Ohio State’s Leadership in Campus Energy Infrastructure Development

Denver, CO
Feb 13, 2020

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Footprint & Energy Profile

- 490 buildings on ≈ 2,000 acres
- 100,000 people daily
- 1,300 hospital & 14,000 student beds
- Elect., gas, steam, chilled water
- 2 high voltage substations
- $115 million annual spend
- Aging energy infrastructure
- Dwindling state funds
- Competition for university capital
- Extremely high reliability requirements (>99.996%)
- Signatory to American C&U Presidents’ Climate Commitment
  - Carbon neutrality target by 2050
- Desire to reduce energy costs
THE OHIO STATE UNIVERSITY – ACTIONS

- 50-yr comprehensive energy partnership agreement
- Financial structure to address upfront payment issue
- 10-yr ECM program (>25% EUI reduction guarantee)
- Infrastructure projects
  - Extending the district heating and cooling networks
  - Connecting chilled water networks
  - Smart Campus$^E$ vision
SMART CAMPUS<sup>E</sup>– DESIGN EVOLUTION

**BEFORE**
- Next to McCracken central plant & Ohio Stadium

**NOW**
- West side of the river
CHP LOCATION - BEFORE
### BEFORE
- Next to McCracken central plant & Ohio Stadium
- 2x0 configuration - 43MW

### NOW
- West side of the river
BEFORE

• Next to McCracken central plant & Ohio Stadium
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NOW

• West side of the river
• 2x1 configuration – CHP/CCGT modes
SMART CAMPUS$E$– DESIGN EVOLUTION

**BEFORE**
- Next to McCracken central plant & Ohio Stadium
- 2x0 configuration - 43MW
- No improvement on west campus

**NOW**
- West side of the river
- 2x1 configuration – CHP/CCGT modes up to 100 MW
EXISTING CHILLED WATER NETWORKS
NEW CHILLED WATER NETWORK EXPANSION
NEW STEAM & HHW NETWORK
### BEFORE

- Next to McCracken central plant & Ohio Stadium
- 2x0 configuration - 43MW
- No improvement on west campus

### NOW

- West side of the river
- 2x1 configuration – CHP/CCGT modes up to 100 MW
- Serves main, mid-west, and west campus
- Includes a new central chilled water plant
SMART CAMPUS® – CURRENT PROGRESS

- Detailed design in progress w/CHP EPC contractor
- Ohio Power Siting Board application in progress
- AEP interconnection application in progress
- Construction Manager @Risk contract – for the DHC - near finalization
- Construction to start in May 2020
- COD January 2022
Thank you!

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