

Advanced Commercial Buildings Initiative

2015 Building Technologies Office Peer Review



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

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Project Summary

Timeline:

Start date: October 01, 2013

Planned end date: September 30, 2016

Key Milestones

1. Year 1: Building and Program Benchmarking
2. Year 2: Program Development and Demonstration
3. Year 3: Deployment and Success Stories

Budget:

Total DOE \$ to date: \$812,262

Total future DOE \$: \$1,107,738

Target Market/Audience:

Building Industry, Municipalities, and Financial Institutions

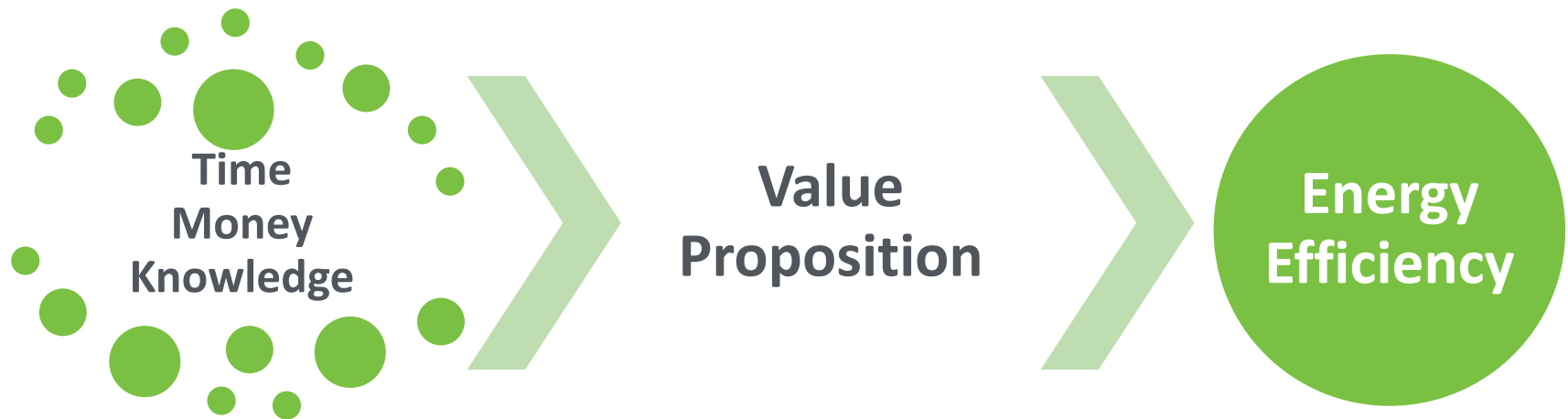
Key Partners:

City of Atlanta	Georgia Tech
Kendeda Fund	ORNL
Acuity Brands Lighting	Vermont Energy Investment Corp
Georgia Power	SEEA
JPB Foundation	Central Atl Progress

Project Goal:

The ABCI is utilizing a comprehensive strategy to overcome market barriers with cost-effective, research-driven solution packages which achieve aggressive energy savings targets in new and existing small commercial buildings. Existing programs are being leveraged in order to develop proven, scalable successes.

Purpose and Objectives

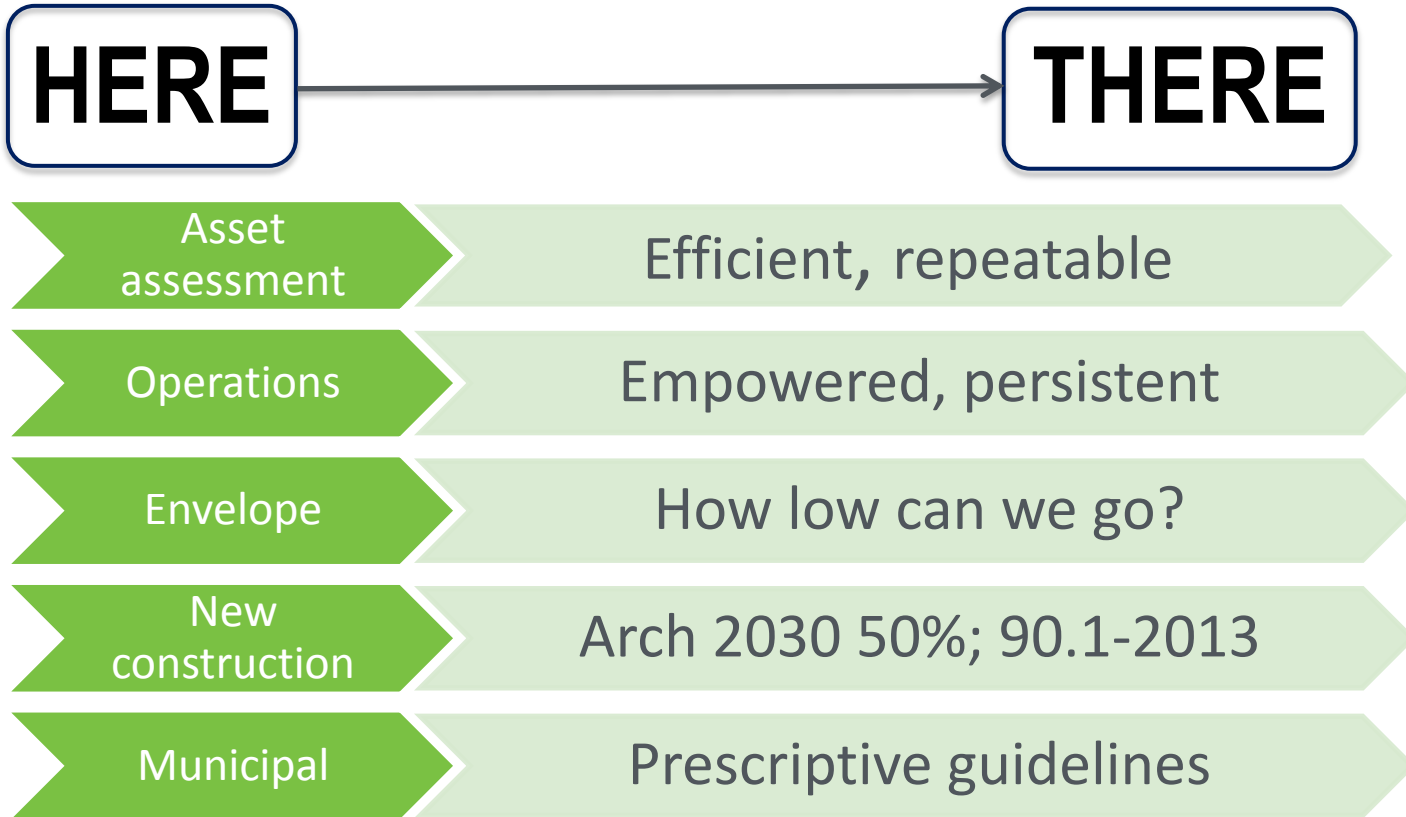


Target Market and Audience: Owners, Developers, Tenants, Architects , Engineers, Contractors, Municipalities, Code Officials, Utilities, Facility Managers, and Financial Institutions.

Planned Contribution to Energy Efficiency: ACBI will leverage existing programs via cost-effective engagement with third-party building performance experts.

- a. Recognition of program value (1-year)
- b. Replication of programs by peer organizations (1-3yr after project)
- c. Increased options for financing high performance (3yr+ after project)

Approach



Circuit-level monitoring

Performance testing

Benchmarking

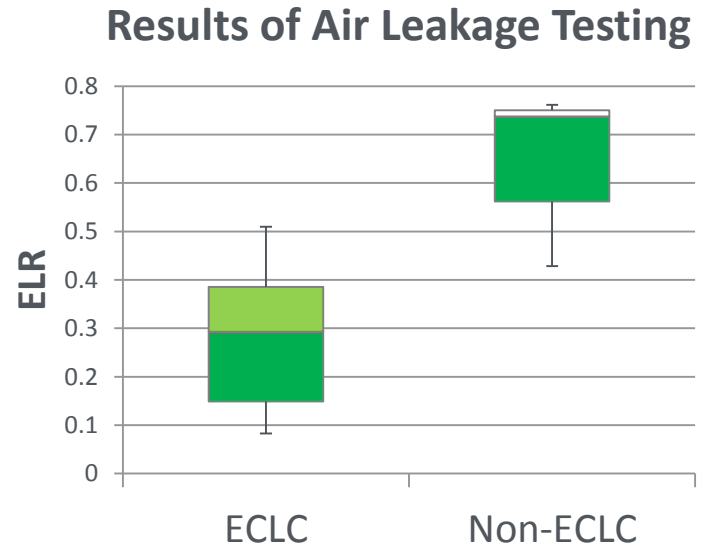
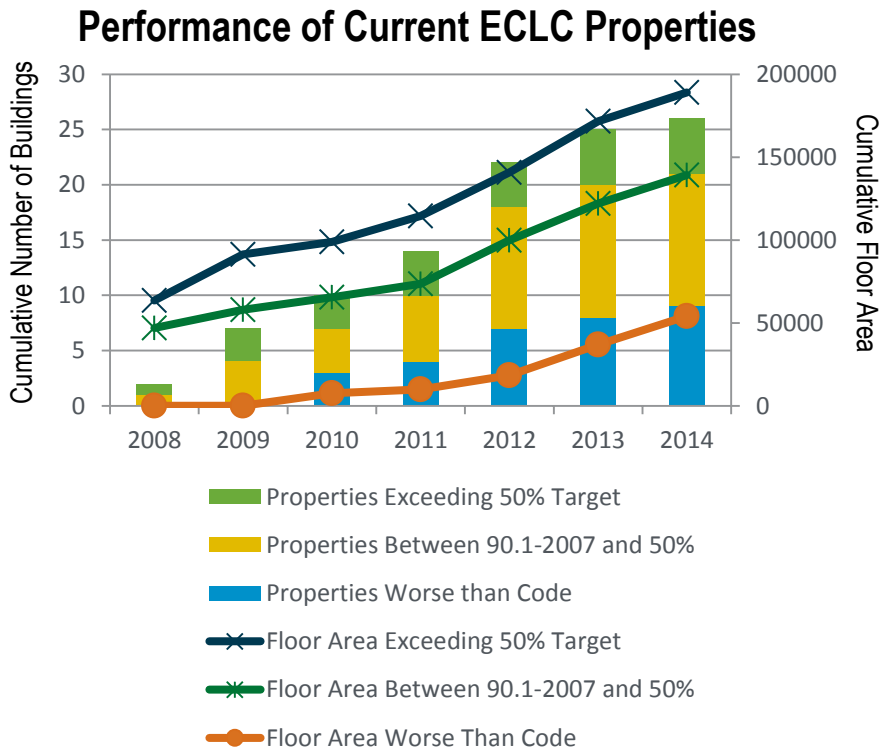
Energy modeling

Approach

Approach: Benchmark Program Performance

Key Issues: Deep dive into performance of buildings and program processes to analyze inputs and outcomes

Distinctive Characteristics: Identify high-value methods and measures



Progress and Accomplishments

Lessons Learned: Large potential benefits from air tightness

Accomplishments: Established benchmarks and demonstrated

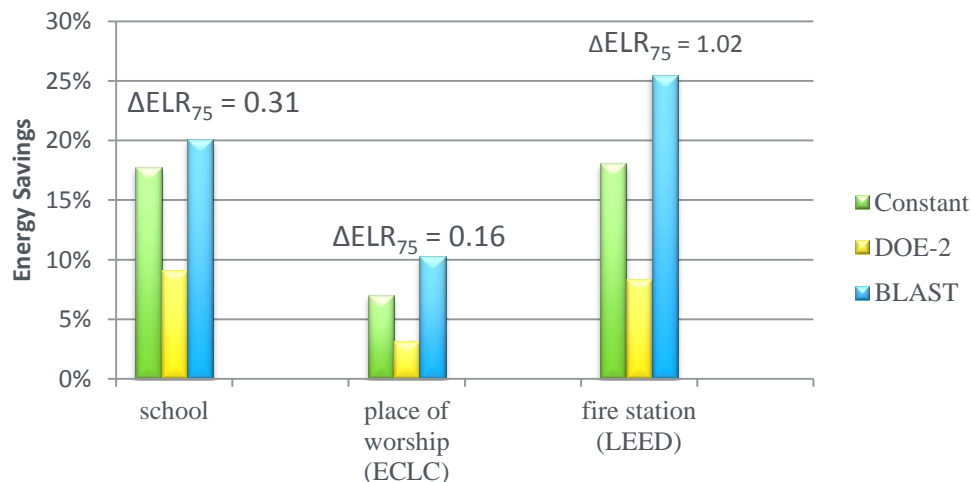
success and potential improvement

Market Impact: Energy and green building codes and programs; GSA and Federal requirements; Beyond Residential Testing course

Awards/Recognition: AIA National Convention, ASHRAE National Convention



Savings Due To Air Sealing, Energy Plus



Approach

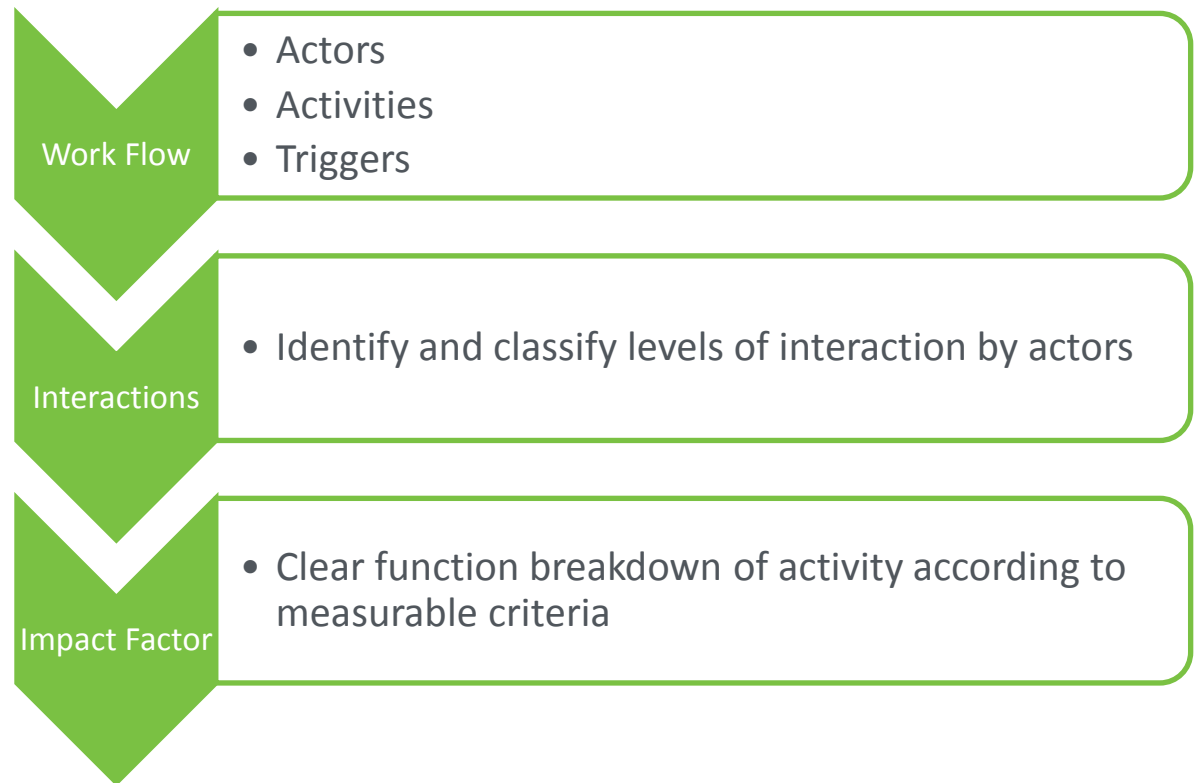
Approach: Optimize building assessment and analysis processes.

Key Issues: Bring efficiency to the process through improved systems; explore analysis and communication of financial message

Distinctive

Characteristics:

- Process model
- Uncertainty analysis

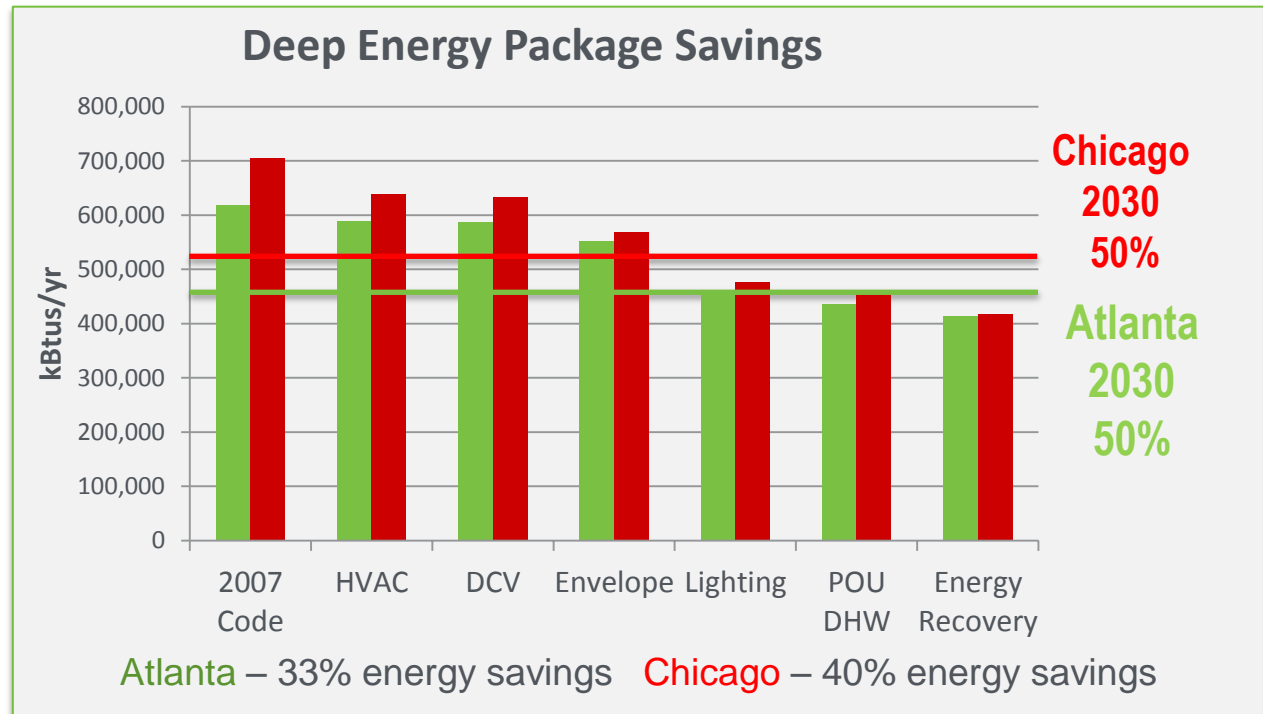


Progress and Accomplishments

Lessons Learned: Simple Solutions Lead to Big Impact

Accomplishments: Developed draft EarthCraft Light Commercial Deep Energy package; refining assessment and implementation protocols; produce targeted tools

- Fact Sheets
- Audit/Test Procedures
- Report Templates
- Design Guidelines



Boys and Girls Clubs

Phase	Clubs	Source savings (mmBtu)	Annual utility savings
Pilot	14	8,960	\$110,000
Potential	4,146	2,653,529	\$32,000,000

Progress and Accomplishments

Lessons Learned: Targeted Messaging Moves Markets – Who and What?



Progress and Accomplishments

Lessons Learned: Engagement key to success with local governments

Accomplishments: Benchmarked all City of Atlanta Fire Stations; partnered on City energy and water tracking process; technical assistance to City of Decatur to adopt building code requiring EE/green building for commercial and residential

Market Impact: CoA already saved \$60,000 through repairs; program coordinated through the Office of Sustainability led to prioritization on bond initiative and EE incorporated into Design Guidelines.

- Atlanta Better Building Challenge
- City Energy Project



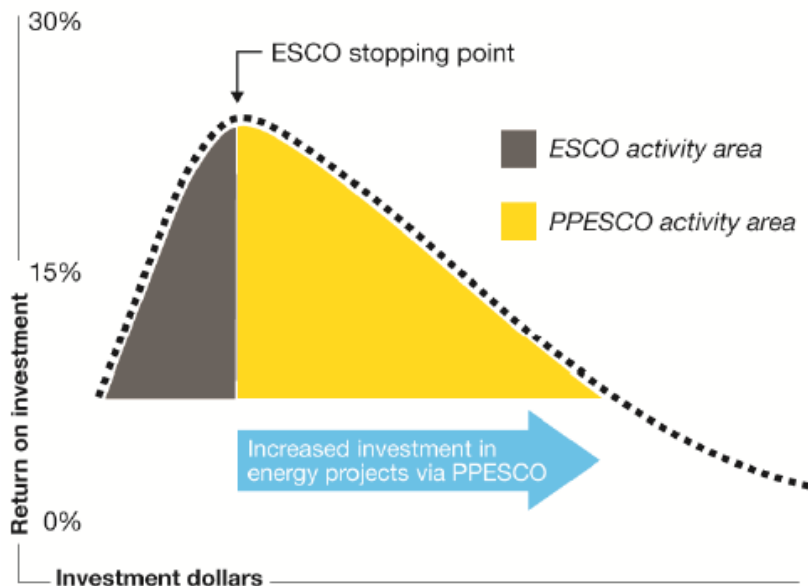
Potential 10,000 mmBtu/yr savings
20% reduction at 30 fire stations

Progress and Accomplishments

Lessons Learned: Finances a challenge, but providing access to capital alone not enough to move many projects

Accomplishments: Partnering with VEIC on test case for Public Purpose ESCO in SE market; engaged with Georgia Power and others to facilitate incentive programs

Market Impact: Replication of Grants-to-Green underway in two markets; upgrade partnership with Boys and Girls Clubs of America expanding; PPESCO may provide deep-energy retrofit service to underserved market



Project Integration and Collaboration

Project Integration:

Green *Dubouque*

Signature
Research, Inc.



**BOYS & GIRLS CLUB
OF AMERICA**

Maine
Community
Foundation



Partners, Subcontractors, and Collaborators: Georgia Tech and ORNL (uncertainty analysis); Vermont Energy Investment Corp (public purpose ESCO); The Kendeda Fund and The JPB Foundation (existing non-profit building assessments); City of Atlanta (municipal building improvement process)

Communications:



ETEC™
The Energy Conservatory

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Next Steps and Future Plans

Next Steps and Future Plans:

- Pilot:
- EarthCraft Light Commercial Deep Energy Public Purpose ESCO
 - City of Atlanta Fire Rescue Design Guidelines
 - City of Decatur Building Ordinance
- Assess:
- Upgraded Building Assessment and Recommendation Process
 - Potential Market for Professional Training and Certifications
 - Uncertainty Analysis
 - Continue Integration of DOE Tools: Asset Scoring Tool, ESPM, BPD, BEDES
- Demonstrate and Deploy Energy Efficiency Programs
- Share Success Stories



REFERENCE SLIDES

Project Budget

Project Budget: Project is now in full swing and expect to complete on schedule.

Variiances: Added large partner, JPB Foundation, as cost share to Southface staff salary.

Cost to Date: Federal share expenditures are at 42%. That includes the majority of supplies for energy monitoring. Current cost share percentage is 56%.

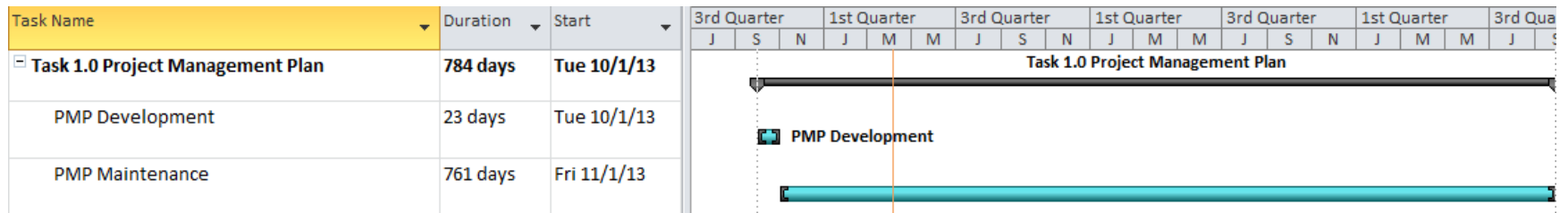
Budget History

Oct 1, 2014– FY2014 (past)		FY2015 (current)		FY2016 – Sept 30, 2016 (planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
\$453,998	\$669,800	\$736,958	\$640,500	\$689,044	\$609,700

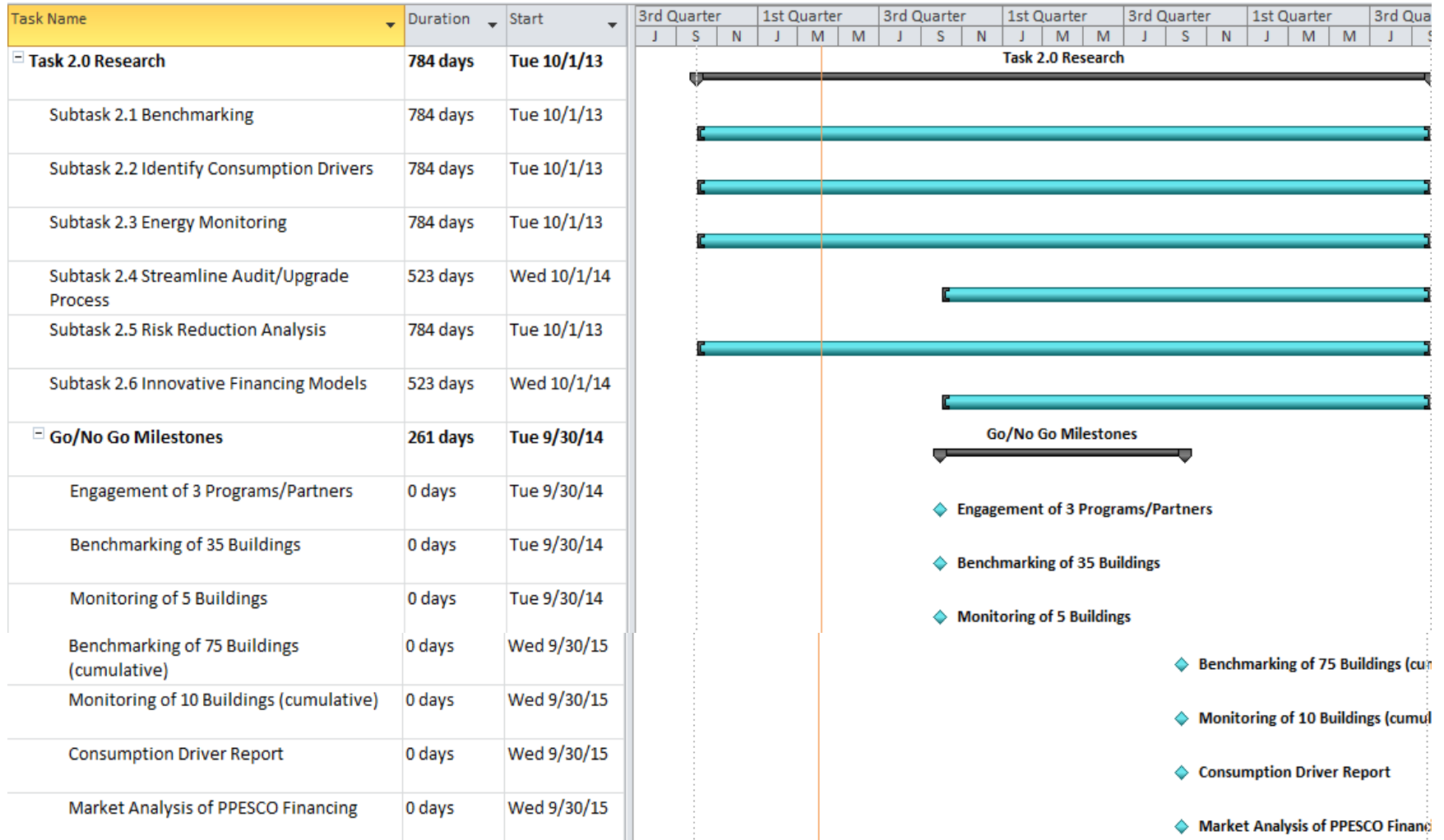
Project Plan and Schedule

Achieving Milestones and Go/No-Go Criteria including:

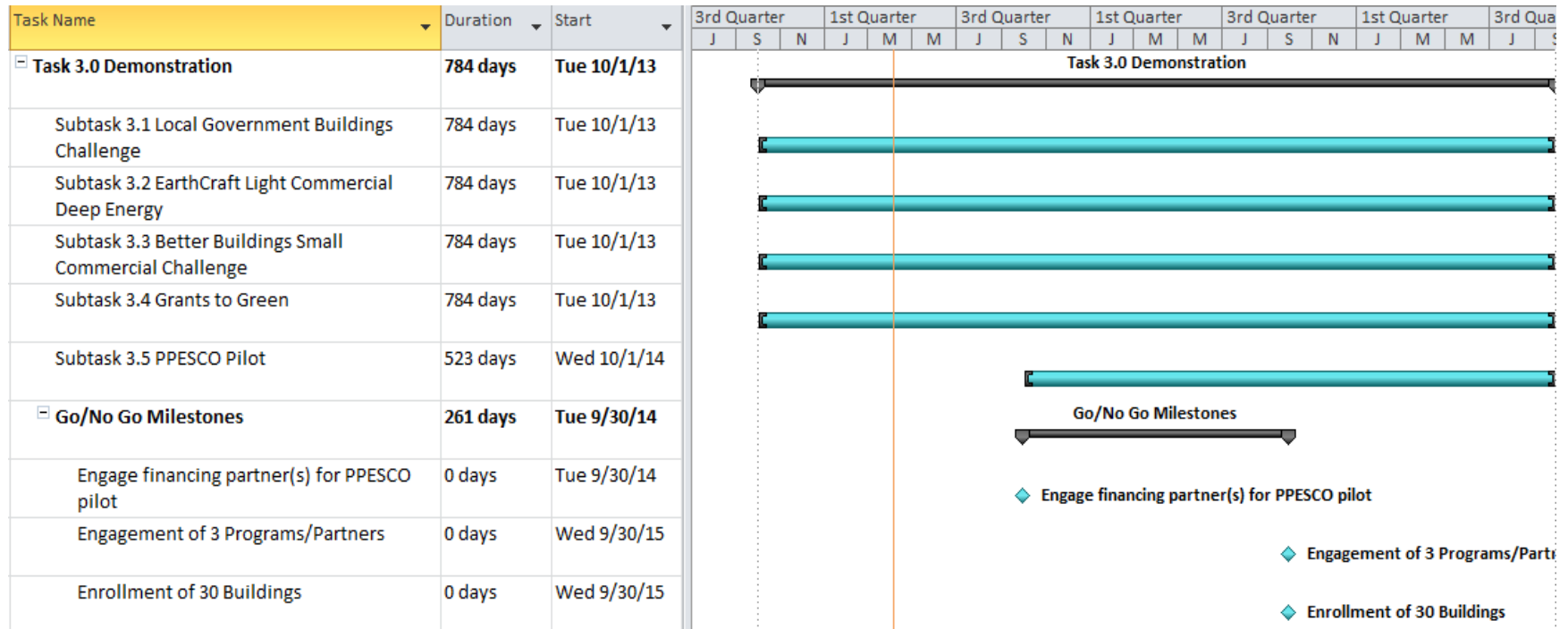
- Benchmarking existing small commercial buildings
- Monitoring new and existing buildings
- Engaging programs to achieve energy efficiency goals
- Exploring innovative financing models
- Uncertainty analysis through process model



Project Plan and Schedule



Project Plan and Schedule



Project Plan and Schedule

