Workgroup Agenda – July 12, 2011

- Welcome/Introductions
- Business Incentive Program
- Qualified Partner/Trade Allies
- Small Business Direct Install
- Natural Gas Program
- Business Sector Training
  - Lunch
- Multifamily Efficiency Program (non-low income)
- Small Business Low Program
- Programs anticipated to expire
  - Maine Advanced Building
  - Small Business Audit Program
  - Commercial Project Grants
  - Municipal Project Grants
  - Retro-commissioning Pilot

Business Incentive Program

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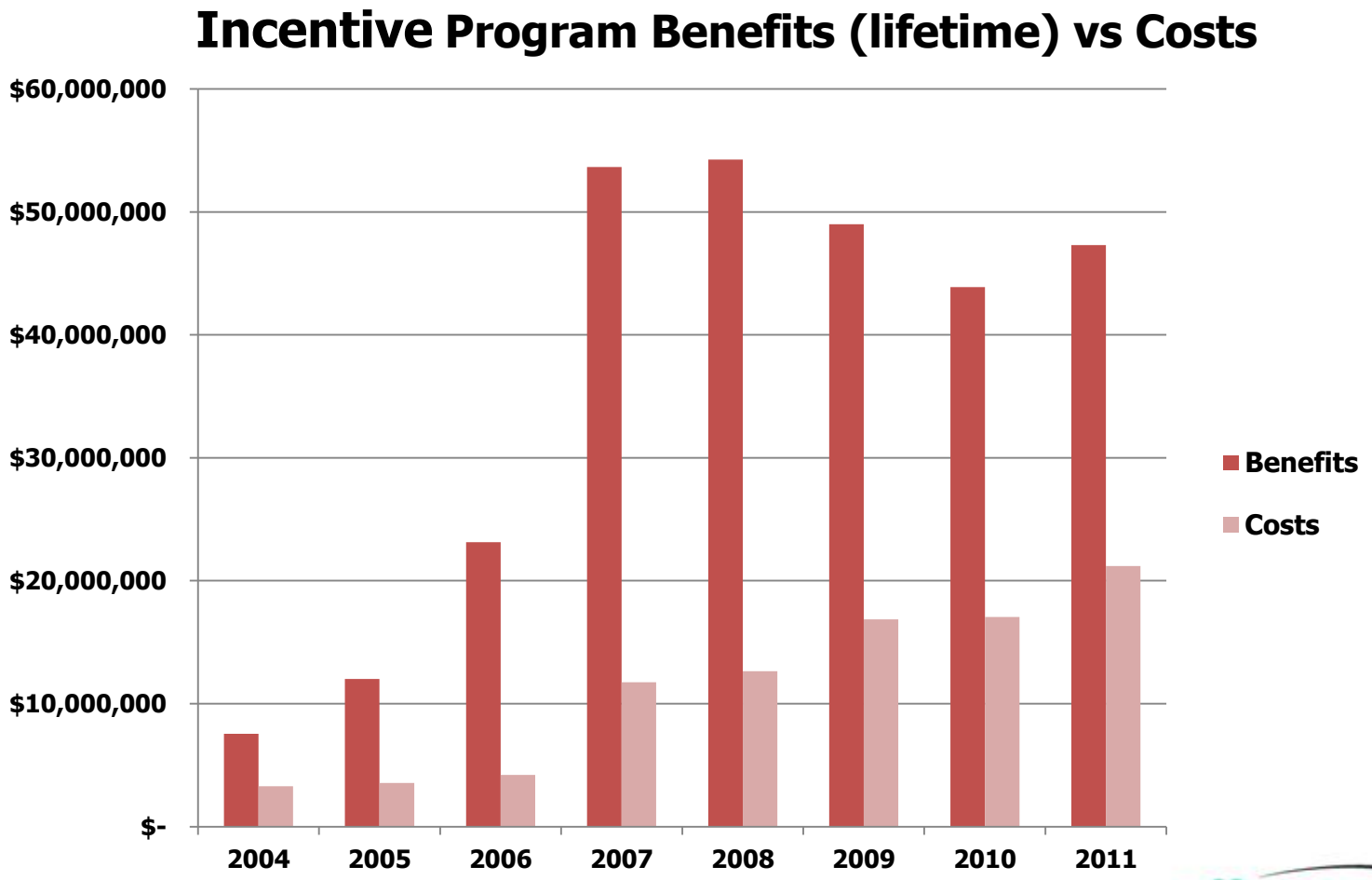
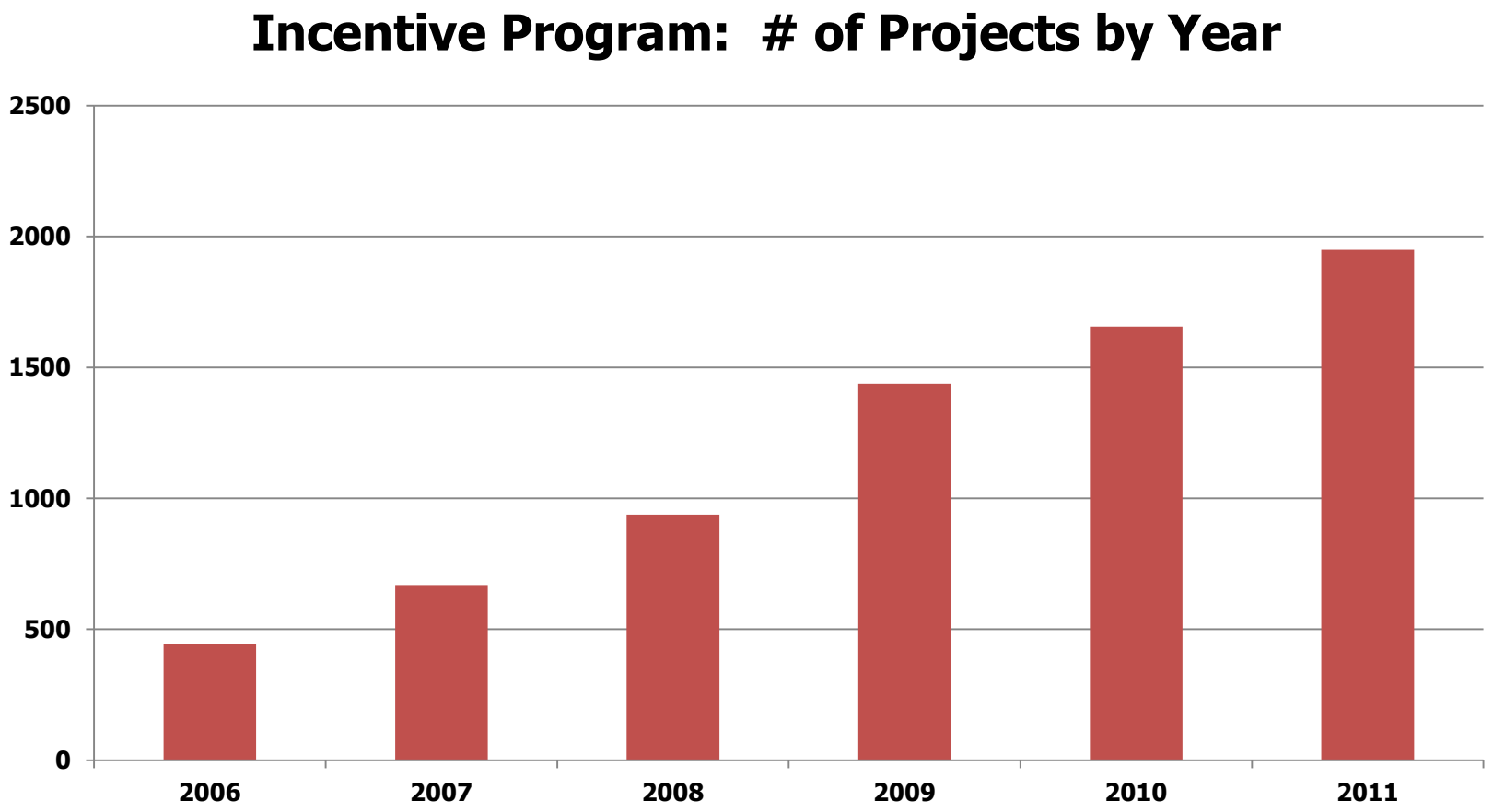
Business Incentive Program

- **Program Description & Purpose**
  - Provide financial incentives to help cover incremental costs, technical assistance, education, quality control
    - New – Retrofit / Replace on Burnout
  - Prescriptive & Custom Measures
    - Lighting – HVAC – Compressed Air – VFD – Refrigeration - Agriculture
  - Mature program (since 2002)
  - Small-Medium-Large Customer
  - Qualified Partners – supported by EM Contractor(s)

Past Program Results – Business Program

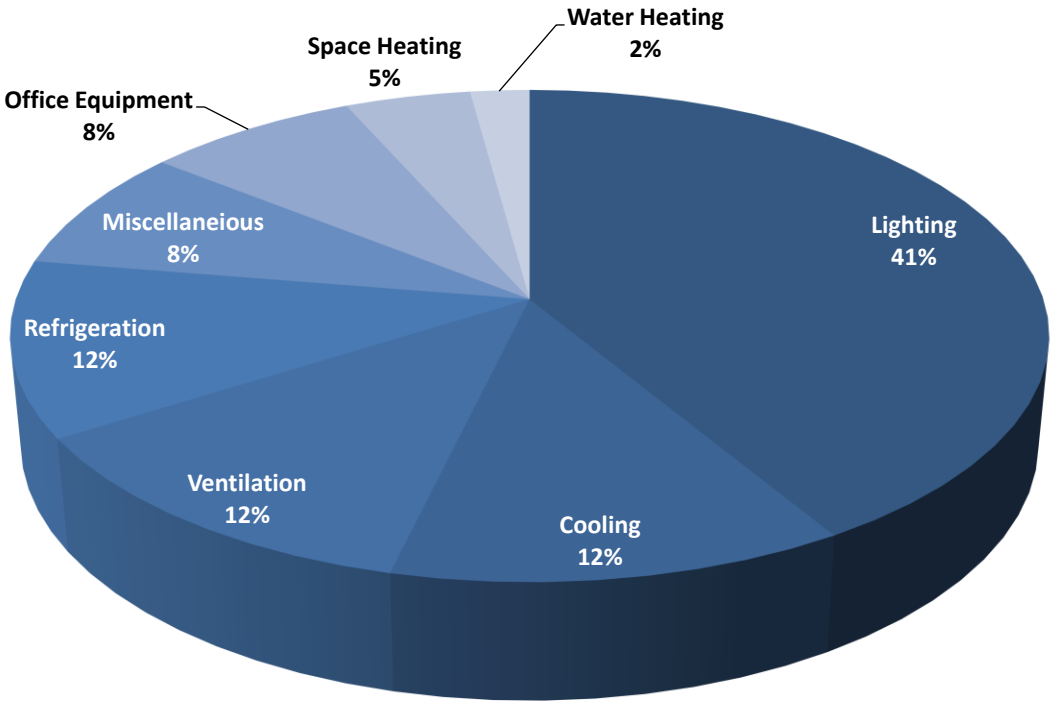


Past Program Results – Business



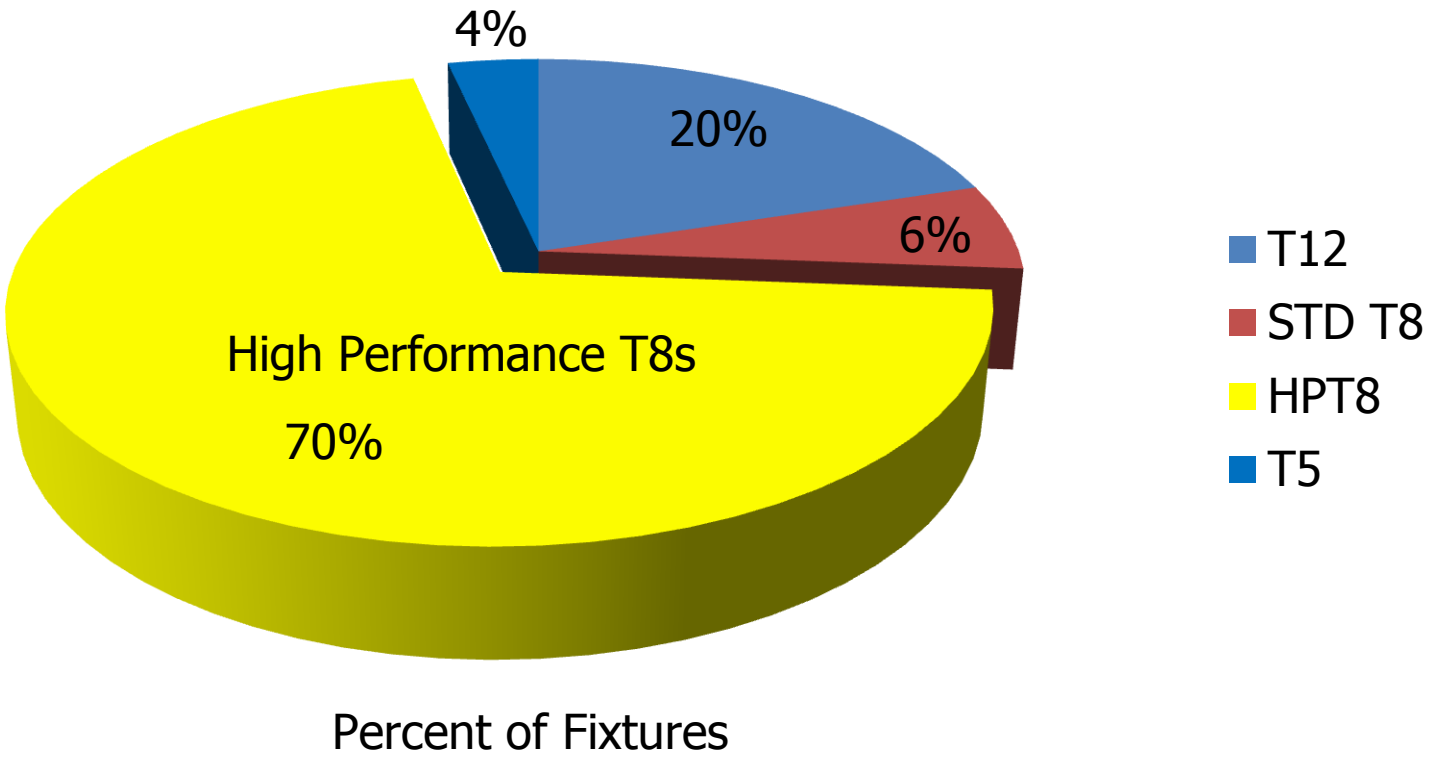
Where are the Opportunity(s)?

Commercial Electricity Use by End Use*



***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

Efficient Fluorescent Lighting Has Captured A Large Business Market Share*



***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

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Business Incentive Program

- **Market Barriers & Challenges**
  - Slow uptake with Small Businesses -
  - Flat funded
  - Fluorescent Lighting T-12 Baseline

- **Program Delivery**
  - Contracted Program Delivery (Competitive Bid process)
    - Trade Ally Network aka Qualified Partners

Decision Point

- 58% of businesses consider payback when making a decision regarding energy efficient equipment.

Payback Criteria	Percent*
Less than 1 year	5%
Less than 1.5 years	5%
Less than 2 years	27%
Less than 3 years	35%

*of those businesses that consider payback

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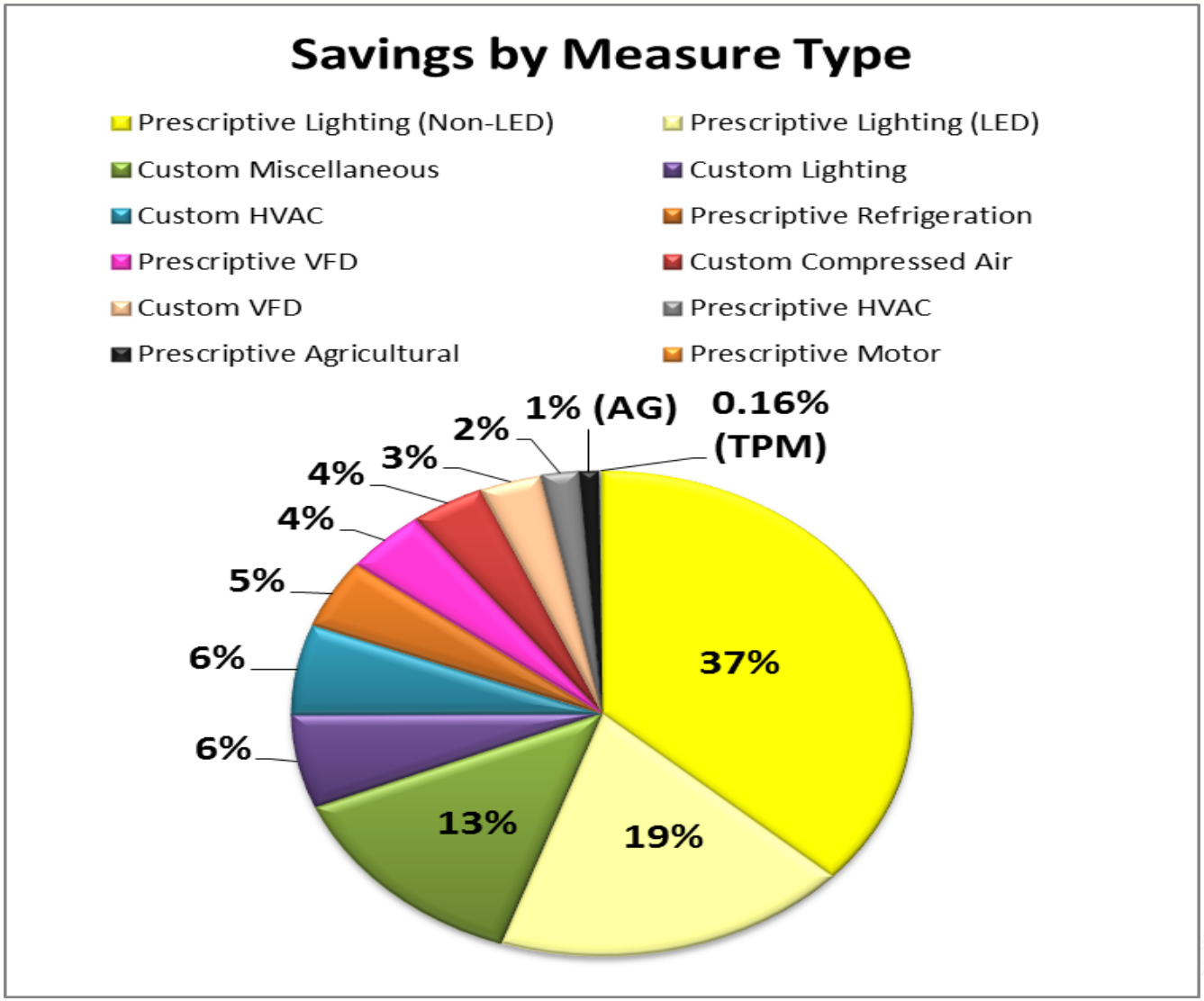
Business Incentive Program

- **Program Budget/Revenue**
  - Sources
    - SBC – FCM – RGGI
  - Budget
    - FY-13 - $5.5M
    - Flat for FY14 & beyond
    - (FY-11 & FY-12: $10.2M & $9.4M respectively)
  - Cost-Effective
    - >1.0 TRC
    - FY-11 = 1.93 evaluated

Business Incentive Program

- **Prescriptive Measures**
  - 22 Lighting – Fluorescent & LED
  - 21 Refrigeration
  - 12 HVAC
  - 7 VFD
  - 10 Agricultural
- **Custom Measures**
  - kWh savings – don't fit into prescriptive measures

Savings By Measure



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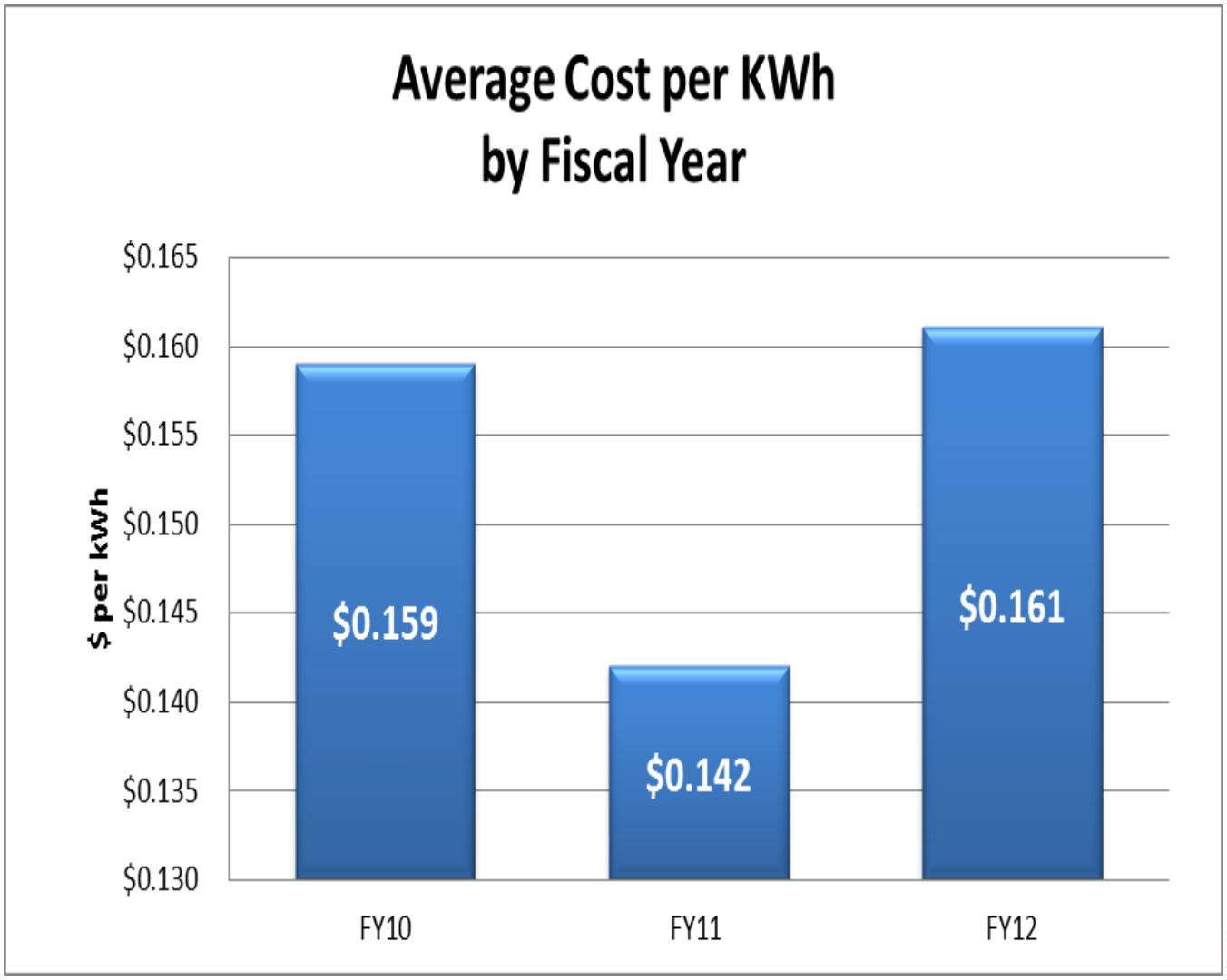
Cost per kWh



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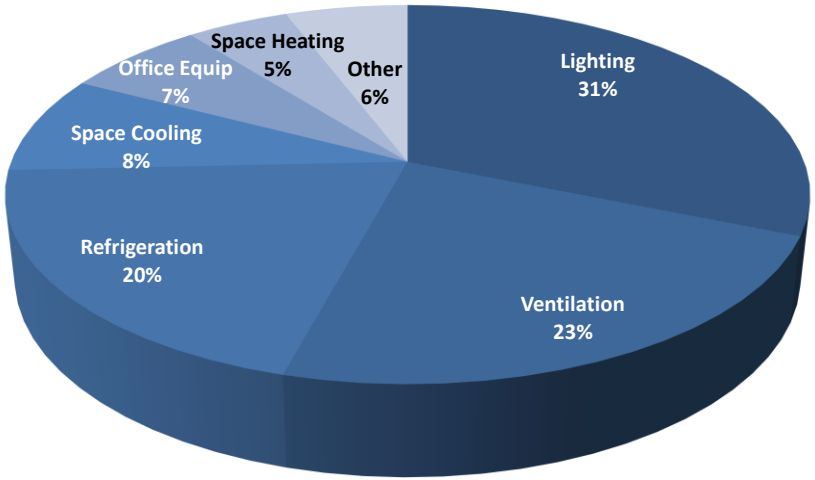
2021 Commercial Maximum Achievable Potential*

Achievable Potential	
	Energy (MWh)
Lighting	266,330
Ventilation	196,768
Refrigeration	171,388
Space Cooling	71,262
Office Equipment	57,104
Space Heating	41,674
Water Heating	29,869
Compressed Air	12,395
Other	5,218
Cooking	2,153
TOTAL	854,162
% of 2021 Commercial Forecast Sales	*18.49%*



Energy Savings (as a % of 2021 Sales) by End-Use

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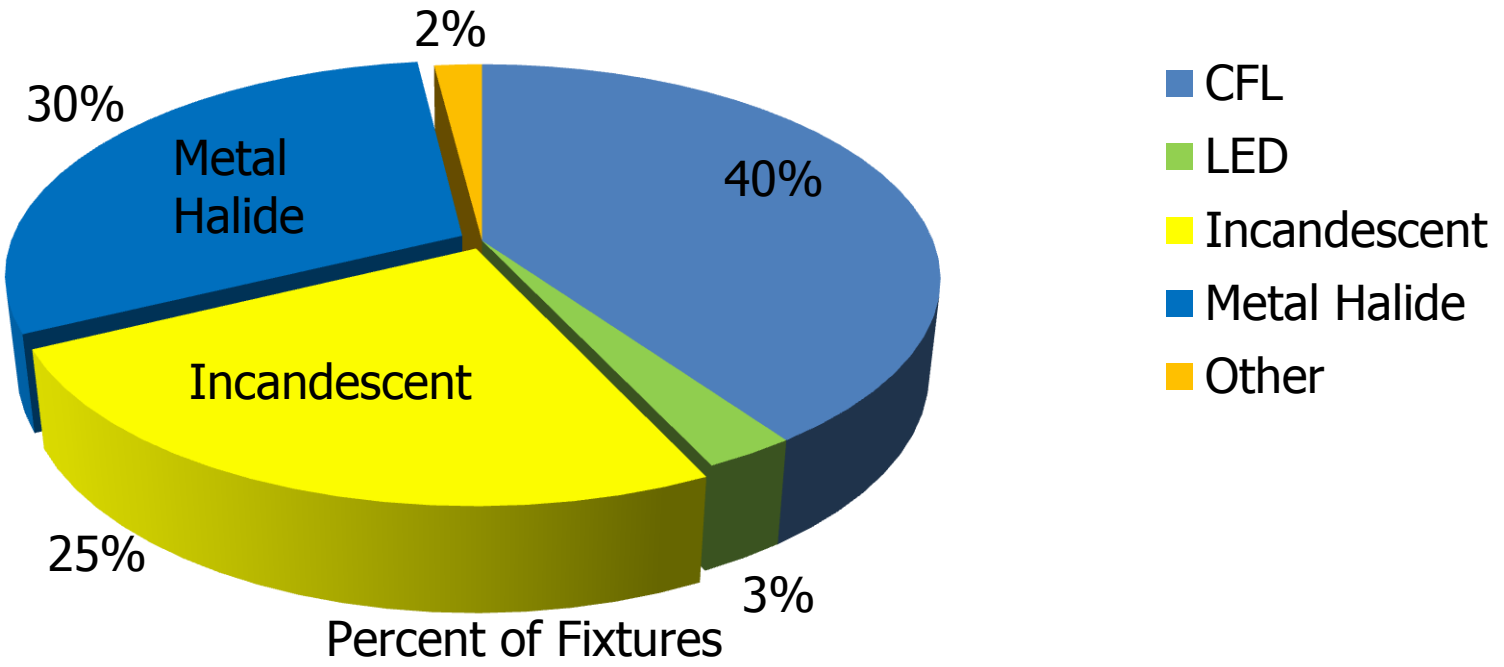
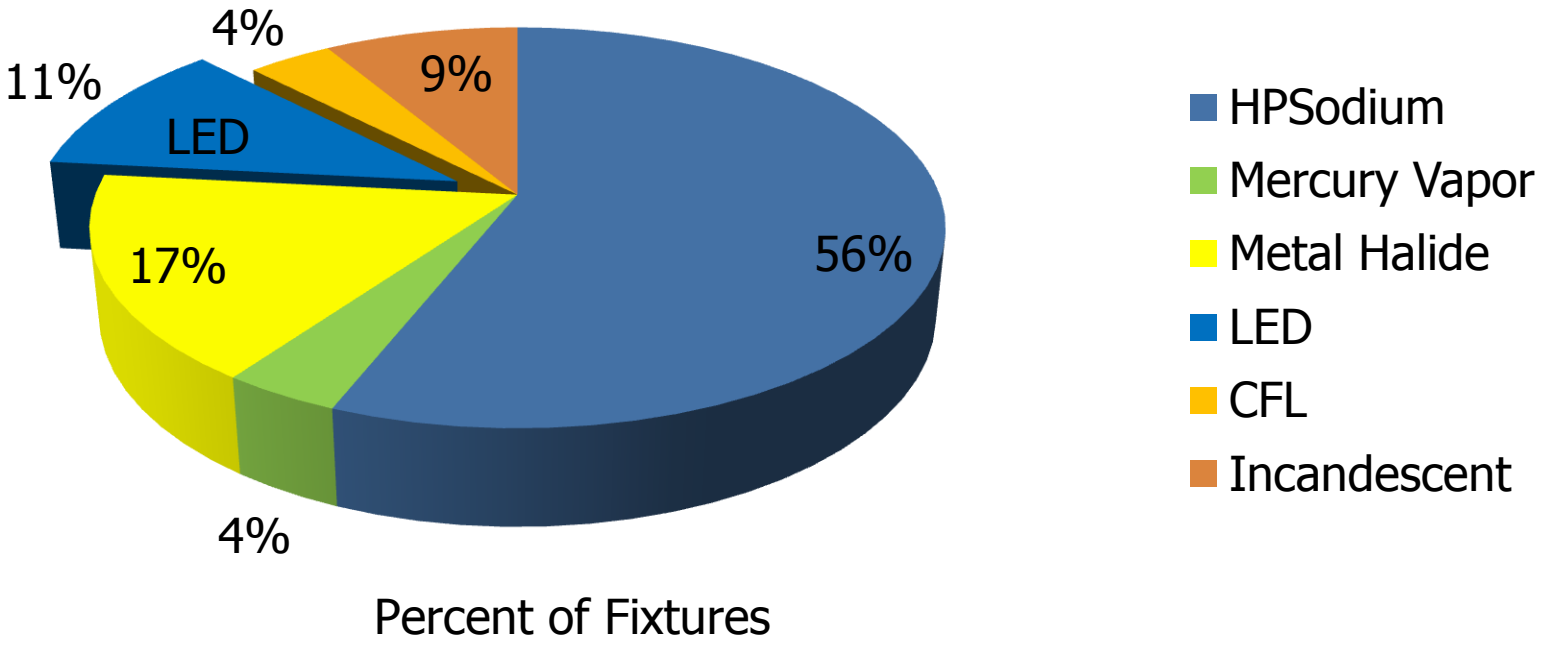
Opportunities in Lighting…

Metal Halide and Incandescent Lighting in Maine Businesses Present Opportunities for Energy Savings*



***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

LEDs are Beginning to Penetrate the Exterior Business Lighting Market*



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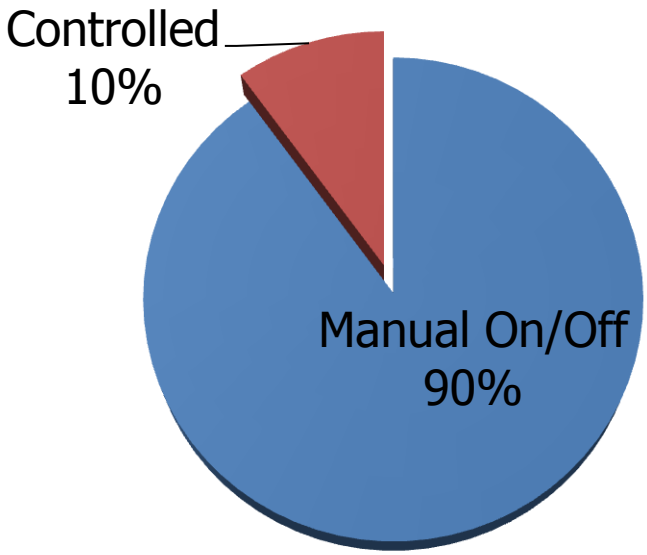
Lighting Controls Represent a Significant Savings Opportunity*



******Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* **– Cadmus Group June 2012**

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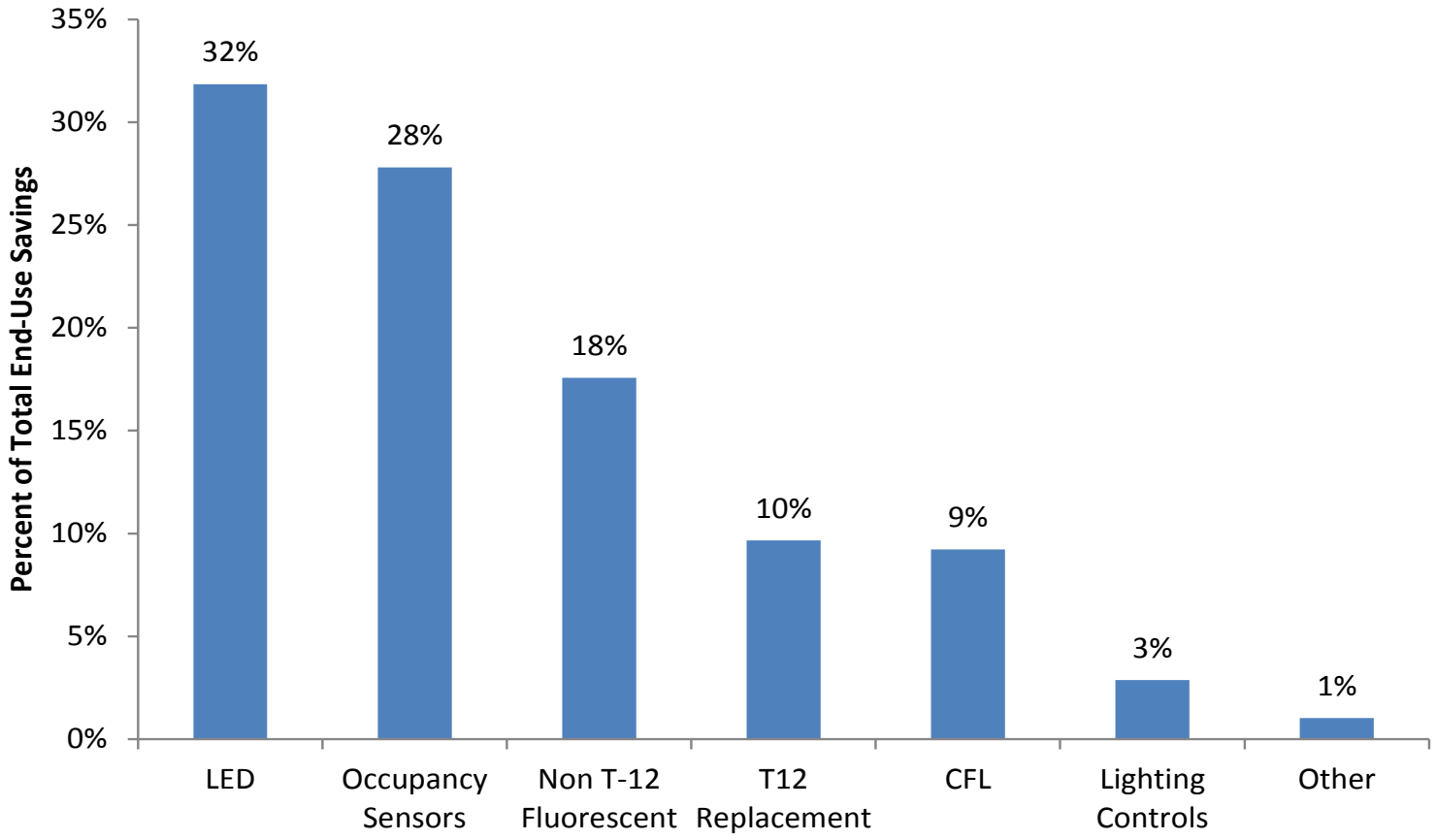
Commercial Lighting Savings by Measure*



- ***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

Opportunities - HVAC

Type of System	Percent of Units
Air Cooled Chiller	25%
Heat Pump	3%
Mini-Split System	3%
Packaged System	22%
Split System	10%
Water Cooled Chiller	5%
Window Unit A/C	32%

- 21% of facilities use Programmable Thermostats
- 9% use Outside Air Economizers
- 8% have Energy Management Systems
- 11% employ VFDs on Cooling Fans
- 27% have had Duct Sealing process performed
- 64% of ducts are insulated

- ***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

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Opportunities - Refrigeration

Type of Measure	Saturation (Percent of Refrigeration Units)
Discus & Scroll Compressors	17%
Pressure Controls	4%
Heat Recovery Water Heating	16%
High Efficiency Fan Motors	4%
Condenser Fan VSD	2%
High Efficiency Pump Motors & VSDs	2%

- ***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

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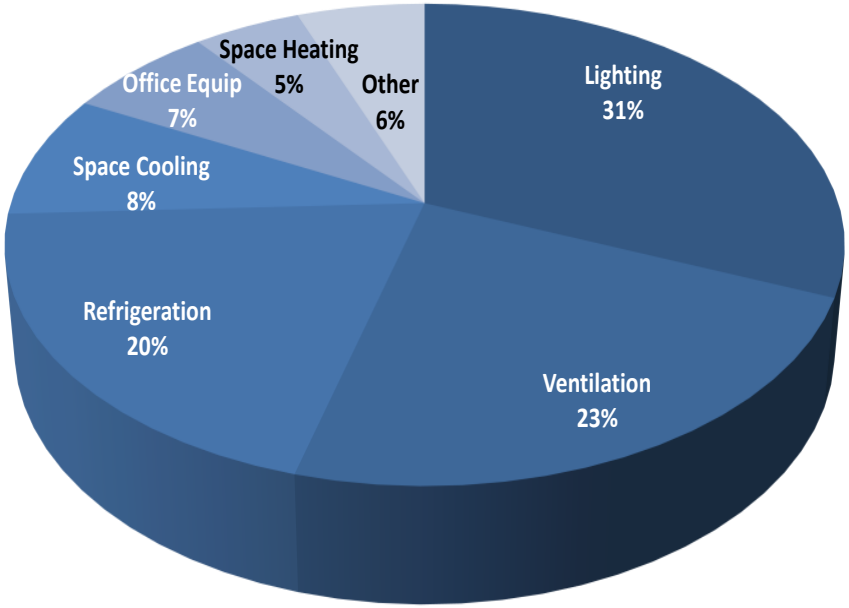
Top Commercial Max. Achievable Measure By End Use*

End Use	% of End Use
Lighting	
LED	31.8%
Occupancy Sensor	27.8%
Fluorescent	27.2%
Ventilation	
Dual Enthalpy Economizer	32.9%
Variable Speed Drive Control	43.2%
Demand-Controlled Ventilation	15.0%
Refrigeration	
Fan Motors	45.0%
Vending Miser for Soft Drink Vending Machines	14.2%
Zero-Energy Doors	8.0%
Space Cooling / Space Heating	
EMS install	26.6%
High Efficiency AC	18.2%
Programmable Thermostats	13.0%
Office Equipment	
"Smart" Power Strip	56.0%
Energy Star office equipment	43.9%
Other	
Heat Pump Water Heater	25.6%
Solar Water Heating System	21.3%
High Efficiency Air Nozzles	12.5%
Automatic Drains for Compressed Air	7.2%



- ***Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* – Cadmus Group June 2012**

Business Incentive Program

Staff Recommendations

- Given a flat budget:
  - Continue Prescriptive Measures
    - Lighting Controls
    - Building Controls
  - Enhance Qualified Partner Network
- Increased Budget
  - Upstream LED's (others)
  - Pay for Performance

Program

- **Staff Request for Specific Input**
  - How do you think "Pay for Performance" would work?
    - Qualified Partners
    - Customer
  - T-12 Baseline vs. 2007 Energy Independence and Security Act (EISA)

- **Stakeholder Input!**
  - ??

Qualified Partners/Trade Allies

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Becoming a Qualified Partner (QP)

- Complete a one-time mandatory 4 hour program-orientation training class
- **Participate in a minimum of 3 projects per year to remain an active Partner**
- Execute an agreement with Efficiency Maine in which the Applicant(s) affirm that they will represent Efficiency Maine to their customers, according to Efficiency Maine Terms & Conditions

Qualified Partner Training

- **High Level Overview**
- **Efficiency Maine Business Program Overview**
- **Detailed Application Review**
  - Prescriptive/Custom
  - New Construction/Retrofit
  - Natural Gas
- **Technology Review – LED Lighting**
- **Go "Live" to valued websites**
  - Consortium of Energy Efficiency (CEE)
  - Design Lights Consortium (DLC)
  - Energy Star
  - Efficiency Maine Applications
  - Qualified Partner website

QP Category Summary

76	A&E/Consultant/Auditor
33	Affiliate/Other
197	Contractor
10	Manufacturer
59	Supplier
39	Supplier/Contractor

414 Qualified Partners

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Qualified Partner Involvement

Intake

- 2231 Projects received between 07/01/11 and 04/20/12
- 1646 of those projects had Qualified Partner involvement
- 74% of projects received between 07/01/11 and 04/20/12 involved Qualified Partners

Completed

- 1997 Projects had incentives paid out
- 1278 of those projects had Qualified Partners involved
- 64% of projects paid had Qualified Partners involved

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Qualified Partner Program

- 2011 Program Evaluation – "Continue to Enhance"
  - "Troops in the Trenches"
  - Similar models used around the country

- **Stakeholder Input**
  - ???

Small Business Direct Install (Pilot Program)

Direct Install Pilot Program

- **Objective**
  - Conventional programs have difficulties in reaching small business customers because:
    - Limited financial and technical resources
    - Owners/decision makers have multiple responsibilities
    - Rely on program technical and customer service resources at multiple junctures in their efficiency investment decision process

- **Purpose**

(1) Test customer acceptance and the cost-effectiveness of a DI service delivery model in Maine.

(2) Test several customer co-pay levels and options to maximize customer participation at the least program cost.

(3) Demonstrate the DI delivery model to Maine firms who could potentially offer delivery or installation services.

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Direct Install Pilot Program

- **Description**
  - Direct Contact Marketing
  - Customer Site Visit
  - Turnkey Installation (Lighting Efficiency Measures only)
  - Generous Incentive/On-Bill Financing

- **Budget**
  - FY-13 - $1M - SBC
  - FY-14?

Pilot Program

- The pilot will be restricted to the following regions in the Bangor Hydro Electric Company (BHE) and Maine Public Service Company (MPS) service territories:
  - **Region 1: Millinocket/East Millinocket/Medway and Lincoln**
  - **Region 2: Machias/East Machias/Machiasport and Jonesboro/Jonesport**
  - **Region 3: Madawaska**
  - **Region 4: Presque Isle**

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What's Next

- **Stakeholder Input**
  - ????

Natural Gas Program

Natural Gas Program

- Program Overview
  - Eligible Equipment
  - Incentives
  - Savings
- Program Activity
  - Applications Received
  - Incentives Pre-Approved/Paid
- Outreach Efforts
  - QPs
  - Contractors
  - Vendors

Overview – Eligible Equipment

- Commercial heating equipment
  - Boilers
  - Furnaces
  - Heaters

- Commercial kitchen equipment
  - Fryers
  - Broilers
  - Ovens
  - Steamers
  - Griddles

G1	Natural gas-fired air furnace ≤ 300 MBtu/h	AFUE ≥ 95%	$1,000.00
G2	Natural gas-fired non-condensing hot water boiler ≤ 300 MBtu/h	AFUE ≥ 85%	$600.00
G3	Natural gas-fired non-condensing hot water boiler >300 MBtu/h and ≤500 MBtu/h	Thermal Efficiency ≥ 85%	$750.00
G4	Natural gas-fired non-condensing hot water boiler >500 MBtu/h and ≤1,000 MBtu/h	Thermal Efficiency ≥ 85%	$1,500.00
G5	Natural gas-fired non-condensing hot water boiler >1,000 MBtu/h and ≤1,700 MBtu/h	Thermal Efficiency ≥ 85%	$2,500.00
G6	Natural gas-fired non-condensing hot water boiler >1,700 MBtu/h	Thermal Efficiency ≥ 85%	$3,000.00
G7	Natural gas-fired condensing hot water boiler ≤ 300 MBtu/h	AFUE ≥ 90%	$1,000.00
G8	Natural gas-fired condensing hot water boiler >300 MBtu/h and ≤500 MBtu/h	Thermal Efficiency ≥ 90%	$1,500.00
G9	Natural gas-fired condensing hot water boiler >500 MBtu/h and ≤1,000 MBtu/h	Thermal Efficiency ≥ 90%	$2,500.00
G10	Natural gas-fired condensing hot water boiler >1,000 MBtu/h and ≤1,700 MBtu/h	Thermal Efficiency ≥ 90%	$3,500.00
G11	Natural gas-fired condensing hot water boiler >1,700 MBtu/h	Thermal Efficiency ≥ 90%	$4,500.00
G12	Natural gas-fired steam boiler ≤ 300 MBtu/h	AFUE ≥ 82%	$800.00
G13	Natural gas-fired steam boiler >300 MBtu/h and ≤2,500 MBtu/h	Thermal Efficiency ≥ 79%	$1/MBtu/h
G14	Natural gas-fired steam boiler >2,500 MBtu/h and ≤10,000 MBtu/h	Thermal Efficiency ≥ 80%	$1/MBtu/h
G15	Low-intensity, infrared, natural gas-fired unit heater	None	$500.00

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Commercial Kitchen Equipment Incentives

Measure Code	Description	Criteria	Incentive Amount/Unit
G17	Fryer	ENERGY-STAR®-qualified	$1,000.00
G18	Broiler	Cooking Efficiency ≥ 30%	$1,250.00
G19	Convection Oven	ENERGY-STAR®-qualified	$600.00
G20	Combination Oven	Cooking Efficiency ≥ 40%	$1,000.00
G21	Steamer	ENERGY-STAR®-qualified	$2,000.00
G22	Griddle	ENERGY-STAR®-qualified	$750.00

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Overview - Savings

- Commercial heating equipment savings based on:
  - Input Capacity (BTU/h)
  - Efficiency (AFUE or Thermal Efficiency)
- Commercial kitchen equipment savings based on:
  - Equipment type
  - Equipment size (steamers and griddles)
- Natural gas savings reported in Therms and CCFs

Outreach Efforts

- QP outreach
  - Follow-up on pre-approved projects
  - QP training section on natural gas incentives
  - One-on-one meetings with QPs
- Vendor/contractor outreach
  - 24 installation contractors
  - 11 heating equipment vendors
  - 10 commercial kitchen equipment vendors

- **Stakeholder Input:**
  - ??

Business Sector Training

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Past/Present Offerings

- Building Operator Certification
  - Building Operator Certification (BOC®) is a nationally recognized, competency-based training and certification program that offers facilities personnel the improved job skills and knowledge to transform workplaces to be more comfortable, energy-efficient and environmentally friendly.
  - Target: Facility Operations & Maintenance
- Certified Energy Manager (CEM-AEE)
- Commercial Energy Auditing
  - Non-Certification class
  - Fundamentals of Energy Auditing (ASHRAE Standards)

Targeted Training

- Education & Training Initiative Education
  - Fall 2011
    - Identify and Perform a Series of training opportunities and develop market sector QPs in the services supply chain not typically engaged by Efficiency Maine

Associated General Contractors (AGC)

- Union Trades
- 141 Members

- Associated Builders and Contractors (ABC)
  - "Open Competition"
  - 183 Members

Results to Date

- Engagement of all three market segments
- Introduction and access to their membership lists
- Re-engagement of many members especially those specializing in new construction
- Several have chosen to become QPs
- Outreach to EM from other players – Chamber of Commerce, Rotary Clubs, EPMA
- 19 Completed Presentations
- Lots of New Applications

What next?

- **Stakeholder Input:**
  - ???

Lunch

Multifamily Efficiency Program

Background

- DOE FOA-0000251
  - Applications Due 6/7/2010
    - EM submitted Project: "Strengthening Retrofit Markets for Comprehensive Savings in Multifamily Buildings"
    - Teamed with NEEP
    - EnergyStar Portfolio Manager
    - Goal 25% energy savings in 1800 units
    - $7.5M Loan pool
  - Award Notice on Sept 2010 - $4,538,571

BETTER BUILDINGS U.S. DEPARTMENT OF ENERGY

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2 Year Project

- Achieve comprehensive retrofits with 20% or greater energy savings
  - Small to medium (5 – 20 units) multifamily buildings
- Develop an enduring financial model that overcomes barriers to loans
- Develop a sustainable program model to continue beyond grant years
- Building regional momentum and capacities for the Northeast region
- $750,000 potential loan pool – One Maine Bank
- $1M loan loss reserve

Financial Incentives

- Designed to promote comprehensive work scopes that ***achieve*** 20% savings or more
- Proposed incentive structure:
  - Incentive #1: Offset cost of energy audit
    - Prescriptive path and modeling path
  - Incentive #2: Offset cost of retrofits
    - Cover 35% - 40% of project cost
- Innovative Loan Products
  - Efficiency Maine to provide $1M loan loss reserve

Funding

- $4.5M SEP Special Project Grant
- Approx $1.5M RGGI
- Ends 1St quarter FY-14

- **To be continued????**
  - Funding?

Small Business Loan Program

Small Business Loan Program

- Upfront Capital to implement recommendations from Energy Audit
  - Past – Energy Audit required
  - Now, project level energy analysis required
- All fuels
- Currently $35,000 at 1% for 5yrs (Max)
- FAME credit review & Loan Underwriting
- EMT issues Loan funds, manages payment receipts

Small Business Loan Program

- **Currently:**
  - 53 Loans
  - Approx $1.4 million
  - Monthly Payments = approx. $22K

- **Stakeholder Input**
  - Continue??
  - Alternative use of Loan Funds??

Programs Anticipated to Expire

Maine Advanced Buildings

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Maine Advanced Buildings – New Construction

- Establishing savings
  - Projects submit proposed energy use at a minimum
  - Some projects submit full energy models
- Projects that dead end
- Incentive: $1.00ft^2
- Incremental cost
  - Ongoing effort to establish incremental cost values with other Northeast groups
  - Some projects submit detailed incremental cost information, most do not
- Pace of construction
  - Recent conversations reveal that many of the small to mid size A/E firms have had no new construction projects in 2 years

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Maine Advanced Buildings – New Construction

- Currently Funded with ARRA Funds
  - January 2010 – December 2012
  - Budget $765,000 – ($583,000)
- 9 Buildings completed
  - Approximately 225,000ft^2
  - Program Energy/Cost Savings
    - 1st year savings (kWh) 676,904
    - 1st year savings ($0.15) $101,536
    - Lifetime Savings (20yr) MWh 13,538
    - Lifetime Savings (20yr) $2,030,712
  - Program Costs
    - Incentives = 39%
    - Delivery = 61%

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Maine Advanced Buildings – New Construction

- **Stakeholder Input**
  - ??

Small Business Audit Program

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Small Business Audit Program

- Funding exhausted – (ARRA)
- Program Delivery
  - Free Basic
  - Tested for Fee Audit
    - Little uptake
- Learned: Residential Customer Intake higher if buy in
- **Stakeholder Input!**
  - ??

Retro-Commissioning

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Retro-Commissioning Pilot Program (RCx)

- ARRA Funded
  - $900,000 Budget
  - All Fuels
- Goals
  - Demonstrate the availability of low investment, cost effective energy savings via the RCx process
  - Raise awareness and jumpstart RCx activity in Maine
  - Create delivery model for RCx program, learn what works

Program Design

- Structure
  - Target Market – Medium size commercial / institutional facilities, with automated HVAC controls
  - Approach – Identify, educate, and work with a small group of qualified RCx providers
  - Classic two stage RCx process – Investigation and Implementation
  - Team – ERS, Rocheleau, GDS, RCx Providers
- Incentive Levels
  - 50% match funding capped at $10,000 for each stage
  - 20-30 participants anticipated

Challenges

- **Communicating Intent**
  - Preconceived vision of retro-commissioning
  - Acceptable level of rigor
  - Documentation of results

- **Getting Participants Attention**
  - Benefits are often relatively small scale
  - Initial investment required to identify opportunity
  - Competing priorities for time and resources
  - We know it could be better, but its working!

- Two stage process, two decision points, long time to completion

- What qualifies for funding?

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Life after ARRA

- Program Expires December 31, 2012
- Lessons learned so far:
  - 4 or 5 measures per RCx
  - Average Project Payback - <1 year
- M & V RFP on the street
- **Stakeholder Input!**
  - ??

Commercial Project Grants

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Commercial Project Grants

- **Funding**
  - ARRA - $2M
- **Delivered**
  - Two rounds of RFP solicitations
    - 65 Total Projects

Commercial Projects Program Evaluation

- The Commercial Grants Program includes a variety of custom projects:
- Navigant was tasked with providing an impact evaluation of the Commercial Grants Program, including site and source energy, electricity, fuel oil, jobs, and benefit-cost results

Strata	Claimed Savings (MMBtu)	Number of Projects	Phone Verifications	Field Verifications
Very Large	9,954	2	2	2
Other Large	9,631	6	6	6
Renewable Electric	1,352	3	3	3
Non-Renewable Electric	2,443	5	5	4
Renewable Non-Electric	2,969	12	7	5
Non-Renewable Non-Electric	4,159	12	7	4
Other Very Small Projects (not sampled)	827	11	0	0
Total	**31,335**	**51**	**30**	**24**

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Impact Evaluation

Strata	Reported Annual Energy Savings (MMBtu)	Verified Annual Gross Site Energy Savings (MMBtu)	Fraction of Reported Savings	Realization Rate of Stratum	NTG
Very Large	9,954	8,268	32%	0.83	0.43
Other Large	9,631	4,275	31%	0.44	0.65
Renewable Electric	1,352	1,140	4%	0.84	0.93
Non-Renewable Electric	2,443	2,702	8%	1.11	0.83
Renewable Non-Electric	2,969	1,964	9%	0.66	0.87
Non-Renewable Non-Electric	4,159	2,089	13%	0.50	0.66
Other Very Small Projects (not sampled)	827	554	3%	0.67	0.62
Total	**31,335**	**20,992**	**100%**	**0.67**	**0.62**

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TRC Gross

Strata	Field Verified Gross Site Energy Savings (MMBtu)	Benefits ($)	Costs ($)	TRC Result
Very Large	8,268	$ 3,248,019	$ 382,410	8.49
Other Large	4,275	$ 1,129,807	$ 517,080	2.18
Renewable Electric	1,140	$ 612,335	$ 292,857	2.09*
Non-Renewable Electric	2,702	$ 776,720	$ 433,349	1.79
Renewable Non-Electric	1,964	$ 654,642	$ 519,187	1.26
Non-Renewable Non-Electric	2,089	$ 953,573	$ 299,100	3.19
Other Very Small Projects (not sampled)	554	$ 200,817	$ 65,653	3.06
Total	**20,992**	**$ 7,575,912**	**$ 2,660,625**	**2.85**

TRC Net

Strata	Verified Net Site Energy Savings (MMBtu)	Benefits ($)	Costs ($)	TRC Result
Very Large	3,516	$ 1,299,559	$ 164,949	7.88
Other Large	2,797	$ 753,878	$ 339,339	2.22
Renewable Electric	1,059	$ 573,057	$ 259,381	2.21
Non-Renewable Electric	2,231	$ 632,339	$ 314,634	2.01
Renewable Non-Electric	1,712	$ 568,536	$ 455,811	1.25
Non-Renewable Non-Electric	1,371	$ 601,772	$ 207,612	2.90
Other Very Small Projects (not sampled)	344	$ 121,007	$ 47,004	2.57
Total	**13,029**	**$ 4,550,149**	**$ 1,939,716**	**2.35**

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Issues & Recommendations

- ***Issues***
  - Some project grantees claimed the wrong kind of fuel savings, i.e., claiming oil savings when a conversion to propane had been made as part of the project
  - Some projects had poor documentation of savings calculations
  - Some projects did not calculate savings from the proper baseline
- ***Recommendations***
  - Provide additional guidance to applicants regarding baselines, definition of what's included in project savings, and calculation of savings for special cases like fuel switching
  - Perform brief technical review of applications for proper baseline, project definition, and fuel type of savings

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Program Conclusions

- Given the program's primary objective of creating jobs and disbursing funds, the energy performance of the program is solid and a 0.67 gross realization rate and 0.62 net-to-gross are not surprising.
- The benefit-cost ratio is surprisingly good and indicates that if a funding mechanism were available, a similar program would provide significant net benefits to businesses in the State of Maine.
- The issues observed in this program are alleviated by the processes used in EMT's normal custom program

Wrap up – Next Steps

Other Business Program Sessions

- **Tuesday July 17th – BUSINESS PROGRAM**
  - 9 to 12 – Ian
    - Large Customer Program
  - 1 to 4 – Rick
    - Business Program Follow-up session
- **Thursday August 2nd – BUSINESS PROGRAM**
  - 9 to 12
    - Business Program – Report Back
- Wednesday, Sept 5th - Public Hearing – North (Location/Time TBD)
- Thursday, Sept 6th - Public Hearing – South (Location/Time TBD
- Wednesday, Sept 26th, Efficiency Maine Board of Trustee Meeting

Please Share Your Ideas:

Send Written Comments to:

Email – efficiencymaine@efficiencymaine.com

Post – Triennial Plan Comments
151 Capitol Street, Suite 1
Augusta, ME 04330

Latest that comments will be considered is August 15.