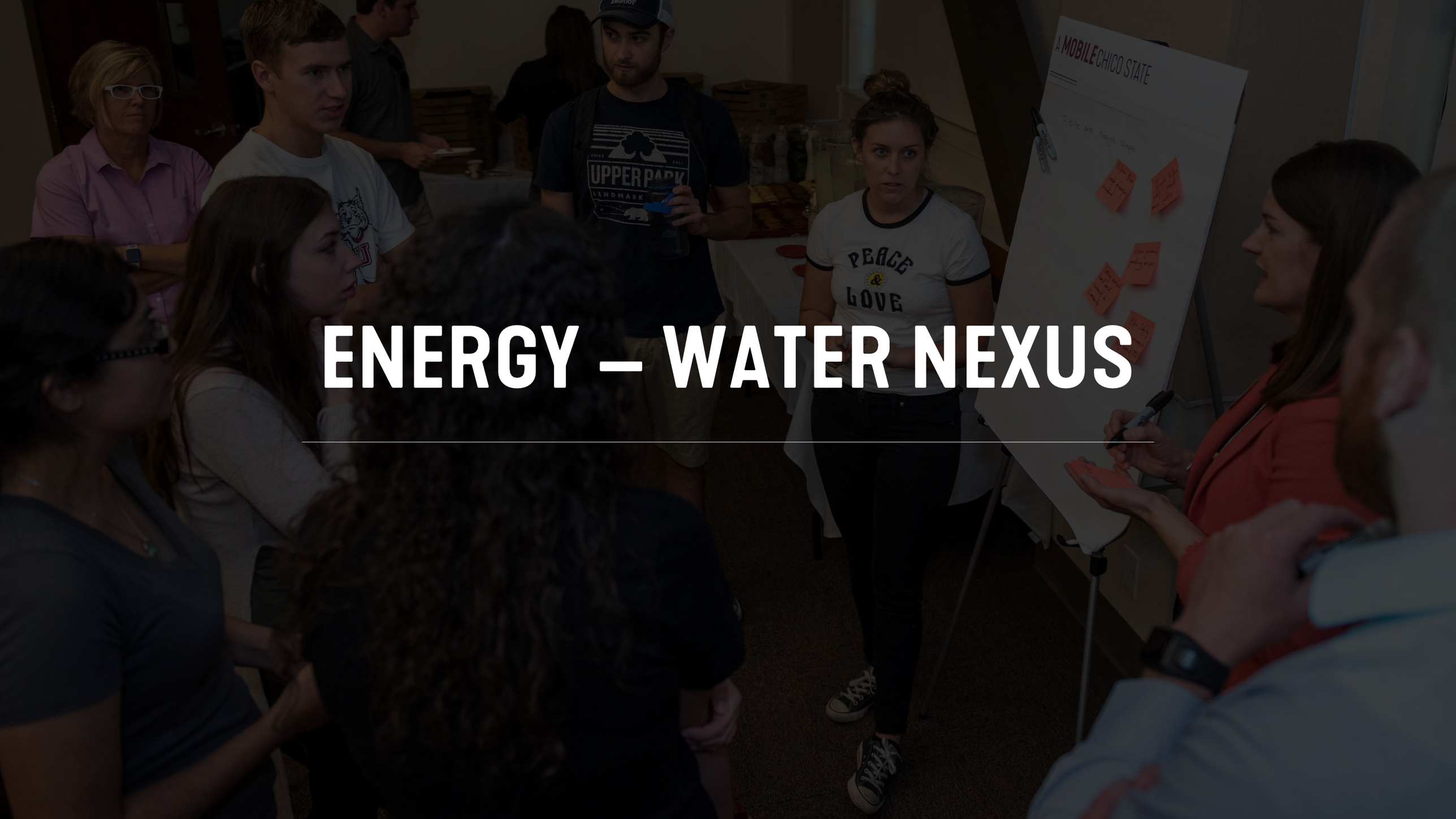
RIGHT MIX OF TECHNOLOGY TO HAVE BIGGER IMPACT



DEMAND CHARGES ARE DRIVEN WORST 15 MIN FOR THE ENTIRE YEAR



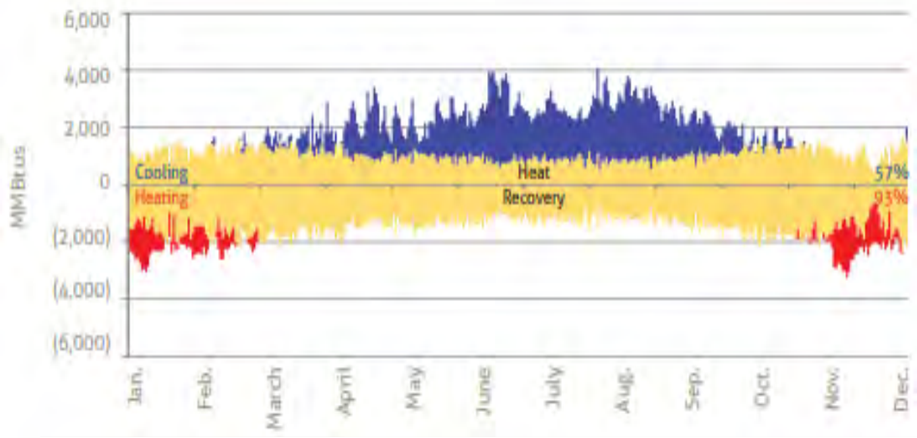
*DEMAND CHARGERS RANGE FROM 30-70% OF THE BILL

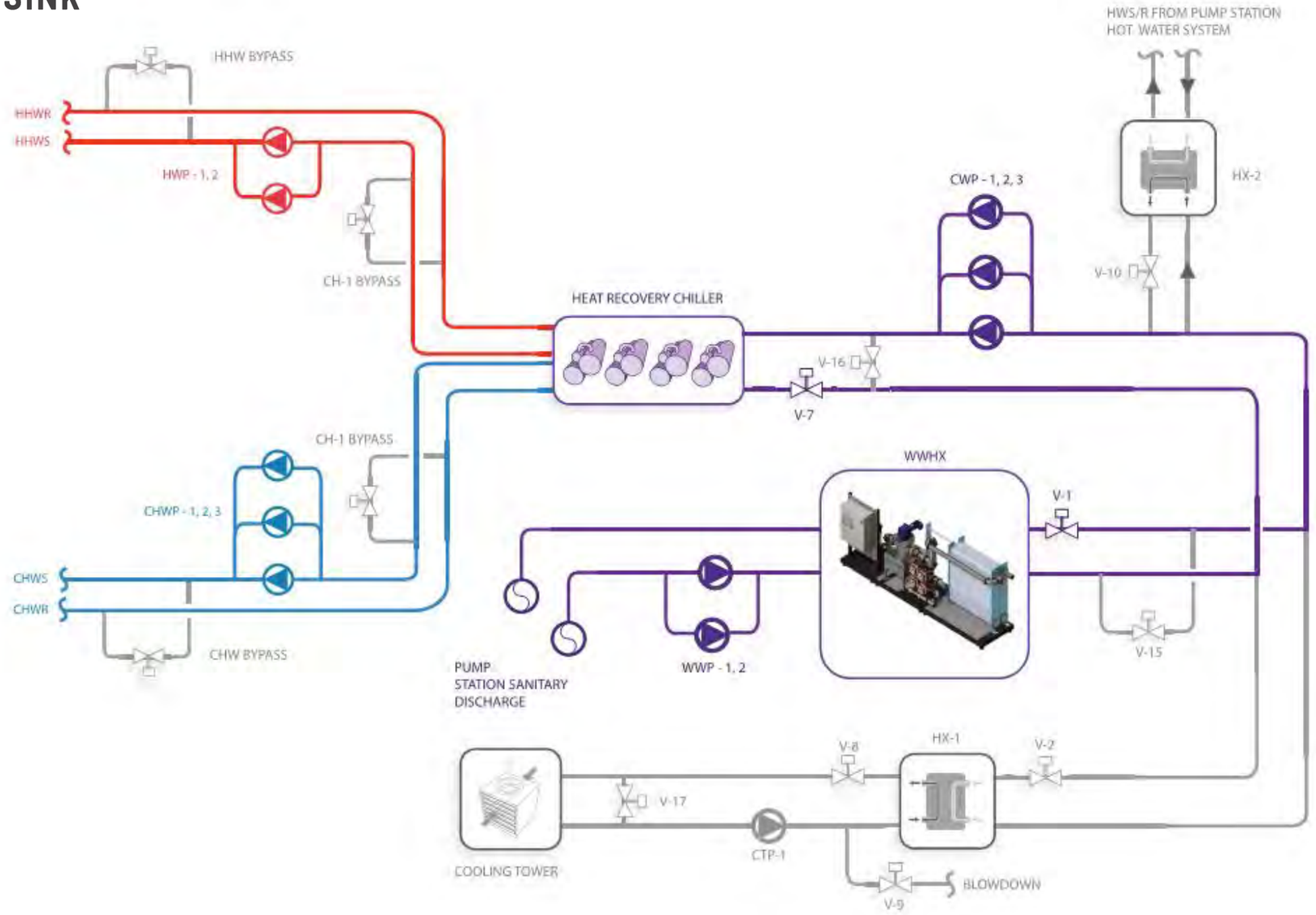


ENERGY – WATER NEXUS

INTERCONNECTING SYSTEMS

USING SANITARY SEWER AS ENERGY SOURCE/SINK

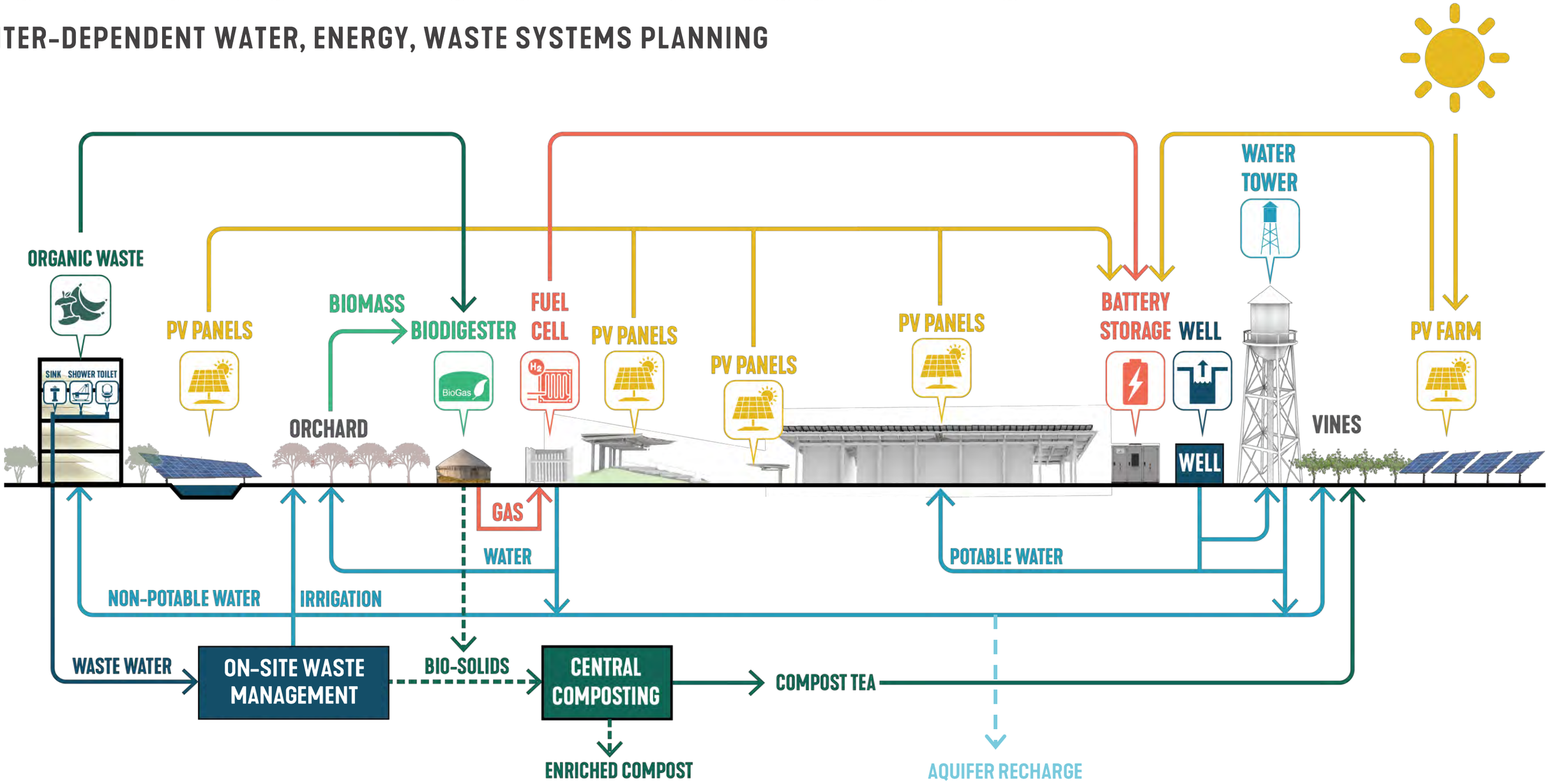




SMITHGROUP

UC MERCED SMART GROWTH & ECOSYSTEMS

INTER-DEPENDENT WATER, ENERGY, WASTE SYSTEMS PLANNING



INSTITUTIONAL PARTNER

EXPERIENCED: INFRASTRUCTURE ACROSS SCALES

UNDERSTAND: DECARBONIZING GROWTH & PHASING

FOCUSED: TRIPLE BOTTOM LINE

INTEGRATED PLANNING

REGENERATIVE SYSTEMS

DESIGNING FOR 2060

SMITHGROUP


Design
a Better
Future
SMITHGROUP