SAVING ENERGY AND MONEY: HOW TO START, EXPAND, OR REFINE MOU PROGRAMS

A Guide to Best Practices for Energy Efficiency in Locally Governed Electric Services Areas in the State

February 21, 2012

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AGENDA

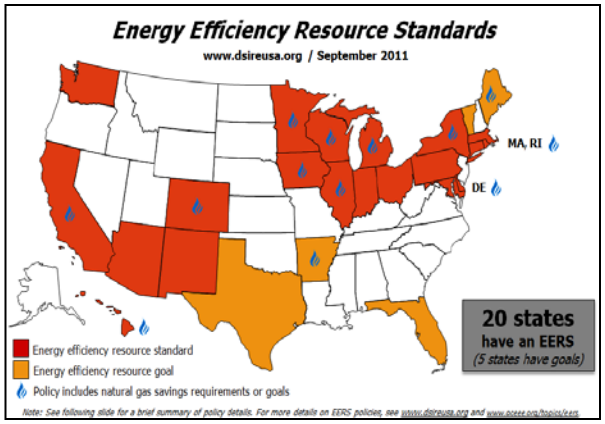
- Project Overview
  - Background
  - Objectives
  - Project Team
  - Methodology
  - Project Deliverables
- Energy Efficiency Best Practices for Texas MOUs
  - Energy Efficiency Plan
  - Planning and Implementation Considerations
  - Budget and Saving Estimate Calculator
- Next Steps

PROJECT OVERVIEW

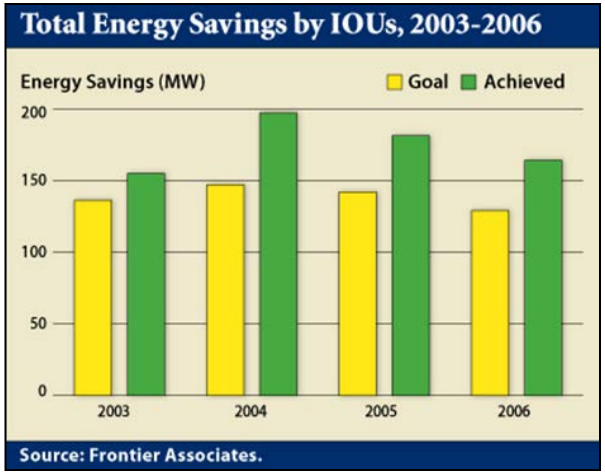
BACKGROUND

Guide Section 2: Introduction

- National Action Plan for Energy Efficiency: "Improving the energy efficiency of our homes, businesses, schools, governments, and industries is one of the most cost-effective ways to address the following challenges:
  - Energy demand continuing to grow despite historically high energy prices
  - Concerns over energy security and independence
  - Air pollution
  - Climate change



- Federal funding and an increasingly energy-aware marketplace has created a need for innovative energy efficiency programs.
  - 16.8 billion was funded by Federal (Recovery Act) towards Office of Energy Efficiency (EERE)
  - 20 states have energy efficiency resource standards (EERS) as of September 2011
  - Between 1998 and 2009, utilities spent about $15 billion on efficiency programs, saving almost 700,000,000 MWh.
  - Texas IOUs exceeded, the mandated savings in each of the four years running from 2003 to 2006



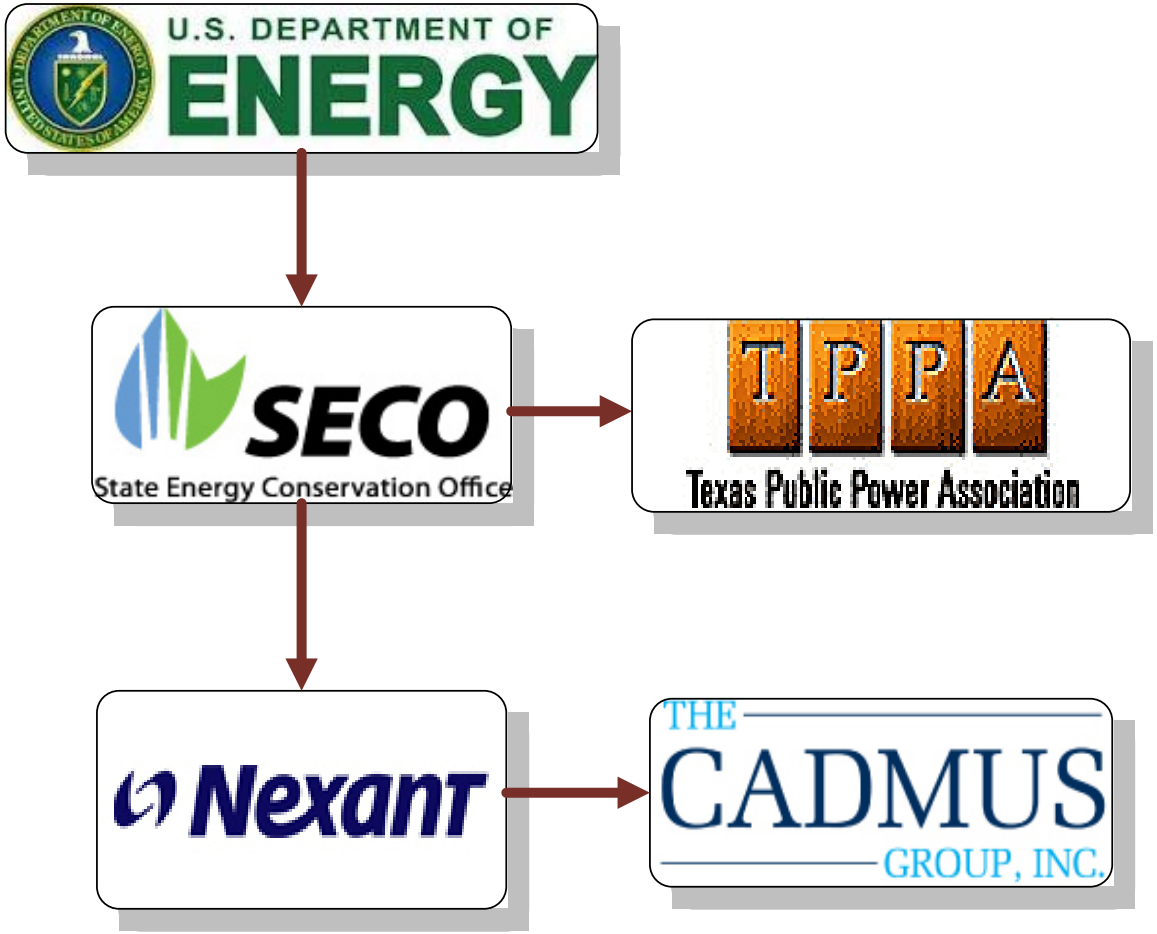
OBJECTIVES

Guide Section 2: Introduction

- Develop a Guide to Best Practices for Energy Efficiency in Locally Governed Electric Services Areas in the State
- Engage Texas MOUs to
  - Promote energy awareness
  - Expand or refine current energy efficiency programs
  - Implement new energy efficiency programs based on the recommendation of this guide.
  - Reduce 1% kWh consumption annually
- Assist Texas MOUs with energy efficiency pilot programs

PROJECT TEAM

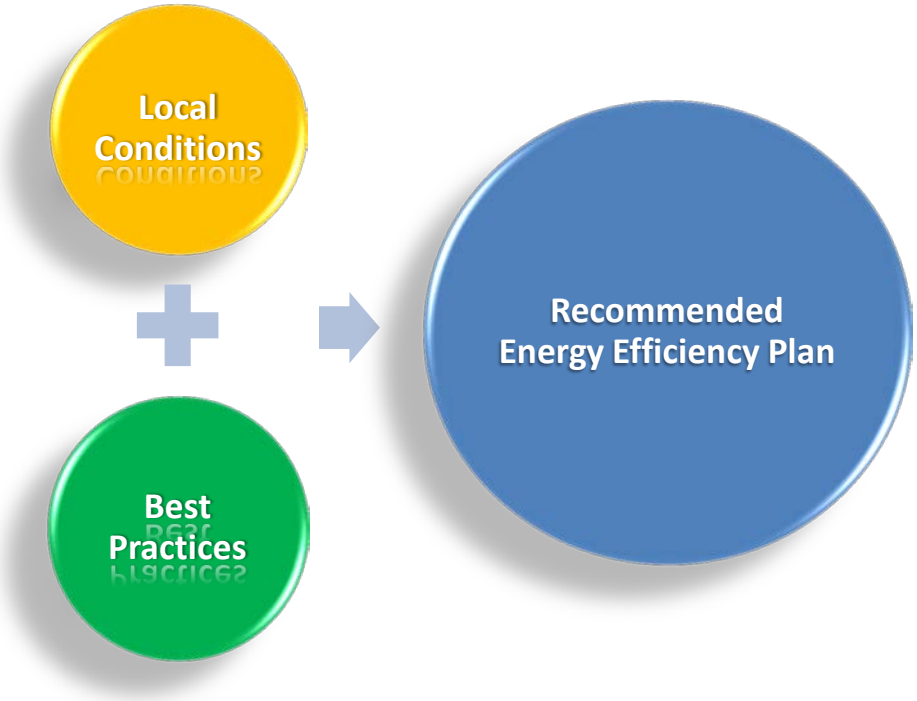
Guide Section 2: Introduction



METHODOLOGY

Guide Section 3: Methodology

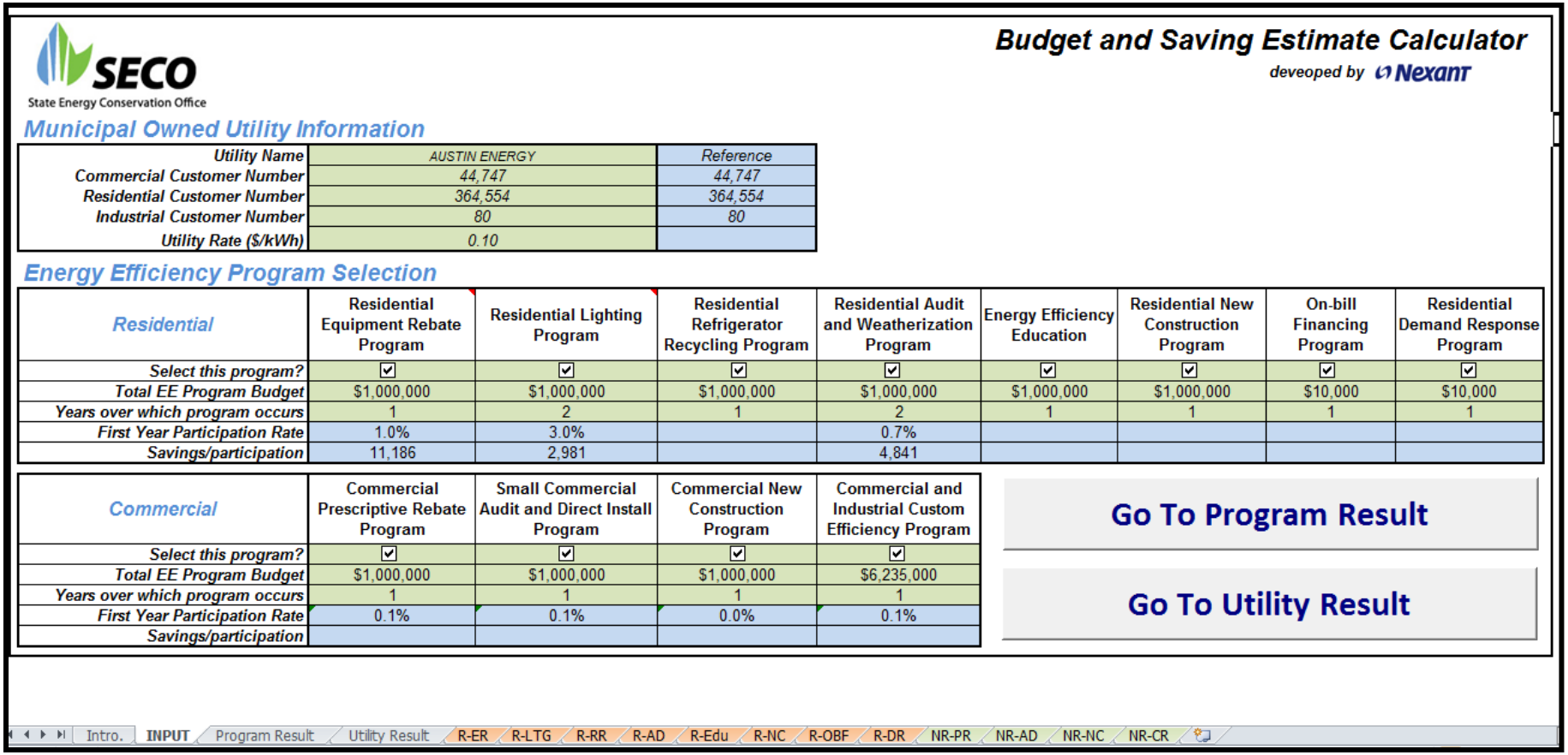
- Insights of Local Conditions
  - Stakeholder Engagement
    - ✓ Structured interviews
    - ✓ Detailed program information collection
- Developing Best Practices
  - Identified 400 energy efficiency programs in 7 categories
  - Level 1 Screening
    - ✓ Benchmarked programs based on quantitative best practice attributes
    - ✓ Narrowed 400 programs to 58 for further investigation
  - Level 2 Screening
    - ✓ Qualitative assessment of program attributes
    - ✓ Matched best practices to MOU's market and operating characteristics
- Results
  - Specific program recommendations with attributes best suited for Texas MOUs



BEST PRACTICES GUIDE (THE GUIDE) – OUTLINE

- **Section 1: Executive Summary**
- **Section 2: Introduction** – Introduction of Project team, background and objectives.
- **Section 3: Methodology** – Detailed research and analysis methodology used to identify best practice programs and apply them to MOU conditions in Texas.
- **Section 4: Analysis and Results** – Research findings in regards to MOUs' market characteristics and best practice attributes.
- **Section 5: Energy Efficiency Plan** – Recommended energy efficiency programs and specific best practices for Texas MOUs, and additional considering factors for program planning process.
- **Section 6: Conclusions and Final Remarks**

BUDGET & SAVING ESTIMATE CALCULATOR



SECO
State Energy Conservation Office

Budget and Saving Estimate Calculator
deveoped by Nexant

Municipal Owned Utility Information

Utility Name	AUSTIN ENERGY	Reference
Commercial Customer Number	44,747	44,747
Residential Customer Number	364,554	364,554
Industrial Customer Number	80	80
Utility Rate ($/kWh)	0.10	

Energy Efficiency Program Selection

Residential	Residential Equipment Rebate Program	Residential Lighting Program	Residential Refrigerator Recycling Program	Residential Audit and Weatherization Program	Energy Efficiency Education	Residential New Construction Program	On-bill Financing Program	Residential Demand Response Program
Select this program?	☑	☑	☑	☑	☑	☑	☑	☑
Total EE Program Budget	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$10,000	$10,000
Years over which program occurs	1	2	1	2	1	1	1	1
First Year Participation Rate	1.0%	3.0%		0.7%				
Savings/participation	11,186	2,981		4,841				

Commercial	Commercial Prescriptive Rebate Program	Small Commercial Audit and Direct Install Program	Commercial New Construction Program	Commercial and Industrial Custom Efficiency Program
Select this program?	☑	☑	☑	☑
Total EE Program Budget	$1,000,000	$1,000,000	$1,000,000	$6,235,000
Years over which program occurs	1	1	1	1
First Year Participation Rate	0.1%	0.1%	0.0%	0.1%
Savings/participation				

Go To Program Result

Go To Utility Result

Intro. | INPUT | Program Result | Utility Result | R-ER | R-LTG | R-RR | R-AD | R-Edu | R-NC | R-OBF | R-DR | NR-PR | NR-AD | NR-NC | NR-CR

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ENERGY EFFICIENCY BEST PRACTICES FOR TEXAS MOUS

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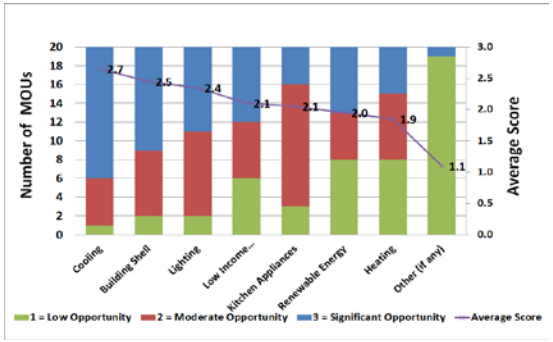
ENERGY EFFICIENCY PLAN

Guide Section 5: Energy Efficiency Plan

- Overview of energy efficiency opportunities and priorities within the residential and commercial & industrial sectors
- Program concepts appropriate for MOUs were selected based on:
  - Most likely to overcome local barriers
  - Address market needs or opportunities in MOU territories
  - Cost effective MOU implementation
  - MOU's operational capacity, customer base, and market characteristics

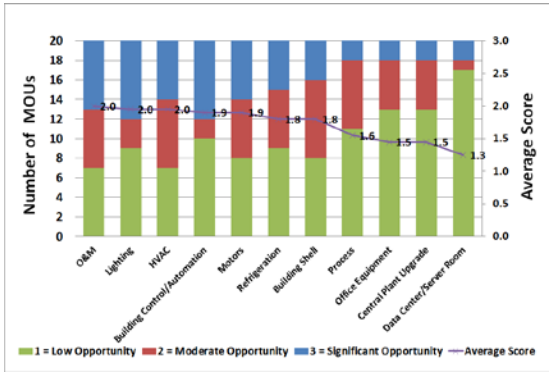
MOU CHARACTERISTICS – SAVINGS POTENTIAL

Guide Section 4: Analysis & Results



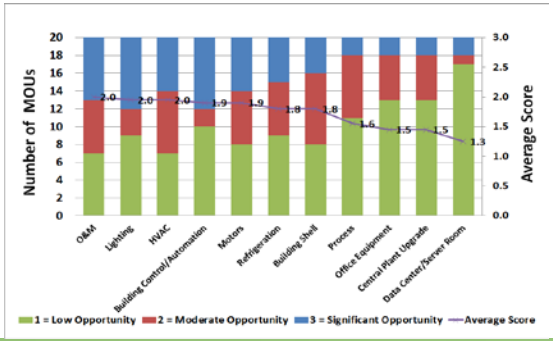
Residential sector:

- Cooling
- Building shell
- Lighting
- Low income weatherization
- Kitchen appliances



Small/Medium Commercial sector:

- Lighting
- Building shell
- Cooling
- Building Control/Automation



Large C&I sector sector:

- All low

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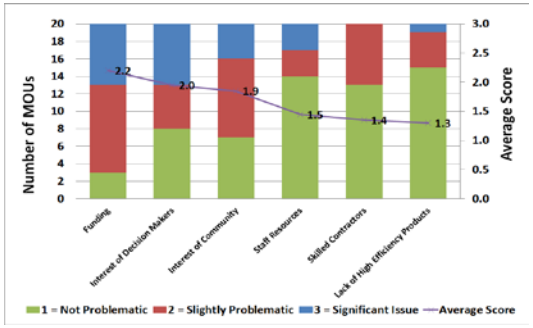
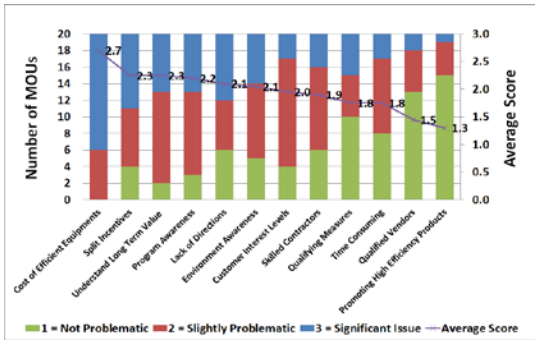
MOU CHARACTERISTICS – CONSTRAINTS, BARRIERS & PRIORITIES

Guide Section 4: Analysis & Results



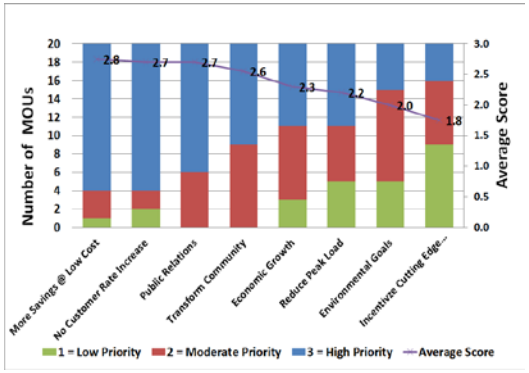
Main operational **Constraints**:

- Lack of budget
- Lack of experience
- Lack of staff resources
- Lack of local skilled contractors



Most common **Barriers**:

- Low community reception level
- High upfront cost for energy-efficient equipment
- Lack of knowledge of cost effectiveness
- High incidences of split incentives



Highest **Priorities**:

- Achieve high savings at a low cost
- Reducing peak load
- Generating good public relations value
- Market transformation and community education
- No customer electricity rates increase

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PROGRAM CONCEPTS & PROGRAM DESIGN CONSIDERATION

Guide Section 5: Energy Efficiency Plan

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EXAMPLE – RESIDENTIAL EQUIPMENT REBATE PROGRAM

Guide Section 5: Energy Efficiency Plan

Residential Equipment Rebate Program	
Program description	The program promotes the purchase and installation of high-efficiency equipment by providing customers with financial incentives to offset the higher purchase costs of energy-efficient equipment. The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Rebates are a fixed amount per device, paid by check to customers who complete a rebate application and submit documentation of the equipment purchase. Targeted equipment includes electric heating, cooling, water heating, and appliances (ENERGY STAR®-labeled equipment is specified where available).
Objectives	• Provide customers with opportunities to reduce their energy costs and increase their energy efficiency • Encourage customers to install high-efficiency HVAC equipment and electric appliances. • Encourage the use of high-efficiency/ENERGY STAR®-rated equipment • Promote other energy efficiency programs
Infrastructure and staffing	Estimated utility staffing requirement: 0.5 full-time employee (FTE) for management, promotional, marketing, trade ally support, evaluation, and other administrative functions.
Customer targets and eligibility	This program targets all residential customers in existing single family, multifamily, manufactured and mobile homes. To be as cost-effective as possible, the program should target customers seeking to replace older, inefficient equipment. Participant eligibility is verified through customer rebate applications cross-referenced against customer account numbers. Customers must submit a program application with documentation of the equipment purchase and installation(s) for verification.

EXAMPLE – RESIDENTIAL EQUIPMENT REBATE PROGRAM

Guide Section 5: Energy Efficiency Plan

Residential Equipment Rebate Program	
Implementation	Equipment rebate programs are relatively simple to implement and administer and can be managed and delivered with in-house staff. Key steps in program implementation include: • Marketing and outreach, including to trade allies. • Provide call center services to respond to customer questions and provide technical and program support. • Review documentation to verify the applicant is an active customer and the installed equipment meets the minimum efficiency standard. • Track program data. • Process rebate checks for qualified equipment. • Verify equipment/appliance installation for a sample of participants. Customer participation involves: • Customers installing eligible high-efficiency equipment, scheduling the work directly with their equipment dealer or installation contractor. • Work with the equipment/appliance retailer or installation contractor to complete program applications and ensure the required documentation is submitted to the utility for processing.
Program barriers • Higher first cost of energy-efficient equipment and economic environment limit customer's ability to purchase energy-efficient equipment • Customers needing emergency replacement may not know about the program. • Customers may choose to purchase less energy-efficient equipment	Mitigation Strategies • Offer rebates to offset higher incremental cost. Educate customers on the long-term cost-saving benefits of higher efficiency equipment. • Market program and general efficiency awareness to customers. • Provide trade ally training and outreach to explain the benefits of selling higher-efficiency equipment. • In-store brochures and collateral. • Promote efficiency awareness to customers and trade allies.

EXAMPLE – RESIDENTIAL EQUIPMENT REBATE PROGRAM

Guide Section 5 : Energy Efficiency Plan

Residential Equipment Rebate Program	
Marketing and outreach	This program relies on both customer marketing and point-of-sale dealer and installer information for promotion. A high level of trade ally participation and program promotion are critical to ensure program success. The program messaging focuses on the features and benefits of energy-efficient equipment. The marketing strategy for the program may include: • Bill inserts • Utility dedicated program web page • Active trade ally outreach and support • Newspaper, radio, and other mass media • Brand marketing material with ENERGY STAR® • Present program information at seminars, conferences, home shows, and community events • Sponsor co-advertising with trade allies (i.e., equipment dealers, distributors, and installers) • Coordinate marketing opportunities with key market partners (i.e., SECO, community groups) • Publish and distribute program brochure • Cross-promote through other programs
Measures and incentive levels	Program incentives are set at approximately 50 percent of the incremental cost of high-efficiency equipment, but may be adjusted as needed. The following incentive levels are provided as examples. Utilities should endeavor to set incentive amounts at a level appropriate for their own budgets and program strategies.

Measure	Eligibility Rating	Incentive
Central Air Conditioner	Seasonal energy efficiency ratio (SEER) 14.5	$150
Central Air Conditioner	SEER 15	$225
Central Air Conditioner	SEER 16	$300
Room A/C	ENERGY STAR®	$25
Air-Source Heat Pump	SEER 14.5	$250
Air-Source Heat Pump	SEER 15	$325
Air-Source Heat Pump	SEER 16	$400
Heat Pump Hot Water Heater	ENERGY STAR®, EF >= 2.0, or coefficient of performance (COP) >= 2.0[1]	$300
Dishwasher	ENERGY STAR®	$30
Clothes Washer	ENERGY STAR®	$75
Refrigerator	ENERGY STAR®	$50

EXAMPLE – RESIDENTIAL EQUIPMENT REBATE PROGRAM

Guide Section 5: Energy Efficiency Plan

Residential Equipment Rebate Program	
Budgeting rules of thumb	• Estimated dollars spent per annual gross kWh saved: average $0.20/kWh, ranging from $0.15/kWh to $0.34/kWh. • Estimated program costs as a percent of total program budget: ✓ Administration (internal): 5% to 10% ✓ Third-party contractor: less than 5% ✓ Marketing, advertising, trade ally training and outreach: 15% ✓ Incentives: 70% to 80% ✓ Evaluation, Measurement and Verification (EM&V): 1% and 5%
Benefits	• Customers can increase their home's energy efficiency while reducing their costs • Minimal staff requirements • Straightforward to implement with no third-party contracts necessary • Low administrative costs and significant energy savings potential • Popular with customers as it is easy to understand and participate • Minimal effort required from customers
Measuring savings	Calculation of energy savings relies primarily on deemed savings estimates using information on measure installations. Program applications require customers to specifically identify equipment replaced, including make, model, and efficiency level, as well as documentation on energy-efficient equipment installed. Where estimates are not available for specific measures, the utility should conduct an engineering review of per-unit savings and verify installations through field observations or other confirmation (i.e., via telephone) of a statistically valid sample of participants.

EXAMPLE – RESIDENTIAL EQUIPMENT REBATE PROGRAM

Guide Section 5: Energy Efficiency Plan

Residential Equipment Rebate Program	
Best practices and innovations	• Offer dealer and installer incentives (such as 5–10 percent of customer rebate per unit) to encourage program promotion by trade allies. • Leverage ENERGY STAR® brand, marketing materials, and other resources. • Build strong communication channels with retailers and make extensive use of POP program materials and in-store rebate applications. • Allow retail partners to submit rebate applications on behalf of customers. • Use simple rebate forms and program rules. • Track and utilize retailer's records and equipment information to analyze actual savings. • Educate customers about the benefits and features of energy-efficient appliances and equipment to encourage greater adoption of energy-efficient technologies in the future. • Couple equipment incentives with low-cost financing. • Sponsor equipment quality installation and best practices training to gain contractor buy-in and ensure program quality. • Coordinate eligible measures and incentives among regional MOUs to ensure continuity and reduce customer confusion. • Perform installation inspections to ensure quality of work is maintained throughout the program.

PLANNING AND IMPLEMENTATION CONSIDERATIONS

Guide Section 5: Energy Efficiency Plan

- Key Preliminary Considerations (Section 5.2)
- Developing Budgets (Section 5.3)
- EM&V (Section 5.4)
- Program Cost-effectiveness Analysis (Section 5.5.1)
- Rate Impact Analysis (Section 5.5.2)
- Market Considerations
  - EISA (Section 5.6)
  - Building Codes (Section 5.7)
- Utility Collaboration (Section 5.8)
- Other Sources (Section 5.9)

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KEY PRELIMINARY CONSIDERATIONS

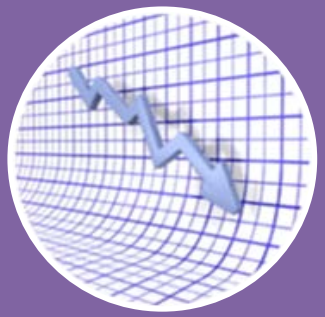
Guide Section 5.2: Energy Efficiency Plan

1. Identify Objectives and Guiding Principles

- What are the driving factors?
- What are the barriers and constraints
- What are the areas of greatest need?
- And greatest opportunity?
- How will success be measured?

2. Determine Load Shape Objectives

- Peak shaving
- Load shifting
- Conservation



3. Conduct an Economic Analysis

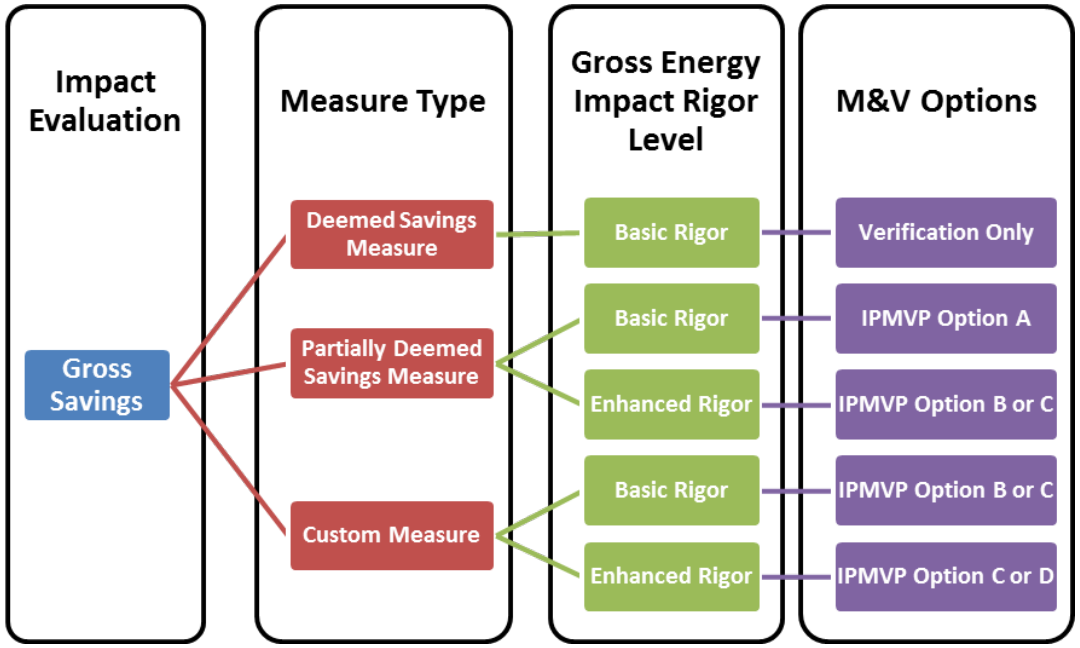
- Cost effectiveness analysis
- Rate impact analysis

4. Commit the Resources

- Train existing staff or hire new staff
- Develop implementation plans, program manuals, rebate forms, tracking systems.
- Purchase infrastructure support
- Plan for and implement market strategies
- Manage program incentive payments
- Solicit and contract with third-party program support

EVALUATION, MEASUREMENT AND VERIFICATION (EM&V)

Guide Section 5.4: Energy Efficiency Plan



Measure Type:	Deemed Measure:	Custom Measure:
Appliance Recycling	▪ Verification of utility inputs (type of unit, energy source, usage, location).	▪ Verification of project inputs. ▪ Spot measurements (kW). ▪ Short term metering (kW, operating hours).
C&I Lighting	▪ Verification of measure installation (fixture quantity, type). ▪ Pre- and post-installation fixture types and performance. ▪ Operating hours	▪ Verification of measure installation (fixture quantity, type). ▪ Pre- and post-installation fixture types and performance. ▪ Short term metering to log operating hours and stipulated categories.

UTILITY LEVEL RATE IMPACT ANALYSIS

Guide Section 5.5.2: Energy Efficiency Plan

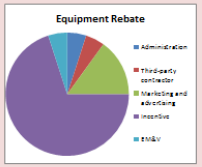
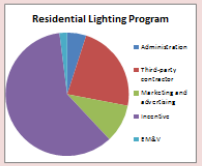
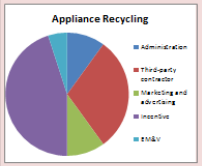
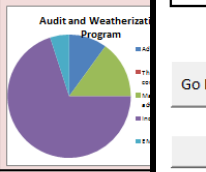
$$RIM = \frac{\Delta kWh \times Utility\ Avoided\ Cost}{Incentives + Program\ Admin\ \&\ Marketing + Utility\ Lost\ Revenues}$$

- Framework for Rate and Bill Impact Analysis:
  - Conduct both portfolio level and program-level analysis.
  - Divide impacts among program participants, nonparticipants, and all customers on average.
  - Account for long-term and full potential costs and benefits of the energy efficiency programs.
  - Compare impacts with and without energy efficiency programs in place.
  - Present both the percentage and absolute dollar increases in total rates and total bills.

- Mitigation Strategies:
  - Balance between program costs and overcoming market barriers.
  - Balance between program admin cost and incentive payments.
  - Deliver all cost-effective efficiency measures at once.
  - Service all customer types.
  - Consider a collaborative utility model.

BUDGET AND SAVING ESTIMATE CALCULATOR WALK THROUGH

Energy Efficiency Program Result

	Res			
	Equipment Rebate	Residential Lighting Program	Appliance Recycling	Audit and Weatherization P
Administration	$50,000	$25,000	$100,000	$50,000
Third-party contractor	$50,000	$115,000	$300,000	$0
Marketing and	$150,000	$50,000	$100,000	$75,000
Incentive	$700,000	$300,000	$450,000	$350,000
EM&V	$50,000	$10,000	$50,000	$25,000
Cost Saving ($/kWh)	$0.20	$0.13	$0.19	$0.33
Savings annually (kWh) except DR program	5,000,000	4,000,000	5,263,158	1,515,152
Staff Needed (FTE)	0.5	1	0.3	0.5
Participation in 1st year	447	1,342	-	313
Participation in 2nd	537	3,132	-	537
Participation in 3rd year	805	6,265	-	671
Participation annually after 3 years	1,342	10,560	-	1,566
Program Budget Allocation				
Go To Recommendation Tab	Recommendations	Recommendations	Recommendations	Recommendations

Utility Energy Efficiency Portofolio Result

Cost ($)		
Administration	$	907,750
Third-party contractor	$	1,009,250
Marketing and advertising	$	2,399,500
Incentive	$	9,321,250
EM&V	$	617,250
Total	**$**	**14,255,000**
Savings		
All Energy Efficiency Program Energy Saving (kWh)		45,415,300
DR Program Demand Saving (kW)		74.07

Go Back to Program Result

Go Back to INPUT

✓ Evaluation, Measurement and Verification (EM&V): 1% and 5%	
Benefits	• Customers can increase their home's energy efficiency while reducing their costs • Minimal staff requirements • Straightforward to implement with no third-party contracts necessary • Low administrative costs and significant energy savings potential • Popular with customers as it is easy to understand and participate • Minimal effort required from customers
Measuring savings	Calculation of energy savings relies primarily on deemed savings estimates using information on measure installations. Program Where estimates are not available for specific measures, the utility should conduct an engineering review of per-unit savings
Best practices and innovations	• Offer dealer and installer incentives (such as 5–10 percent of customer rebate per unit) to encourage program promotion by • Leverage ENERGY STAR® brand, marketing materials, and other resources. • Build strong communication channels with retailers and make extensive use of POP program materials and in-store rebate • Allow retail partners to submit rebate applications on behalf of customers. • Use simple rebate forms and program rules. • Track and utilize retailer's records and equipment information to analyze actual savings. • Educate customers about the benefits and features of energy-efficient appliances and equipment to encourage greater • Couple equipment incentives with low-cost financing.

Intro. | INPUT | Program Result | Utility Result | R-ER | R-LTG | R-RR | R-AD | R-Edu | R-NC | R-OBF | R-DR | NR-PR | NR-AD | NR-NC | NR-CR

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NEXT STEPS

NEXT STEPS

- **Recognize** energy efficiency best practices.
- **Disseminate** among locally owned electric providers.
- **Assess, Select and Implement** the policies and programs.

- Project Team will assist in the full development and implementation of selected energy efficiency programs for a few of the MOUs.
- Budget and Saving Estimate Calculator
  - Savings & program cost allocation estimate at program & utility level
  - Program concepts & program design consideration inline with Best Practices Guide

QUESTIONS?

THANK YOU!

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Resources

http://seco.cpa.state.tx.us/resources/docs/ee_best_practices_guide.pdf
http://seco.cpa.state.tx.us/resources