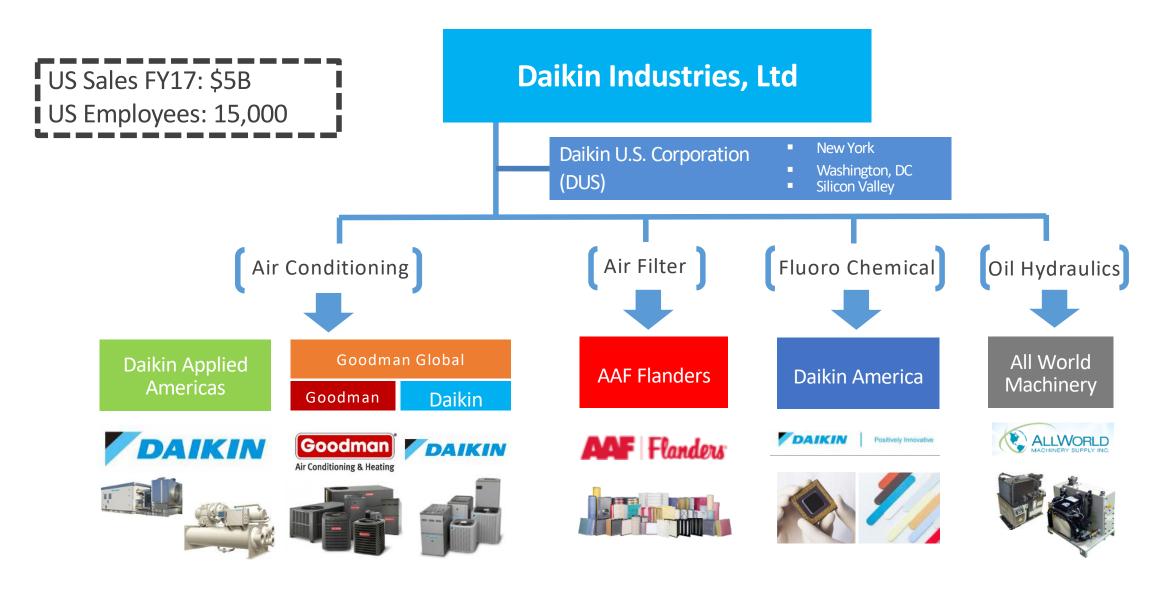


Business Opportunities for Energy Efficiency

Whole Building Solutions to Energy Efficiency

ACEEE International Symposium on Energy Efficiency National Press Building June 26, 2018

Overview of Daikin Business Structure in the U.S.





Evolving Approaches to Energy Efficiency



Old Approach

OEMs

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

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

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

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 singe 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

