DUQUESNE LIGHT

Act 129 Collaborative Exchange Meeting
Demand Response Subgroup

Duquesne Light
Our Energy…Your Power

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Demand Response Subgroup Meeting

April 21, 2009

Agenda

I. Welcome and introductions

II. General Session

III. Breakout Sessions

IV. Subsequent Subgroup Meetings

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General Session

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General Session

- Review:
  - Requirements of Act 129
  - Forecast Results
- Sector and Sub-sector Statistics

What are the goals?

- The Act requires the achievement of 1.0% and 3.0% reductions in consumption in our service territory by May 31, 2011 and May 31, 2013 respectively, as measured against the June 2009 – May 2010 kWh sales forecast.
  - 140,885,117 kWh by 2011
  - 422,565,351 kWh by 2013
- The Act requires the achievement of a 4.5% reduction by May 31, 2013 in peak demand in our service territory as measured against the 2007 June – September average of the 100 hours of peak demand.
  - 113 MW in the summer of 2012
- Of these targets, 10% of the reductions must come from government, municipal, educational and non-profit accounts.

Where does the funding for the programs come from?

- Act 129 sets annual spending on the programs at 2% of the EDC's 2006 total retail revenue. For Duquesne that equates to a little under $20 million per program year.
- Law provides for current recovery of these dollars from customers classes relative to the dollars expended on the programs for each class.
- Duquesne is also studying the stimulus package for opportunities to take advantage of funding for energy efficiency that would allow for a broader implementation of our programs and greater reductions in energy use and demand.

Which programs will qualify for inclusion in Duquesne's plan?

- Measures that will get PUC approval MUST be cost effective as measured by a Total Resource Cost Test, the particulars of which are being developed by the PUC.
- This test includes ALL expenditures on a program measure, both what the customer contributes and what Duquesne Light would contribute.
- The ultimate plan to be approved should represent an array of programs that optimize the available funding to achieve the greatest energy and peak demand savings.

Forecast Annualized Energy Efficiency Potential and Program Budgets

DLCo Forecast Annualized Energy Efficiency Potential and Program Budgets

	(2011) Sector Use kWh	Technical Potential kWh	Economic Potential kWh	Achievable Program Potential kWh	Achievable Life-Cycle Potential kWh	Achievable Program Potential kW	Program Costs	NPV Avoided Cost of Supply	TRC
Residential	4,276,840,291	464,548,955	263,784,114	57,019,772	916,942,563	27,927	$5,072,989	$55,777,299	4.2
Commercial	6,852,783,429	313,000,430	207,886,260	67,973,214	811,446,874	15,950	$9,515,151	$54,345,940	2.2
Industrial	2,914,124,575	853,866,072	703,725,145	32,056,756	320,625,105	4,951	$3,984,097	$20,728,167	3.6
Composite	14,043,748,296	1,631,415,457	1,175,395,519	157,049,742	2,049,014,542	48,828	$18,572,237	$130,851,406	3.0
			% Annual Consumption	1.1%					

		Annual kWh Use	Achievable kWh	Impact %	Program Funding	% Costs
Residential	30%	4,276,840,291	57,019,772	1.3%	$5,072,989	27.3%
Commercial	49%	6,852,783,429	67,973,214	1.0%	$9,515,151	51.2%
Industrial	21%	2,914,124,575	32,056,756	1.1%	$3,984,097	21.5%
		14,043,748,296	157,049,742		$18,572,237	

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Demand Response Background

- PA PUC requires that one demand reduction program is offered in each customer class
- Demand response includes two types of programs
  - Incentive-based: direct load control (DLC), demand bidding, interruptible, capacity markets
  - Time-based rates: time-of-use, real-time pricing, critical peak pricing
- Benefits of demand response
  - More efficient use of electric system in short term
  - Defer or displace additional generation, transmission and distribution capacity in the long term
  - Improve system reliability
  - Satisfy customers with additional energy services
- Demand response is proven and cost-effective
  - 8% of U.S. customers now participate in demand response programs
  - 5.8% of U.S. peak demand equivalent from demand response in 2008
  - EPRI forecasts 5-8% demand response potential for this region

Demand Response - Background

- Local experience exists with demand response
  - DLC pilot program with residential air conditioner cycling switches
  - Curtailment service providers acting in wholesale markets of PJM
- Significant opportunities remain for programs serving all customer classes and various end uses including:
  - Air conditioning in residential and commercial facilities
  - Lighting in commercial and industrial facilities
  - Refrigeration in commercial and industrial
  - Industrial process
  - Backup generators
- Programs of particular interest are those which are carefully targeted, of proven performance, and cost-effective
- Recommended programs are incentive-based
  - Direct load control which is dispatchable
  - Capacity and demand bidding which are voluntary and economic
  - Typical curtailment periods are 10-15 weekday afternoons per summer of 2-5 hours, or an average of 48 hours per summer (June – Sept)

Breakout Sessions

Breakout Sessions

- Introduction (Customers and Service Providers)
- Review Section/Sub-sector Statistics
  - Program Descriptions
  - Incentives
  - Marketing
  - Delivery process
  - Estimated Funding Goals & Budgets
- Receive and Record Comments

Residential Air Conditioner Cycling Program Design Recommended for Consideration

- Description
  - Target customers: single-family owner occupied homes, central air conditioners
  - Load cycling equipment: switch on outdoor compressor, wireless communication, adaptive algorithm
  - Utility calls events when needed for system reliability and for economic dispatch to reduce wholesale energy and capacity costs
- Incentives
  - Free equipment and installation
  - $8/month for four summer months = $32 for 50% cycling
  - Higher incentive if adopt 100% cycling
- Marketing
  - Direct marketing: direct mail, telemarketing
  - Utility bill inserts, websites, call centers
  - Public meetings of civic clubs, church groups, neighborhood associations
- Delivery
  - Contractor installation and servicing of equipment
  - Contractor could also handle marketing, call center
  - Contractor could also dispatch equipment upon utility signal

Small/Mid-Size C/I Air Conditioner Cycling Program Design Recommended for Consideration

- Description
  - Target customers: commercial and industrial accounts up to 300 kW
  - Load cycling equipment: switch on outdoor compressor, wireless communication, adaptive algorithm
  - Utility calls events when needed for system reliability and for economic dispatch to reduce wholesale energy and capacity costs
- Incentives
  - Free equipment and installation
  - $8/month for four summer months = $32 for 50% cycling
  - Higher incentive if adopt 100% cycling
- Marketing
  - Direct marketing: direct mail, telemarketing
  - Utility bill inserts, websites, call centers
  - Public meetings of civic clubs, chambers of commerce, business groups
- Delivery
  - Contractor installation and servicing of equipment
  - Contractor could also handle marketing, call center
  - Contractor could also dispatch equipment upon utility signal

Large C/I Curtailable Load Program Recommended for Consideration

- Description
  - Target customers: commercial and industrial accounts up over 300 kW
  - Equipment: Communications and monitoring system
  - End-uses to be controlled: lighting, HVAC, refrigeration, processes, etc.
  - Utility calls events when needed for system reliability and for economic dispatch to reduce wholesale energy and capacity costs
- Incentives
  - Equipment and installation costs split with customer
  - Incentive based on amount reduced
  - Incentive tied to wholesale market price
- Marketing
  - Person to person, key account executives
  - Utility bill inserts, websites, call centers
  - Public meetings of civic clubs, chambers of commerce, business groups
- Delivery
  - Contractor installation and servicing of equipment
  - Contractor could also handle marketing, call center
  - Contractor could also dispatch equipment upon utility signal

Program Participation Levels - Forecast

Participating Customers	For Program Year Ending May 31			
Program	2009-2010	2010- 2011	2011-2012	2012-2013
Residential Load Control	0	1,355	2,721	4,100
Small/Mid C/I Load Control	0	540	1,080	2,160
Large C/I Curtailable Load	0	18	36	54

Program Costs - Estimated

Utility Program Costs	For Program Year Ending May 31			
Program	2009-2010	2010- 2011	2011-2012	2012-2013
Residential Load Control	$80,000	$291,138	$373,441	$456,483
Small/Mid C/I Load Control	$80,000	$220,200	$317,400	$414,600
Large C/I Curtailable Load	$30,000	$82,776	$135,552	$188,328
Total	$190,000	$594,114	$826,393	$1,059,411

Discussion, Comments & Recommendations

Contact Information

Michele Sandoe
Director, Customer Care
412.393.4027
Act129Feedback@duqlight.com