Energy Exchange℠

Better Buildings® SUMMIT

AUGUST 21-23, 2018 • CLEVELAND, OHIO

Strategies for Piloting High Impact Technologies ft. the Hospitality Sector

Wednesday, August 22nd from 4:00 – 5:30 PM

Room 12

Energy Exchange | Better Buildings SUMMIT

Speakers

Michael Deru
Engineering Manager

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Doug Rath
Senior Director of Energy & Environment for the Americas

Marriott INTERNATIONAL

Better Buildings
U.S. DEPARTMENT OF ENERGY

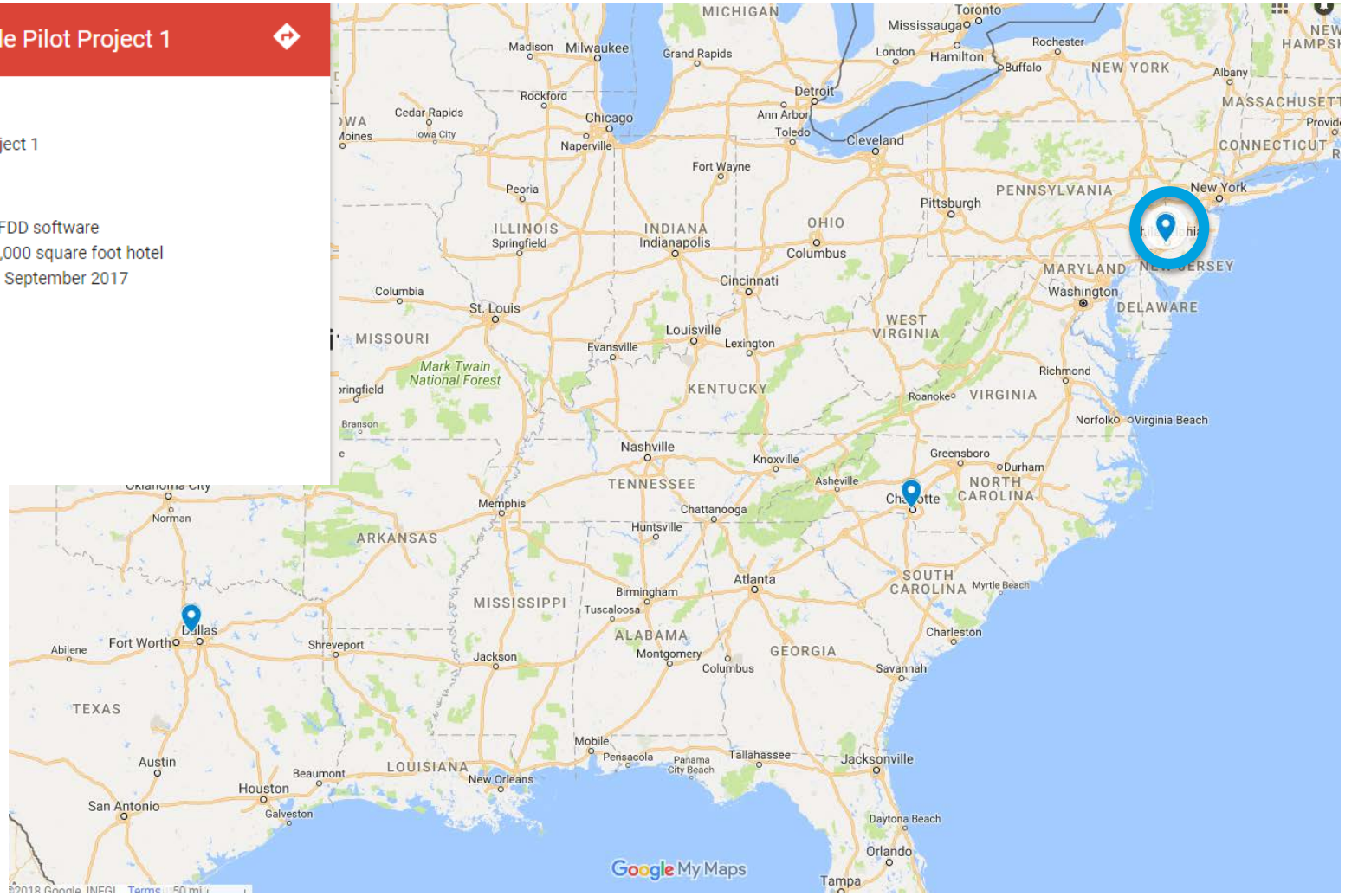
Better Buildings Technology Pilot Project Map

U.S. DEPARTMENT OF ENERGY

Objectives

- Provide a platform to connect BBC partners who are conducting pilot projects and early-stage technology verification
  - Share insights for implementing emerging technologies
  - Provide peer to peer connections for partners to share best practices for technology measurement and verification
  - Increase adoption of cost-effective energy-saving technologies

Better Buildings Technology Pilot Project Map



Better Buildings U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY

Seeking Feedback

- Would you use this platform to connect with peers? Why, why not?
- What are you interested in learning about from other pilot projects?
- Are you piloting any new technologies (or considering it) in your buildings?

Michael Deru, National Renewable Energy Lab

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NATIONAL RENEWABLE ENERGY LABORATORY

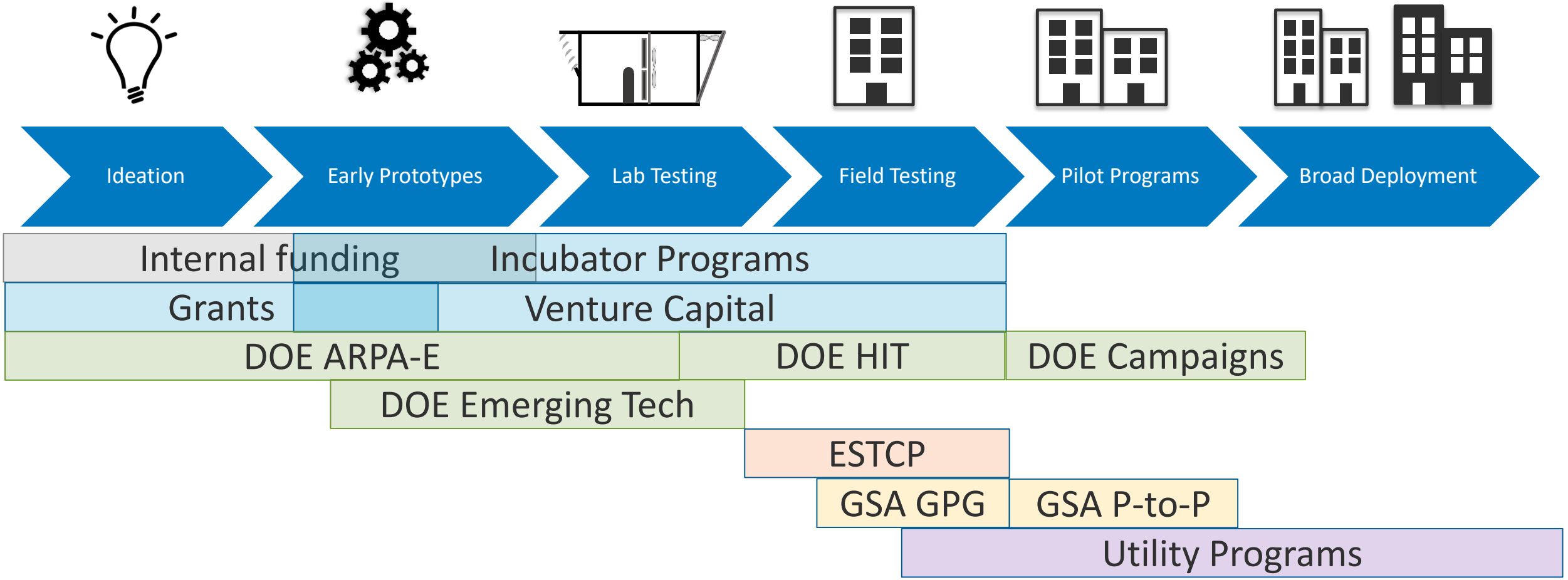
Piloting High-Impact Technologies

Michael Deru

Better Buildings Summit

August 22, 2018

Technology Development to Deployment



Federal Building Technology Testing

- Department of Energy: High Impact Technology (HIT) Catalyst
  - 14 technology tests available with several more coming
- General Services Administration: GSA Proving Grounds (GPG)
  - 34 reports, 23 technologies, 14 technologies deployed
- Department of Defense: Environmental Security Technology Certification Program (ESTCP)
  - Many technologies

Participating in Field Testing

- Better Buildings Alliance for commercial buildings
- GPG – GSA buildings
- ESTCP – DOD buildings
- Utility programs

DOE Technology Campaigns

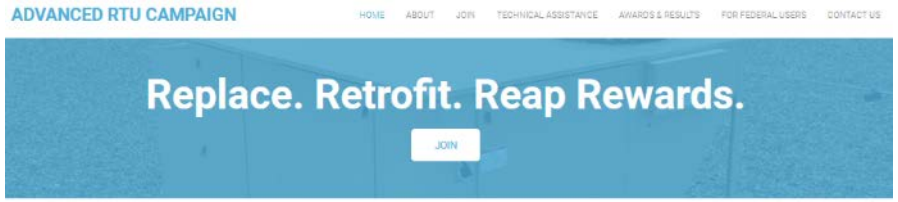
Market engagement

Promote technologies

Rich source of resources

Feedback for future R&D efforts

Interior Lighting Campaign



Advanced RTU Campaign

Welcome to the Smart Energy Analytics Campaign

Smart Energy Analytics Campaign

Example Field Test Technologies: Cooling Tower Water Treatments

Five Technologies

- Alternative chemical treatment
- Water softener (2)
- Hydrodynamic cavitation
- Advanced oxidation process
- Electrolysis

Example Field Test Technologies: HVAC

- High-efficiency chillers (2) and chiller controls
- Condensing boilers and advanced boiler controls
- High-efficiency RTUs and RTU retrofit controls
- High-efficiency smart motors (1-10 hp)
- High-performance circulator pump
- Indoor air scrubber (removes CO_2 and VOCs)

Example Field Test Technologies: Lighting

- LED downlights
- LED troffers
- Adaptive exterior lighting controls
- Advanced occupancy and daylighting controls

Example Field Test Technologies: Plug Load Controls

- Advanced power strips
- Intelligent and monitored outlets
- Wireless circuit monitoring
- Power over Ethernet

How to Get Involved

- Commercial building owners
  - Join Better Buildings Challenge and Better Buildings Alliance
  - Become a technology field test site
  - Share information with peers
  - Better Buildings Solution Center
- Federal building managers
  - GSA Proving Ground and GSA Pilot-to-Portfolio
  - ESTCP

Thank you

michael.deru@nrel.gov

Doug Rath, Marriott

U.S. DEPARTMENT OF
ENERGY

Marriott International

Douglas Rath

Senior Director Energy & Environment

Americas Continent/ Continent Lodging Services

Marriott AMERICAS ENERGY GROUP

Marriott International

THE RITZ-CARLTON REWARDS
Marriott REWARDS
spg Starwood Preferred Guest

THE RITZ-CARLTON
EDITION
JW MARRIOTT
AUTOGRAPH COLLECTION HOTELS
RENAISSANCE HOTELS
MARRIOTT
DELTA HOTELS
Marriott
MARRIOTT VACATION CLUB
GAYLORD HOTELS
AC HOTELS
COURTYARD Marriott
Residence Inn Marriott
SPRINGHILL SUITES MARRIOTT
FAIRFIELD INN & SUITES Marriott
TOWNEPLACE SUITES MARRIOTT
PROTEA HOTELS
moxy
ST REGIS
THE LUXURY COLLECTION
W HOTELS
WESTIN
Sheraton
LE MERIDIEN
TRIBUTE PORTFOLIO
DESIGN HOTELS
aloft
FOUR POINTS
element

SERVE360

DOING GOOD IN EVERY DIRECTION

"We recognize that *how* we do business is as important as the business that we do."
Ray Bennett

N — NURTURE

S — SUSTAIN

E — EMPOWER

W — WELCOME

15% water intensity reduction

30% carbon intensity reduction

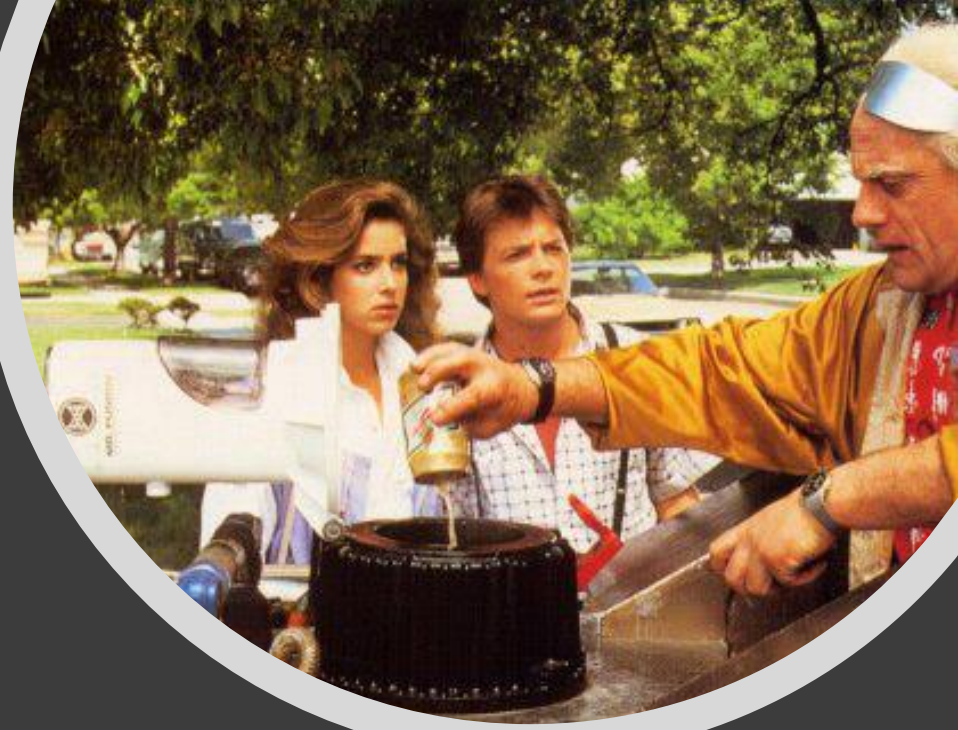
45% waste stream reduction

2025

Guys with Gizmos= Fantastical Claims of Savings

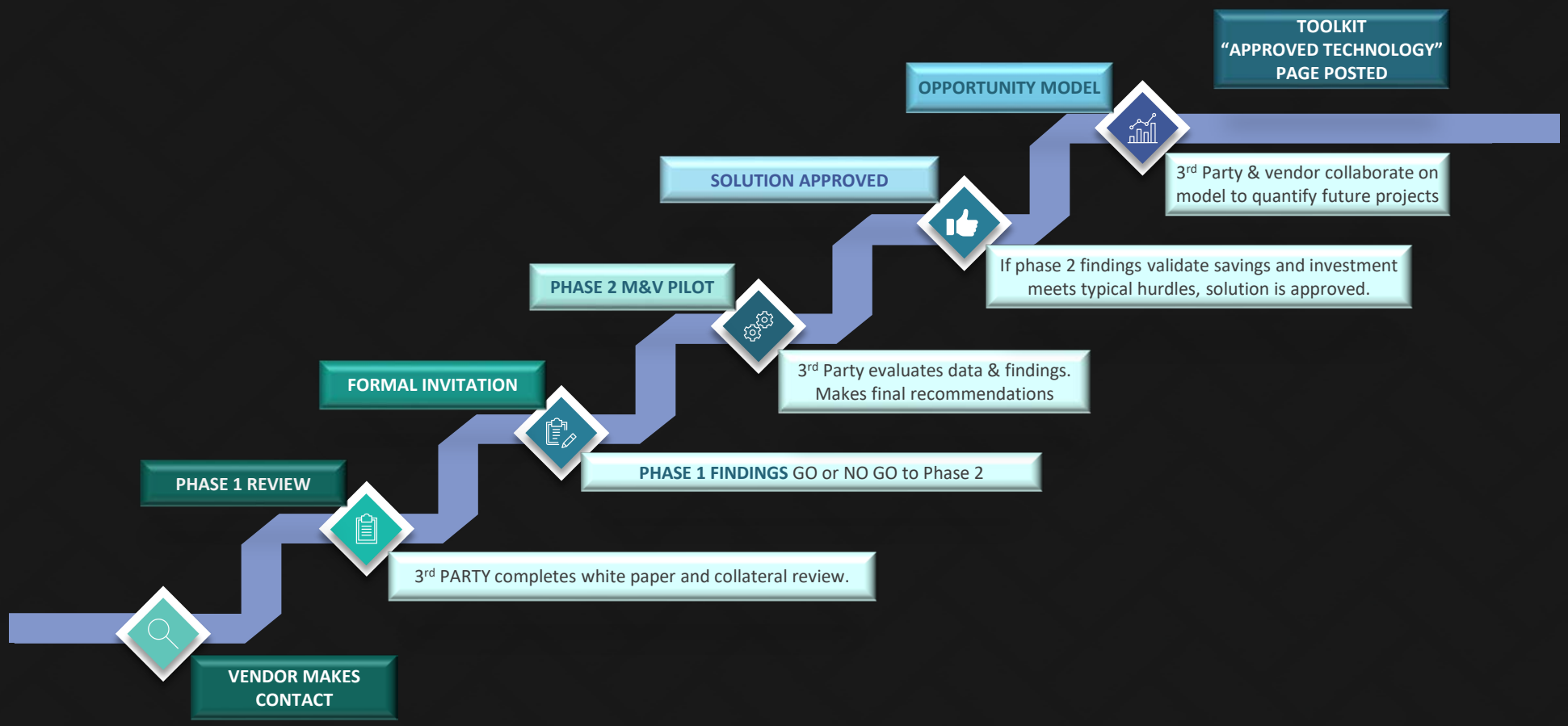
How on earth do we vet / ratify and get to who / what is real?

Trust but VERIFY…why vetting is important



- No “bleeding edge” risks with tech that could impair guest experience
- Find and employ “leading edge” tech that delivers true reductions without guest impact is the goal.
- Can’t afford to miss revolutionary solution

TECHNOLOGY VETTING PROCESS



Formal 3rd party vetting process is funded by vendors wishing to gain "approved" status.

Thus far we have studied and approved

- Lighting
- BAS
- Occupancy stats
- Refrigeration controls
- Demand control ventilation
- Ozone
- EC motors
- Low flow fixtures

AQUARECYCLE

telkonet

PHILIPS

tempassist by LARSON·JUHL

KOHLER

Melink

INNCOM

EcoStruxure Innovation At Every Level

AUTOMATEDLOGIC United Technologies

FridgeWize

EcoTex The Cold Water Catalyst

envirocleanse

wisuite

SYLVANIA

Tech too complicated to test without lab environment

- Water supply line devices
- Advanced cooling tower controllers (water savings)
- Refrigeration lubrication additives
- Various black box harmonics/ power factor techologies

Potential collaboration with lodging peers and labs

- Unified requirements of tech vendors to prove business case
- National lab hosts standardized hotel room or plant environment
- Technologies proved out via M&V in a controlled environment
- Potential solution vendors fund validation
- Successful solutions net wide adoption

Recommended Summit Sessions

Thursday

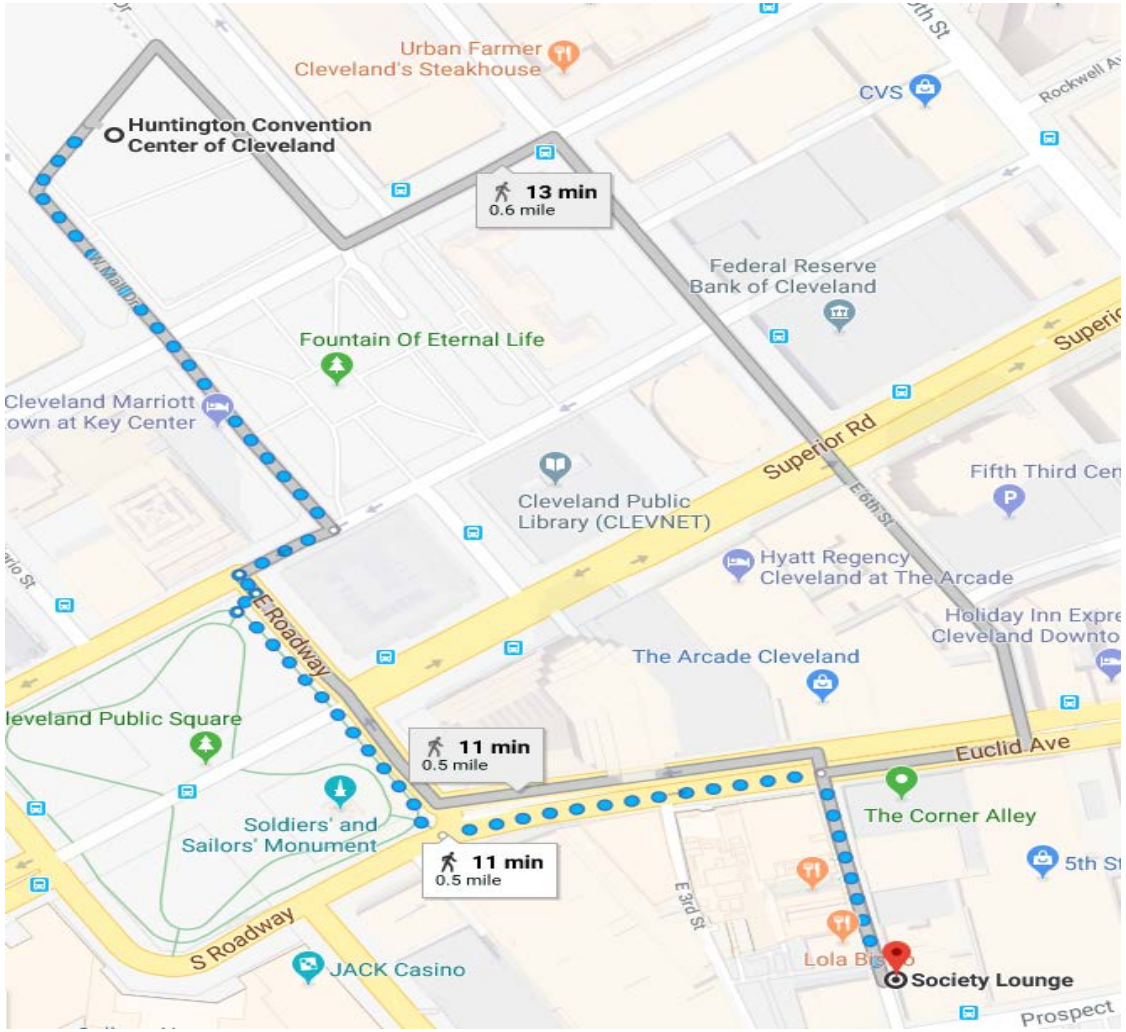
- Making a Splash: Targeting Water Saving Measures for Maximum Impact (8:30-10am, Room 13)
- Best Behavior: Strategies to Successfully Engage Occupants (10:30am-12pm, Room 23)
- Learning What Works: Energy Data Management (2-3:30pm, Room 19)
- World as a Laboratory: Updates of Partner Field Verifications of New Technologies (4-5:30pm, Room 12)

Sector Networking Event

TOMORROW!

5:30 – 7:30 pm

Society Lounge
2063 E 4th Street



Thank You!

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