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Introductions – Today’s Speakers

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Agenda

- How COVID and 2020 impacted utilities and infrastructure
- Indoor Air Quality and Energy Management
- Impact on Asset Life-Cycles moving forward
- Q/A

What did we do and why?

• Since COVID, operations pros and buildings alike have been forced to work differently...

• “How has this past year impacted energy – now and for the future?”

• Using data from 20k+ buildings, 1B+ sqft, 1k+ organizations to answer several key business questions, including:
  
  • What were the total savings compared to the previous year?
  • How has the COVID-19 pandemic affected these savings?
  • How does user engagement with Energy software impact savings?
  • Does the method for entering data in the software impact savings?
  • What do we need to consider for the future of energy management?
Core Findings
1. What were the total savings compared to the previous year?

Organizations saved BIG last year, especially in electricity

2. How has the COVID-19 pandemic affected these savings?

Unexpected COVID-19 impact – positive savings
3. How does user engagement with Dude Solutions’ software impact savings?

Higher software engagement = higher savings

Note: When we factored in COVID, clients engaged at high levels saved 93.8% more than low engagement clients

4. Does the method for entering data in the software impact savings?

Up-to-date and accurate databases pay off
Peer Responses

“What does the future of energy and operations management look like to you?”

“I feel there is going to be a much more globally focused climate conversation. The new US administration has continually pointed to this as a priority, which likely means states and organizations alike will be investing time and money into managing energy and utilities. *Also, there is undoubtedly going to be a greater emphasis on building occupant health.* This could impact policies around air/ventilation or water flushing requirements – resulting in more use and cost for utilities.”

- Marcia Coker, Wylie ISD

“Looking forward and right now, we have already dramatically increased our outdoor air input for municipal buildings. *Indoor air quality is, and will continue to be, super important* – we should’ve been talking about this for a long time!”

- Nell Boyle, City of Roanoke, VA

“Assuming more ventilation requirements or mandates in the future, we are going to have to factor this in holistically. Asking questions like how is this going to not only affect utility spend but adjust our perceived life of assets? With systems like HVAC being used more, we will need to account for this in our maintenance and capital plans.”

- Mark Clinch, Town of Normal, IL
Energy Management Moving Forward
Energy Management Moving Forward

- Relationship between proper unoccupied shutdown and savings
- Relationship between consistent data collection and savings
- Re-occupancy (with a little more “oomph”)
- Shutdown Checklists/Procedures
- Near or Real time monitoring/alarm
- Track your data!

Indoor Air Quality Focus
Perception: “Conservation is the enemy of comfort safety”
Poll #1 - Preparedness

Knowing shutdown procedures can be used in a variety of situations, do you have prepared procedures documented now? If so, when are they utilized.

• 1. No
• 2. Yes for Major break periods (i.e. Spring/Summer/Winter)
• 3. Yes, for Major breaks and holidays
• 4. Yes, for every unoccupied time greater than 6 hours
4. HVAC System Operation

4.1 Maintain temperature and humidity design set points.

4.2 Maintain equivalent clean air supply required for design occupancy whenever anyone is present in the space served by a system.

4.3 When necessary to flush spaces between occupied periods, operate systems for a time required to achieve three air changes of equivalent clean air supply.

4.4 Limit re-entry of contaminated air that may re-enter the building from energy recovery devices, outdoor air, and other sources to acceptable levels.
How do we not lose everything?!?

› Perform (or contract) a controls/systems audit
  • Been back under full occupancy for a while?
    • Did you audit before? Do you know if systems are even keeping up?

› Only open doors/windows if you don’t have damper control **AND** your systems can adequately condition for outdoor temps/humidity.

› Live/Die by occupied vs. unoccupied
How do we not lose everything?!?

- Prioritize other utilities
  - Hot Water Temps
  - Lower Water Pressure (if local control)
  - Disconnect every other toilet/sink (social distance)
  - Plug Loads, Site Lighting, Occupancy Sensors, etc.

- PM like never before!
  - Proper Facility Management = “A good Energy Manager is a good Asset Manager. A good Asset Manager is a good Energy Manager. You really can’t do one without the other.” – Mark Clinch, Town of Normal
Poll #2 – Indoor Air Quality

Generally, CDC Guidelines call for a 2 to 3 x increase in air exchanges. How have you gone about achieving this?

• 1. Haven’t changed
• 2. Manual- opening windows and doors
• 3. Updated Building Automation settings
• 4. New equipment or major changes to HVAC controls
Asset Life-Cycle Impact
Lifecycle - What is it?

- **A**: Capex = $200, Maintenance = $1 per year
- **B**: Maintenance = $2 per year
- **C**: Maintenance = $5 per year
- **D**: Capex = $1000
- **E**: End of Life

**Time**
Poll #3 – Life Cycle

What factors do you use to avoid “run to fail” mentality? Using condition only often leads to run to fail...

• 1. Nothing/Condition only
• 2. Safety factors
• 3. Energy efficiency
• 4. All of the above or Others/More
Lifecycle Factors

- Ratio of Outside Air to Return Air (sanitization)
- Run Time
- Budget – efficiency vs. condition
Air Type

Historically
- CFM per person base calculations
- Strategies and approaches to minimize outside air
- Fine in mild conditions - not harsh

COVID
- As much outside air as possible, 100%
- Air Movers and Heat Exchangers
Run Times

- 10hrs. Day x 5 days a week = 50 Hrs/week

- 13hrs a day x 5 days = 65hrs a week

30% Increase in usage = 30% DECREASE in Lifecycle

20 year asset = 14 year asset
Efficiency vs. Condition

- Efficiency vs. Condition
  - Budget – Cost – Condition – Need
  - Budget – Cost – Non-replace cost – Condition – Need
  - Non-replace cost is that energy efficiency you DO NOT GAIN

Reliable but old and inefficient-critical

Fails often but not critical
Capex = $1000
Our suite puts you in command of your entire operation
Poll #4 – More Information

I would like more information from Dude Solutions on:

• 1. Energy Management
• 2. Work + Operations Management
• 3. Capital Planning + Forecasting
• 4. Event Management
• 5. Facility Condition Assessment Services
• 6. Energy Audit Services