



2022 MARKET
TRANSFORMATION
CONFERENCE

SEPTEMBER 13-15 | West Palm Beach, FL

TRANSITIONING YOUR FACILITIES TO THE 21ST CENTURY USING THE ESPC MODEL

ESC Market Transformation Conference 2022

N|V|5

AGENDA

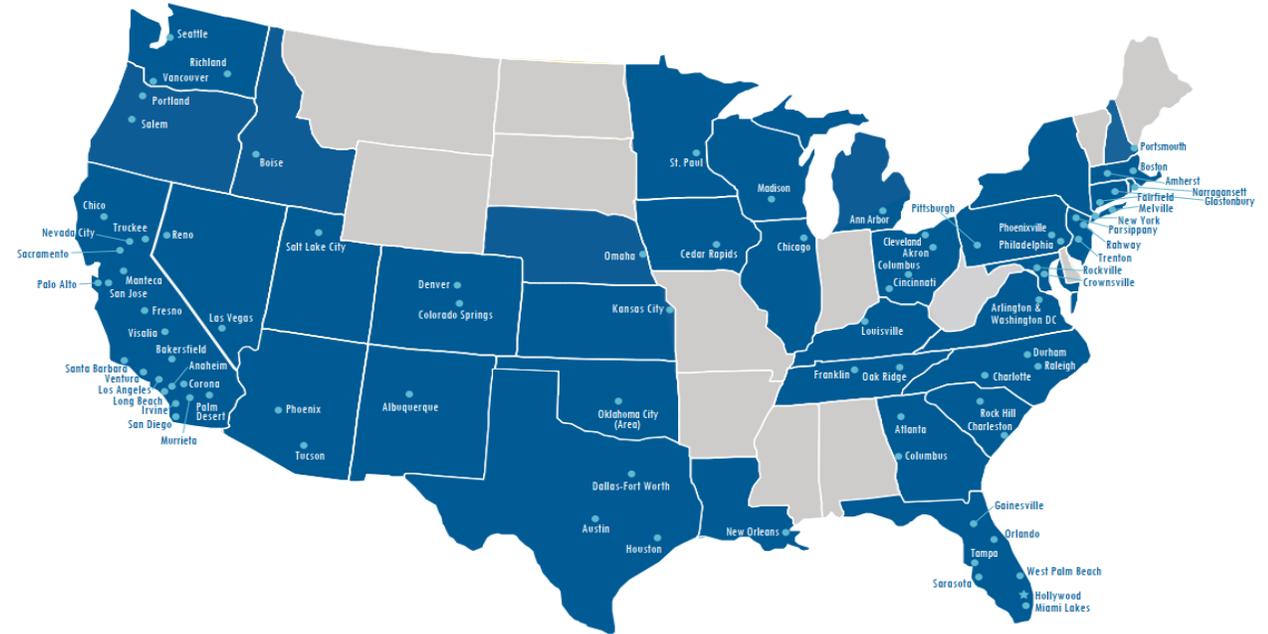


- Introductions
- Today's Facilities
- Defining the 21st Century Facility & Benefits
- Leveraging an ESPC & Best Practices along the way
- Questions/Answers

INTRODUCTION TO NV5



- Formerly Celtic Energy, Inc.
- 20+ Year History in ESPC industry
- Provides Owner's Representative services for ESPC programs
- Clients include federal, state, local government, and private C&I



Aldo Mazzaferro, PE, CEM, CEA
Executive Director Business
Development
10 Years in ESPC

Chris Halpin, PE, DOE PF, CEM, CMVP
Vice President
Former Owner of Celtic Energy, Inc.
37 Years in ESPC

TODAY'S FACILITIES

- Poor Indoor Air Quality
 - (Lack of) Temperature Control
 - Limited Fresh Air Supply
 - Mounting list of deferred maintenance needs
 - Failed and/or antiquated equipment
- COVID-19 shined a bright light on the importance of Indoor Air Quality
- Lighting
 - Inconsistent equipment/manufacturers
- Significant fossil fuel use
- Subject to closures due to power outages



AIRBORNE PATHOGENS (AEROSOLS)



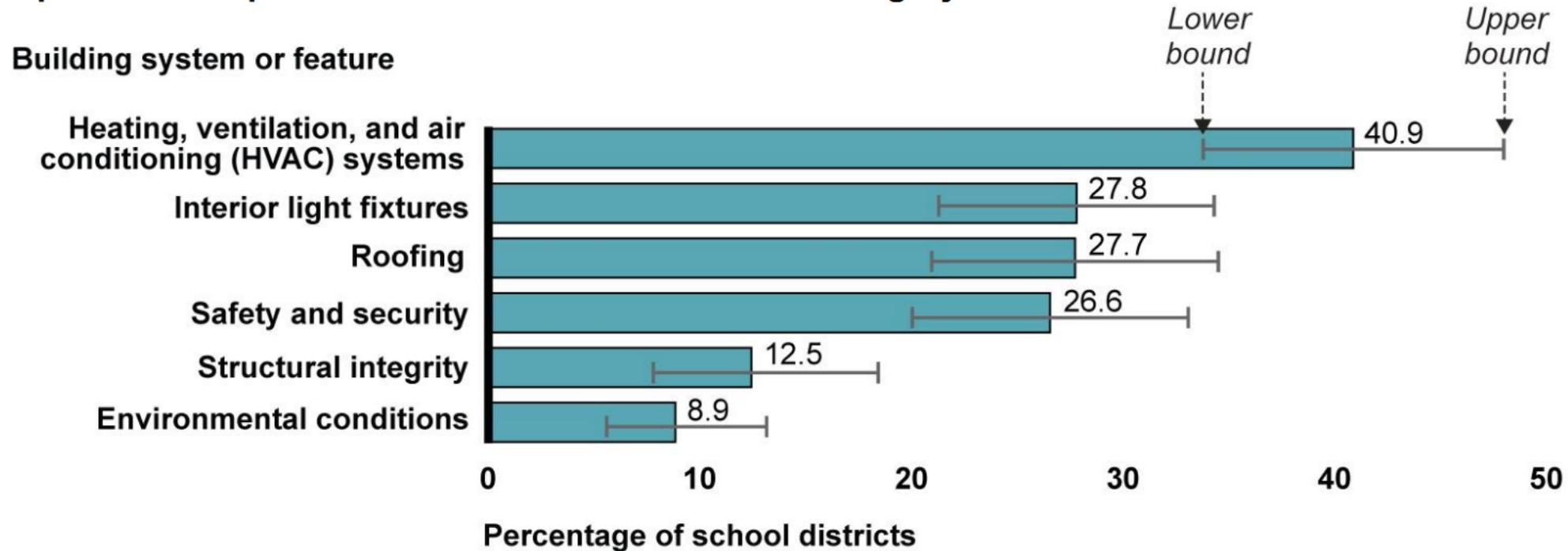
“Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes in building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.”

ASHRAE – American Society of Heating, Refrigerating and Air Conditioning Engineers, 2020

STATE OF OUR SCHOOLS



Estimated Percentage of Public School Districts in Which at Least Half the Schools Need Updates or Replacements of Selected School Building Systems and Features

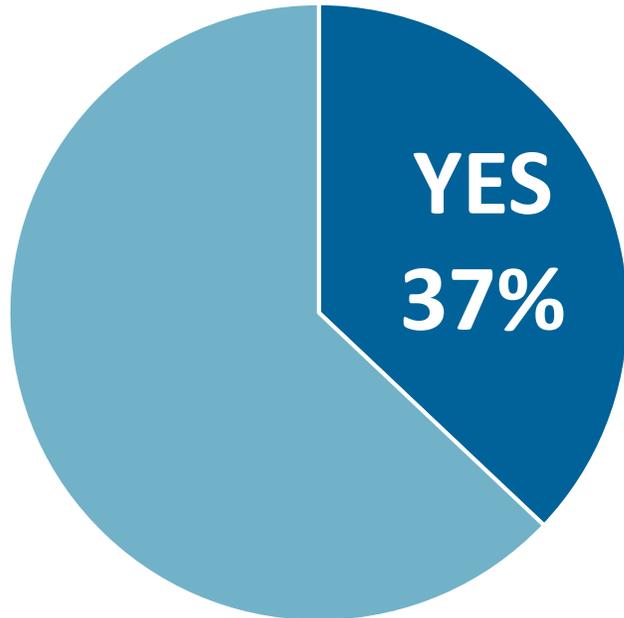


Source: U.S. Government Accountability Office (GAO) Report to Congressional Addressees (June 2020)

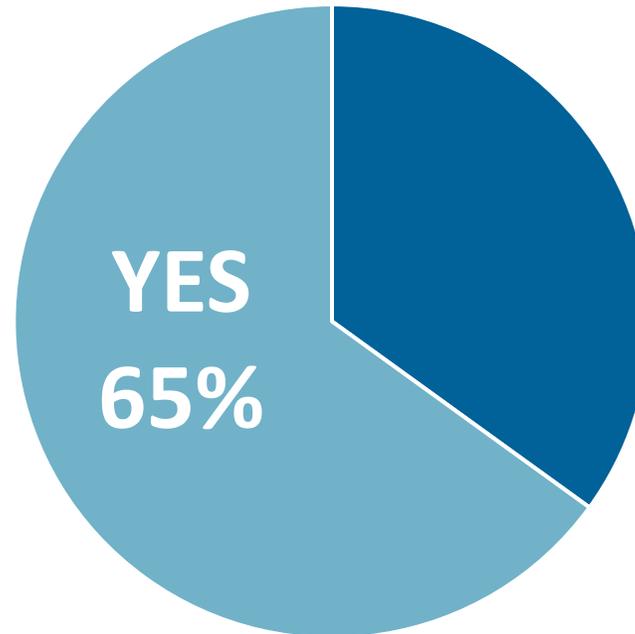
NON-PUBLIC BUILDINGS AS WELL



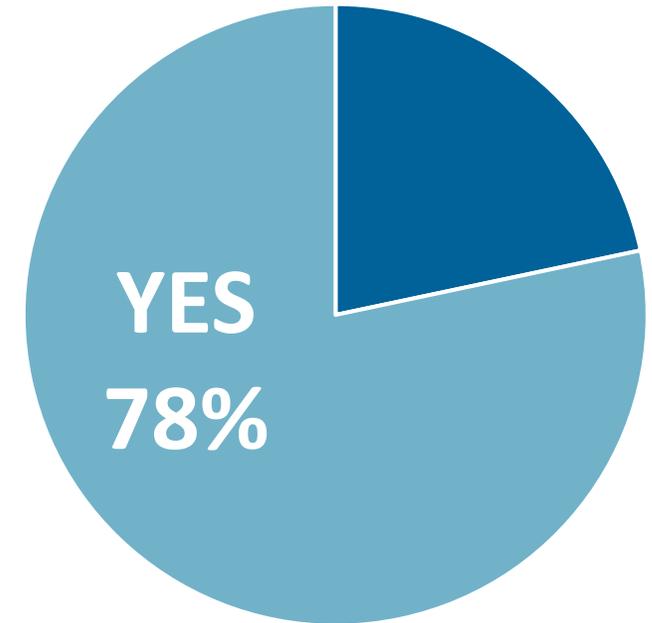
OA Less than Design (or 0)



Other Equipment Response



VFD Response



Source: HVAC Condition Assessment for Confidential Client

DEFINING THE 21ST CENTURY FACILITY



Indoor Air Quality



Modernized & Electrified HVAC Systems



Smart Lighting



Building Analytics



Energy Efficient, Renewable, and Resilient



BENEFITS OF THE 21ST CENTURY FACILITY



- Properly lit, thermally comfortable, properly ventilated, electrified, resilient, constantly monitored environments conducive to “Climate Friendly” facility operations



BENEFITS OF THE 21ST CENTURY FACILITY (CONT.'D)



Accurate picture of historical & near real-time current facility conditions



Continuous improvements with fault detection, override alarms/resets, failed equipment, improved ventilation, resilience, etc.



Approaching Net Zero - Reduced energy use, costs, and greenhouse gas emissions



Powerful data for reporting to stakeholders and compliance with local laws

HOW DO WE GET THERE? PLANNING STAGE



Identify project champion (internal and/or external)

Who will lead this effort?
Do they have the background and expertise?
Do they have the bandwidth?



Conduct cost-effective assessments

Quantify historical cost/usage, identify deferred maintenance needs, and assess ROIs



Deploy building analytics for an objective baseline

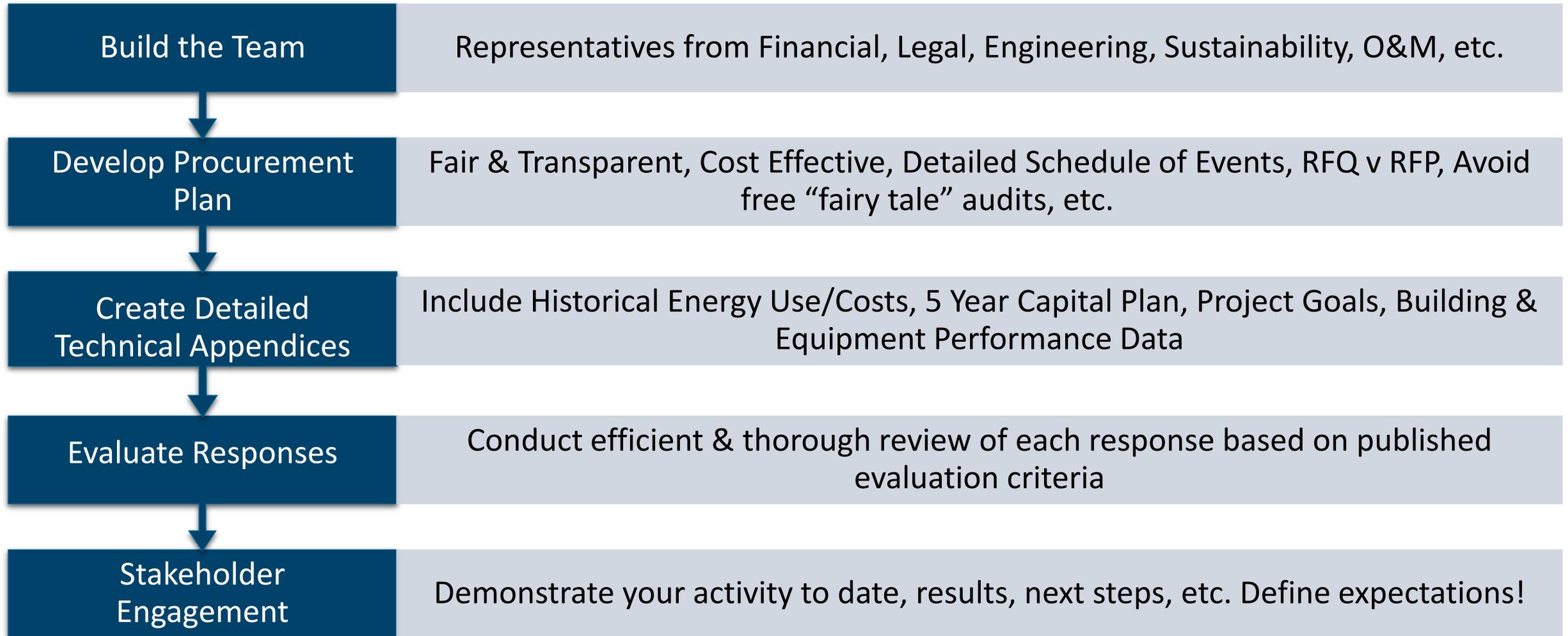
Understand existing conditions of equipment, operating schedules, setpoints, etc. Diagnose needs



Stakeholder Engagement!

Share findings to define expectations, address questions and seek buy-in for next steps

HOW DO WE GET THERE? PROCUREMENT STAGE



HOW DO WE GET THERE? DEVELOPMENT



- Develop the Project...
 - ✓ Negotiate the contract using national best practices & standardized documents from the [Energy Services Coalition](#)
 - ✓ Baseline, Scope, Financials (Costs/Savings), Measurement & Verification, etc.
 - ✓ Identify funding opportunities (federal, state, and local grants & incentives) and explore financing strategies (BIL and IRA funding can have outsized impact)
 - ✓ Define Risks & Responsibilities
 - ✓ Collaborate on construction schedule, roles, responsibilities, expectations, etc.
 - ✓ Utilize Building Analytics data to develop the baseline, identify scope needs, and build accurate savings models.
- Regular Stakeholder engagement

HOW DO WE GET THERE? DESIGN/BUILD



- Follow best practices for design/construction/commissioning to complete construction on schedule, within budget, and per the contractual scope.
- Utilizing Building Analytics...
 - Perform functional performance testing (FPT)
 - Monitor commissioning progress
 - Capture & quantify construction period savings
- Witnessing, witnessing, witnessing of Cx and M&V activities
- Stakeholder engagement throughout; document pre- & post-conditions, timelines, construction period savings, GHG Impacts, etc.

PROJECT IS BUILT – NOW WHAT?



Stakeholder engagement to communicate results, activity-to-date, next steps, deliverables, track grant/incentive reporting, etc.

Perform Measurement & Verification (M&V) to monitor energy use, costs, greenhouse gases and report findings

Leverage 21st Century tools to ensure persistence of savings, preventative maintenance is performed, and solar+BESS is delivering resilience!

THANK YOU



QUESTIONS?

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