



Pittsburgh District Energy Initiative

District Energy, CHP, Microgrids:
Resilient, Efficient Energy Infrastructure

Tuesday, December 6

Michael Rooney
Manager of District Energy Initiatives
mjr129@pitt.edu



Overview

- The University of Pittsburgh's Center for Energy
- What is the District Energy Pittsburgh Initiative?
 - Project and concept development
- Why does our energy infrastructure matter?
- Opportunities for infrastructure investment in the energy sector
 - Resiliency, Economics (business continuity, workforce development, etc.)



Welcome back to Pittsburgh





Pitt's Center for Energy

Position our region as a national and global leader in the energy sector, working collaboratively with industry and **community partners**





District Energy Pittsburgh

- Private/Public/Academic/Utility/Nonprofit - partnership
- Specifically looking at existing district systems, CHP opportunities, and microgrid deployment
- City of Pittsburgh and Dept. of Energy Memorandum of Understanding
- Creation of one of the largest district energy ecosystems in the country
- Focus on workforce, resiliency, reliability, security, and economics





District Energy Ecosystem



Northside District Energy
NRG Energy Center Pittsburgh

Currently serves 30 Buildings
(including PNC Park, the
Carnegie Science Center and
Allegheny General Hospital)

Capacity:
240 Mlbs/hour of steam
20.4 MMBtu/hour of hot water
12,580 tons of chilled water



Brunot Island

Potential energy-from-waste plant
adjacent to Allegheny County
Sanitary Authority (ALCOSAN)



Downtown Energy District
Pittsburgh Allegheny County Thermal, Ltd (PACT)

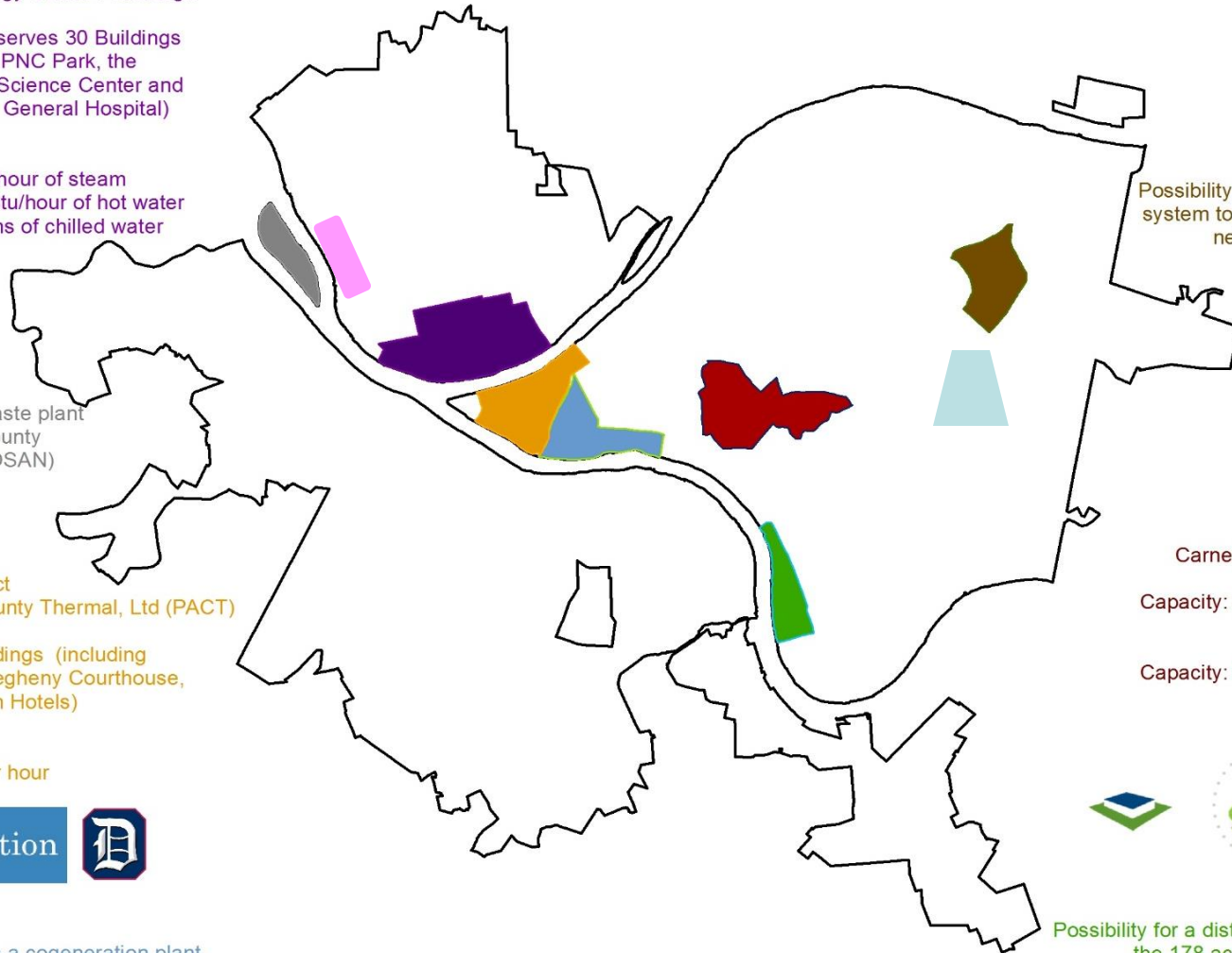
Currently serves 59 Buildings (including
City County Building, Allegheny Courthouse,
the Westin and the Hilton Hotels)

Capacity:
500,000 lbs of steam per hour



Uptown Energy District

Duquesne University has a cogeneration plant.
Possibility for a new district energy system to serve the 28-acre Lower Hill site



Larimer Energy District

Possibility for a community microgrid
system to serve 285 acre residential
neighborhood redevelopment



Oakland Energy District

Carnegie Museum of Pittsburgh:
Bellefield Boiler
Capacity: 480,000 lbs/hour of steam
University of Pittsburgh:
Carrillo Steam Plant
Capacity: 690,000 lbs/hour of steam

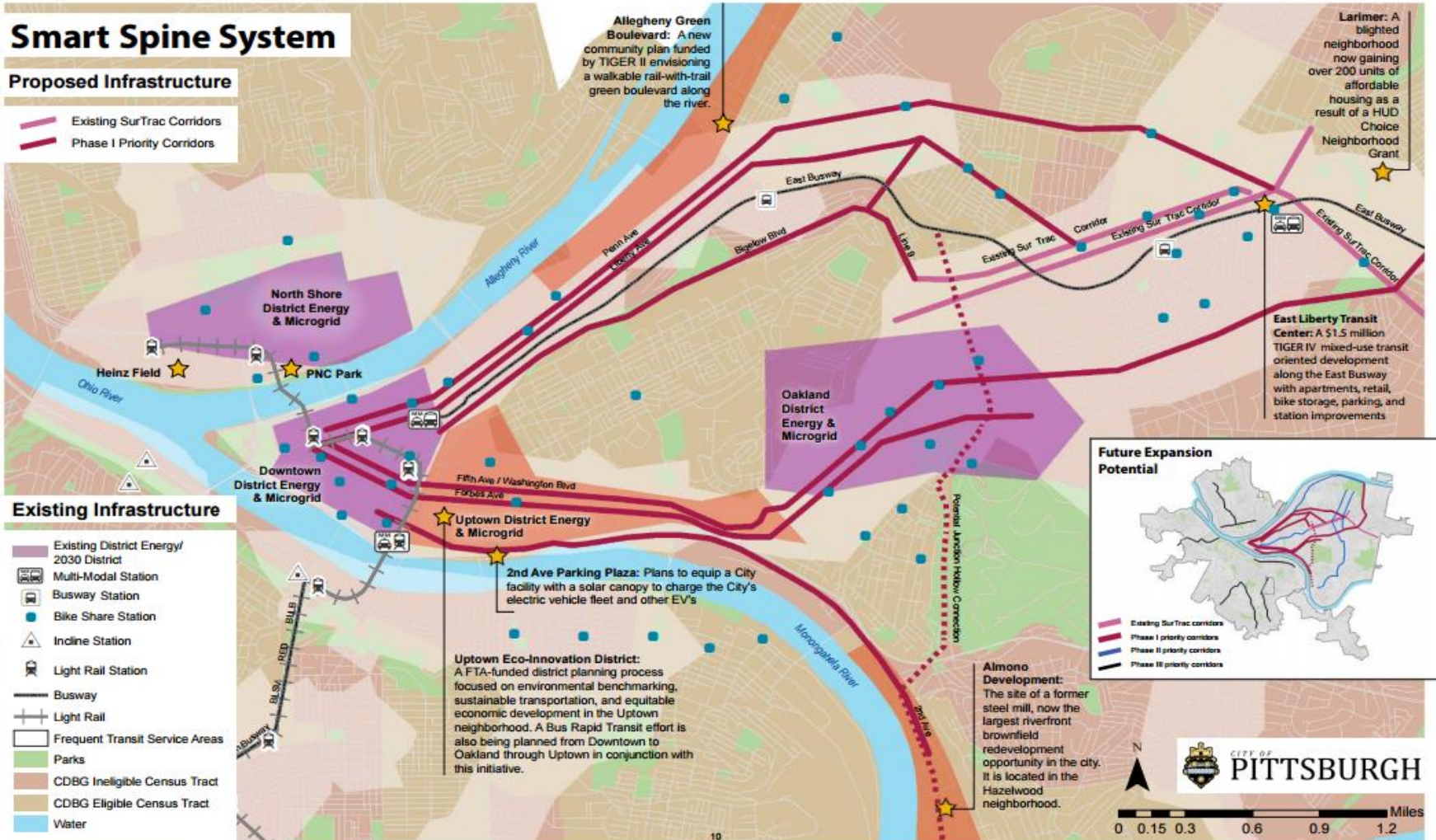
Interconnected systems



ALMONO Energy District

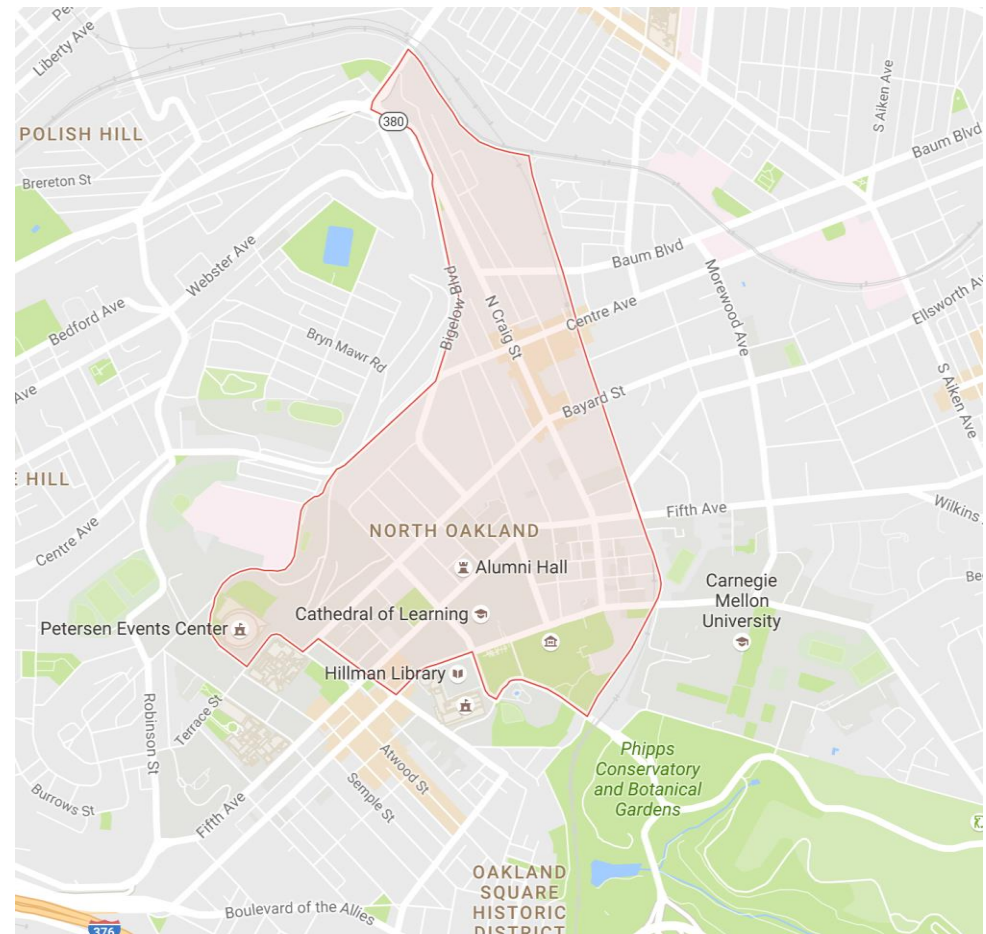
Possibility for a district energy system to serve
the 178 acre planned urban riverfront
mixed use property development

Grid of Microgrids Concept



Socially-responsible Microgrid Concept

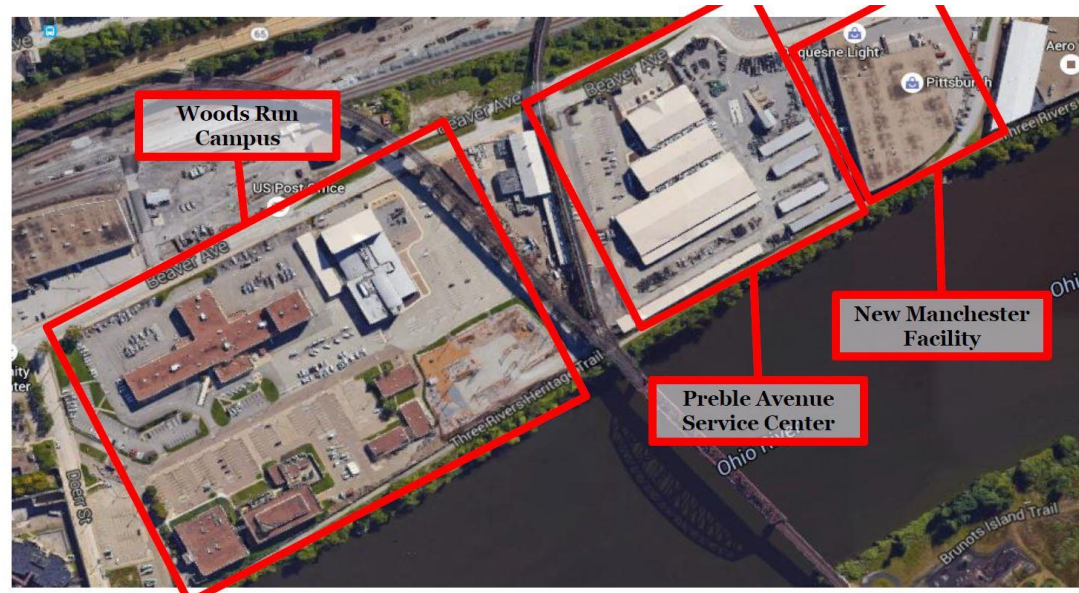
- University of Pittsburgh, Carnegie Mellon University
- Critical infrastructure
 - 3 Major hospitals serving the larger tristate region
 - Large safe havens including Soldiers and Sailors Hall, Peterson Events Center
 - EMS, City Fire department, Police departments
- Nexus of energy infrastructure and social institutions





Woods Run Microgrid Project

- Center for Energy – Duquesne Light Company collaboration
- Full microgrid buildout at DLC's Wood's Run Facility ~ operational 2018, pending PAPUC approval
- Distributed generation including renewables and natural gas
- Full islanding capabilities
- Living laboratory for workforce lifecycle in Western Pennsylvania



Why does energy-infrastructure investment matter to Pittsburgh?



- Resilience
- Reliability
- Sustainability
- Security
- Economics
- Workforce Development
- Opportunity



Accelerating Deployment

- Current successes in convening all local stakeholders (public officials, foundations, universities, energy providers, and private industry)
- Need to share across peer-cities on lessons learned and best practices
- Work with regulators on best models forward within Pennsylvania
- Continue to support public/private investment in our region



Thank you



Michael Rooney
Manager of District Energy Initiatives
University of Pittsburgh's Center for Energy
mjr129@pitt.edu