Better Buildings®
U.S. DEPARTMENT OF ENERGY

Guide to Benchmarking Residential Program Progress – CALL FOR PUBLIC REVIEW

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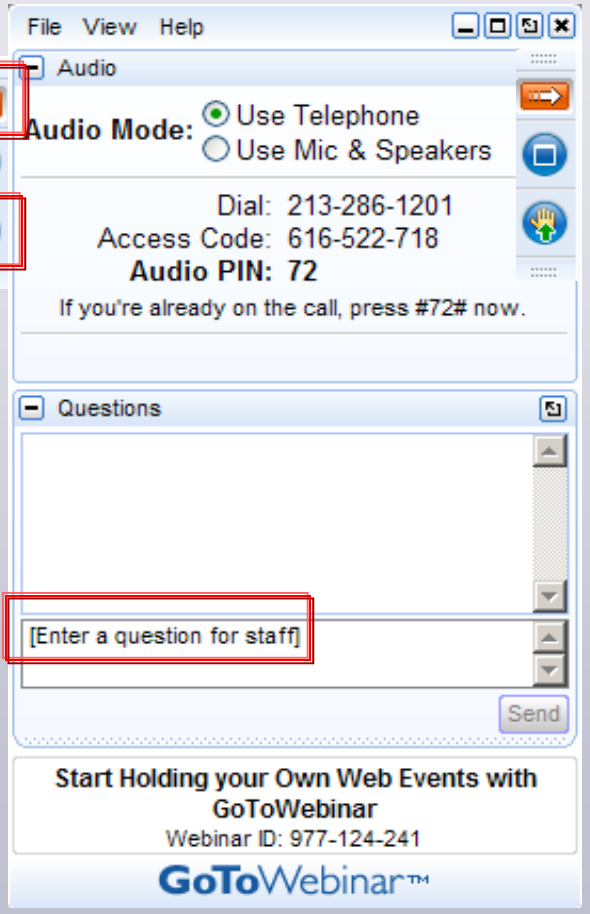
How to Participate Today

Open and close your control panel

Raise your hand

Submit text questions



Better Buildings Residential Network

- **Better Buildings Residential Network**: Connects energy efficiency programs and partners to share best practices to dramatically increase the number of American homes that are energy efficient.
  - Membership: Open to organizations committed to accelerating the pace of existing residential upgrades. Commit to providing DOE with annual number of residential upgrades, and information about benefits associated with them.
  - Benefits:
    - Peer Exchange Calls
    - Tools, templates, & resources
    - Newsletter updates on trends
    - Recognition: Media, materials
    - Optional benchmarking
    - Residential Solution Center

For more information & to join, email bbresidentialnetwork@ee.doe.gov.

- **Better Buildings Residential Network Group on Home Energy Pros**

  Join to access:
  - Peer exchange call summaries and calendar
  - Discussion threads with energy efficiency programs and partners
  - Resources and documents for energy efficiency programs and partners

http://homeenergypros.lbl.gov/group/better-buildings-residential-network

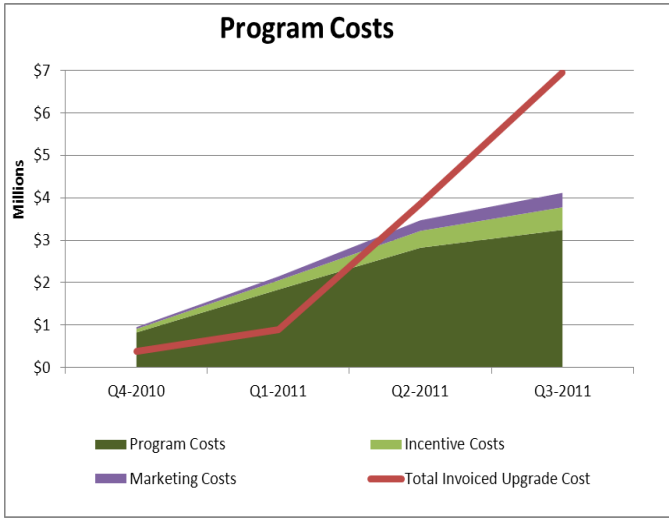
Agenda

- Call Logistics and Introductions
- Program Benchmarking – Definition and Purpose
- Overview of Guide for Benchmarking Residential Energy Efficiency Program Progress
- Invitation to Comment

If at first you don't succeed…

Success is what you define as the goal and objective of your program. But, if you can't measure it, how will you know if you reached it?

Benchmarking Program Progress



Definition:

Comparing a program's outcomes

1. to past performance (in practice today)
2. to peers (difficult without consistency)

Value:

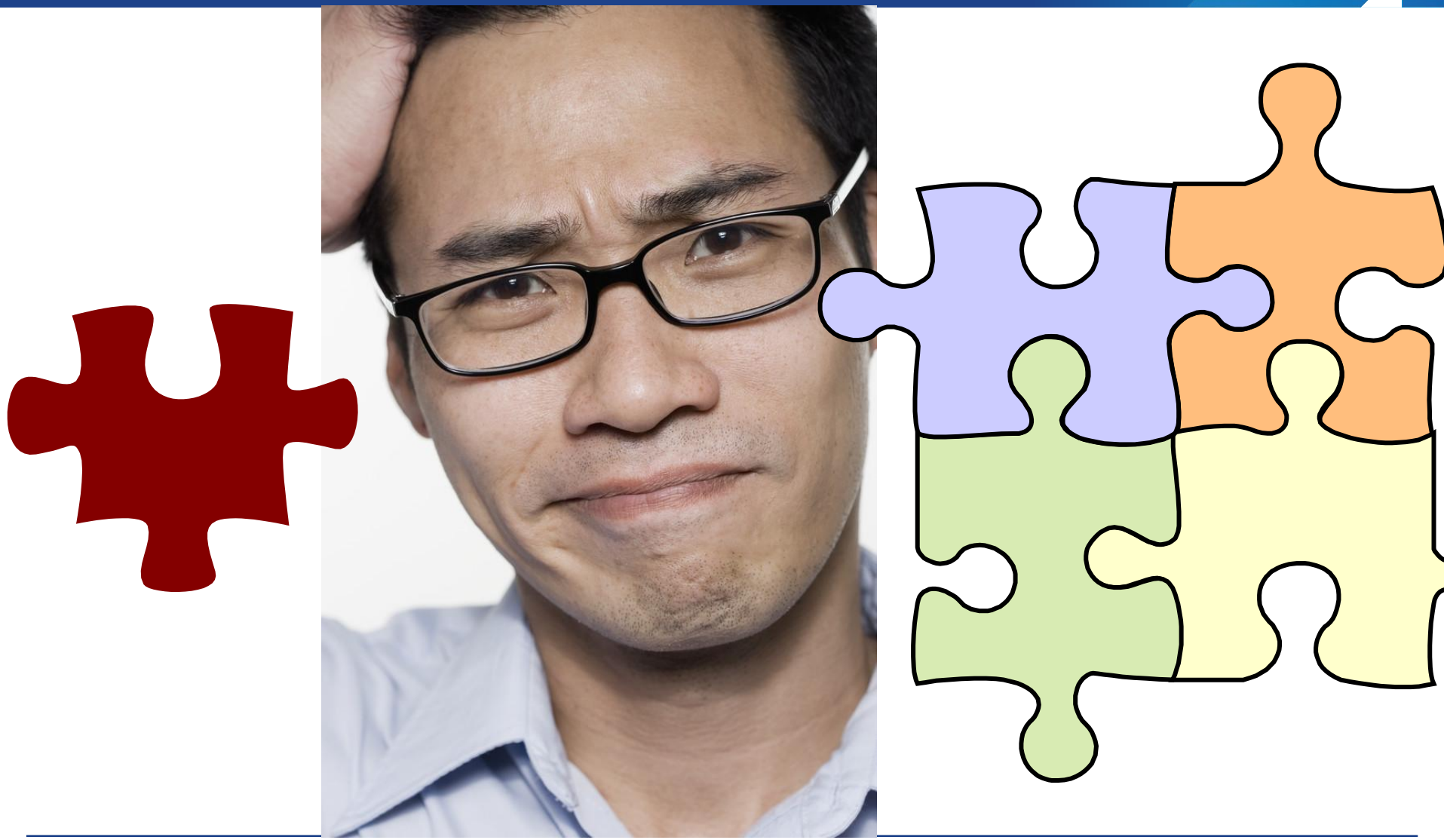
1) Communicate progress
   - Policy goals are being achieved (energy savings, jobs, etc.)
   - Spending of public funds is effective
2) Assess when and where to make program design changes
3) Justify continued or additional investment

Challenge

Each program makes independent decisions on how to track and measure program progress.

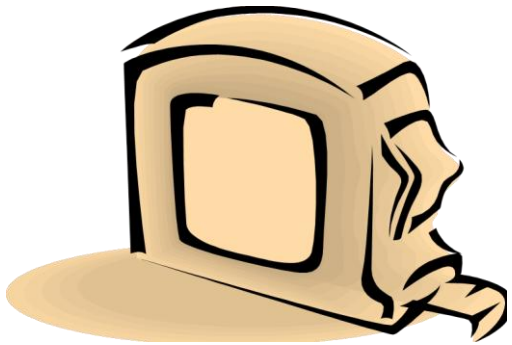
- ☺ The intended purpose is achieved
- ☹ Some part of the cost may be unnecessary if it duplicates what others have already done
- ☹ Aggregating program results within a state, region or nation is difficult because of different:
  - Definitions
  - Data collection
  - Program costs categories
  - Methods to estimate energy savings
- ☹ Comparing results to another program is difficult because of information mismatch

Information Mismatch



Benchmarking Guide

- We developed a Guide for Residential Program Progress Benchmarking
  - Optional Resource for Better Buildings Residential Network (BBRN)
- The Guide includes:
  - Information on the value and uses of benchmarking, and how it fits into broader program planning
  - Action steps and templates for developing and implementing a Benchmarking Plan
  - Information on useful outcome metrics
    - Definitions and protocols for measuring
    - Uses and value of each metric
    - Challenges of collecting data
  - Examples of benchmarks from current programs



- We invite you to review the Guide and provide feedback

Guide Development Plan

Task
Draft list of proposed benchmarks
Brief BTO Residential Team on proposed benchmarks
Comments on benchmarks to include in Guide Outline
Guide Outline
Webinar on Development of Guide (present outline and plan)
Draft Guide
Test Drive Guide and Example Benchmarks with up to 9 Programs
Webinar on Draft Guide
Draft Guide Comment Period
Revised Final Guide

We are at the Public Input stage

Questions?

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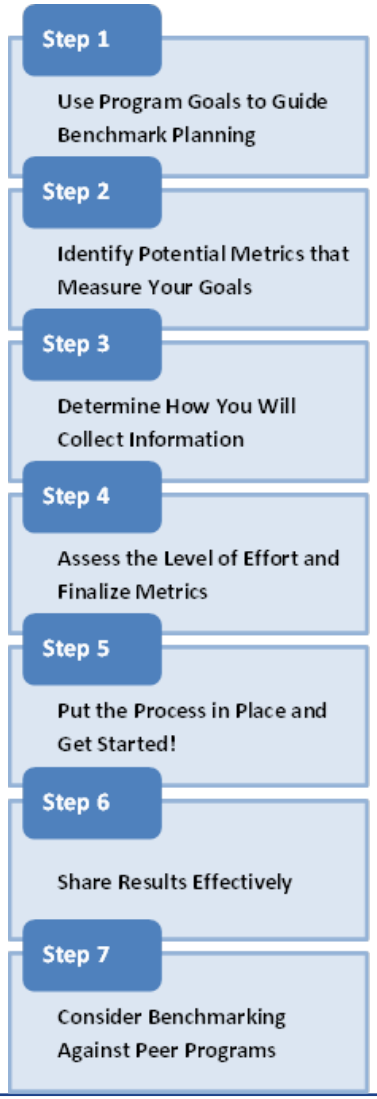
Guide Overview



- The Guide provides step-by-step guidance for setting up an effective Benchmarking process – follow these steps to:
  - identify metrics that will provide useful information to strengthen your programs;
  - put an effective process in place to collect, track, and analyze data;
  - develop benchmarks that reflect your program performance across time and in comparison to others; and
  - report about your performance in effective ways.

Guide Overview

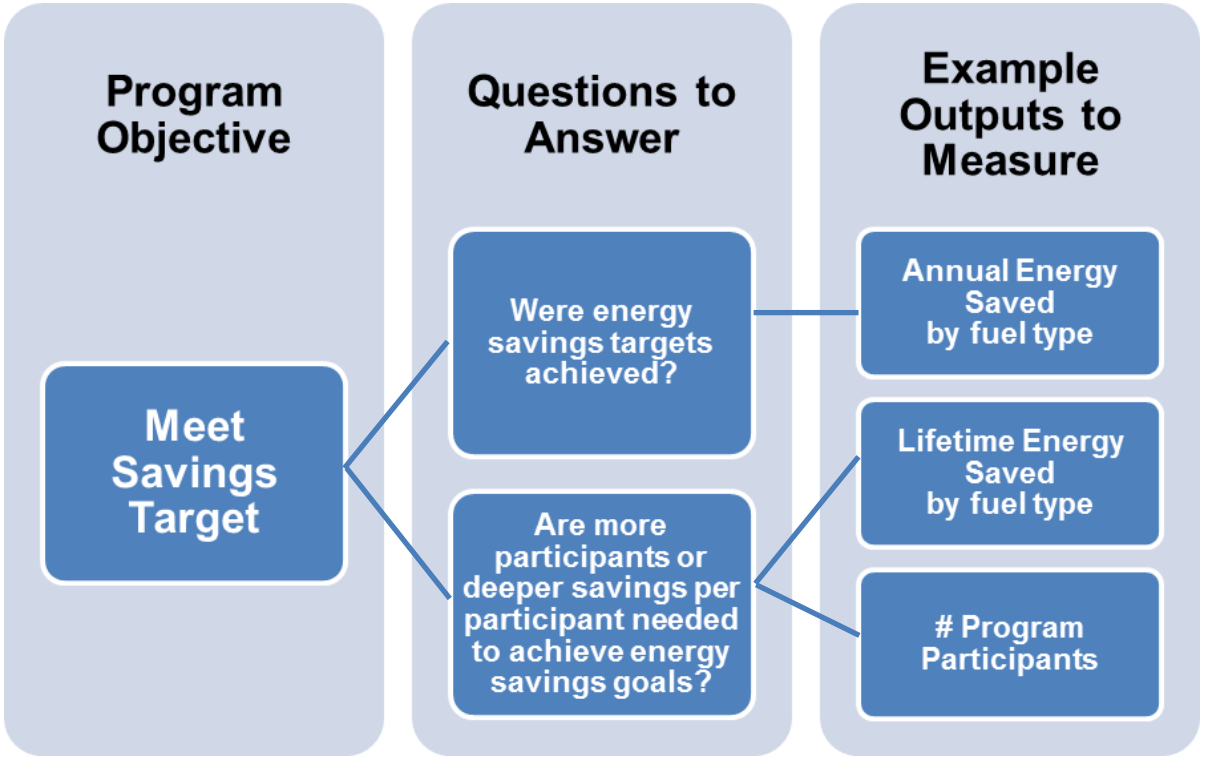
The Guide also provides:

- Recommendations for metrics –
  - Standardized definitions to increase comparability
  - Recommended metrics to chart program outcomes
  - Normalized metrics useful for comparing year-to-year and for peer benchmarking
- Peer Group Benchmarking Examples from the Better Buildings Neighborhood Program
- Additional Resources and References

Step 1 Use Program Goals to Guide Benchmark Planning

Keeping program objectives front and center as you design a benchmarking strategy provides a focus for making decisions

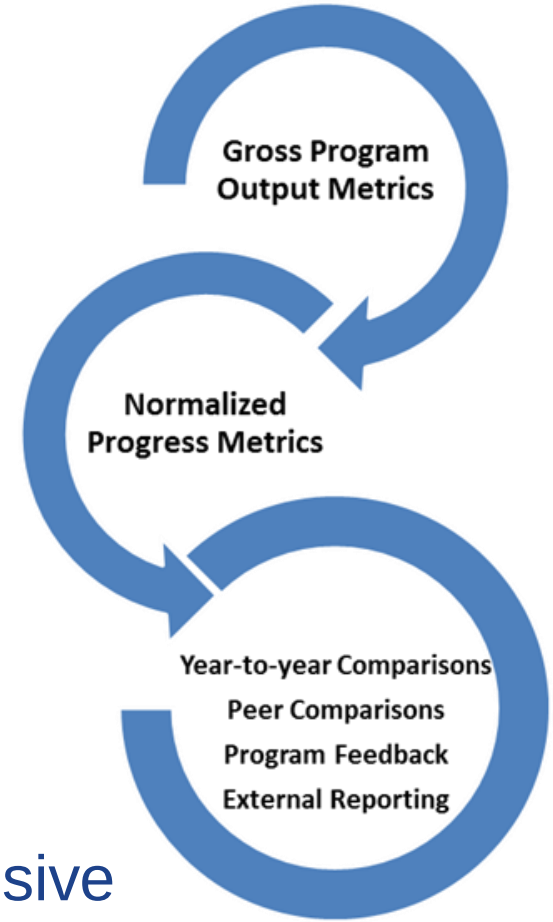
- Re-visit your program objectives
- Prepare a list of questions relevant to those objectives



Step 2 Identify Potential Metrics that Measure Your Goals

Choose metrics to consider for your benchmarking plan

- Program output metrics
  - Basic descriptive information about your program
  - Have value as indicators of total program size and impact
- Metrics useful for progress or peer comparisons
  - Express in a relevant per-unit way, or *normalized*



Two Tables in Appendix present an extensive set of potential metrics to consider.

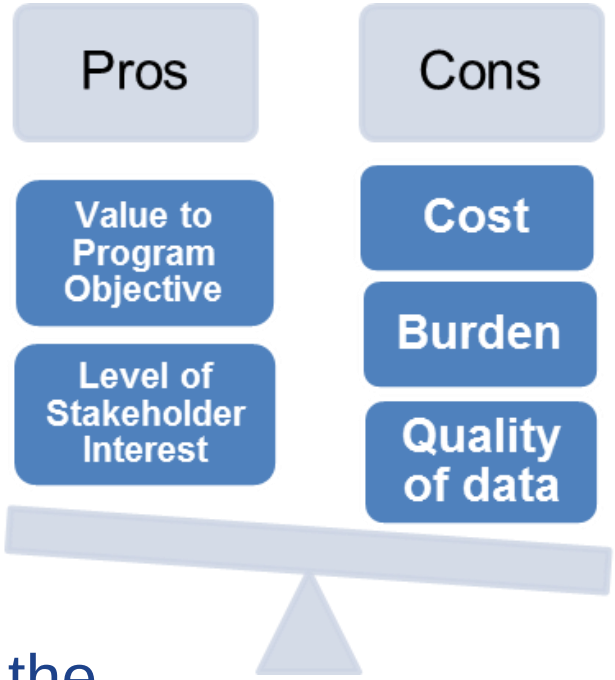
Step 3 Determine How You Will Collect Information

- Review characteristics of effective data systems
- Outline your data collection and analysis needs
- Develop data collection procedures and identify tools

Metric	Data Needed to Calculate (Definition)	Data Collection Level	Data Owner	Collection Frequency
Step 2	**Step 3**			
EXAMPLE: Average customer monetary savings per upgrade across program	Estimated Annual Energy Bill Savings in Dollars	Per Home Upgrade Project	Home Assessor Contractor	Each Occurrence
	Unique Home Upgrade Project Identifier	Per Home Upgrade Project	Home Assessor Contractor	Each Occurrence
	Upgrade Completion Date (define this as the date of invoice)	Per Home Upgrade project	Contractor	Each Occurrence

Step 4 Assess the Level of Effort and Finalize Metrics

- Assess the feasibility, burden, and cost of data collection and analysis
- Consider the value and relevance of each metric



After this analysis, you should have the information needed to identify the most-effective ways to invest your benchmarking funds

Step 4 Sample Worksheet

Metric & Value	Data Needed to Calculate (Definition)	Data Collection Level	Data Owner	Collection Frequency	Feasibility	Burden	Cost
Step 2	Step 3				Step 4		
EXAMPLE: Average customer monetary savings per upgrade across program 🔴	Estimated Annual Energy Bill Savings in Dollars	Per Home Upgrade Project	Home Assessor Contractor	Each Occurrence	Need to specify a method to estimate savings	Need to train on estimating savings. May add to time to business process, but can also be presented to customer as a benefit. 🟡	🟡
	Unique Home Upgrade Project Identifier	Per Home Upgrade Project	Home Assessor Contractor	Each Occurrence	Need a process for assigning. Could be provided or assigned by program.	Low – add a project identifier field to records 🟢	🟢
	Upgrade Completion Date (define this as the date of invoice)	Per home upgrade project	Contractor	Each Occurrence	Available on paper or electric form of receipt.	Common business practice 🟢	🟢
For Assessing Value, Burden, and Cost: 🟢 LOW 🟡 MEDIUM 🔴 HIGH							

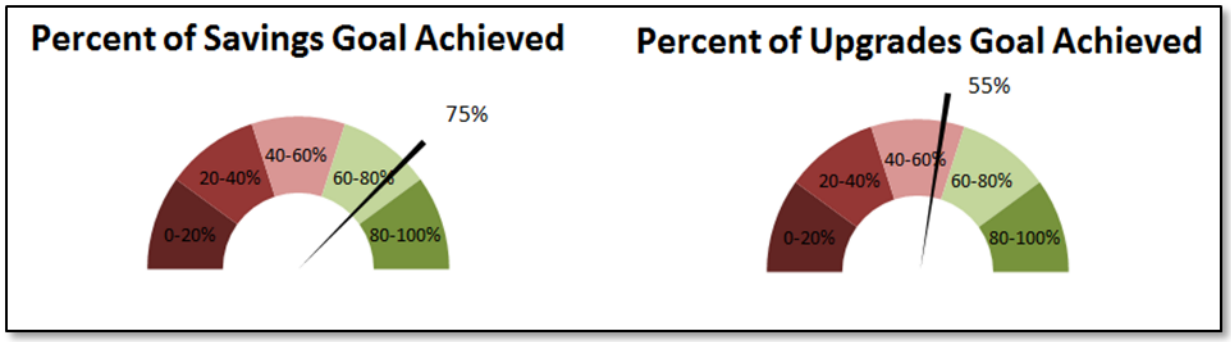
Step 5 Put the Process in Place and Get Started!

- Secure buy-in from leadership, staff, and stakeholders
- Formalize your Benchmarking Plan – this will help:
  - map out the information and resources needed
  - communicate expectations to staff and stakeholders
  - provide specific direction for all parties to use as the project is rolled out
- Plan for feedback and change
- Launch your Benchmarking Effort

Step 6 Share Results Effectively

The effort will be most beneficial if you effectively communicate to others not only your results but also the context of your progress in ways that are meaningful to them.

- Present information in effective ways
- Use appropriate levels of detail in your communications
- Provide context for your results



Step 7 Consider Benchmarking Against Peer Programs

- Consider the benefits and challenges of comparing your performance to others
- Best results come when:
  - Definitions, assumptions, and calculations for determining values are as standardized as possible
  - Comparisons are made to suitable peers
- To help address these challenges, Appendix A presents Recommended Benchmarking Metrics
- To provide some preliminary comparisons, Appendix B presents BBNP Peer Group Benchmarking Examples

Appendix A Recommended Benchmarking Metrics

- Common Terms and Definitions
- Table 1: Gross Program Outcome Metrics

ID #	Gross Program Outcome Metric	Value	Challenges / Comments	Used to Calculate:
		ENERGY SAVINGS		
6	Annual energy savings [by fuel type] for total program (across all completed upgrades) Fuel types: • For each individual fuel affected: ○ electric savings (kWh, kW) ○ natural gas savings (therms) ○ other fuel savings (MMBtu) • Total energy savings across all fuels addressed, in common units (MMBtu)	• Show progress compared to energy savings goals. • Communicate savings potential to future participants. • Inform program decision to increase participation or deepen savings per participant to achieve energy savings goals. • Inform program methods for estimating savings. • Communicate the impact to stakeholders.	• Energy savings are typically reported as gross estimated annual savings. It is important to clarify to avoid confusion with lifetime savings or net verified savings. • The program should review and approve of the methodology used by contractors to estimate savings. • If the methodology only estimates savings of one fuel type (e.g., electricity), the total energy savings will be underestimated. Some methodologies are better able to estimate savings due to multiple measures. • This metric requires that you have made a decision about what constitutes a completed upgrade – see **Definitions** above for guidance. • Use a total energy metric for peer comparisons.	Metrics #28 and 33

Appendix A Recommended Benchmarking Metrics

- Table 2: Normalized Program Progress Metrics

ID#	Normalized Progress Metric	Value	Challenges / Comments	Calculation	X = Useful as a Peer Benchmark
PROGRAM EFFICIENCY					
27	% of building stock improved OR % of eligible homes improved	• Inform program design to increase conversion-to-upgrade rate. • Communicate the impact to stakeholders. • Communicate the business opportunity to encourage more investment.	• Depending on the ratio of eligible homes to entire building stock, it may be more informative to the program to calculate % eligible homes improved. • Building stock will be variable across programs, making this metric not very useful as a peer benchmark. • Often effective to compare to past years' progress by reporting as a cumulative % change over many years.	# home energy upgrades completed / total building stock [**Metric #2 / Metric #26**] OR # home upgrades completed / # eligible homes [**Metric #2 / Metric #25**]	

Appendix B

BBNP Peer Group Benchmarking Examples

Benchmark Metric	# of Partners	# of Records	% of Original Dataset	Min	Max	Mean	Median
Average Invoiced Cost Per Upgrade	37	63,363	85.3%	$169	$34,080	$6,971	$5,554
Observations: - Three partners comprise of 79.5% of projects with Invoiced Cost between $100 and $1,000. - Two partners comprise of 32.8% of projects with Invoiced Cost between $1,000 and $2,000. - Two partners comprise of 50% of projects with Invoiced Cost between $2,000 and $3,000.							
Additional Population Segmentation: US Census Regions							
• Northeast	10	24,339	32.8%	$355	$34,065	$7,988	$6,700
• Midwest	8	17,495	23.6%	$130	$24,360	$3,905	$2,729
• South	9	8,514	11.5%	$275	$35,151	$7,680	$6,995
• West	10	12,988	17.5%	$169	$39,983	$8,787	$7,000

Planning Worksheets

Identify the types of feedback information that would be useful for documenting success in meeting your program goals

Common Residential Program Objectives	Questions to Answer	Outcomes to Measure
	Step 1	Step 2
Meet Savings Targets	**EXAMPLES:** Were energy savings targets achieved?	**EXAMPLES:** Annual Energy Saved by energy type
	Are more participants or deeper savings per participant needed to achieve energy savings goals?	Lifetime Energy Saved by energy type # upgrade projects
Meet Savings Targets		
Provide Customer Benefit		
Increase Market Penetration		

Planning Worksheets

Gather and organize information necessary for data collection, and to assess burden, cost, and value in order to prioritize metrics

Metric & Value	Data Needed to Calculate (Definition)	Data Collection Level	Data Owner	Collection Frequency	Feasibility	Burden	Cost
Step 2	**Step 3**				**Step 4**		
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For Assessing Value, Burden, and Cost : 🟢 LOW 🟡 MEDIUM 🔴 HIGH

Questions?

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The Future of the Guide

- Post Revised Guide by February 1, 2015
- Continue dialogue with stakeholders about common definitions.
- Draft detailed metrics specification document.
- Investigating modification of the Standard Energy Efficiency Data (SEED) platform to aggregate and store program metrics.

Invitation to Comment

Download the draft Guide:

http://energy.gov/eere/better-buildings-residential-network/downloads/guide-benchmarking-residential-energy-efficiency

Send Comments to Dale Hoffmeyer

DaleHoffmeyer@EE.Doe.Gov

By January 16, 2015.

Optional Feedback Template

You may use this Feedback Template to provide comments.
Please send comments to dale.hoffmeyer@ee.doe.gov.

Send Dale email to request template

Feedback Template

Guide Section	Specific Questions	Additional Comments and Suggestions
Introduction	Is the purpose and content of the Guide clearly stated? | YES | NO | Would your recommend to the Guide to program manager peer in other state? | YES | NO |	
Step 1. Use Program Goals to Guide Benchmark Planning	Is Step 1 relevant to your program planning process? | YES | NO |	
Step 2. Identify Potential Metrics that Measure Your Goals	Is Step 2 easy to follow? | YES | NO | Are the resources in the Appendix adequate to complete step 2? | YES | NO |	

continues

THANK YOU

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