

# REDEVELOPING WALTER REED ARMY MEDICAL CENTER

## Healing Ecologically for Scalable Sustainability



Team Endotherm

Better Buildings Case  
Competition

U.S. Department of Energy

White House Campus

March 2, 2012

## THE FUTURE OF THE SITE



Case Study: Philly Navy  
Yard Redevelopment



Case Study: Hafen-City  
Hamburg, Germany

**Current conditions: cohesive goals but a tangled future for implementation**

**Our guiding strategies to the LRA**

- Scalable solutions : a template for future sites
- Public-private partnerships
- Outcome-focused performance standards to guide bidding, rather than process-oriented checklists

**Avoid reliance on contested TIF funds or federal grants**

- Alternatives are industrial revenue bonds and on-bill financing

# WALTER REED AMC

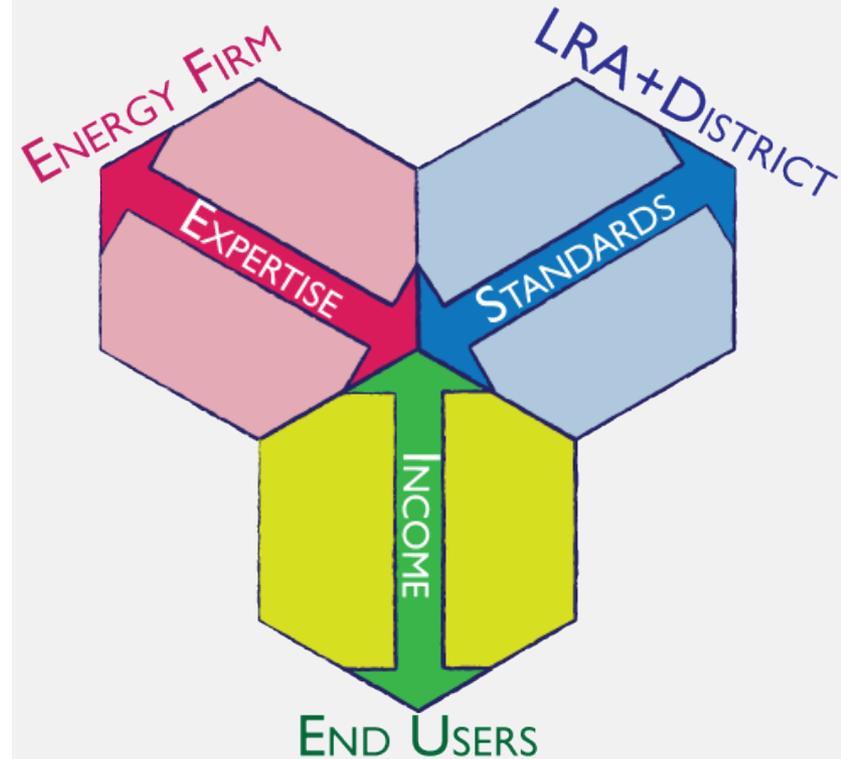
## HORIZONTAL DEVELOPMENT: DISTRICT ENERGY

### District energy through a new Neighborhood Energy Utility

- A heating, cooling, and power utility
- A Build-Own-Operate partnership
- Bidding via carbon intensity standard

### Comprehensive energy services

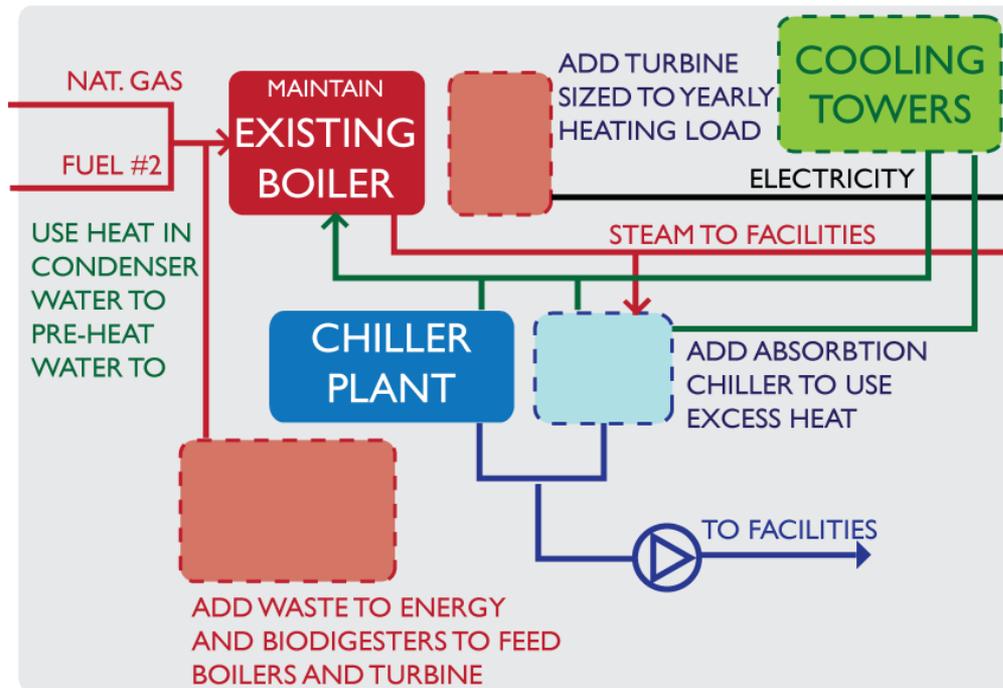
- Infrastructure owner and operator
- A requirement for buildings to connect
- Consumer-facing services



NEIGHBORHOOD  
ENERGY UTILITY

## SUPPLYING TRIGENERATION

### CENTRAL TRI-GEN PLANT SCHEMATIC



**Modernization of the existing district energy system**

- A 7,500 kW turbine
- A 3-5 year simple payback of \$15M capital cost

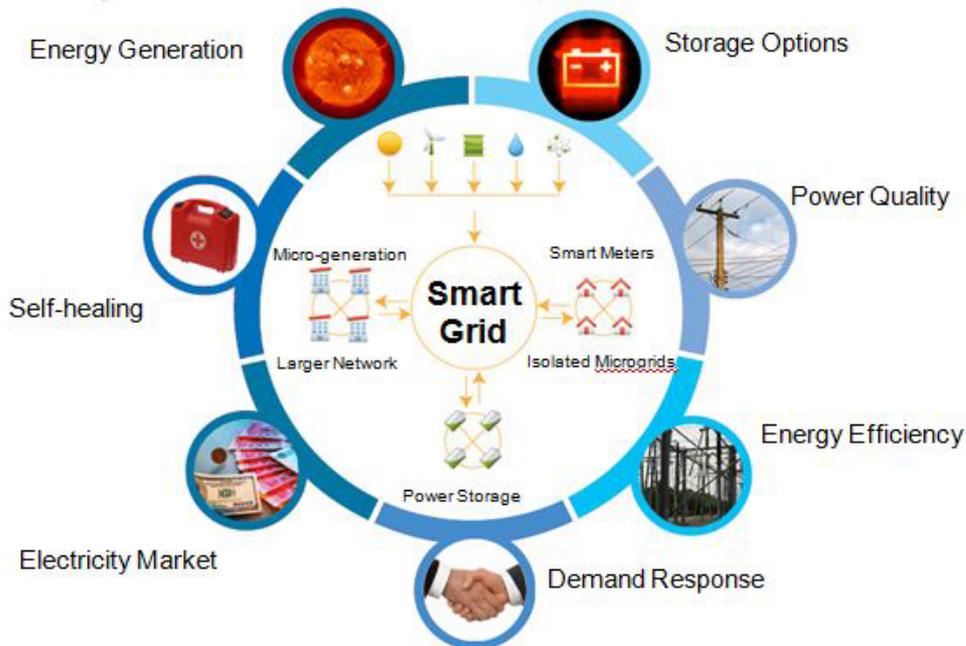
**Absorption chillers to modernize district cooling**

- Adaptation for changing weather patterns

**Transition to renewable energy sources using system revenue**

- Developer or LRA can finance with revenue bonds depending on cost of capital

## A NEW MICROGRID



**FORT  
ZED**

### Operated by the NEU

- Owns infrastructure and wires
- Sells and buys grid power

### Provides capacity for renewables and energy storage

- Facilitates net zero energy by 2030

### Demand response capabilities

- Groundwork for end user operating phase



Images of Singapore. www.singaporeshots.com

Case Study: Singapore Conservation and Education



Case Study: Naval Air Station Redevelopment , South Weymoth

## Public Engagement

- Water as community asset: Green Space, Bio Swales, Urban Agriculture

## Gray/stormwater Management

- Ownership and maintenance is the responsibility of the master developer
- Same on-bill and performance incentive mechanisms apply as energy

## Blackwater Treatment

- Initial purple pipe build out at Horizontal development phase
- Prospective of privatization as with trigeneration system

# WALTER REED AMC

## VERTICAL DEVELOPMENT: GREEN BUILDINGS

### **Problem:**

Split-Incentives & Fragmented Design Process

### **Strategies:**

Intensity Targets – Energy & Water Use

Incentives based on performance for  
developers & design team

Capacity building – Guidance on Integrated  
Design Process; passive green building  
strategies



## OPERATIONS: BEHAVIOR CHANGE ENABLED BY TECHNOLOGY

### Problem:

Occupant behavior dictates >50% energy use

Peak electricity costs

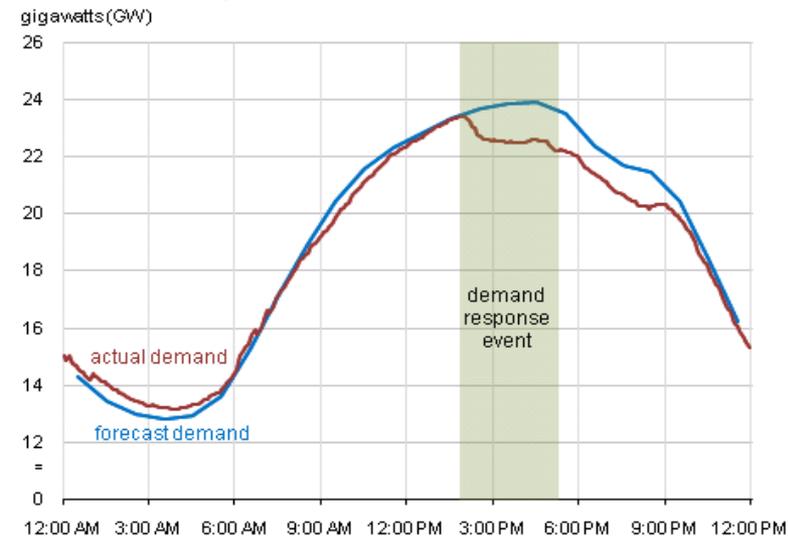
### Strategies:

AMI; networked; specify smart appliances

Default time-of-use pricing

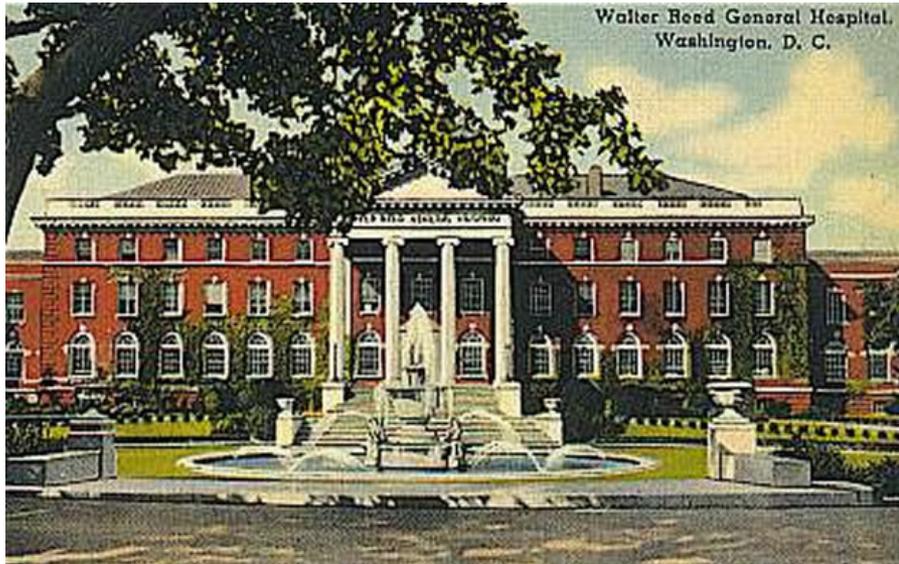
NEU to aggregate demand response and bid on the capacity market

Ongoing behavior change programming



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THANK YOU



Q & A