An Integrative Technical and Business Approach to District Energy

Thinking Big in the Steel City

Matt Jungclaus | October 14, 2016 | Getting to Zero National Forum

Transforming global energy use to create a clean, prosperous, and secure low-carbon future.

How does a district scale help us achieve ZNE?
Expand the boundaries to drive integrated solutions

**Business as Usual**

**District Lite**

**Integrated District Solution**

Each Building Cannot Achieve ZNE On Its Own
Expand the boundaries to drive integrated solutions

Buildings Work Together to Collectively Achieve ZNE

Expand the boundaries to drive integrated solutions

Buildings Work Together to Collectively Achieve ZNE
District scale and deep efficiency drives Zero Net Carbon

- Location: Pittsburgh, PA
- 180 acre former steel mill site
- 6MM gross ft² of building floor area
- 60% residential, 30% office, 10% other
- ZNE goal

- Best-in-class efficiency standards
- Central geothermal heat/cooling
- Rooftop solar PV
- Integrated financing solution

Whole-system design and business approach results in financially attractive proposition for developers, tenants, and an Integrated Energy Services Provider.

Define clear goals, Involve all stakeholders

Committing to a ZNE goal will lead to a suite of possible technical solutions
Bring the team along to explore the balance:

Supply
- Orientation of panels
- Amount of solar
- Efficiency of panels

Demand
- Building Sq Ft
- Energy Use intensity
District scale provides greater opportunity to share energy across the site

Adjacent community also benefits from clean energy

Produces more energy than it needs

Uses more energy than it produces

Exchange Heat Across District, River

Aggregate and centralize key services

Integrated Energy Services Provider (IESP)

- Renewable Energy Supply
- Building Efficiency Financing
- Thermal Energy Supply
- Operations & Maint
- Energy Goal Mgmt
The integrated technical and business plan manages site energy services to ensure that net-zero energy is profitable for an integrated energy services provider (IESP) and attractive to vertical developers and tenants.

Financing benefits IESP, developers, tenants

Parcel Construction Costs

Annualized Tenant Energy Costs

- BAU Annualized Energy Costs
- On-bill financing
- Thermal Energy
- Electricity
Keys to achieving ZNE at the District Scale

• Define clear goals, involve all stakeholders
• Leverage technical synergies
• Aggregate and centralize key services
• Build the value proposition for services providers
• Build a financially attractive suite of services

An Integrative Model for Net Zero Energy Districts

Read more about our integrative business and energy model for net-zero energy districts at:

rmi.org/pdf_NZE_Districts_Brief
THANK YOU

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