



# Business Opportunities for Energy Efficiency

Whole Building Solutions to Energy Efficiency

ACEEE International Symposium on Energy Efficiency

National Press Building

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# Overview of Daikin Business Structure in the U.S.

US Sales FY17: \$5B  
US Employees: 15,000

**Daikin Industries, Ltd**

Daikin U.S. Corporation (DUS)  
▪ New York  
▪ Washington, DC  
▪ Silicon Valley

( Air Conditioning )

( Air Filter )

( Fluoro Chemical )

( Oil Hydraulics )

Daikin Applied Americas

Goodman Global  
Goodman Daikin

AAF Flanders

Daikin America

All World Machinery





# Evolving Approaches to Energy Efficiency

## Old Approach

### OEMs

- Make and sell HVAC equipment
- Service; repair; parts sales
- Focus only on HVAC or industry strength

### Building Owners

- Minimize cost and downtime
- Rarely consider payback of premium product
- If space is leased, pass along costs to tenants

## New Approach

### OEMs

- Design and engineer equipment for specific buildings
- Drive higher efficiencies
- Integrate systems
- Promote incentives through sales force
- Develop systems that integrate Demand Response, building energy use, and mobile interface

### Building Owners

- Longer term thinking – payback period
- Control energy costs
- Consider GHG impact and emissions
- Develop long term relationship with OEM



# What's Driving the Change?

- Equipment standards nearly maxed out on performance
- Controls have become more sophisticated and precise, but also mobile and user friendly
- Greater savings possible with HVAC equipment alone
- Address other energy uses and integrate IAQ considerations
- New generation of companies are driving solar, Smart Grid, Demand Response, CHP, and other associated innovations
  
- Interest in lowering GHG emissions



# What's Holding Back the Change?

- Code adoption
- Appliance standards
- Building owner cost attitudes slow to change
- Need to educate the workforce
- Tax treatment of commercial buildings and building assets
- Low energy costs



# Business Opportunities

HVAC now offers:

- Greater energy savings
- IoT/Cloud based analysis
- Deeper insights with performance
- Streamlined repair process
  - Remote diagnostics
  - Fewer truck rolls, eliminate labor costs, commissioning
- Integrated security protections
- Affordability, connectability, simple user interface



# On the Horizon

- New tax treatment of commercial HVACR equipment
  - Allows building owner to use Section 179d to expense equipment
  - Allows “bonus depreciation” for improvements to retail, restaurant, and leaseheld properties
- Modification & extension of Section 179D Commercial Building Tax Deduction
  - Restores a tax deduction for qualified improvements



# On the Horizon... continued

- Systems approach to equipment standards
  - Time is ripe to think outside the “box”
  - Controls and Demand Response are viable solutions
- Competition to improve energy use analysis and data
  - OEMs are partnering with IoT developers, architects, designers
  - Looking to be proactive to environmental conditions
  - Address multiple uses in a single building



# On the Horizon... continued

- New wave of incentives created by local governments (not utilities) aimed at reducing GHG emissions
  - Electrification or decarbonization opportunities
    - Tighten the building envelope
    - Install heat pumps (Inverters)
    - Solar PV
- Increased interest in IAQ or IEQ
  - How does humidity relate to workplace performance?
  - Improving air-exchange in buildings
  - Reducing sources of VOCs emissions
  - Improving filtration and monitoring devices

# Unresolved Questions/Opportunities

- Domestic Hot Water Heating
  - Go to heat pump, stand alone, or hybrid?
  - Location concerns
- Ventilation
  - Central or dedicated?
- Air Distribution Losses
  - Ductless products can resolve



# Discussion Points