BUILDINGS: DEEP RETROFITS FOR GOVERNMENT BUILDINGS

New Mexico Energy Summit
August 6, 2019

Your Faculty

Alisa Petersen

Greg Hopkins

Adam Guzzo

Harold Trujillo

Objectives

- **For the Energy Summit:**
  - Provide technical assistance and action planning resources to support the goals of New Mexico's Energy Transition Act
- **For Today's Buildings session:**
  - Introduce participants to the fundamentals of cost effectively pursing deep efficiency on municipal buildings
- **For the Backcasting Exercise:**
  - Equip participants with a takeaway resource to get them closer to their municipal building efficiency goals

Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

Ground Rules

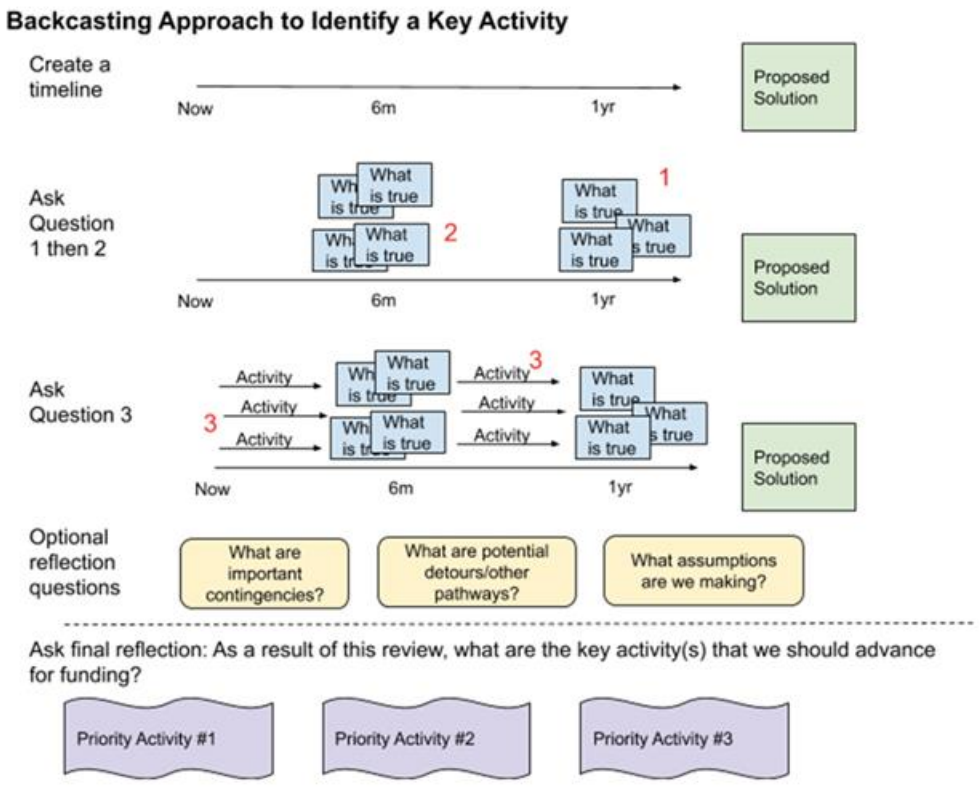
- Confidentiality: you can say who attended or things that are said, but not both (do not say this person said that)
- Democracy of time: make room for equal participation for all
- Be present: no phones or computers out
- Industry Expectation: Not there to sell anything; there to act as technical experts who can provide technical expertise and guidance as *requested* by local government representatives
- Call out acronyms

Check-In


Round Table
• Name
• Representation
• Have you ever worked on a municipal building retrofit?

Filling in your Backcasting Handout

- **WHAT:** Template for you to start filling out an action-oriented plan to help you achieve your municipal efficiency goals
- **WHY:** To frame and anchor initial local stakeholder conversations, to test assumptions and collect feedback
- **WHEN:** Majority of document will be complete in part 2 of the session



Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

U.S. DEPARTMENT OF ENERGY
Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

2019 New Mexico Energy Summit

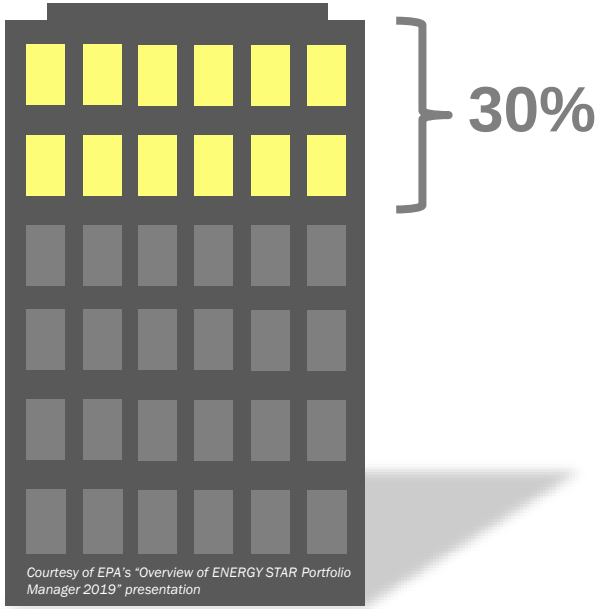
Buildings: Deep Retrofits for Government Buildings

Adam Guzzo, Advisor
U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
Weatherization & Intergovernmental Programs Office

National Energy Efficiency Opportunity & Impact

Opportunity

- **30%** of the energy used in buildings is wasted on average[1]
- **2.4%** is the average energy savings per year for buildings that benchmark their energy performance[2]
- **40%** of cities do not benchmark the energy performance of city-owned buildings[3]



Courtesy of EPA's "Overview of ENERGY STAR Portfolio Manager 2019" presentation

Impact

- **$120 billion** in annual savings if we cut the wasted energy in U.S. homes and buildings[4]

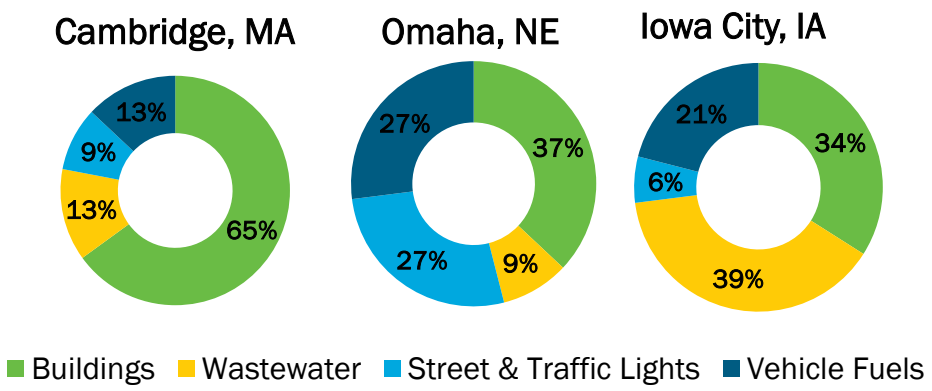
[1]EPA, ENERGY STAR Save Energy; [2]EPA, ENERGY STAR Portfolio Manager Data Trends, 2012; [3]U.S. Conference of Mayors, How Energy Technologies are Reshaping America's Cities, 2016; [4]DOE's Building Technologies Office;

Unlocking Energy & Cost Savings in Local Government Buildings

Opportunity

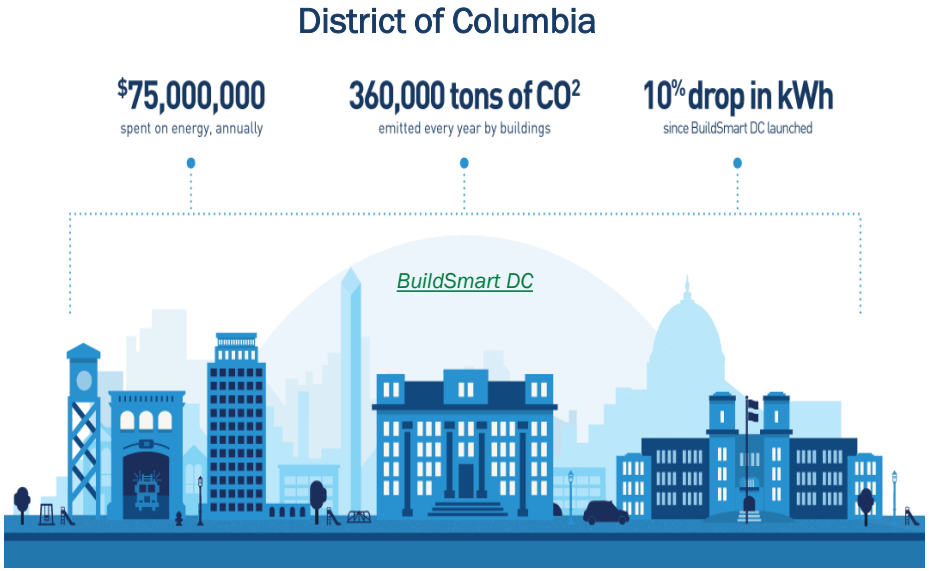
- **Energy can account for as much as 10% of a typical government's annual operating budget**[1]
- **Local governments:**
  - Own **>12 billion square feet** of building space[2]
  - Spend more than **$18 billion annually** on energy in their buildings (source energy)[3]

Municipal Energy Consumption Profiles (Btu)



Impact

- If all local governments cut energy use in buildings by:
  - **2.4% per year** = potential **savings** of **$450 million per year**[4]
  - **30% per year** = potential **savings** of **$5.7 billion per year**[5]



[1]EPA Clean Energy Lead by Example Guide, 2009; [2]EIA, 2012 CBECS, Table B1; [3]EIA, 2012 CBECS, Table C1 (1,957 TBtus X 2018 Unit Energy Costs); [4]1,957 TBtus X 2.4% X 2018 Unit Energy Costs; [5]1,957 TBtus X 30% X 2018 Unit Energy Costs

Example: Arvada, CO

Population: 110,000
Building Portfolio: 19 buildings totaling 38K sq. ft.
Baseline Energy Consumption: 75M (kBtu)
Baseline Energy Costs: $720,000

Saving 2.4% per year can result in:

- Year 1: **$17,000** saved (in one year compared to baseline)
- Year 5: **$260,000** in cumulative savings (**$85,000** less than baseline)
- Year 10: **$950,000** in cumulative savings (**$170,000** less than baseline)

New Mexico has started to take aggressive actions around improving their municipal buildings

ALBUQURQUE

Mayor Tim Keller on Wednesday announced a plan that would move the City of Albuquerque toward what he called 100 percent renewable, clean energy within four years.

NEW MEXICO

New Mexico is pushing forward with multimillion-dollar, energy-saving upgrades to its portfolio of agency buildings in the state capital, as part of an emerging climate-change strategy from Democratic Gov. Michelle Lujan Grisham.

LAS CRUCES

According to his newsletter, Garza projected those city buildings could see as much as a 35 percent improvement in energy savings.

The city has also budgeted $1 million, and entered into an agreement with the New Mexico Energy, Minerals and Natural Resources Department, to utilize professional consulting services to audit city facilities for potential long-term energy savings.

Municipal energy upgrades provide many benefits

Community-Wide Benefits	• Serves as an example to and educates the community • Local job creation and economic development • Local health and environmental benefits • Resiliency (if paired with storage)
Municipal Agency Benefits	• Operational cost savings • Reduction in GHG emissions • Progress toward sustainability goals

But we need solutions to achieve deep levels of efficiency for existing buildings

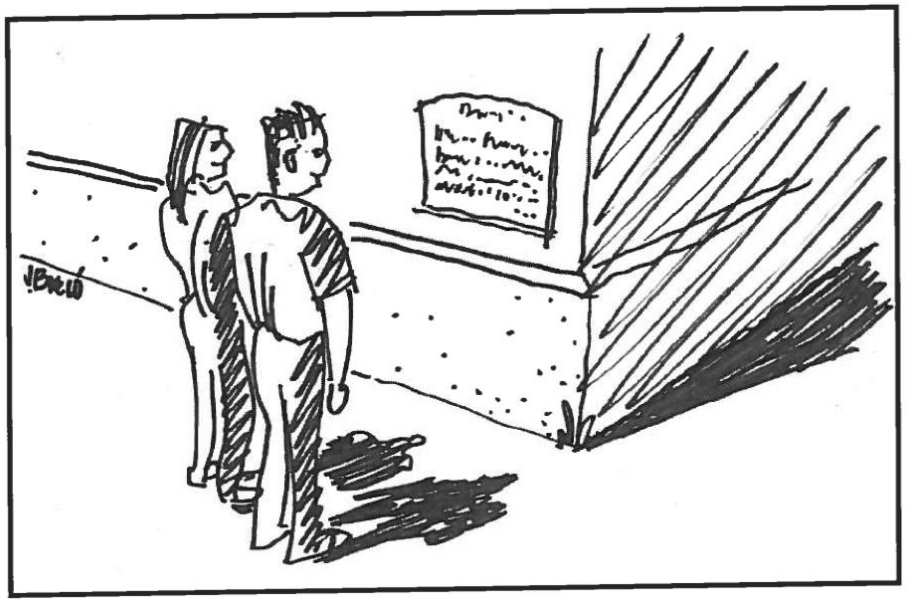
Deep energy retrofits are perceived to be:

- Costly
- Complex
- Difficult to procure
- Too sophisticated when pursuing net-zero energy

According to a recent survey by the U.S. Energy Information Agency, 72 percent of gross square footage in the U.S. belongs to buildings over twenty years old.

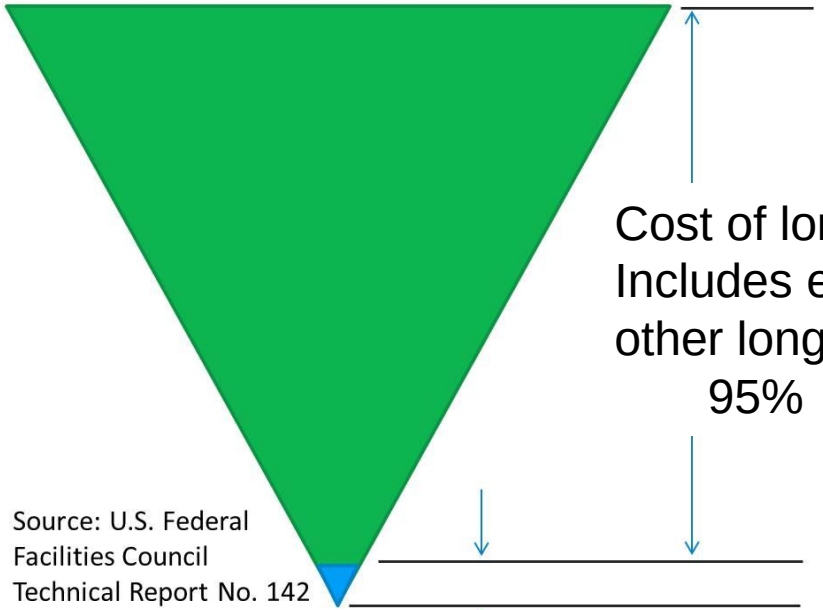
Existing globally are receiving energy retrofits at a rate of around 1% per year, while a rate of around 3.2% per year is required to avoid a 2 degree rise in global temperatures.

Because some of us feel this way



“This would have been a great green building if it wasn’t for the bad decisions made at the design team meeting held on July 9th, 2011.”

Now, we're paying for it - Building lifecycle costs far outweigh first costs



Source: U.S. Federal Facilities Council Technical Report No. 142

Cost of long-term ownership
Includes energy, O&M, and other long-term costs
95%

Cost of construction (first cost)
5%

Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

Moving Forward

A solution for existing municipal buildings: Zero Over Time

Zero Over Time (ZOT) is an approach that sets existing municipal buildings on a **financially viable path to achieve net zero energy.**

The ZOT approach helps local municipalities perform upgrades **at the right time to achieve the best lifecycle economics.**

If you **align deep energy efficiency, renewable energy, and energy storage** projects with **life-cycle event triggers, investments will go further.**

Pursuing deep retrofits cost effectively can be achieved by following 6 simple steps:

Goals should be clear, well-known, and actionable	Type, age, condition of equipment, WWR, current utility rate structure, current energy consumptions	Create a trigger event calendar to map out long term upgrade potential	Based on goals, determine how much RE is required and different procurement opportunities	Start pursuing projects. Consider financing such as ESCOs	Monitor progress, share successes

Key concept: trigger calendar

Example Trigger Event Calendar

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Building #1															
Building #2															
Building #3															
Building #4															
Portfolio-wide															

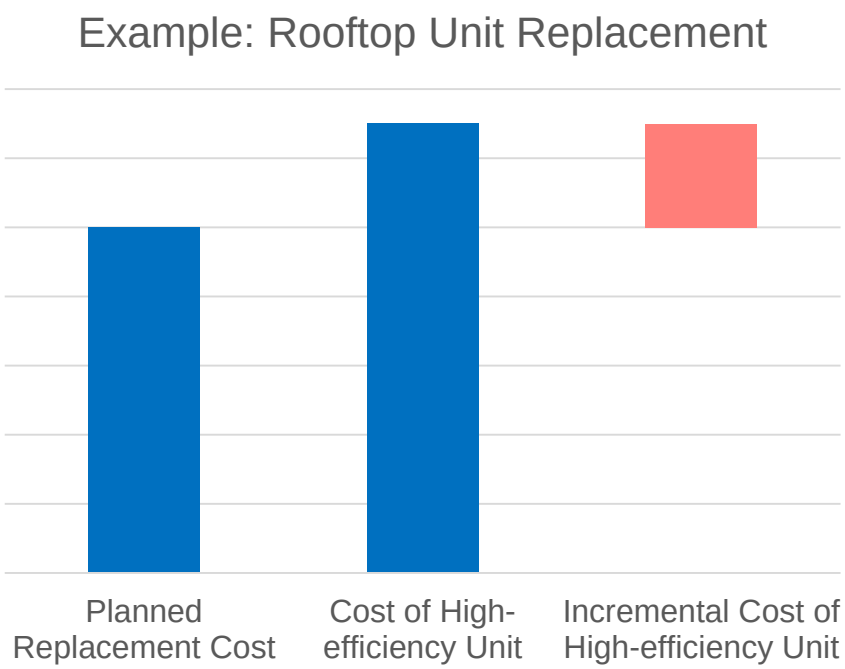
Key:

Icon						
Trigger Event	Water Heater System Replacement	HVAC Replacement	Roof Replacement	New Utility Rates	New construction or major renovation project	Regular Energy Checkups

Triggers: Equipment Reaching End of Life

TIMING	ACTIONS TO CONSIDER
HVAC replacement	Replace HVAC equipment with higher-efficiency equipment or new HVAC technology at end of life. Always right-size mechanical equipment to the actual loads (not just like-for-like sizing), and wherever possible downsize equipment if load-reducing ECMs were performed. Consider fuel switching equipment from gas to electric.
Roof replacement	Consider adding insulation if recommended by the energy analysis, and ensure that the roof meets load requirements for future solar installation. Consider adding toplighting, which improves daylighting, though design carefully to avoid introducing too much heat. If viable, add solar. Consider painting the roof white in hot climates.
Window replacement	Consider high-performance windows. Note that high-performance windows may reduce loads enough to downsize HVAC, so ensure HVAC sizing is analyzed before the next HVAC replacement.
Siding replacement	Install continuous insulation on exterior walls.
Backup power generator replacement	Consider swapping out diesel generator for batteries and/or a microgrid as technology improves and becomes more affordable.
Water heating systems replacement	Consider opportunity for fuel switching to electric. For more information, review RMI's report on *The Economics of Electrifying Buildings*.

Key Concept: Right-Timing Investments and Incremental Costs

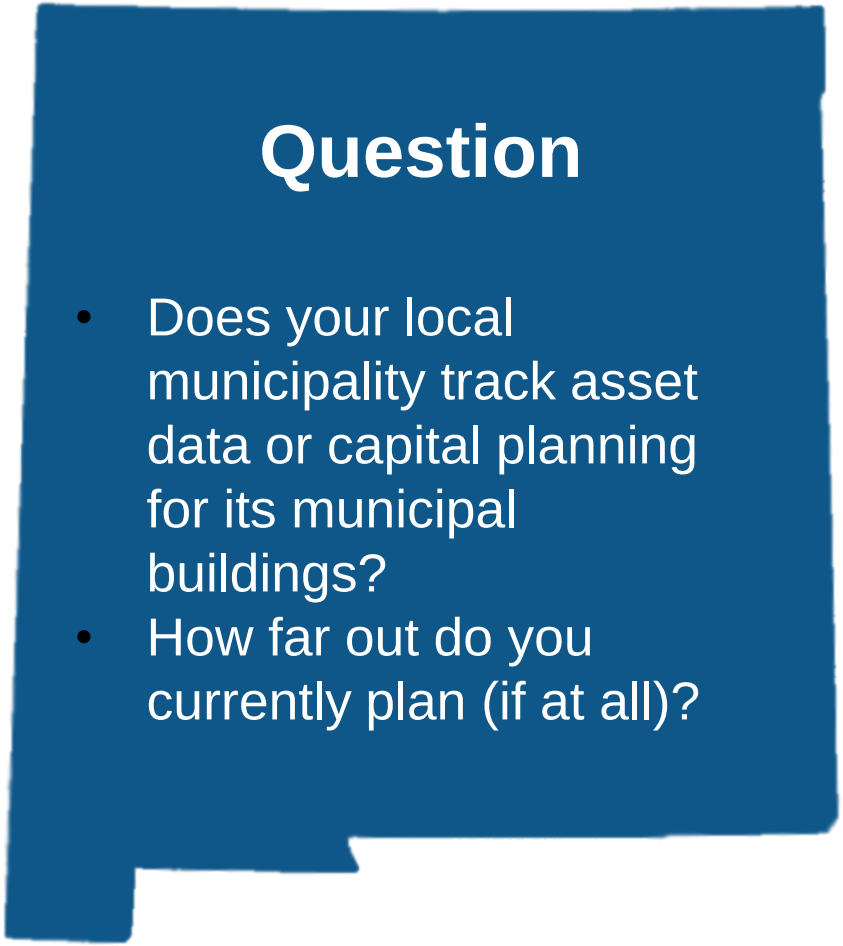


Cities often plan for like-for-like replacements at the end of useful life

Investing in higher-efficiency units only requires investing in the **incremental cost** of the high-efficiency unit

A change in investment framework results in a project with **favorable economics**

Check-In


Question
• Does your local municipality track asset data or capital planning for its municipal buildings?
• How far out do you currently plan (if at all)?

Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

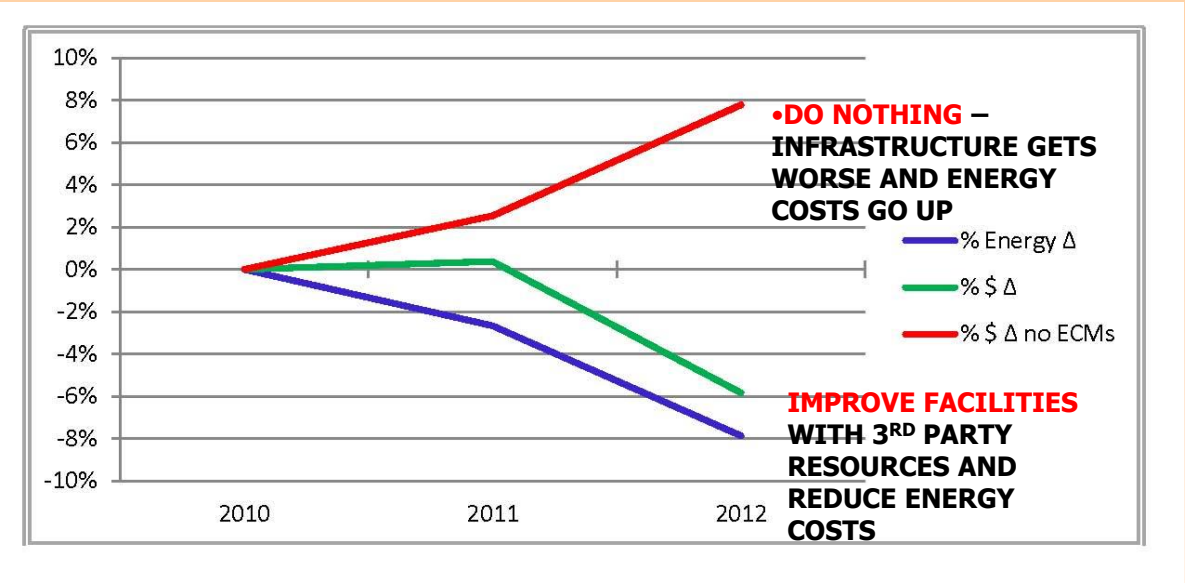
- Set Milestones
- Define Activities
- Determine Next Steps

Energy Performance Contracting and deep retrofits to improve infrastructure in publicly owned facilities

by:
Harold Trujillo, PE, Bureau Chief
Energy Conservation and Management Division
Energy, Minerals and Natural Resources Department
Harold.trujillo@state.nm.us
476-3372

Senator Heinrich's Energy Summit
August 5 and 6, 2019
Albuquerque, NM

- # Continue to Pay High Utility Bills or Improve Facilities



Opportunities with energy performance contracting

The Public Facility Energy Efficiency and Water Conservation Act 6-23-1 - Started 1993

- The Act **ALLOWS GUARANTEED UTILITY SAVING CONTRACTS** to make infrastructure improvements that reduce energy, water or conservation-related operating costs.
- The contractor shall provide a WRITTEN GUARANTEE of the cost savings.
- The contractor shall bear DIRECT FINANCIAL RESPONSIBILITY with the governmental unit for the life of the contract to make sure it works.
- The contract may extend beyond the fiscal year and go for up to 25 years.
- A governmental unit may enter into an installment payment contract or **Lease-purchase agreement** for the purchase and installation of energy and water conservation measures.
- The utility budget of a state agency cannot be reduced because the utility savings are being used to pay for the infrastructure improvements.

Legislation is ideal to make infrastructure improvements

- Improvements can be made with 3rd party financing resources using utility cost savings.
- The implementation is a turn-key process where the provider:
  - Conducts an Investment grade energy and cost savings assessment of potential measures
  - Performs design and installation of measures
  - Performs measurement and verification of savings throughout life of contract
  - Provider can also provide maintenance and training if requested

- **Over $200 million of improvement to infrastructure have been made since 1995**

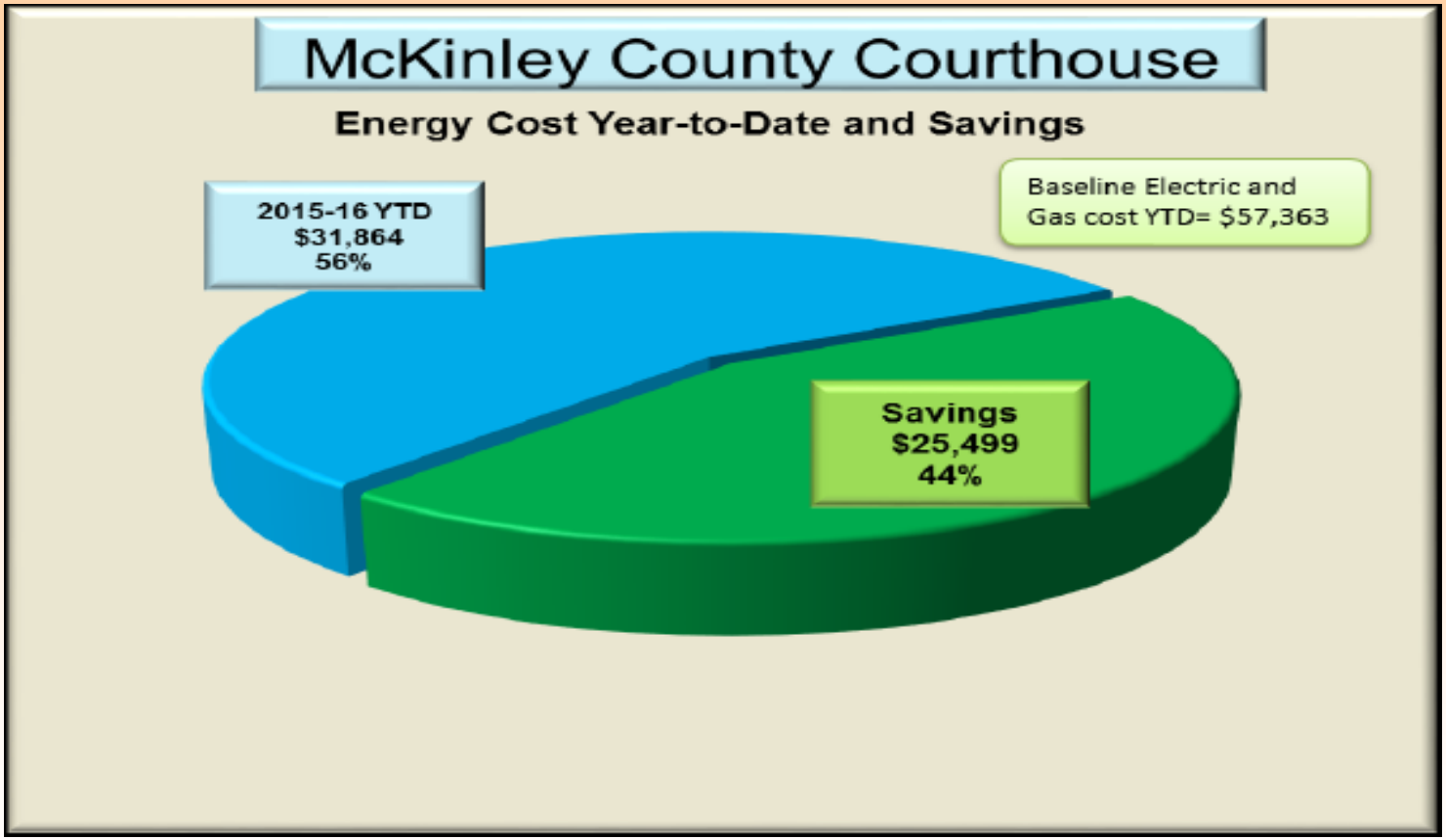
- Boilers
- Chillers
- Cool roofs
- Solar
  - Photovoltaic
  - Thermal
- Lighting

History of 6-23-1 NMSA 1978

University and College Projects

- NM State University - $15 Million – Very successful
- Clovis Community College – Leveraged $ 2 Million of GO Bond with $2.4 Million of ESCO funding.
- Eastern NM – Implemented it's 3rd energy performance contract and has the lowest cost per square foot energy costs.

- Courthouse Energy Cost Savings –
-3 month period only



Upgrades

•Chiller relocation

•New Boilers

•New Water Heater

2019 ESCO Projects Examples

•The **General Services Department** in August 2019 begin a $32 million project to improve the energy efficiency of 30 office buildings in Santa Fe.

•– will cut utility bills in half, saving the state at least $1.1 million a year. The project also will make workplaces more comfortable a win-win.

- **PV Solar Systems $14,135,147, Annual Savings $568,885**
- **Lighting upgrades $ 4,601,715, Annual Savings $211,885**

•**NM Institute of Mining and Technology** in March 2019 began a $9.33 Million project to improve the energy efficiency of their campus. The institute contributed $3.0 Million from internal sources. The total annual savings will be $606,816.

- **PV Solar System 655 KW-DC $1.47 Million, Annual Savings $93,000**
- **Interior LED Lighting LED $2.00 Million, Annual Savings $210,000**

•**NM Military Institute** in July began a $6.4 Million energy efficiency improvement project that will save $334,816 per year.

- **Interior and Exterior LED lighting $1.3 Million, Annual Savings$120,300**
- **High efficiency chillers $400,000, Annual Savings $16,400**
- **Building Automation System $1.75 Million, Annual Savings $93,000**

Other Local Government Projects Examples

- Silver City – Waste Water Plant PV System (PPA)
- Silver city – New Water Meter Program
- Truth or Consequences – PV System
- City of Bloomfield – PV , Office and Street Lighting
- City of Farmington
- Bernalillo County Detention Center

Reviewing responsibilities of the Energy, Minerals and Natural Resources Dept. and Office of State Engineer

- Certify Qualifications
- Certify energy savings calculations.
- Extra assurance – EMNRD Provides 3rd party oversight of projects with initial review of facility for savings opportunities and regular on site inspections to insure the project is installed correctly. 1% is added to the cost of project.
- Water Conservation Projects are approved by the Office of State Engineer.

Implementation cost and savings from Project Completed in the last 4 years.

- Total Impact of Projects Implemented including PV System PPA projects
  - $230.5 million, 109.4 Million kWhs saved, $10.2 Million/year savings, **guaranteed**
- Esco projects only:
  - 28 projects, covering 19.1 million square feet
  - Totaling $199.3 Million in project work,
  - Greenhouse gas emissions reductions by **130.6 million pounds of CO2e per year**
  - Reducing utility spending of facilities by $9.1 million per year over the average contract lifetime 17.4 years
  - the reduction in greenhouse gasses over the life of the project is estimated to be **2.2 Billion pounds of CO2e.**
  - This reduction is the equivalent of **2.5 Billion miles driven** by an average passenger vehicle or **123,378 home's** energy use for one year.

Tools available from NM Energy, Minerals and Natural Resources Department

- **Contract Templates** for Investment Grade Audit Contract, Final Energy Performance Contracts and RFP for Financing
- **State Price Agreements** of Qualified Vendors
- **3-rd Party assistance** to guide you through the process.
- **3-rd Party assistance** to verify installation of measures
- **Technical Assistance** from the Engineering staff of the NM Energy Conservation and Management Division
- **Verification of Savings**
- **Examples** of other projects
- http://www.emnrd.state.nm.us/ECMD/CleanEnergyPerformanceFinancing/cleanenergyperformancefinancing.html

Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

How Do We Unlock the Energy & Cost Savings Opportunities in Local Government Buildings?

Adam Guzzo

U.S. Department of Energy

Harness the Power of Data

- Set realistic and achievable goals
- Save taxpayer dollars
- Increase the efficiency of operations
- Create a culture of accountability and high performance
- Demonstrate leadership
- Communicate results and receive recognition

Tools and Resources

Adam Guzzo
U.S. Department of Energy

Energy Data Tools, Schema, and Terms

Tools

ENERGY STAR® Portfolio Manager®

BPD Building Performance Database

SEED Standard Energy Efficiency Data Platform™

Building Energy Asset Score Audit Template — U.S. Department of Energy

Schema

hpxml data dictionary + transfer standard

BuildingSync

Brick Schema

Terms and Definitions

UBID Unique Building Identifier

BEDES Building Energy Data Exchange Specification

Free Energy Data Tools: Efficient Operations

ENERGY STAR® Portfolio Manager®

Management Tool

- Assess whole building energy and water consumption
- Track changes in energy, water, greenhouse gas emissions, and cost over time
- Track green power purchase
- Create custom reports
- Share/report data with others
- Apply for ENERGY STAR certification

Images and content courtesy of EPA's "Overview of ENERGY STAR Portfolio Manager 2019" presentation, which can be found here: https://www.energystar.gov/buildings/tools-and-resources/overview_portfolio_manager_presentation

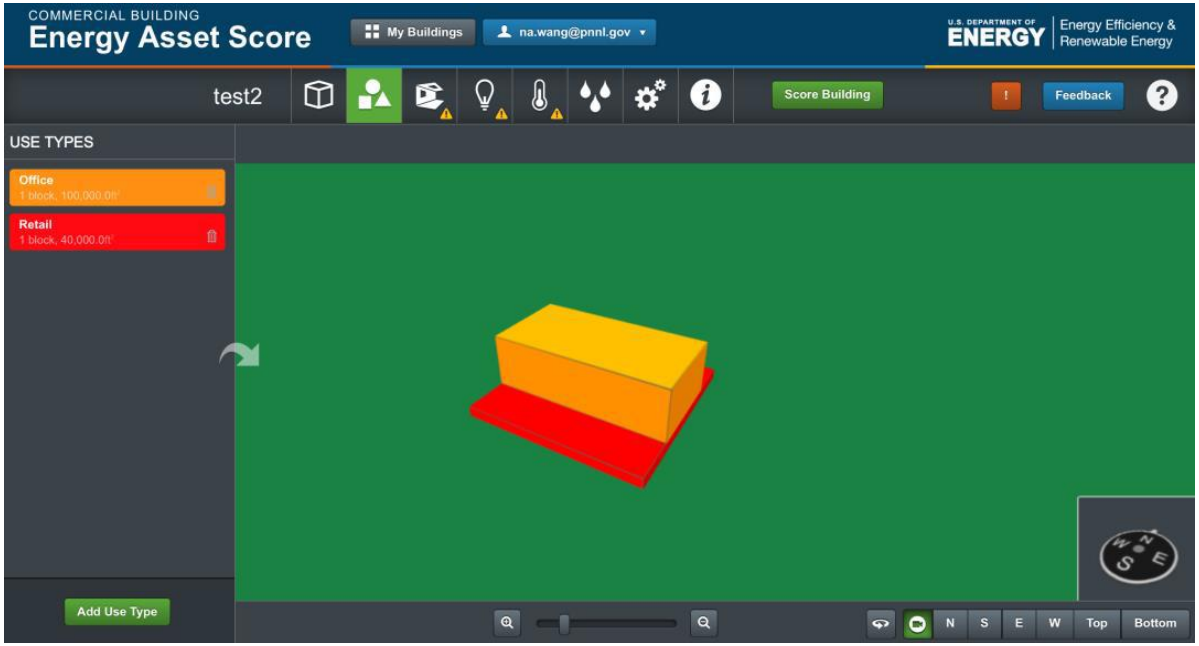
Free Energy Data Tools: Efficient Assets

What is the Asset Score?

A building's Asset Score reflects the building's as-built physical characteristics and overall energy efficiency, independent of occupancy and operational choices.

BUILDING ENERGY ASSET SCORE

U.S. DEPARTMENT OF ENERGY



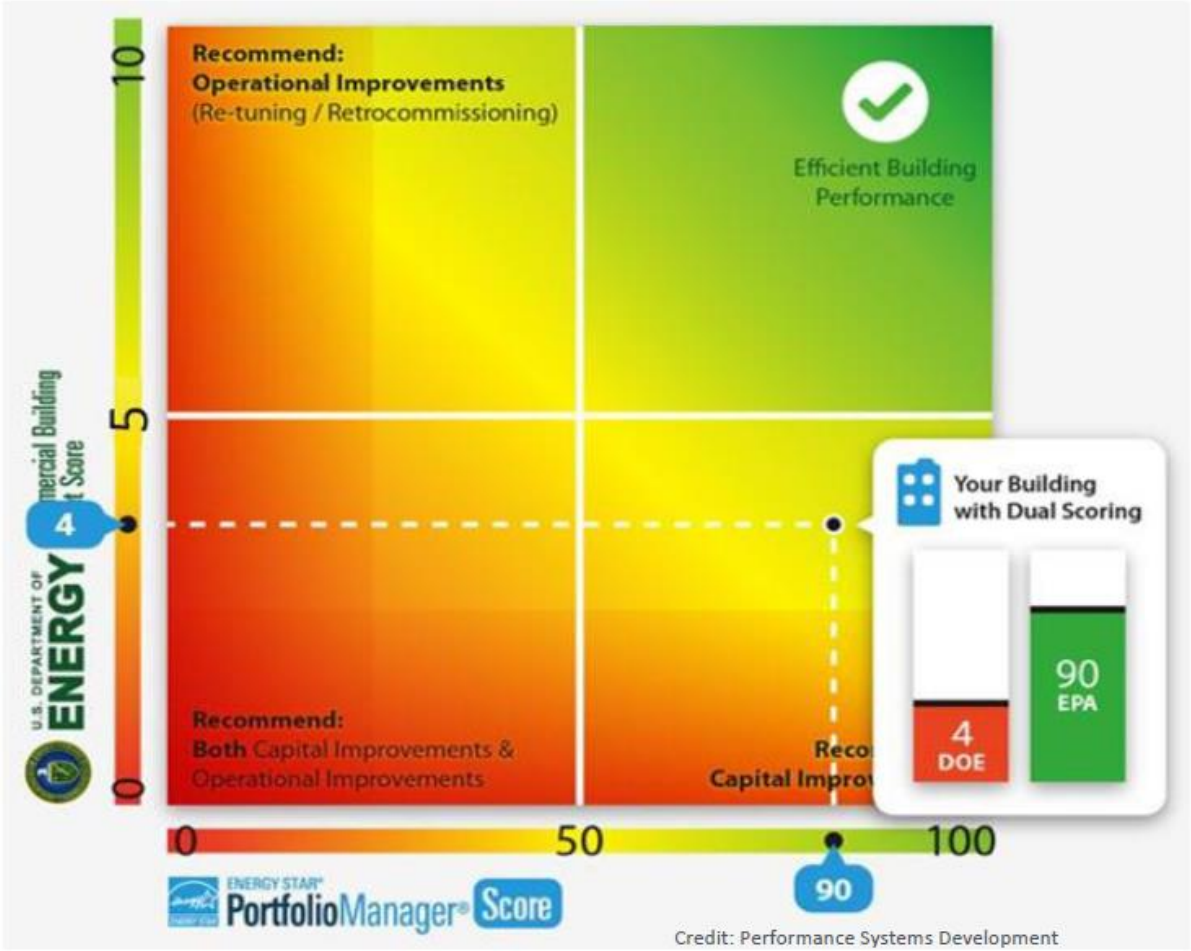
Free Energy Data Tools: Efficient Buildings

ENERGY STAR® PortfolioManager®

and

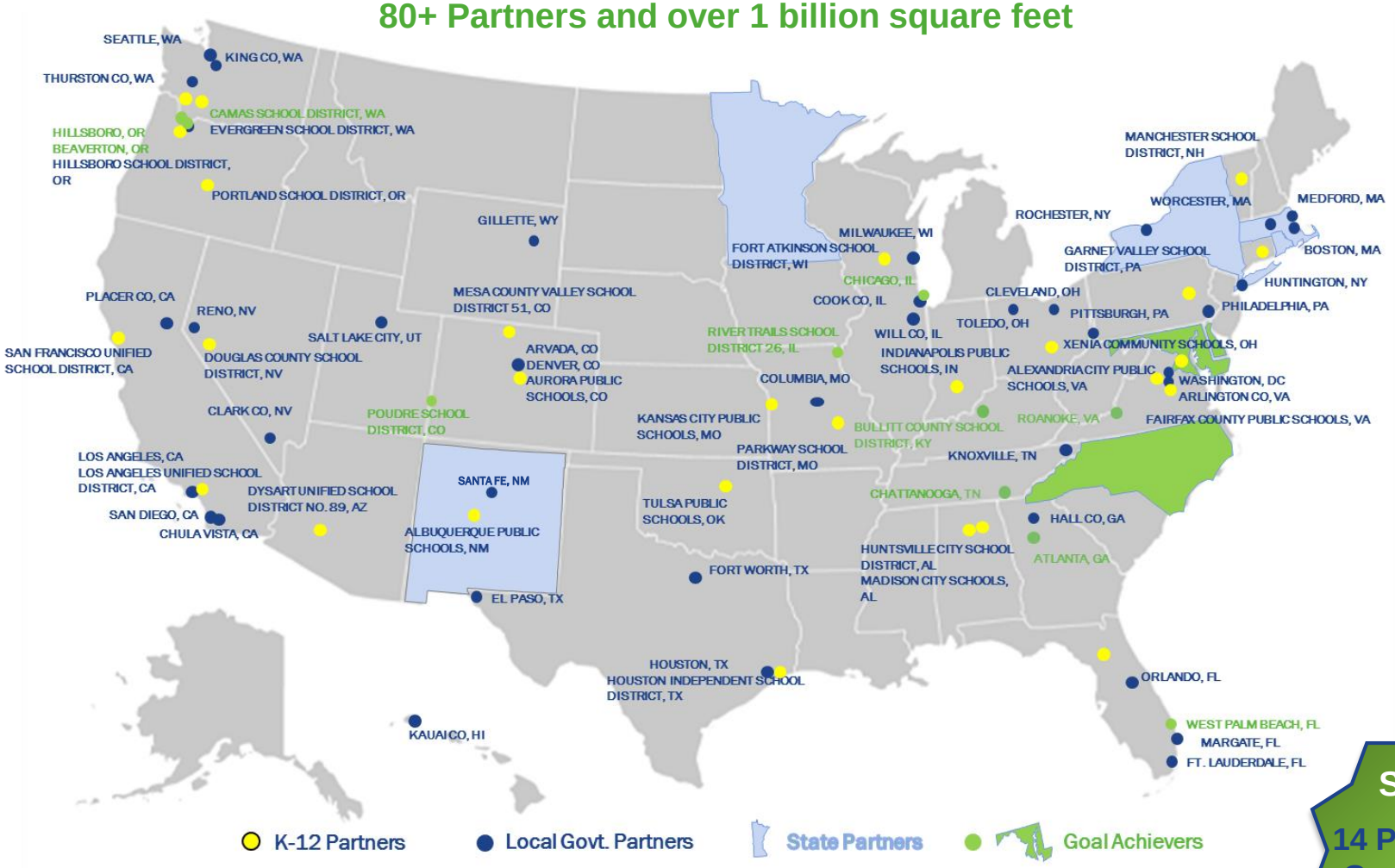
BUILDING ENERGY ASSET SCORE

U.S. DEPARTMENT OF ENERGY



Public-Sector Leadership in the Better Buildings Challenge

80+ Partners and over 1 billion square feet



Success!

14 Public-Sector Goal Achievers

DOLLARS SAVED
$686 MILLION

ENERGY SAVED
72 TRILLION BTUS

WATER SAVED
1.49 BILLION GALLONS

Better Buildings Solution Center

More than 2,500 solutions are available!

Available at:
https://betterbuildingssolutioncenter.energy.gov

Showcase Projects:

- Large and small buildings
- All sectors
- Specific building types such as courthouses, libraries, airports, fire stations, schools, universities, civic centers, offices and more

Implementation Models:

- Playbooks to overcome barriers: finance, data, energy management, staff training, community outreach, partnering with utilities, and more
- Multi-faceted and applicable across sectors

Other Resources, Toolkits, Case Studies

Showcase Project: Clark County Fire Station 16

Location: Las, Vegas, NV

Climate Zone: Hot-Dry

Population: 2,000,000

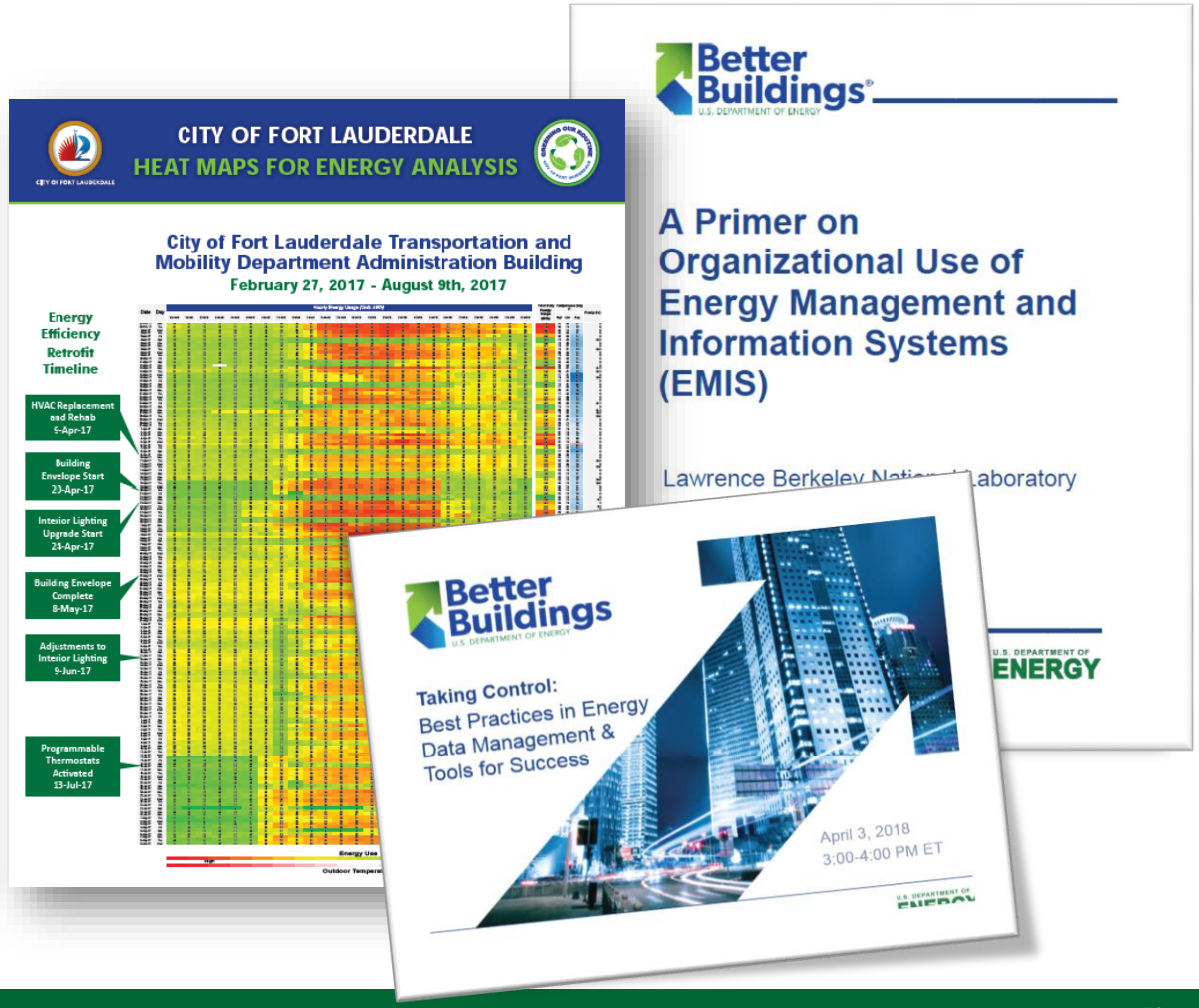
Project Size: 9,000 sq. Ft.

Energy Conservation Measures

- LED lighting with daylight sensors, occupancy sensors and multilevel switching
- High-efficiency DX air conditioning – 21 SEER
- Gas fired split HVAC system – 95% AFUE
- Wi-Fi-enabled thermostat control

Better Buildings Solution Center

Example Solutions



Available at:
https://betterbuildingssolutioncenter.energy.gov

The Better Buildings Financing Navigator

The Better Buildings Financing Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency and renewable energy projects.

With the Navigator, you can…

1. **Explore:** Learn the basics of the clean energy financing market
2. **Find:** Answer a few simple questions to see which financing options might be a fit for your project
3. **Connect:** Speak to Better Buildings Financial Allies who may be able to finance your project

Available at: https://betterbuildingssolutioncenter.energy.gov/financing-navigator

State and Local Solution Center

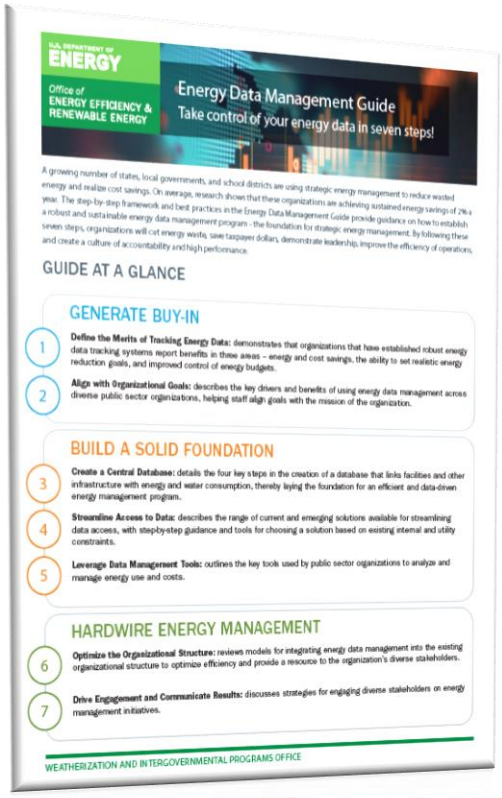
More than 500 tools, resources, and best practices!

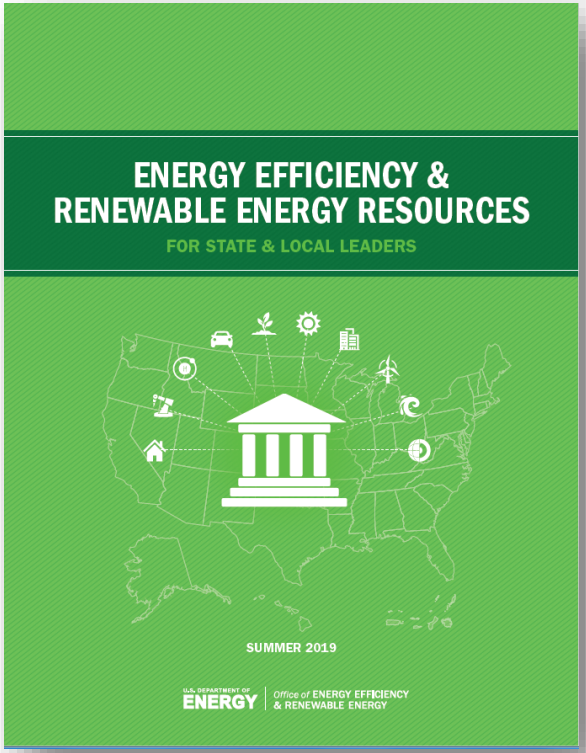
We help states, local governments, and K-12 schools:

- Develop an Energy Plan
- Design and Implement Energy Programs
- Pay for Energy Infrastructure
- Access and Use Energy Data

Available at: https://energy.gov/eere/slsc

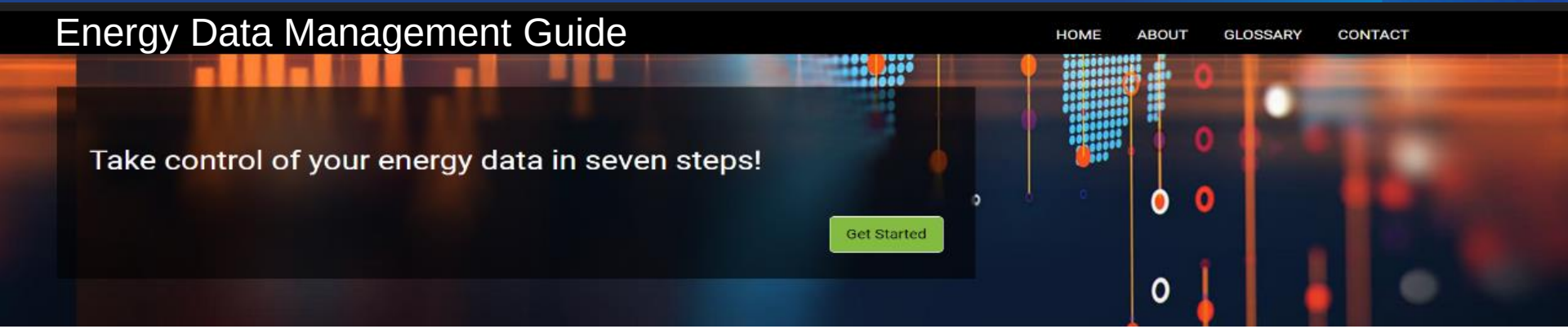
State and Local Solution Center





Available at: https://energy.gov/eere/slsc

Energy Data Management Guide



Use the Energy Data Management Guide's step-by-step approach to establish a robust and sustainable energy data management program in your state, local government, or school district.

Access the guide's:

- Proven strategies with demonstrated, portfolio-wide energy savings
- Data management tools and resources
- Customizable templates and worksheets
- Relevant examples and case studies.

Learn more about the guide.

Step-by-Step Process

You're only seven steps away from taking control of your energy data.

Generate Buy-In

1. Define the Merits of Tracking Energy Data
2. Align with Organizational Goals

Build a Solid Foundation

3. Create a Central Database
4. Streamline Access to Data
5. Leverage Data Management Tools

Hardwire Energy Management

6. Optimize the Organizational Structure
7. Drive Engagement and Communicate Results

Case Studies & Examples

Local Government Spotlight: City of Gillette, Wyoming

Creating Sustainability in America's Energy Capital

Information in this Spotlight is based on primary research conducted in 2014

The City of Gillette, Wyoming is the seat of Campbell County, and the self-proclaimed energy capital of the nation where approximately 30% of U.S. coal is produced. While energy is abundant and relatively low cost, one of the city's goals is to demonstrate to its citizens, utility customers, and neighboring communities that the city government is a good steward of taxpayer funds and natural resources.

While the city has engaged in various energy efficiency and sustainability efforts over the years, an opportunity to significantly expand these efforts presented itself in 2012, with the launch of the Better Buildings Initiative, part of which encouraged building owners to track energy consumptions and reduce e

Approach: The Sustaina
join this national initiativ
city's Sustainability Man
decision makers to gene
ering this new initiative,
city-owned buildings wa
tive value proposition to

Strategies for generating

- Identify leadership
- Create and frame s
- Foster teamwork a
- Develop a process

Following multiple meet
its efforts to reduce ene
program, Gillette has co
buildings and became th

Outcomes: By carefully
has elevated its relevanc
helping the city become
pating funding needs an
nal communication and
now regularly takes part

1 Gillette, Wyoming, Action Plan for Sustainability, 2012. Available at https://www1.eere.energy.gov/challenge/sites/default/files/uploaded/files/Gillette_LAP_FINAL.pdf

2 U.S. DOE Better Buildings Implementation Model: City of Gillette Inventory and Tracking Process, available at http://betterbuildingssolutioncenter.energy.gov/implementation-models/inventory-and-tracking-process

Utility Bill Analysis Recovers Costs from Errors

Detailed utility billing analysis by the State of Maryland revealed a $91,000 electronic billing error.

After examining all of its meters during a comprehensive rate appropriateness review, the State of North Carolina discovered that they had received and paid for bills that serviced buildings the state no longer owned or occupied. As a result of this review, the state was able to recover more than $500,000 in erroneous charges from the new tenants

The City of Virginia Beach identified numerous accounts for which it paid a monthly charge but for which power usage was zero. Closing these accounts avoided the city future costs.

Stay Connected

State and Local Spotlight

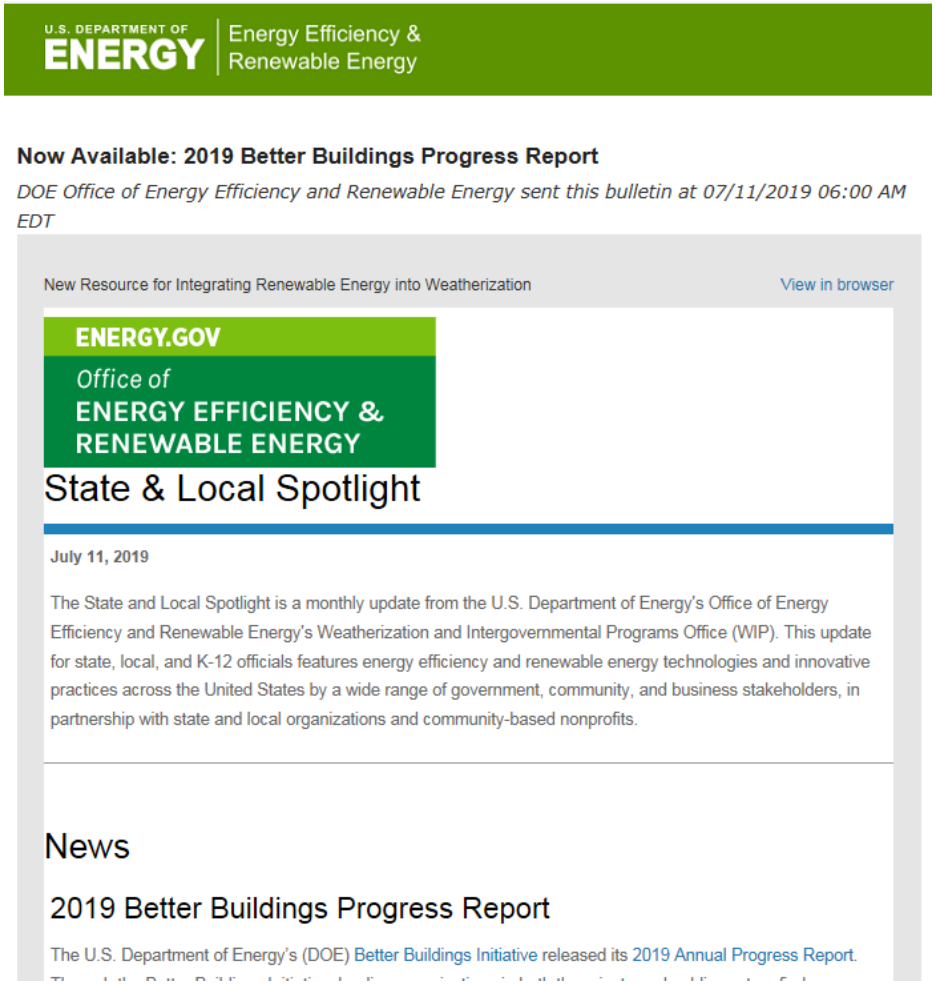
Monthly newsletter with ~33,000 subscribers

Subscribe:
http://energy.gov/eere/slsc

Contact:

stateandlocal@ee.doe.gov

Adam Guzzo
Adam.Guzzo@ee.doe.gov



U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Now Available: 2019 Better Buildings Progress Report

DOE Office of Energy Efficiency and Renewable Energy sent this bulletin at 07/11/2019 06:00 AM EDT

New Resource for Integrating Renewable Energy into Weatherization — View in browser

ENERGY.GOV
Office of
ENERGY EFFICIENCY & RENEWABLE ENERGY

State & Local Spotlight

July 11, 2019

The State and Local Spotlight is a monthly update from the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy's Weatherization and Intergovernmental Programs Office (WIP). This update for state, local, and K-12 officials features energy efficiency and renewable energy technologies and innovative practices across the United States by a wide range of government, community, and business stakeholders, in partnership with state and local organizations and community-based nonprofits.

News

2019 Better Buildings Progress Report

The U.S. Department of Energy's (DOE) Better Buildings Initiative released its 2019 Annual Progress Report.

Today's Agenda

Welcome & Introductions

Part 1: Download Session

- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

There are many different types of goals cities can set around their municipal building stock

XX% renewable energy for municipal buildings by 20XX

Pilot net-zero energy project by 20XX

Reduce municipal load by XX% by 20XX

Check-In


Write:
Your name
A goal you'd like to work towards for your municipal building stock

Today's Agenda

Welcome & Introductions

Part 1: Download Session

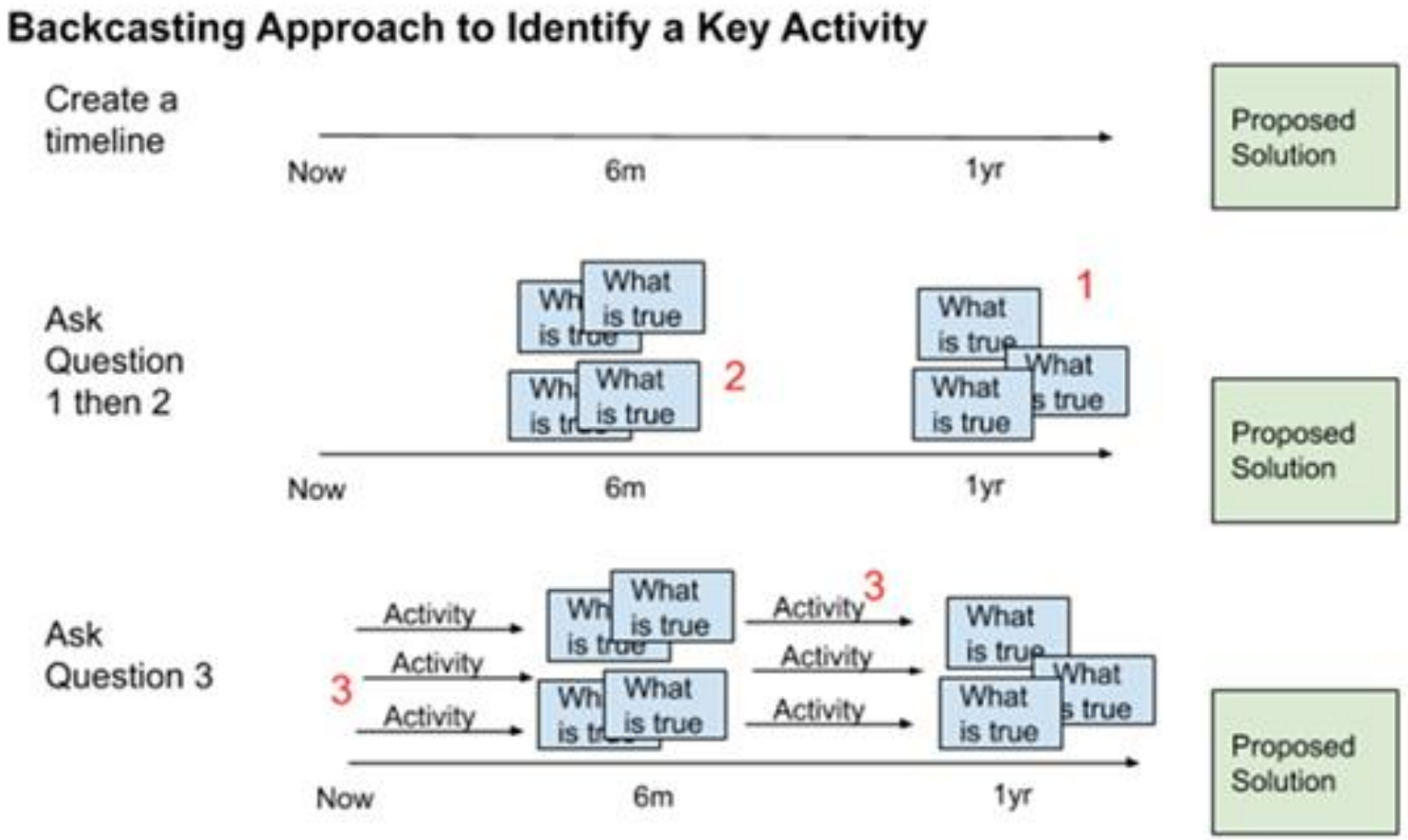
- Overview & Value Proposition
- Process for Deep Energy Retrofits
- Financing
- Tools & Resources
- Goal Setting

- - - Break (15 min) - - -

Part 2: Backcasting Exercise

- Set Milestones
- Define Activities
- Determine Next Steps

Backcasting



THANK YOU!

We'll be around for additional questions/support today