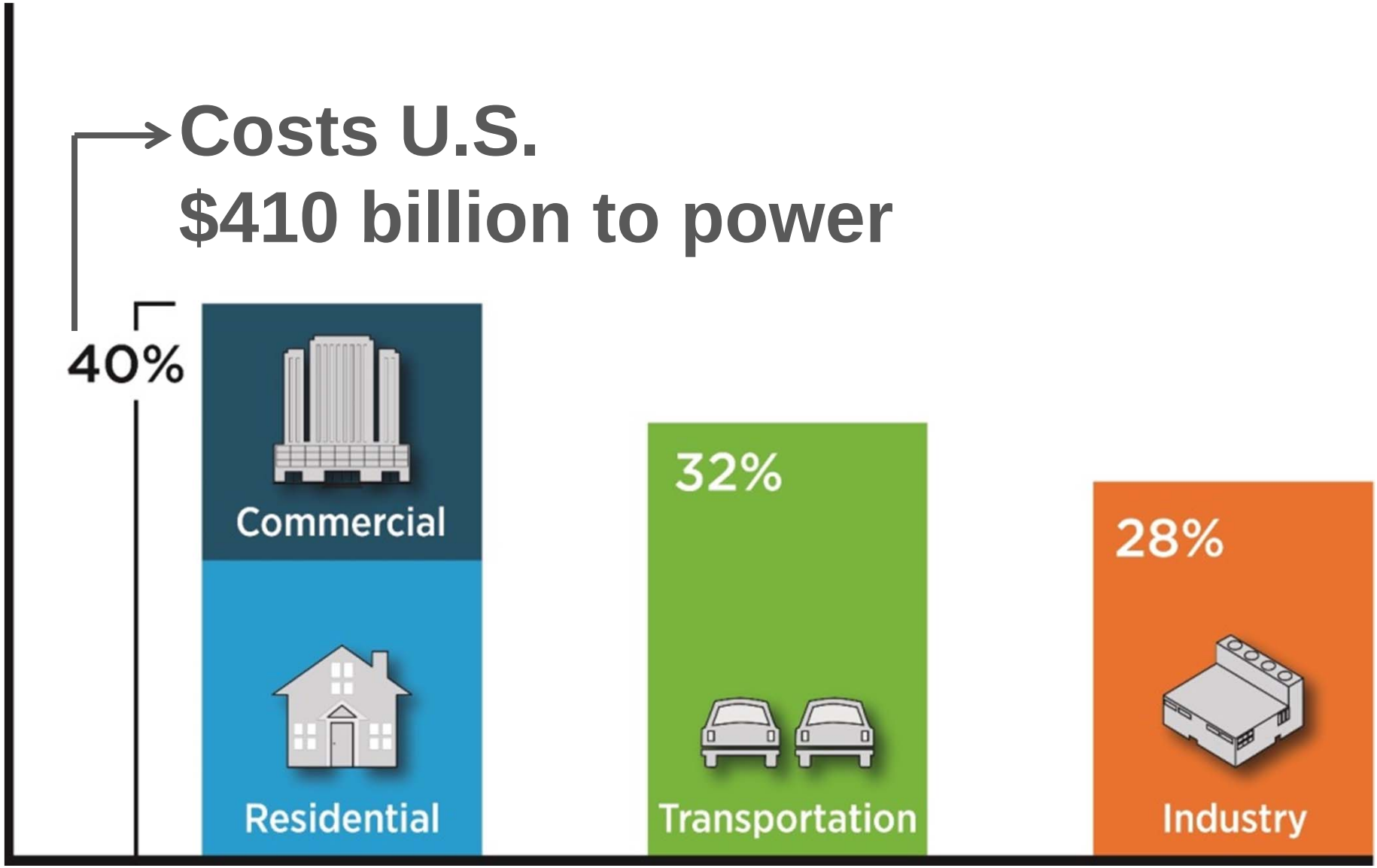
Driving Innovation, Speeding Adoption, Scaling Savings

An Overview of the Building Technologies Office

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

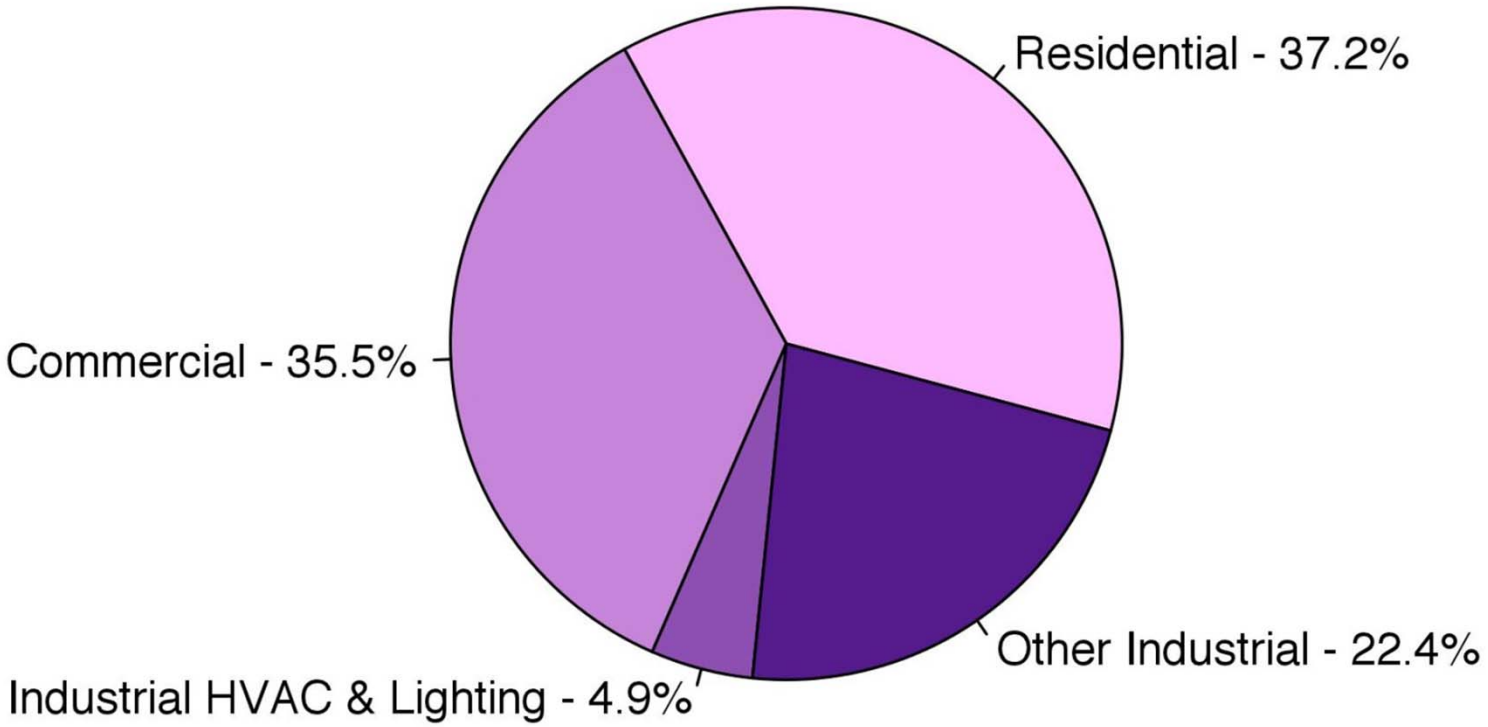
Roland Risser
Director, Building Technologies Office

National Energy Consumption



National Electricity Use

Our homes and buildings use 76% of all U.S. electricity

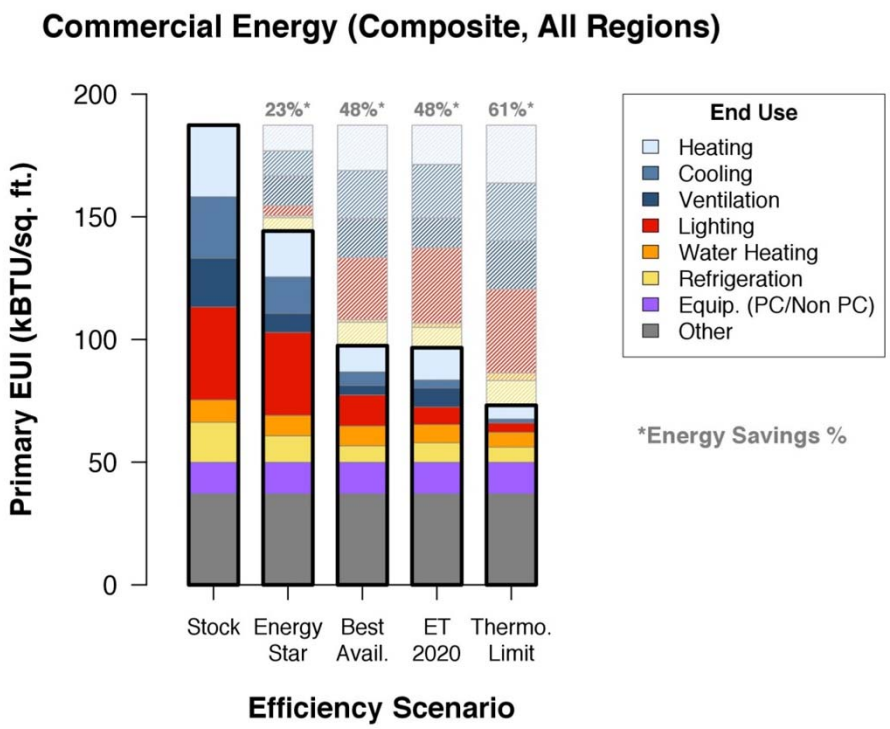


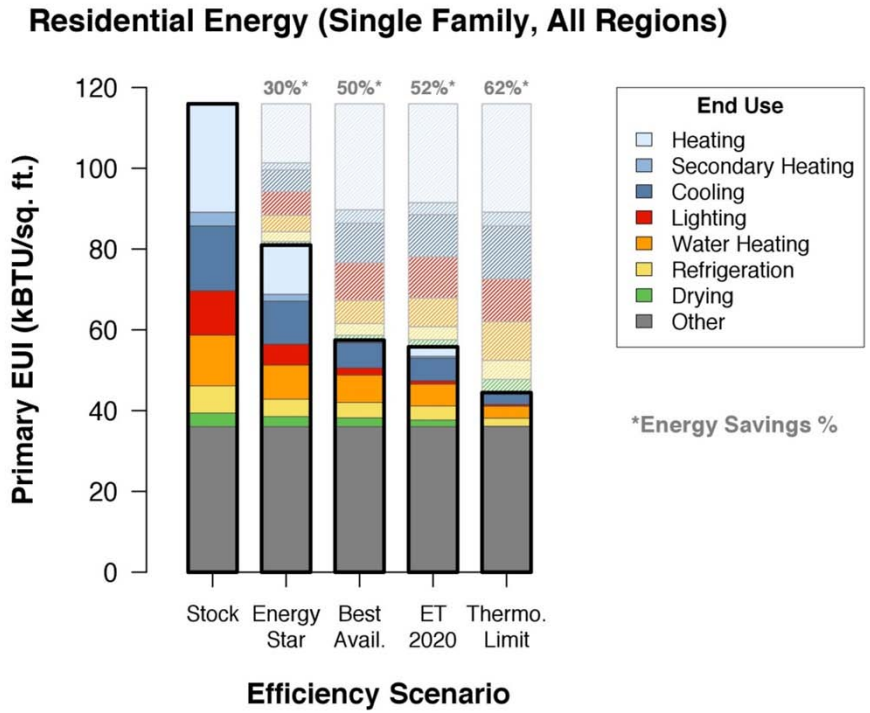
* Industrial HVAC and lighting data based on 2006 MECS

The Opportunity:
Energy Savings Potential for Buildings and Homes

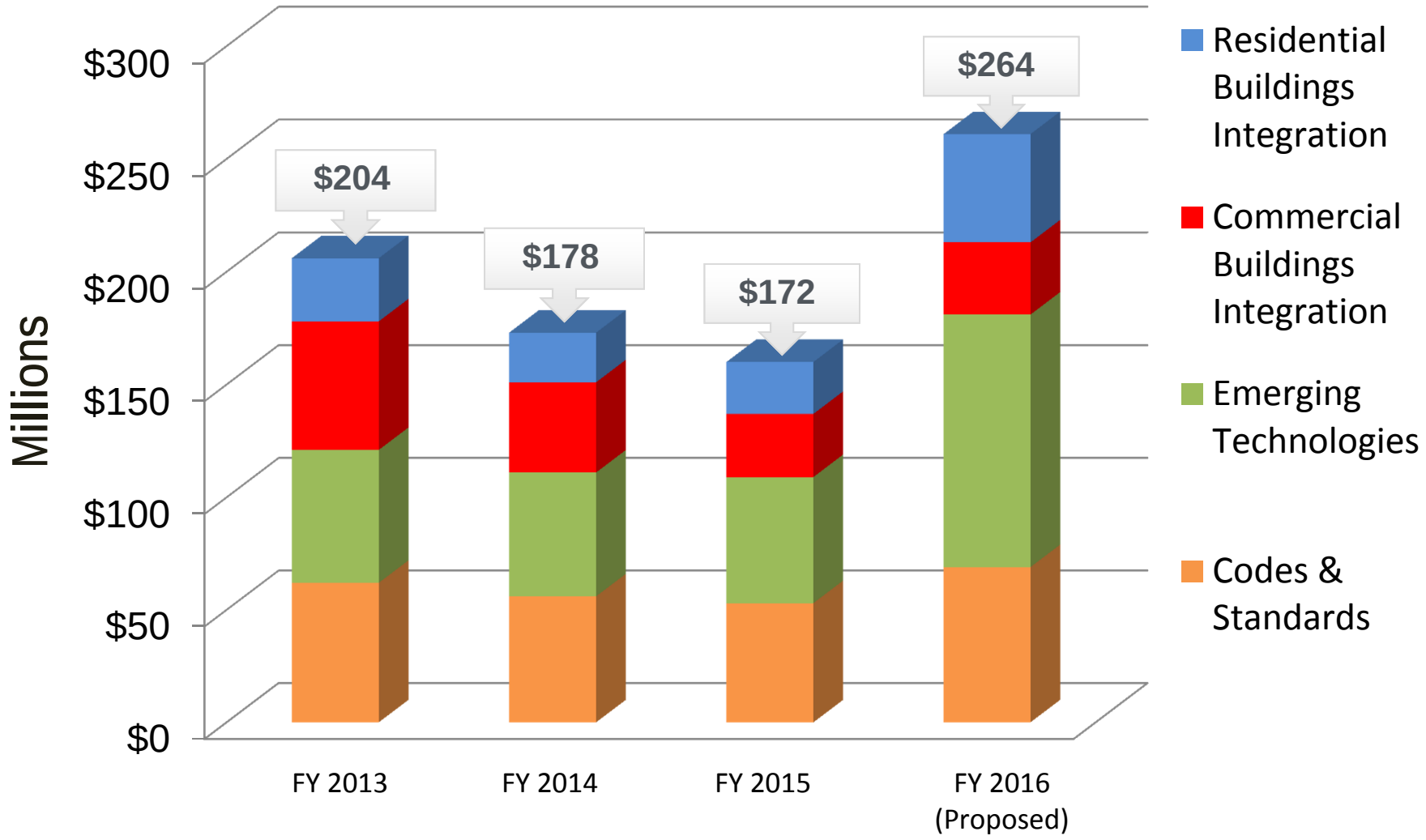
Reduce building energy use by

50%





BTO Budget: FY2013 – Proposed FY2016



The Complexity of Energy Use in the Buildings Market

SECTOR

113.6 million housing units

224 billion sq. ft.

20.73 quads

5.6 million commercial buildings

87 billion sq. ft.

17.78 quads

CONSTRUCTION TYPE

New Construction

Retrofit

Sample Envelope Types

Masonry

Wood frame

Metal frame

New Construction

Retrofit

BUILDING USE

Single-Family

Multi-Family

Manufactured Housing

Food Service

Retail

Hospitality

Real Estate

Education

Healthcare

Grocery

Public

CLIMATE

Marine

Cold/Very Cold

Hot Humid

Hot Dry/Mixed Dry

Mixed Humid

Sample Technology Areas (Gas and Electric)

BTO's Strategic Approach

1. Targeted Programs

Programs that target all segments of buildings market

2. Plan Ahead

Multi-year roadmaps of program goals

3. Assess Impact

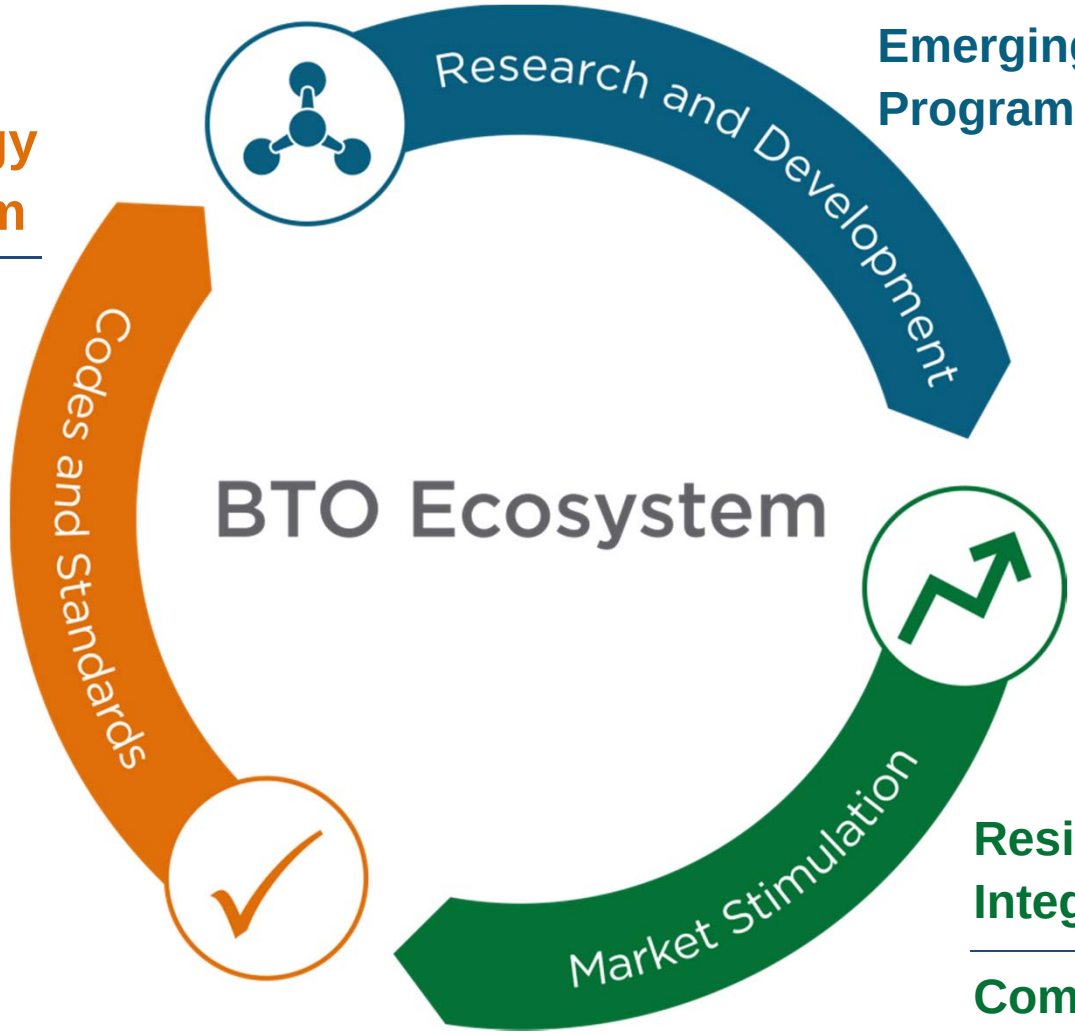
Quantify impact of our programs – before, during, after

BTO's 5 Programs

Tech-to-Market → Speed Adoption → Scale Savings

Building Energy Codes Program

Appliance Standards Program



Emerging Technologies Program

Residential Buildings Integration Program

Commercial Buildings Integration Program

Multi-Year Program Planning

Five Year Program Plans

Outline the specific goals, barriers, strategic approaches and key activities needed to meet BTO targets

Assessing BTO Impact at all Stages

Before

- Merit Review evaluation of core lab multi-year projects
- FOA evaluation

During

- BTO Peer Review
- Evaluate project performance
- Incorporate feedback into FY16 planning

After

- Independent Third Party Evaluation of completed RD&D
- Evaluate energy savings, economic, environmental benefits
- HVAC is ongoing; New Residential Construction is up next

FY 2015 Peer Review Objectives and Evaluation Criteria

Objectives

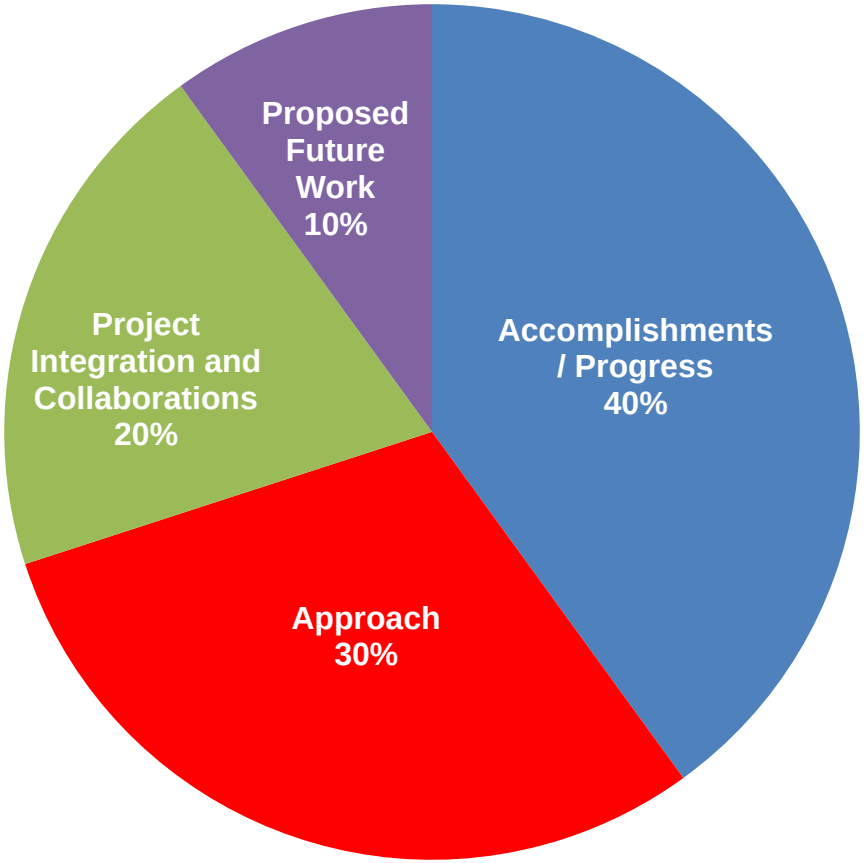
1. Communicate BTO program activities and their connections, highlighting: what we do; transparency; progress being made with taxpayer dollars

2. Objectively evaluate BTO projects

3. Provide a forum that promotes the creation of more collaboration and partnerships

4. Demonstrate DOE's role in energy efficiency

Evaluation Criteria Weighting



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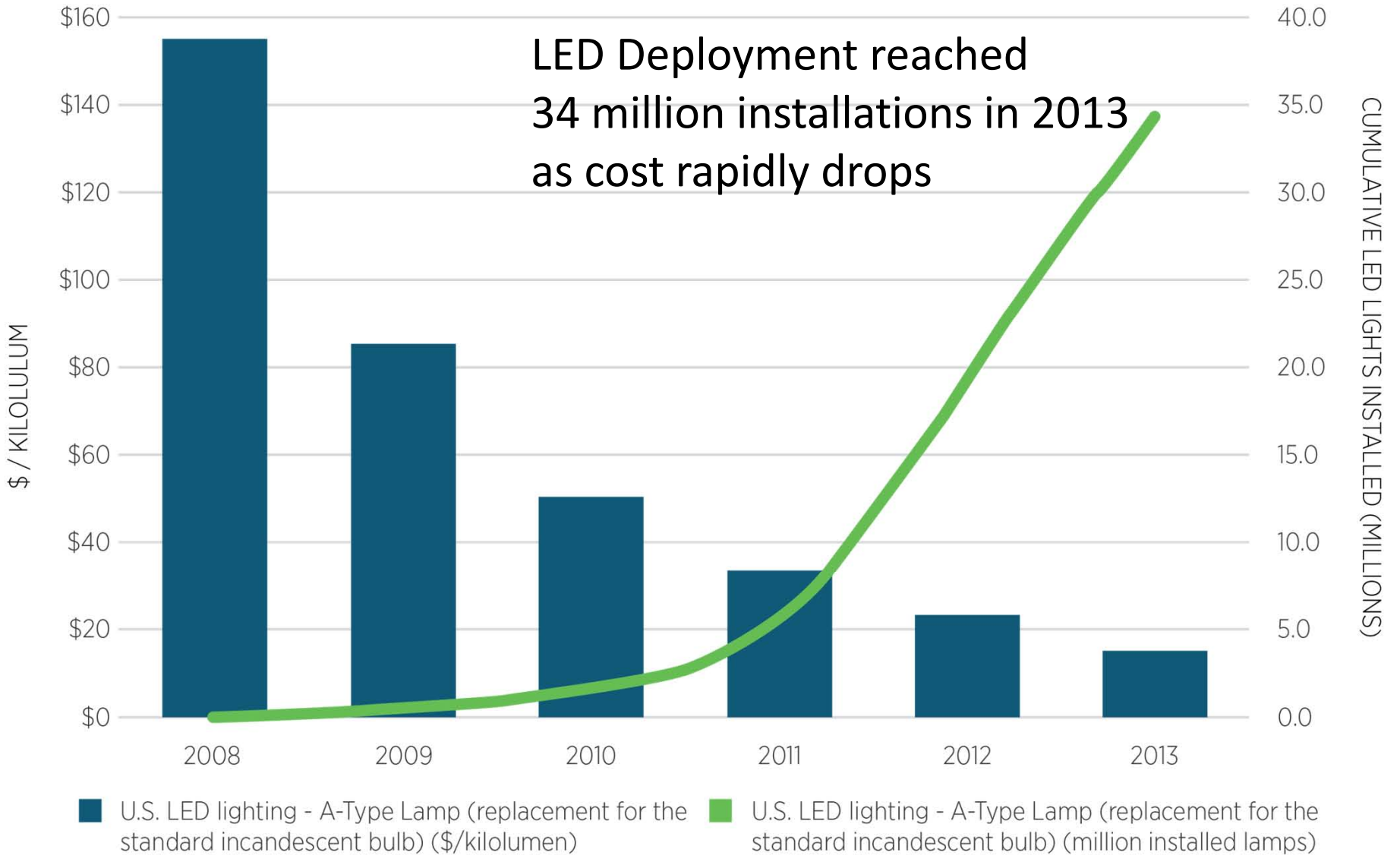
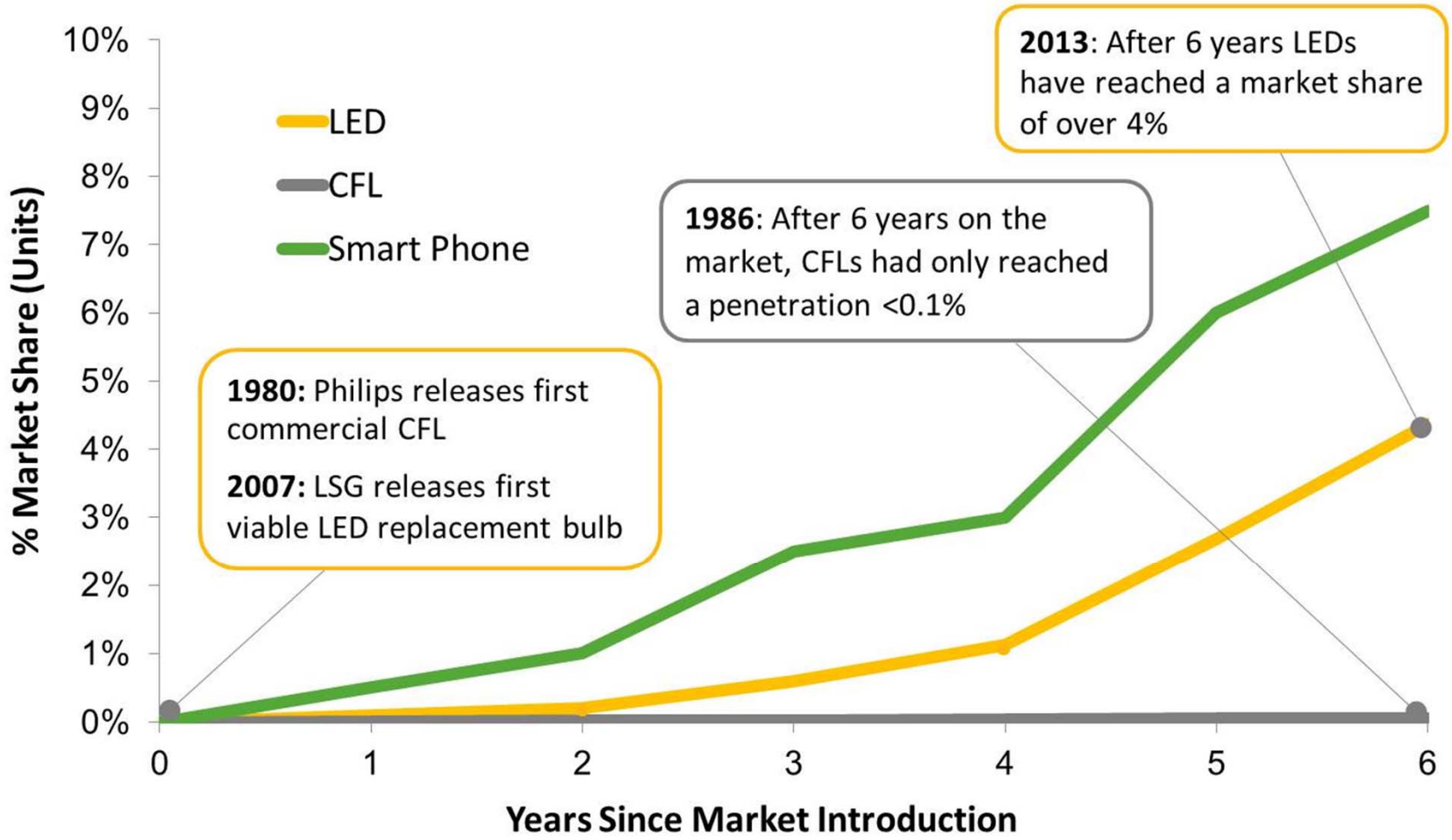
Impact Assessment:
LED Market Penetration Grows 90x from 2008 - 2013



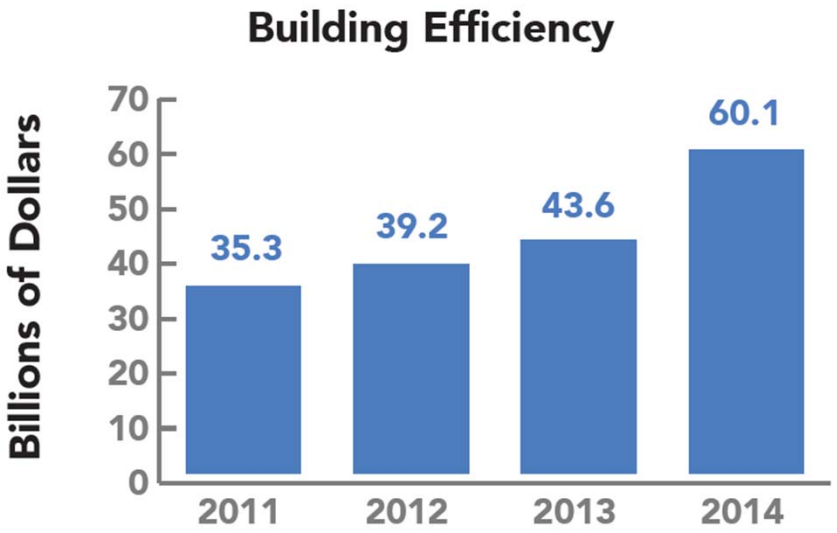
Lessons Learned: LEDs Tracking Ahead of CFLs

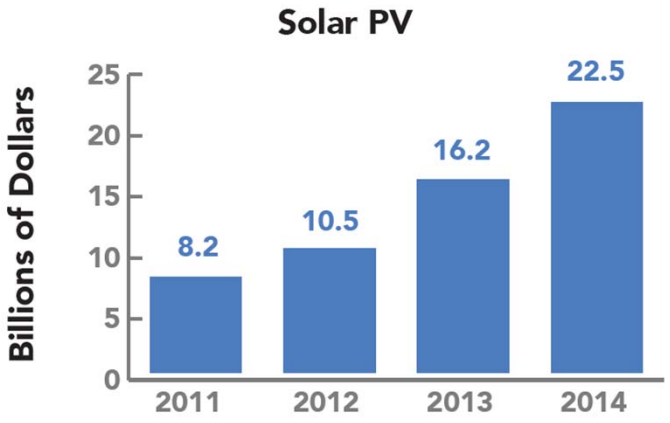
Market growth far outpacing that of a typical household product

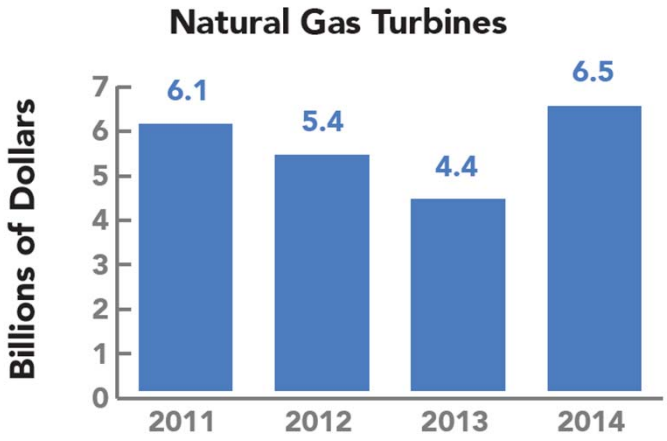


Source: Navigant Consulting

Building Efficiency Market Grows 43% in Four Years

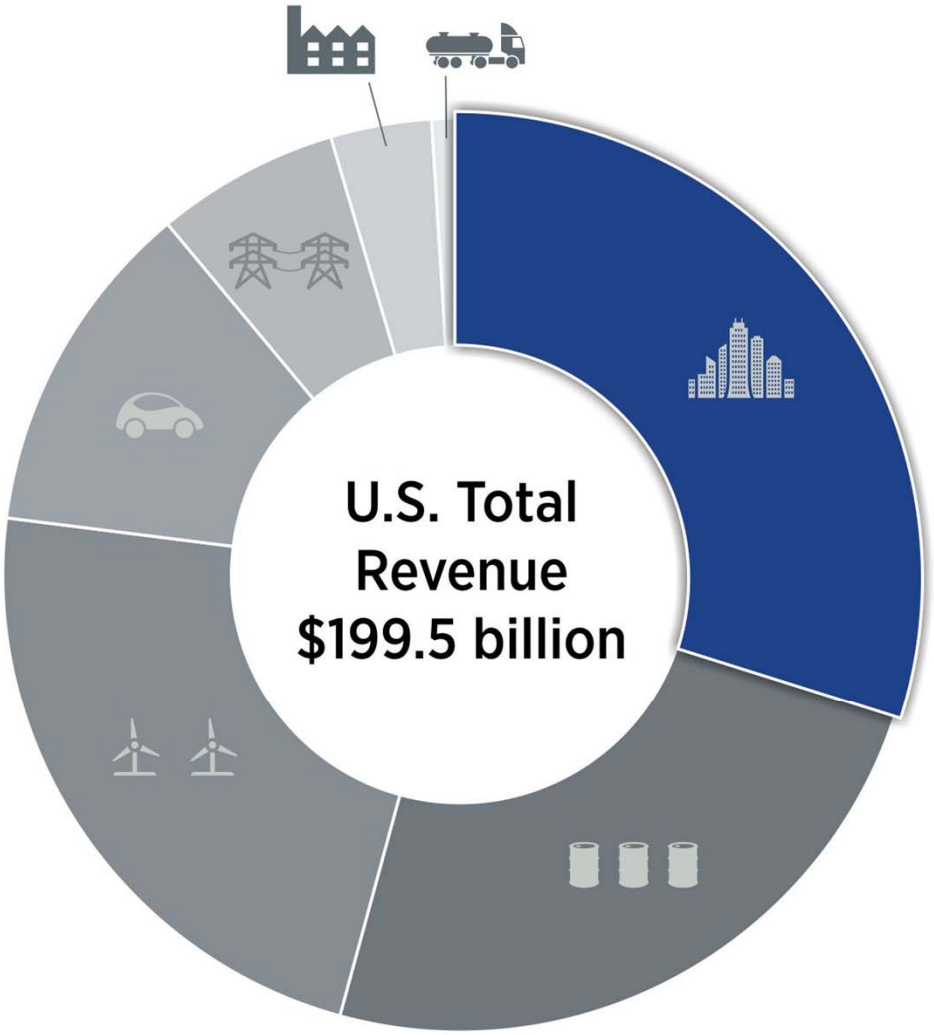






*43% increase excludes the 2014 addition of residential energy efficient lighting, which *is* shown in the chart

Building Efficiency Tops Revenue in U.S. Advanced Energy Market Segments

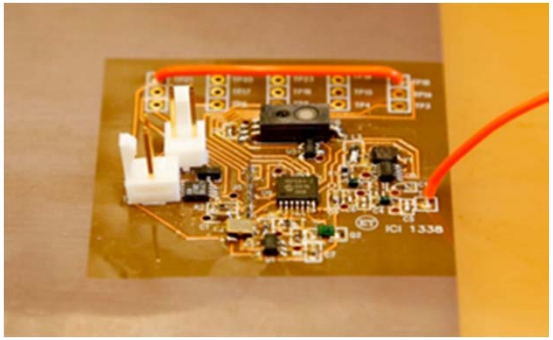


U.S. Revenue by Segment ($ in billions)

Building Efficiency	**$60.1**
Fuel production	$49.0
Electricity Generation	$45.8
Transportation	$24.1
Electricity Delivery	$13.1
Industry	$7.1
Fuel Delivery	$0.3

THANK YOU

Have an idea for the next big technology solution?
Submit it to our Buildings Crowdsourcing Community:
http://buildings.ideascale.com/



Learn more about BTO at **buildings.energy.gov**