



# Achieving Maximum Energy Efficiency

FY 07 First Quarter Report



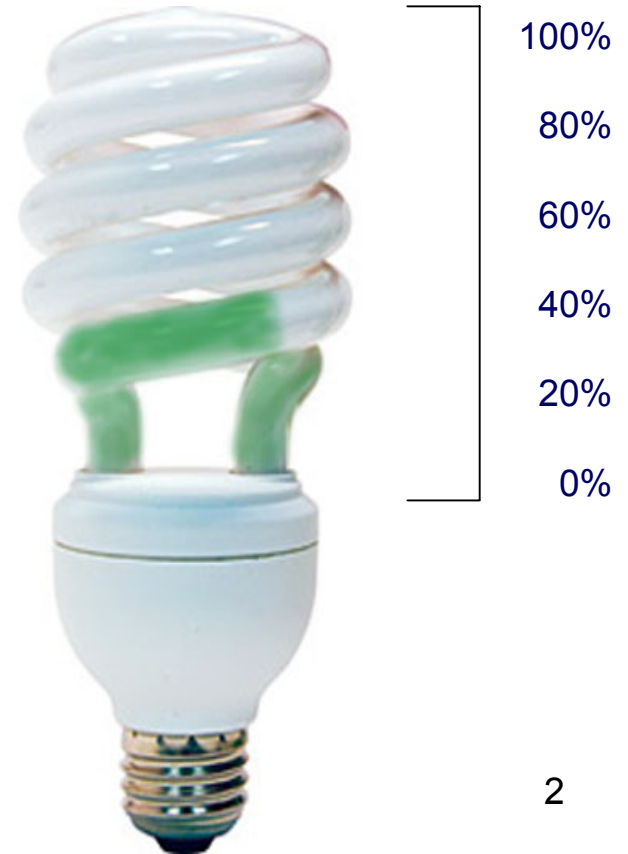


# Good News!

- On target to reach FY07 energy efficiency goals

1<sup>st</sup> Quarter Progress Toward Goal

- 2.7 MW
- 13,652 MWh





# Foundation to Achieve Maximum Energy Efficiency

- Education
- Incentives
- Regulation
- Rates
- Research



# Current Programs

- High Efficiency Central Air Conditioner
- High Efficiency Room Air Conditioner
- Central Air Conditioner Maintenance
- Duct Leak Repair
- Heat Recovery Unit
- Heat Pipe Enhanced Air Conditioner
- Reflective Roof Coating
- ENERGY STAR® Certification of Affordable Housing
- Added Insulation
- Refrigerator Buyback and Recycling
- Solar Electric (PV)
- Solar Water Heater
- Natural Gas Water Heaters
- Natural Gas Central Heat
- GRUGreen Program
- Green Building
- Natural Gas Range
- Natural Gas Dryer
- LP Gas Conversion
- Smart Vend
- LED Exit Sign
- Customized Business Program
- Free on-line, mail-in, self service, or on-site energy efficiency service
- CFL giveaway programs
- Energy Efficiency School Curriculum
- Public presentations
- Demonstration of Energy Efficient Developments Program (DEED)
- Low income whole house program
- Low interest loan program



# Education



# Customer Awareness

- Speaker's Bureau
- Workshop with Doug McKenzie-Mohr on Behavior Change
- Contractor Workshops
- Online Tools and Energy Efficiency Kit
- Energy Star "Change a Light Campaign"
- Customer Bulletin, Direct Mail, Print, Radio and TV messages
- CFL Lobby Display

# Lobby Lighting Display





# CFL: What We've Learned

- Two different techniques
  - Home Depot/Lowes discount pricing
  - Lincoln Estates/Tanglewood CFL installation
- Both techniques have pros and cons





# Lincoln Estates Customer Education Pilot

- Partnership with Cultural Arts Coalition
- Environmental Ambassadors installed in customer homes
  - GRU provided energy efficiency information and CFLs
  - 2,622 CFLs installed in 237 homes
  - \$34 per household
  - Cost to the utility of \$22.30 per MWh reduced
  - IB Eastside High School students are evaluating savings

# Lincoln CFL Ambassadors



# Energy hogs are on their way out!



Tanglewood Apartments



# Incentives



# Recently Added Incentives (residential)

- Added Insulation
  - Implemented in December ahead of schedule
  - \$ 0.125/ft<sup>2</sup> of insulation up to \$375 Rebate
  - A minimum of R19 in attic
    - Batting, blanket, board, sprayed-on or blown-in
  - A minimum of R11 under raised floors
    - Batting, blanket or board form



# Recently Added (residential/small business)

- Photovoltaic
  - Implemented in December ahead of schedule
  - \$1.50/Watt, up to \$15,000
  - One already approved in second quarter



# Recently Added (residential)

- Refrigerator Buy Back
  - Implemented in January on schedule
  - \$75 Rebate
  - Refrigerators, freezers or combination units that are 10 cubic feet or larger and in use
  - Old units must be removed from the home and proof of removal or destruction is required
  - Old units are collected by Waste Management for recycling



# Programs that may need changes

- Room Air Conditioner
- Reflective Roof Coating
- Heat Recovery Unit
- Heat Pipe Enhanced Air Conditioning





# Shining Star Smart Vend

- 86 units installed or 63% of annual goal
- Partnerships with local vending machine providers Canteen and Corporate Services
- Nearing agreements with Pepsi and Coca Cola
- School Board requires Smart Vend units in all vending machines



# Shining Star Customized Business

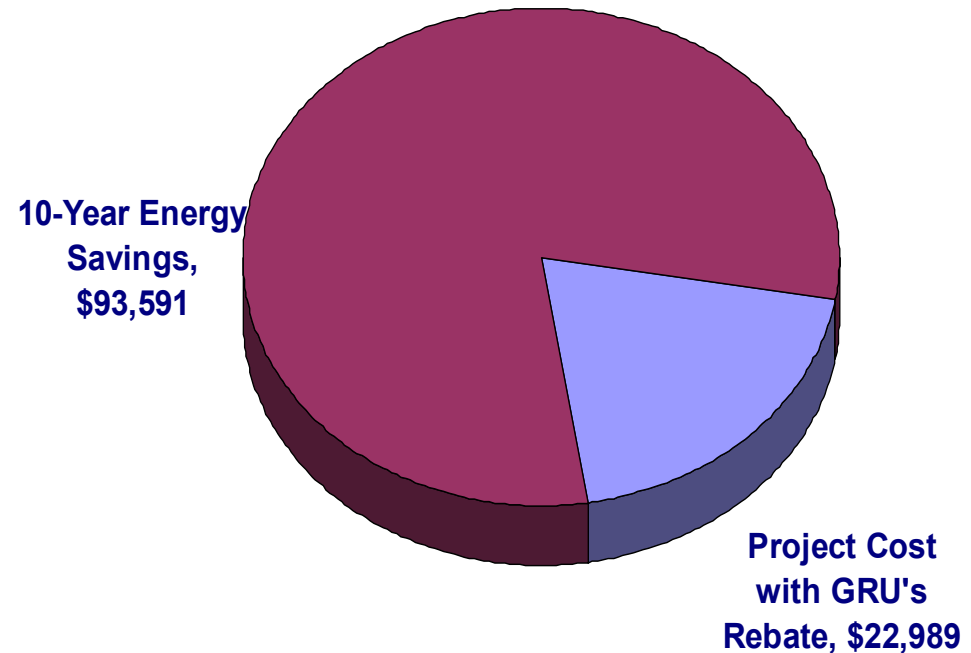
- Five projects accounting for reductions of 154% demand target and 95% energy of 1<sup>st</sup> quarterly target
- Estimated rebates of \$52,983
- Diverse participants: Schools, Manufacturing Facilities, Small Business, Office Space and Government
- 15 additional projects identified to date



# Fort Clark Middle School Customized Rebate Proposal

- Lighting upgrade
  - Cost of \$45,978
  - School pays \$22, 989
  - GRU rebate of \$22,989
  - 81,546 kWh saved annually
  - Payback < four years

**Ft. Clark Lighting Project  
Savings vs. project cost**





# Coming Attractions



# Coming Attractions

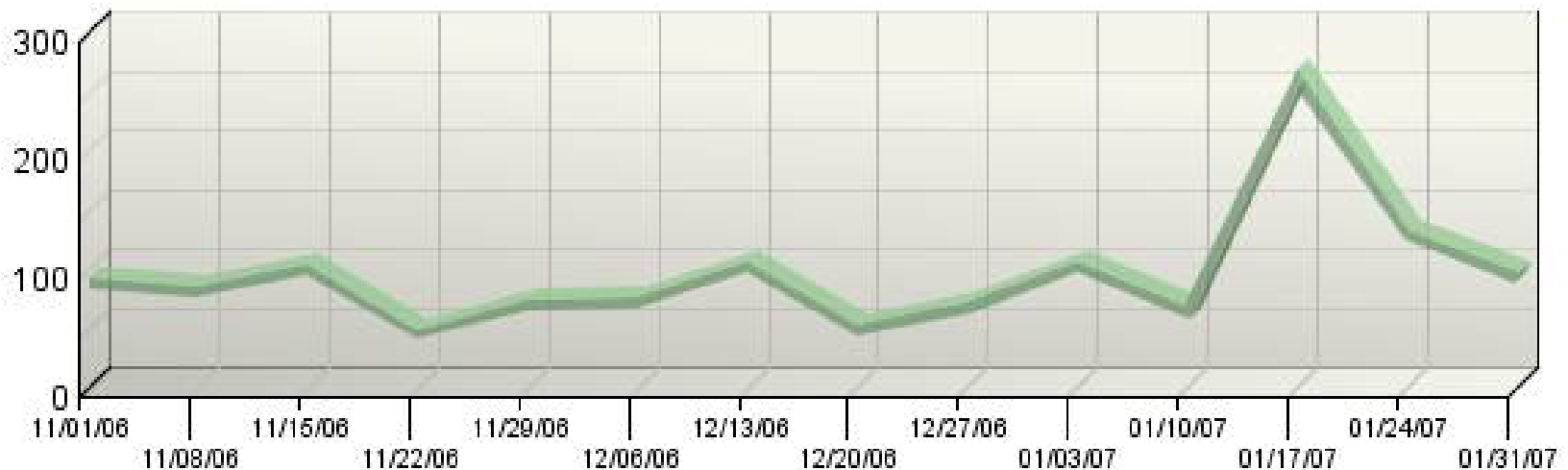
- Energy and Water Efficiency Team Recommendation
  - Due in March
- LEED
  - Staff workshop with UF
  - Joined U.S. Green Building Council
  - Pursuing LEED Silver for two new facilities
- Energy Efficiency Home Makeover
- Online Business Efficiency Tool



# Sample Second Quarter Marketing Tracking

- 24,000 targeted post cards mailed week of January 15
- 90,000 non-targeted Customer Bulletin in January
- Web site response - [www.gru.com](http://www.gru.com)
  - Average number of downloads increased by 400% in first week
  - 464 downloads of rebate form during three week period

Downloads





# Sample Tracking

- 755 phone calls over three week period in response to direct mail
- Next step is to determine how many rebates as a result of these efforts





# Low Interest Loan

- Sent RFP in early January – two no bids received
- Staff interviewed local financial institutions
- Sited “lack of time” and “bad timing” as reasons
- Will resend RFP and allow more response time





# DEED Study

- Renters have higher energy intensity than owners
- Most problems occur either in building envelope or HVAC system
- Awareness and understanding of energy efficiency issues such as equipment maintenance and equipment settings are severely lacking



# Whole House Low Income Pilot

- Owner-occupied single family and mobile homes
- Rebate up to \$2750 per house for 40 households
- Eligible for other applicable rebates
- Must be an electric customer
- Must meet and be able to show proof of HUD income requirements
- Must participate in energy efficiency education



# Whole House Sample Measures

- Insulation (attic and/or floor)
- Duct Repair
- Weatherstripping
- Central air conditioner maintenance/repair
- Room air conditioner replacement
- Refrigerator replacement
- Installing CFLs
- Exterior door replacement
- Water heater repair/replacement
- Ceiling and/or floor repairs (prevent air infiltration)



# Whole House Applicant Selection

- Request for application
- Time-certain deadline to apply
- Qualify applicants
  - Need Income
  - HUD certification
  - Geographically Dispersed?
- Drawing to pick 40



# Regulation



# Regulation

- City Commission added Energy Efficiency to 2007 State of Florida Legislative Agenda
- Staff provided a list of GRU energy efficiency incentives and suggestions to the Florida League of Cities (on behalf of the House of Representatives)
- Continued discussion with Community Development Committee on ways to get energy efficiency improvements in single family homes, especially rentals



# Regulation

- Continued participation in the Florida Energy Commission meetings and responding to legislative proposals
- Worked with Florida Municipal Energy Committee (FMEC) and Florida Energy Commission to monitor legislation on energy efficiency measures



# Rates, Research and Measurement





# Statewide Effort

- Florida Municipal Energy-Efficiency Committee (FMEC)
  - Statewide Database
    - \$125,000 Contract (GRU share is \$31,250)
    - First and best source for Florida specific energy conservation measure data since 1991
  - Solar Contractor Workshop (February)
  - CFL Buy Down Program (October)



# Rate Design

- Began assembling data to develop time of use rates
  - Residential Time of Use Rate to be Presented with FY08 Budget
- Began tracking results of baseline rate
  - Preliminary evaluation results available in May



# DEED Study

Summary Statistics for Total Energy Use and Energy Intensity (169 DEED Households vs. 362 Randomly Sampled GRU Customer Single Family Detached Households)

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	DEED		Appliance Survey	
	Mean	St. Dev.	Mean	St. Dev.
<b>kWh Total</b> (kWh/month)	<b>1118</b>	767	<b>1134</b>	580
<b>kWh Intensity</b> (kWh/month/1000ft <sup>2</sup> )	<b>878</b>	584	<b>680</b>	635
<b>Therm Total</b> (therm/month, DEED N=103)	<b>28.1</b>	17	<b>26.6</b>	17
<b>Therm Intensity</b> (therm/month/1000ft <sup>2</sup> , DEED N=103)	<b>21.5</b>	14	<b>15.3</b>	10
<b>Btu Total</b> (MMBtu/month)	<b>5.5</b>	3	<b>5.5</b>	3
<b>Btu Intensity</b> (MMBtu/month/1000ft <sup>2</sup> )	<b>4.3</b>	2	<b>3.3</b>	2
<b>Household Square Footage</b> (conditioned area, ft <sup>2</sup> )	<b>1333</b>	450	<b>1901</b>	776

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# Load Control Demand Response

- FY08 budget is \$250,000 for study
- FMEC considering joint study in FY08
- Could increase quality of results



# Advanced Metering Infrastructure (AMI)

- RFP issued in January for pilot program
- Pilot goals
  - Test technology including interface with CIS
  - Define true benefits of AMI
  - Develop plan to utilize benefits in a full scale implementation



# Advanced Metering Infrastructure (AMI)

- **Greater Customer Satisfaction**
  - Accuracy of meter reading
  - Rapid resolution of high bill calls
  - Access to all meters electronically (no more fences, dogs)
  - Customers may have online access to more detailed usage information
  - More accurate power outage/restoration data for customers
  - Potential for rate choice (TOU rates)



# Advanced Metering Infrastructure (AMI)

- **Innovative Rate Support**
  - Data collection
  - Measurement and verification
- **Revenue Improvements**
  - Tamper detection
  - Stopped meter alarms
  - Remote Disconnect
- **Outage and Restoration Management**
  - Faster and more accurate outage notification
  - Confirmation of restorations
- **Decreased O&M Costs**
  - Remote meter testing
  - Reduced trips



# Customer Research

- Commercial DSM Potential Study
  - Contracted with UF Rinker School of Building Construction
- Completed analysis of 2006 Residential Appliance Saturation Survey
  - DSM potential studies
  - Program design



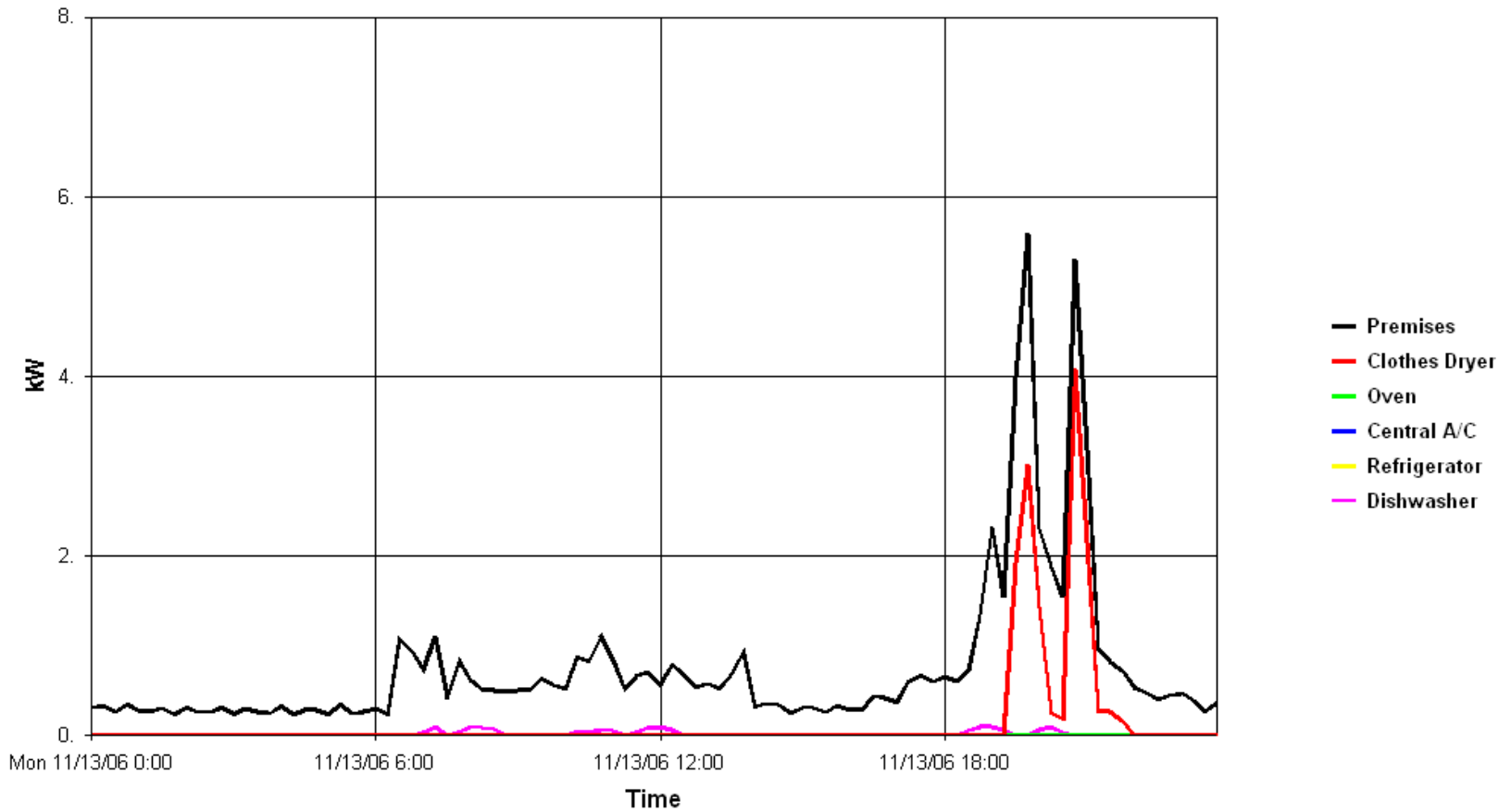


# Load Research

- Successfully completed end-use pilot
- Additional meters needed to establish load research program
  - \$525,000 included in FY07 budget
  - End-use and whole house recorders to be installed on homes
  - Information will be combined with Residential Appliance Saturation Surveys and FMEC database

# Karen's Dirty Laundry

2222 (11/13/06 - 11/14/06)





# Energy Monitor Evaluation

- Devices report real time energy usage in dollars inside customer's home
- Blue Line and The Energy Detective
  - Pilot to be completed March 07



# Measurement Verification

- Definition: Confirmation of savings from energy efficiency programs
  - Database for tracking energy efficiency programs
  - Third party evaluation
    - Ensures accountability
    - More costly
  - Requires at least one full year of data



# Program Evaluation

- First annual program evaluation
  - May 2007
  - Led by Roger Duncan, Deputy General Manager, Austin Energy



# First Quarter Results



# Sprint vs. Marathon

- **Short Term Goal FY07:** Establish foundation for energy efficiency in the community
  - 2.7 MW - equivalent to 900 AC units
  - 13,652 MWh - equivalent to 1,137 homes
- **Long Term Goal Next 20+ Years:** Pursue all cost effective and feasible demand side measures

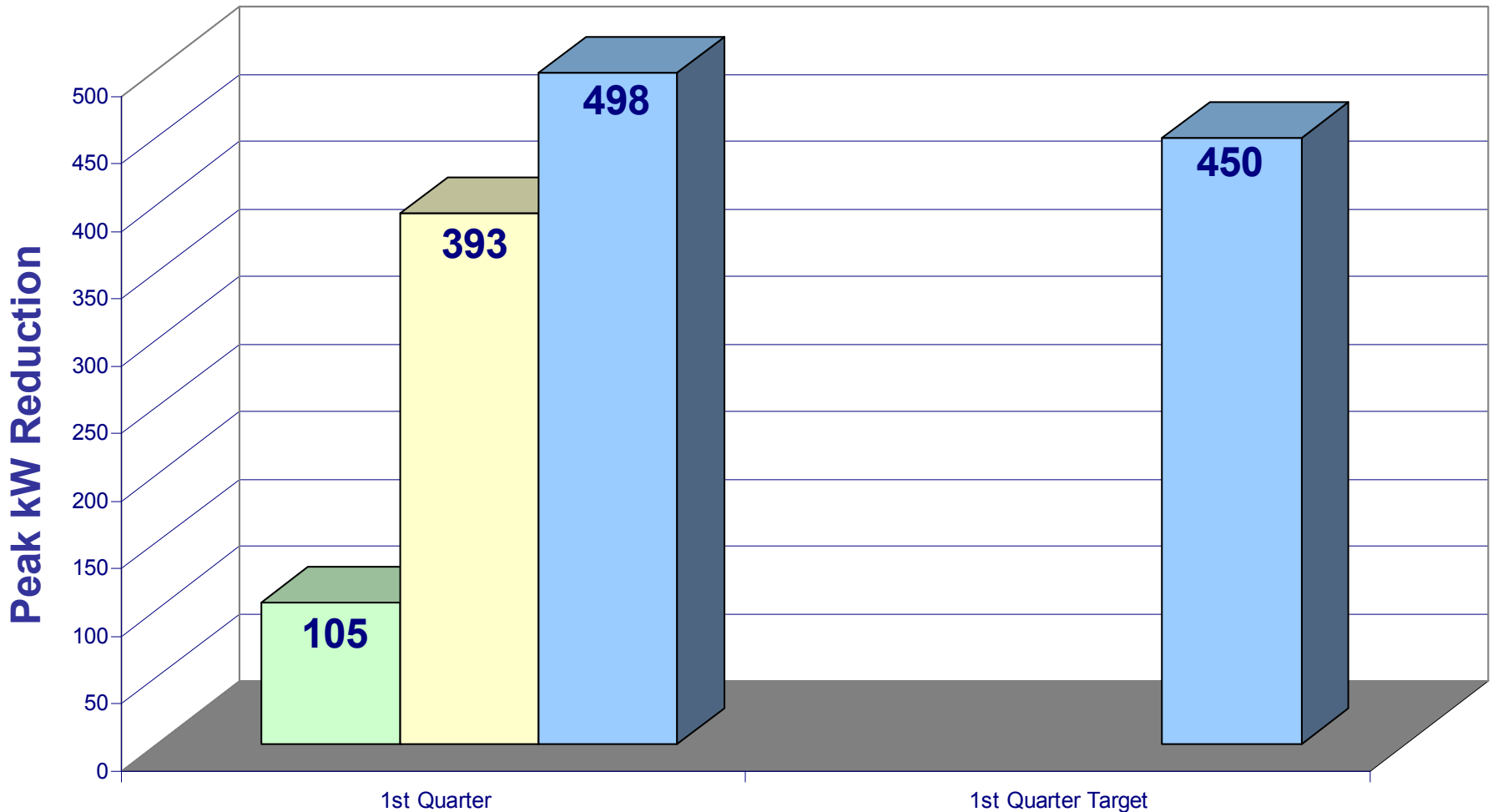


# First Quarter Demand Reductions

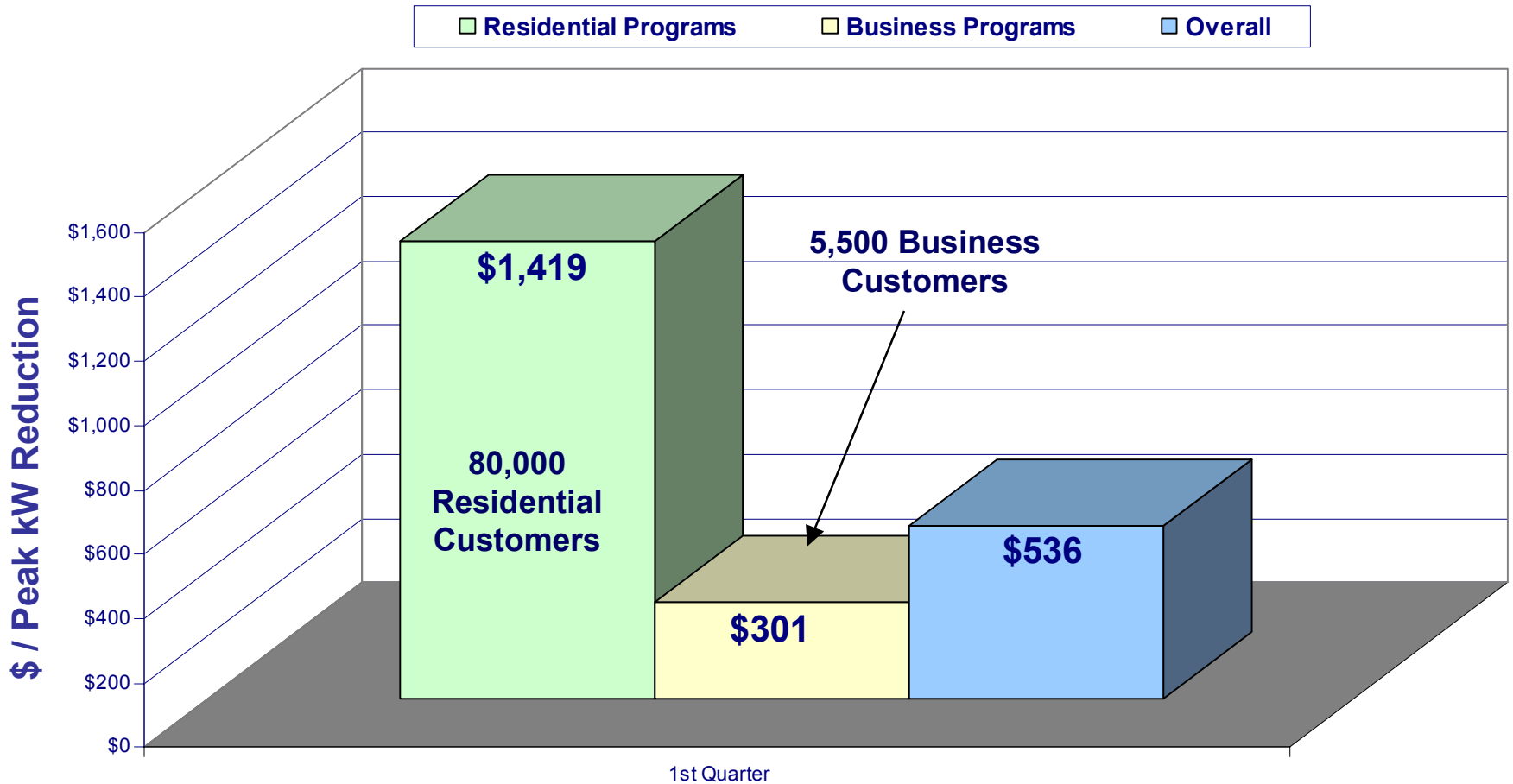


# First Quarter Demand Reduction

Residential Business Overall



# \$ Spent Per Peak kW Reduced



\$1,800 – 2,600 kW for Base Load Capacity

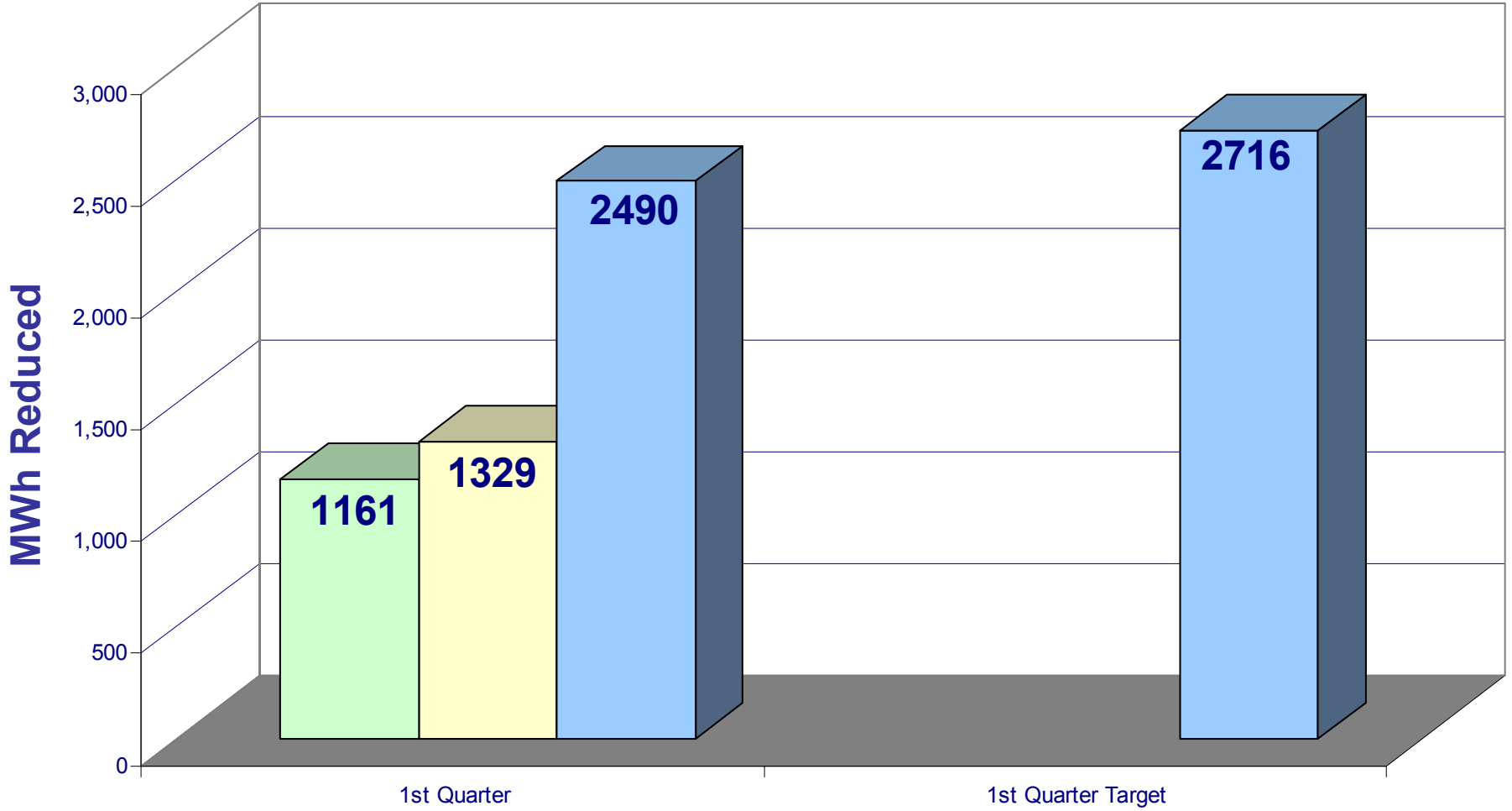
\$400 – 800 kW for Peak Capacity



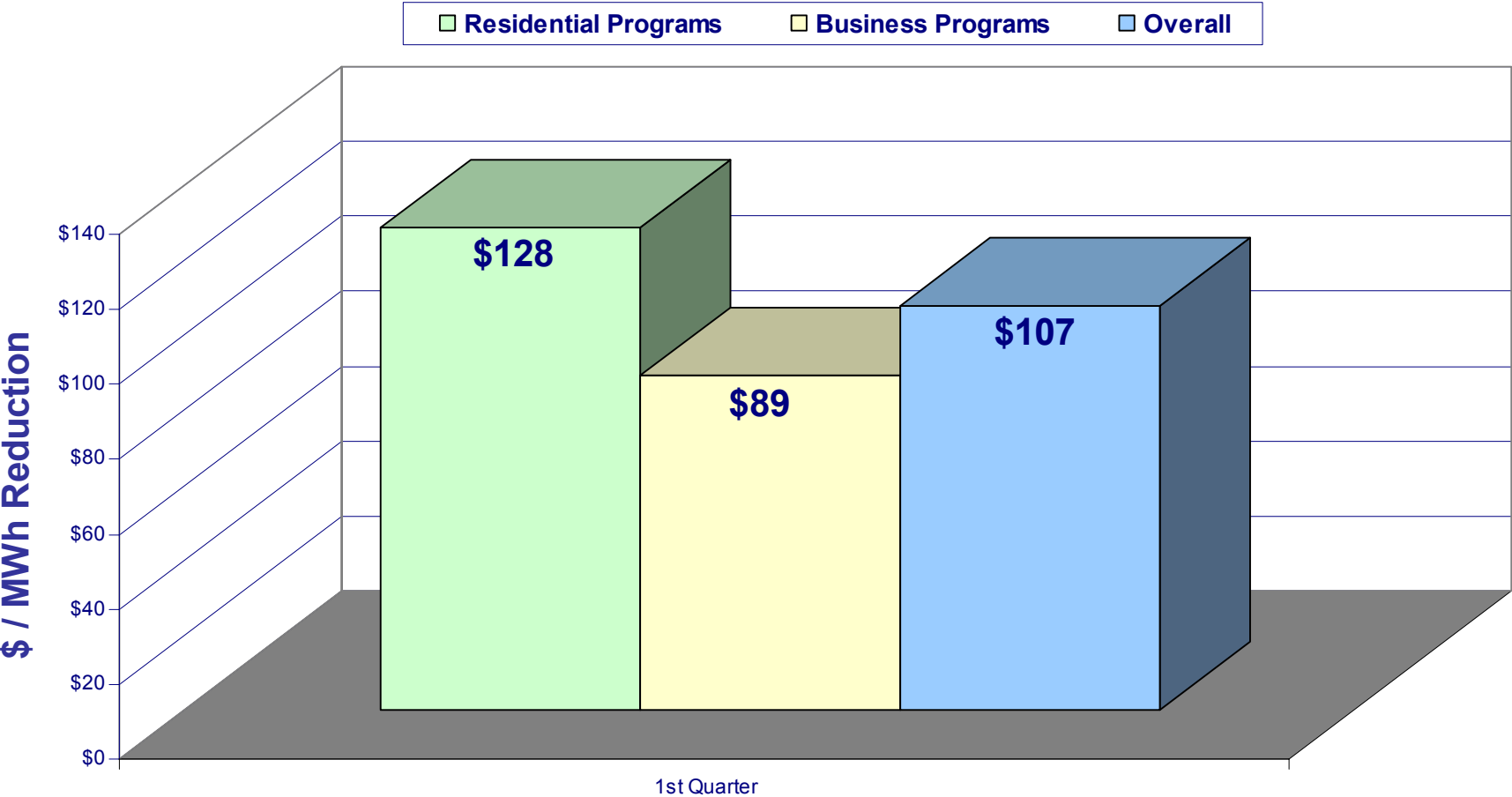
# First Quarter Energy Reductions

# First Quarter Energy Reduction

Residential Business Overall



# \$ Spent Per MWh Reduced



ICF Report: *“Many of the potential DSM programs are less costly than the supply-side alternatives, with levelized average costs of only \$23/MWh.”*



# Good News!

- On target to reach FY07 energy efficiency goals
  - 2.7 MW
  - 13,652 MWh
- There's more work to be done

