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GULF POWER
A SOUTHERN COMPANY

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COMMISSION
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May 29, 2009

Ms. Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee FL 32399-0850

Dear Ms. Cole:

RE: Docket No. 080410-EG

Enclosed for official filing in the above referenced docket are an original and fifteen (15) copies of the following:

1. Petition of Gulf Power Company.

2. Prepared direct testimony and exhibit of John N. Floyd.

Also enclosed is a CD containing the Petition in Microsoft Word format as prepared on a Windows NT based computer.

Sincerely,

Susan D Ritenour

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Enclosures

cc: Beggs and Lane
J. A. Stone, Esq.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: **Commission Review of Numeric Conservation Goals for Gulf Power Company**))))

Docket No.: **080410-EG**

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the foregoing was furnished by U. S. mail this 29th day of May, 2009, on the following:

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Commission review of numeric conservation goals (Florida Power & Light Company).	Docket No.: 080407-EG
In re: Commission review of numeric conservation goals (Progress Energy Florida, Inc.).	Docket No.: 080408-EG
In re: Commission review of numeric conservation goals (Tampa Electric Company).	Docket No.: 080409-EG
In re: Commission review of numeric conservation goals (Gulf Power Company).	Docket No.: 080410-EG
In re: Commission review of numeric conservation goals (Florida Public Utilities Company).	Docket No.: 080411-EG
In re: Commission review of numeric conservation goals (Orlando Utilities Commission)	Docket No.: 080412-EG
In re: Commission review of numeric conservation goals (JEA)	Docket No.: 080413-EG
	Filed: June 1, 2009

PETITION FOR APPROVAL OF NUMERIC CONSERVATION GOALS BY GULF POWER COMPANY

Gulf Power Company ("Gulf Power," "Gulf," or "the Company"), by and through its undersigned attorneys, files this petition with proposed numeric conservation goals and requests that the Florida Public Service Commission ("Commission") accept, approve and adopt Gulf Power's proposed numeric conservation goals as the numeric goals established by the Commission for Gulf Power Company pursuant to section 366.82, Florida Statutes, and Rules 25-17.001 and 25-17.0021, Florida Administrative Code. In support of this petition, the Company states:

1. Gulf Power is a public utility subject to the jurisdiction of the Commission pursuant to Chapter 366 of the Florida Statutes. Gulf Power's General Offices are located at One Energy Place, Pensacola, Florida 32520.

2. Copies of all notices and pleadings with respect to this petition should be furnished to:

Susan D. Ritenour
Secretary and Treasurer
and Regulatory Manager
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3. The agency affected by this petition is:

Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

4. Gulf Power is subject to section 366.82, Florida Statutes, part of the Florida Energy Efficiency and Conservation Act ("FEECA"), which requires the Commission to adopt appropriate goals to increase the efficiency of energy consumption, increase the development of demand side renewable energy systems, reduce and control the growth rates of electric consumption and weather sensitive peak demand, and encourage the development of demand side renewable energy resources.

5. Docket No. 080410-EG is one of seven that has been opened by the Commission to establish numeric conservation goals for each of the seven Florida FEECA utilities pursuant to section 366.82, Florida Statutes, and Rule 25-17.0021, Florida Administrative Code. As a

result of Gulf's evaluations, the Company proposes the following numeric conservation goals which Gulf has determined to be reasonably achievable in the residential, commercial and industrial classes within Gulf Power's service area over a ten-year period.

6. Gulf Power Company's proposed conservation goals for years 2010 through 2019 are set forth below:

Residential

Year	Summer Peak MW Reduction (at Generator)	Winter Peak MW Reduction (at Generator)	Annual GWh Reduction (at Generator)
2010	1.9	1.8	2.0
2011	4.7	4.3	6.0
2012	8.4	7.4	12.3
2013	12.9	11.1	20.5
2014	18.0	15.4	30.3
2015	23.7	20.0	41.3
2016	29.8	25.0	53.2
2017	35.9	30.0	65.3
2018	41.6	34.7	76.5
2019	47.0	39.2	86.8

Commercial/Industrial

Year	Summer Peak MW Reduction (at Generator)	Winter Peak MW Reduction (at Generator)	Annual GWh Reduction (at Generator)
2010	1.2	0.5	2.7
2011	2.8	1.0	7.3
2012	4.7	1.6	13.4
2013	6.9	2.3	20.7
2014	9.3	3.0	28.7
2015	11.8	3.8	37.2
2016	14.4	4.6	46.1
2017	17.0	5.4	55.1
2018	19.5	6.2	63.9
2019	21.9	7.0	72.2

7. The testimony of John N. Floyd, filed contemporaneously with this petition, along with the exhibit and schedules attached thereto, summarizes the Company's ten year projections of the total cost-effective winter and summer peak MW demand reduction and the annual GWh savings which are reasonably achievable through implementation of demand side measures in Gulf Power's service area for the residential, commercial and industrial classes. Gulf Power is also co-sponsoring the testimony and exhibits of Itron, Inc. witness Mike Rufo. Mr. Rufo presents and summarizes the methodology, input data and findings contained in the studies of technical potential and achievable potential for cost-effective energy efficiency and load management for the seven FEECA utilities.

8. As demonstrated by the testimony of witnesses Floyd and Rufo, the Company's

proposed numeric conservation goals for the period 2010 through 2019 are reasonable and are consistent with the requirements of section 366.82, Florida Statutes, and Rule 25-17.0021, Florida Administrative Code.

9. Gulf knows of no material facts in dispute regarding the relief requested herein.

WHEREFORE, Gulf Power Company requests that the Florida Public Service Commission enter an order approving and establishing the Company's proposed numeric conservation goals for the period 2010 through 2019 pursuant to section 366.82, Florida Statutes, and Rule 25-17.0021, Florida Administrative Code, and grant such other relief as is just and reasonable under the facts and law as determined by the Commission.

Respectfully submitted this 29th day of May, 2009.

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

COMMISSION REVIEW OF NUMERIC CONSERVATION GOALS

Docket No. 080410-EG

PREPARED DIRECT TESTIMONY AND EXHIBIT OF JOHN N. FLOYD

FILED JUNE 1, 2009

GULF POWER

A SOUTHERN COMPANY

Gulf Power Company

Before the Florida Public Service Commission
Prepared Direct Testimony and Exhibit of
John N. Floyd
Docket No. 080410-EG
Commission Review of Numeric Conservation Goals
June 1, 2009

Q. Will you please state your name, business address, employer and position?

A. My name is John N. Floyd, and my business address is One Energy Place, Pensacola, Florida 32520. I am employed by Gulf Power Company as the Economic Evaluation and Market Reporting Team Leader.

Q. Mr. Floyd, please describe your educational background and business experience.

A. I received a Bachelor Degree in Electrical Engineering from Auburn University in 1985. After serving four years in the U.S. Air Force, I began my career in the electric utility industry at Gulf Power in 1990 and have held various positions within the Company in Power Generation, Metering, Power Delivery Distribution, and Marketing. In my present position, I am responsible for Energy Conservation Cost Recovery (ECCR) filings, economic evaluations, market research, and other marketing services activities.

Q. Have you previously testified before this Commission?

A. Yes.

Q. Mr. Floyd, what is the purpose of your testimony?
A. The purpose of my testimony is to propose seasonal peak demand and annual energy conservation goals for Gulf Power for the period 2010 through 2019.

Q. Please describe how your testimony is organized.
A. My testimony is organized as follows:
Section 1: Proposed Goals and Accomplishments
Section 2: Overall Process to Develop Goals
Section 3: Statutory Adherence
Section 4: Additional Supporting Information
Section 5: Conclusions

Q. Have you prepared an exhibit in support of your testimony?
A. Yes, I have.
Counsel: We ask that Mr. Floyd's exhibit consisting of 11 schedules be marked for identification as:
Exhibit No. _______ (JNF-1)

<u>Section 1: Proposed Goals and Accomplishments</u>

Q. What residential and commercial/industrial goals are appropriate and reasonably achievable for Gulf Power Company for seasonal peak demand and energy conservation for the period 2010 through 2019?
A. The Company's proposed seasonal peak demand and annual energy

conservation goals for the period 2010 through 2019 are contained in Schedule 1 of my exhibit (JNF-1). In total, Gulf is proposing a summer peak demand goal of 68.9 MW, winter peak demand goal of 46.2 MW, and cumulative annual energy conservation goal of 159 GWh. These goals are based upon Gulf's planning process and the results of technical and achievable potential studies conducted by Itron, Inc., Consulting and Analytical Services (Itron). The goals represent the total cost-effective winter and summer peak MW demand reductions and the annual GWh savings at the generator which are reasonably achievable through implementation of demand-side programs in Gulf Power's service area for the residential and commercial/industrial customer classes. The basis for the goals are the MW and GWh associated with estimated maximum adoption of measures that passed both the Rate Impact Measure (RIM) and the Participant's Test (PT) as reflected in the achievable potential results prepared by Itron for Gulf Power.

Q. How do Gulf Power's proposed Demand-Side Management (DSM) goals for the period of 2010 through 2019 compare to Gulf Power's current DSM goals for the period of 2005 through 2014?

A. The cumulative annual energy conservation goals being proposed for the period 2010 through 2019 are higher than the goals currently approved in Commission Order No. PSC-04-0764-PAA-EG. The proposed seasonal peak demand goals are lower than currently approved goals. A comparison of the goals can be found in Schedule 2 of my exhibit.

Q. Please describe how Gulf Power has endeavored to achieve the objectives of the Florida Energy Efficiency and Conservation Act (FEECA).

A. Gulf has a thirty-five year history of promoting energy efficiency and conservation as a way for customers to save money and increase comfort while at the same time reducing the generating capacity required to serve our customer base. This approach began in the 1970's with the introduction of the GoodCents Home program as a way to increase the efficiency of residential energy use by constructing homes with long-term operating cost and comfort in mind. This program not only provided increased comfort and savings to the homeowner, but also provided additional value in the sale and resale of homes meeting this standard. Over the years, the concepts behind this program have been universally adopted in the utility industry and have influenced building code standards as cost-effective means of achieving improvements in energy utilization in both the residential and commercial sectors.

Gulf has also been a leader in innovative approaches to DSM. Beginning in the 1990's, Gulf introduced the concept of home energy management combined with variable pricing, including critical peak pricing (CPP). Providing appropriate pricing to reflect changes in the marginal cost of generating electricity during the day allows the customer to be in control of their energy purchases. Coupled with a smart thermostat, this program gives customers the ability to adjust the operation of heating ventilation and cooling (HVAC), water heating, and pool pumps to operate in a manner that is acceptable to their budget and lifestyle while providing benefits in the form of reduced demand during peak periods. Gulf also introduced this variable pricing philosophy in the large commercial/industrial market through a real-time pricing program that has demonstrated significant demand response during peak times while providing increased value to the customers who have the ability to manage their energy consumption.

Recognizing a need to explore additional opportunities associated with end-use renewable technologies, Gulf Power, in 2008, received Commission approval of a one year pilot program to evaluate the level of customer interest in and benefits of solar thermal water heating. This program is currently ongoing and will be evaluated at the end of 2009.

Q. Please describe the progress Gulf has made towards achieving the goals set in Order No. PSC-04-0764-PAA-EG for the period 2005 through 2008?

A. Schedule 3 of my exhibit provides a summary of Gulf Power's progress toward goal achievement. During this period, Gulf has exceeded the goals for seasonal peak demand reductions and annual energy reductions for the commercial/industrial sector. For the residential sector, however, Gulf has not met its goals for seasonal peak demand reductions and annual energy reductions.

Gulf's under-achievement in the residential sector has been primarily due to customer participation in the GoodCents Select program, which has been renamed "Energy Select," being well under projections. Participation projections for this program account for almost 90% of the summer peak demand savings goal and approximately 75% of the annual energy reduction goal. Impacts from the 2004 and 2005 hurricane seasons, growing communication technology incompatibilities due to customer elimination of land line telephone service, delays in development and delivery of hardware from the manufacturer, and resulting suspension of active promotion of the program from August of 2007 through March of 2009 have contributed to lower than projected net program participants during this period.

Q. Does Gulf believe Energy Select can be a viable part of its DSM Plan going forward?

A. Yes. Energy Select is Gulf's home energy management with critical peak pricing (CPP) program. The fundamental concepts behind the Energy Select program are sound and do provide dependable demand reductions at peak times as well as high customer satisfaction. In addition, with second generation control units being deployed in 2009 and ongoing deployment of Gulf's automated metering infrastructure (AMI), the opportunity exists to overcome some of the technology barriers that currently limit the program's applicability. Gulf's proposed goals for the period 2010 through 2019 include the achievable potential for Demand Response (DR) associated with this approach to customer-controlled peak demand reductions.

Section 2: Overall Process to Develop DSM Goals

Q. Please provide an overview of the process used to determine the proposed goal levels.

A. Gulf Power developed proposed goals based on a progressive process of 1) determining the full technical potential for energy efficiency savings; 2) determining the subset of that potential that is cost-effective under both the RIM and Total Resource Cost (TRC) cost-effectiveness screens as compared to Gulf's resource needs from the most recent integrated resource plan; and 3) determining the theoretical achievable potential of energy and demand savings based on modeling of multiple adoption scenarios considering the unique circumstances of our service area, existing programmatic activity, and historical experience.

This process was guided by Itron under contract to Florida Power & Light (FP&L) on behalf of the seven Florida utilities subject to requirements of the Florida Energy Efficiency and Conservation Act (FEECA). Itron was assisted in this work by KEMA, Inc., an international energy consulting firm.

Q. Have there been any changes in Gulf's integrated planning process since the last conservation goals setting process?

A. No. Gulf continues to conduct integrated resource planning in conjunction with other Southern electric system operating companies. The Company's planning process evaluates the cost of new generating capacity additions after incorporating the effects of its approved conservation and energy efficiency programs in order to produce an integrated resource plan that meets the needs of our customers in a cost-effective and reliable manner.

Q, What avoided unit did Gulf use in development of these proposed goals?

A. Consistent with Gulf's integrated planning process, the measures evaluated in this process, as well as Gulf Power's purchased power agreement (PPA) with Shell Energy North America (US), L.P. that is currently before this Commission for approval, were evaluated against a 2014 combined cycle generating resource need identified in the most recent integrated resource plan for Gulf Power as reflected in Gulf's April 2009 Ten-Year Site Plan (TYSP).

Q. Please describe the collaborative among the utilities and other entities.

A. Florida Power & Light (FP&L), Progress Energy Florida (PEF), Tampa Electric Company (TECO), Gulf Power, Jacksonville Electric Authority (JEA), Orlando Utilities Commission (OUC), Florida Public Utilities (FPU), and two non-utility interested parties, the Southern Alliance for Clean Energy (SACE) and the Natural Resources Defense Council (NRDC), hereafter referred to as the collaborative, formed a mutually beneficial working group to progress through the preparation of proposed DSM goals for the period 2010 through 2019.

The Commission staff also participated as an observer in this process by attending weekly project status conference calls and coordinating workshop presentations and report submission.

Q. Why was a collaborative approach utilized?

A. The collaborative approach used in this goal setting process had several benefits. First, utilizing a collaborative approach offered an opportunity for consistency across the utilities in development of the Technical Potential Study. The collaborative successfully developed a common scope for the study and jointly selected a consultant, Itron, to conduct the study. This approach also provided an opportunity for each of the participating utilities to gain insight from experiences of the others, which has led to more robust results along each phase of the study. The collaborative also provided a cooperative mechanism for non-utility interested party involvement in preparation of the proposed DSM goals. In this case, SACE and NRDC assisted in development of the project scope, vendor selection, identification of measures to be evaluated, and review of results. The collaborative offered an excellent forum for members to discuss aspects of the studies, make decisions, and generally progress through the goals development process together.

Q. Please describe the process of how the collaborative selected Itron to be the consulting firm utilized to provide the necessary assistance in the DSM goals setting process.

A. First, the collaborative members developed the Scope of Work and request for proposal (RFP) for the Technical Potential Study. Each member submitted names of consultants to be considered. After discussion and review, the collaborative agreed to submit the RFP to eleven potential vendors. Four vendors responded with intent to offer a proposal. Once clarifying questions were answered, three vendors ultimately offered a proposal.

The proposals were evaluated by each member of the collaborative independently utilizing a scoring matrix. Once these evaluations were completed, the scores were compiled and averaged such that each utility member and SACE/NRDC had an equal vote in selection of the winning bidder.

The Itron/KEMA proposal achieved the best overall score and Itron was subsequently selected to conduct the Technical Potential Study. Itron offered the most thorough proposal for assessing the technical potential by taking a "bottom-up" approach of assessing actual end-use penetrations and opportunities for increased efficiency. The RFP also included provisions for optional tasks to perform the Economic and Achievable Studies once the Technical Potential Study was complete. In January 2009, Itron's contract was modified to include the tasks of Economic and Achievable Studies in support of the FEECA utilities' DSM goal preparation.

Q. In general, what was the scope of Itron's work in preparation of goals for this filing?

A. Itron first developed the total technical potential for energy efficiency in Gulf Power's service area on an end-use measure basis for the residential and commercial/industrial customer classes. Next, after Gulf Power performed cost-effectiveness screening of these measures based on the measure costs and savings estimates provided in the technical potential results, Itron developed estimates of achievable potential on a measure by measure basis for three different incentive scenarios for both a RIM and TRC-based portfolio.

Itron also developed methodologies to estimate technical and achievable potential for DR measures and demand-side Solar Photovoltaic (PV) systems.

Q. How was the comprehensive energy efficiency measure list developed among the collaborative?

A. As in the case of previous goals proceedings, the starting point for the measure list to be studied was the Synergistic Resources Corporation (SRC) Electricity Conservation and Energy Efficiency in Florida study commissioned by the Florida Energy Office in 1993. Collaborative members then submitted additional measures for consideration based on existing Commission approved utility programs and other technologies not considered in the 1993 study, nor currently part of any Florida utility DSM program. All proposed measures were reviewed and approved by the collaborative.

Q. Were there other measures included in the measure list for evaluation that were not identified by the collaborative?

A. Yes. Itron proposed additional measures that had been recently analyzed in previous technical potential studies in other jurisdictions. These additions included measures in all residential, commercial, and industrial categories. The study considered 257 unique energy efficient end-use measures, including 61 residential, 78 commercial, and 118 industrial measures. Each measure was evaluated in multiple building-types and against multiple base cases resulting in a total of 2,346 individual energy and demand savings calculations.

Itron also evaluated 7 DR and 3 PV measures. In total, the Technical Potential Study included 267 measures, as listed in Schedule 4 of my exhibit, in the development of Gulf's proposed goals.

Q. How were the measure costs and savings for the participant developed?

A. The measure costs and savings were initially prepared by Itron for collaborative members' review. This data came from a variety of sources including Florida-specific utility program experience and Florida Solar Energy Center (FSEC) research.

Additional information about Itron's sources for this data can be found in Section 3.4 of the <u>Technical Potential for Electric Energy and Peak Demand Savings for Gulf Power</u> Final Report by Itron. A true and correct copy of this report, which was previously filed with the Commission in Docket No. 080410-EG and assigned Document Number 03587-09, is hereby incorporated by reference in my testimony.

Q. Were natural gas substitution measures considered in the evaluations?

A. Yes. In accordance with FPSC Rule 25-17.0021, Gulf Power did consider natural gas water heating measures in both residential and commercial sectors and found them not to be cost-effective. Since Gulf is a summer peaking utility, consideration was not given to natural gas heating substitution measures because they could only reduce winter peak demand.

Q. Please provide an overview of the process used to determine the full technical potential of energy efficiency measures.

A. Once the measure list was finalized, Itron began the process of determining the technical potential associated with these measures by utilizing a "bottom-up" approach. This approach included an assessment of the current penetration of end-use measures in Gulf Power's service area, the number of technically feasible opportunities for implementation of the energy efficient measures, and the resulting energy and demand savings potential. For the commercial sector, KEMA conducted approximately 600 on-site surveys across the state in order to better define building characteristics and baseline end-use equipment saturations. Forty-eight of these surveys were conducted in Gulf Power's service area.

In order to account for the overlapping savings of some measures, Itron developed an adoption supply-curve for the entire list of measures based on the participant test results. In other words, measures having higher participant test results were assumed to be adopted before measures of lower participant test results for measures that produced overlapping benefits. For example, a building envelope measure that provides a certain level of energy and demand savings may be adopted before an HVAC measure whose benefits would assume some of those same savings if the building envelope measure had a higher participant test result. The energy and demand benefits for the HVAC measure, in this case, would be adjusted downward in order to avoid double counting. Full details of this process can be found in Section 3 of the <u>Technical Potential for Electric Energy and Peak Demand Savings for Gulf Power</u> Final Report by Itron.

Q. How was the economic potential for the energy efficiency measures determined?

A. Once the technical potential was finalized, Gulf Power began assessing the cost-effectiveness of these measures with their associated adjusted savings benefits and measure costs from the technical potential results. Gulf Power used the avoided cost data associated with its most current integrated resource plan as the basis for these evaluations and subsequent screening using Commission approved cost-effectiveness criteria, namely RIM and TRC. For this screening no administrative costs, program costs, or incentives were included in the RIM and TRC calculations in order to provide the largest set of measures for further consideration.

Two sets of economic potential were developed: a set based on measures that passed RIM and a set that passed TRC. Schedule 5 of my exhibit contains the list of the energy efficiency measures included in the economic potential for both the RIM and TRC portfolios.

Q. Was there additional screening performed on the measure list?

A. Yes. This screening included consideration of administrative and program costs in order to ensure any measures passing through for achievable potential modeling would be cost-effective in each of the RIM and TRC portfolios. In addition, measures that had cost/savings combinations that resulted in customer payback of less than two years without any incentives were screened from the final achievable potential analysis.

Further screening of the measures was conducted to determine which measures also passed the PT. For measures not initially passing the PT in the RIM portfolio, incentive dollars were applied to increase the PT score to the point the RIM score fell to 1.0. Measures that still did not pass the PT with these maximum incentives were eliminated from further consideration. For the TRC screen, the incentive is not considered in the test so the incentive level was increased to a maximum amount that brought the customer payback to two years. If this incentive level did not bring the PT score to at least 1.0, the measure was eliminated from further consideration.

Q. At the completion of the screening process, how many measures remained?

A. At the completion of the screening process, 143 energy efficiency measures remained and were provided to Itron for achievable potential modeling. Schedule 6 of my exhibit contains the list of measures included in the RIM/PT and TRC/PT achievable potential portfolios.

Q. How was the achievable potential estimated in this study?

A. The achievable potential phase of the energy efficiency study was accomplished by Itron utilizing KEMA's DSM ASSYST model. The achievable potential for energy efficiency measures was estimated by assessing likely market penetration based on trends in customer awareness, measure cost, measure savings, and both energy and non-energy related measure characteristics.

As the primary sensitivity to achievable potential, the collaborative agreed to have Itron model adoption estimates for the following incentive scenarios for both the RIM/PT and TRC/PT portfolios:

a. An incentive of 33% of the incremental cost of the measure (low).
b. An incentive of 50% of the incremental cost of the measure (medium).
c. The necessary incentive to bring the customer payback to two years (high).

In all cases, the incentive is capped at a maximum value that would produce a two year customer payback or a minimum RIM score of 1.01 (as applicable).

Itron adjusted the achievable potential to remove effects of "naturally occurring" adoption. In Itron's methodology, naturally occurring adoption includes "free riders" and is an estimate of the amount of energy efficiency projected to occur without further utility program intervention. Additional details about the specific assumptions and variables in the DSM ASSYST model can be found in Mr. Mike Rufo's testimony.

Q. How were Gulf Power's market penetration rates for these DSM goals developed?

A. The market penetration rates for Gulf Power were predicted in the DSM ASSYST model based on factors including the level of market awareness created through program marketing, the level of incentive available to the participant, and the overall cost-effectiveness of the measure to the customer.

Additional detail about the specific assumptions and variables in the DSM ASSYST model can be found in Mr. Mike Rufo's testimony.

Q. How were DR measures identified and evaluated for technical and achievable potential?

A. Itron used a methodology that made assumptions about three key factors to determine technical potential for DR; the availability of communications networks, the availability and end-use demand reduction capabilities of DR enabling technologies, and the availability of dynamic pricing options.

In estimating achievable potential, Itron considered both customer-controlled DR modeled as CPP-type programs and utility-controlled DR modeled as direct load control (DLC). They made a number of assumptions in developing potential adoption scenarios, including full implementation of Advanced Metering Infrastructure (AMI), particularly with regard to CPP programs. Itron did consider Gulf's program experience in refining their CPP assumptions. Ultimately, the achievable potential was projected based on ranges of customer enrollment and represented as a "low enrollment" and "high enrollment" scenario.

Additional details about this process can be found in Section 4 of the Technical Potential for Electric Energy and Peak Demand Savings for Gulf Power Final Report by Itron and the testimony of Mr. Mike Rufo.

Q. How were renewable technologies identified and evaluated?

A. Renewable technologies were handled in two ways for the technical and achievable potential studies. First, solar thermal water heating and PV pool pumps were included in the energy efficiency study since they both directly replace specific end-use loads and can be modeled like other efficiency measures.

Itron handled rooftop PV using a separate methodology that first estimated the total roof area of residential and commercial buildings plus commercial parking lot shade structures suitable for siting PV systems. Then Itron translated this area into estimates of annual energy and capacity coincident with Gulf Power's summer and winter demand peaks that could be produced by PV. Additional details about this process can be found in Section 5 of the Technical Potential for Electric Energy and Peak Demand Savings for Gulf Power Final Report by Itron and the testimony of Mr. Mike Rufo.

Gulf Power conducted cost-effectiveness screening utilizing the measure characteristics provided by Itron and concluded that the rooftop PV measures do not pass the RIM/PT, or the TRC/PT combination of cost-effectiveness tests. Consequently, Itron did not provide achievable potential projections for these measures.

Section 3: Statutory Adherence

Q. Has Gulf Power provided an adequate assessment of the full technical potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems?

A. Yes. Through the collaborative-sponsored study performed by Itron, an adequate assessment of the full technical potential of all available demand-side conservation and energy efficiency measures, including demand-side renewables has been completed. This assessment included the evaluation of 267 individual end-use energy efficiency, demand response, and solar photovoltaic measures.

Q. Section 366.82(3), Florida Statutes, requires the Commission to evaluate the full technical potential of supply-side conservation and efficiency measures. Does Gulf Power's Technical Potential Study evaluate supply-side conservation and efficiency measures and, if not, why?

A. Gulf Power has not conducted an assessment of supply-side conservation and efficiency opportunities in the same manner as the demand-side opportunities have been evaluated. Gulf does recognize that these opportunities may exist and, in fact, considers energy efficiency in selecting supply-side projects in all generation, transmission, and distribution functions. However, the Commission has not developed guidelines for such an evaluation that would provide a methodical approach to identifying, quantifying, and proposing goals for supply-side conservation and efficiency measures. For this reason Gulf Power recommends addressing this portion of the statutory requirements in section 366.82(3), Florida Statutes, in a separate proceeding.

Q. Has Gulf Power provided an adequate assessment of the achievable potential of all available demand-side conservation and efficiency measures, including demand-side renewable energy systems?

A. Yes. Through the collaborative-sponsored study performed by Itron, an adequate assessment of the full achievable potential of demand-side conservation and energy efficiency measures, including demand-side renewables has been completed. This assessment included modeling various projections of achievable potential for energy efficiency measures based on customer incentive levels in both a RIM/PT and TRC/PT portfolio.

Itron has also provided estimates of achievable potential for two scenarios of incremental DR: low enrollment and high enrollment. Gulf has included the achievable potential associated with the high enrollment scenario in the Company's proposed goals.

All demand-side renewable energy systems were evaluated using the same cost-effectiveness standards as other energy efficiency measures. No renewable measures are cost-effective under these standards and, therefore, none are reflected in the achievable potential results. A summary of the achievable potential results can be found in Schedule 9 of my exhibit.

Q. Should the Commission establish separate goals for demand-side renewable energy systems?

A. No. Separate goals should not be established for demand-side renewables. Instead, demand-side renewables should be evaluated and included in Gulf Power's DSM plan based on the same criteria already established for traditional end-use energy efficiency measures.

Gulf is currently evaluating solar thermal water heating through a one-year pilot program approved by this Commission in 2008 and will assess the opportunity for inclusion of this technology in our DSM plan going forward. Gulf also continues to monitor performance and utility system interaction of both small PV and wind generators as part of our evaluation of demand-side renewable energy systems.

Q. Should the Commission establish additional goals for efficiency improvements in generation, transmission and distribution?

A. Not at this time. As stated above, Gulf Power recommends that this matter be considered in a separate proceeding following the conclusion of the current goal-setting process.

Q. Should the Commission establish separate goals for residential and commercial/industrial customer participation in utility energy audit programs for the period 2010–2019?

A. No. Energy audits are an important component of achieving the proposed goals through customer education of both general and program-specific actions customers can take to reduce energy usage and, therefore, should be included as part of the overall DSM goals. Gulf promotes the availability of these audits beyond the minimum requirements of

Commission rules and depends on customer response to enhance participation in other programs.

Q. What cost-effectiveness test should the Commission use to set DSM goals for Gulf Power?

A. The Commission should use the combination RIM and PT cost-effectiveness tests to set goals for Gulf Power. This combination of tests provides a reasonable balance between participating and non-participating customer benefits and provides a downward pressure on overall electric rates while still supporting significant conservation activities over the period 2010 through 2019.

In fact, utilizing this RIM based portfolio of proposed goals provides more cost-effective achievable conservation than all but the high-incentive TRC based portfolio. The only TRC based portfolio producing a higher level of achievable potential assumes incentives of up to 100% of the incremental cost of measures and would cost Gulf's customers an additional $209 million over the ten year period, more than double Itron's cost estimate for the RIM based portfolio.

Using the combination of RIM and PT cost-effectiveness tests to establish goals for Gulf Power is consistent with the requirements of section 366.82(3), Florida Statutes, to consider impacts to participating customers as well as non-participating customers, together comprising the general body of customers.

Q. Do Gulf Power's proposed DSM goals adequately reflect the costs and benefits to customers participating in the measure?

A. Yes. The measures included in development of the goals reflect the costs and benefits to the participating customers. This is done by performing the participant cost test and ensuring that all measures contemplated for inclusion in the goals pass this test.

Q. Do Gulf Power's proposed DSM goals adequately reflect the costs and benefits to the general body of ratepayers as a whole, including utility incentives and participant contributions?

A. Yes. By passing the RIM test, Gulf's proposed goals reflect costs and benefits that minimize overall rate impacts for the general body of customers, whether or not they participate in one of the resulting conservation programs. In addition, by only including measures that also pass PT, these proposed goals adequately consider participant contributions as a component of overall customer impact.

Q. Do Gulf Power's proposed DSM goals adequately reflect the costs imposed by state and federal regulations on the emission of greenhouse gases?

A. Yes. Although there are currently no state or federal regulations governing the emission of greenhouse gases, assumptions for CO_2 cost avoidance have been considered as a benefit in the evaluation of all measures. Specifically, Gulf Power has included a "mid-range" CO_2 cost projection as a component of fuel costs used in the economic screening of measures. This "mid-range" assumption has a nominal value of $20/ton in 2014 and escalates for future years. This "mid-range" assumption falls within a range of sensitivities Gulf Power has used to model impacts on possible future expansion plans.

Q. What is Gulf Power's position relative to the Commission establishing incentives to promote both customer-owned and utility-owned energy efficiency and demand–side renewable energy systems?

A. Historically the Commission's preference for relying on the combination of RIM and PT in the evaluation and approval of utility conservation programs has provided the necessary structure to ensure that the interests of all stakeholders are balanced. In practice, these tests have provided incentives to customers through the payment of rebates, to the utility by balancing the impacts of avoided cost benefits against revenue impacts, and to the general body of customers by preventing cross-subsidization between DSM program participants and non-participants.

If, in establishing Gulf Power's goals, the Commission were to change its policy and establish goals which disturb the appropriate balance between the interests of all stakeholders, Gulf believes that the Commission should consider a utility incentive mechanism as a potential remedy.

<u>Section 4: Additional Supporting Information</u>

Q. Please identify the projected technical potential for total energy and peak demand savings for Gulf Power.

A. The Itron study breaks technical potential into three categories: energy efficiency, demand response and customer-sited PV. This technical potential represents full implementation of all technically feasible measures without regard to cost, acceptability to customers, or timeframe. The total technical potential for energy efficiency, demand response and PV in Gulf Power's service area is shown in Tables 1, 2 and 3 of Schedule 7 of my exhibit.

These technical potential estimates are not additive and represent the upper bound of potential from a technical feasibility sense, regardless of cost or acceptability to customers. They do not reflect what is cost-effective or what is achievable in utility-sponsored programs.

Q. Please identify the projected economic potential for energy and peak demand savings and associated measures for Gulf Power based on both the RIM and TRC cost-effectiveness test.

A. The economic potential is the subset of the technical potential that is cost effective under the RIM or TRC cost-effectiveness test. Economic potential is an intermediate step in determining the overall achievable potential for end-use measure savings as discussed previously in my testimony. Like the technical potential results, these numbers reflect full implementation of measures with no time dimension and do not indicate what is achievable in utility-sponsored programs.

The economic potential for measures passing the RIM and TRC test is shown in Schedule 8 of my exhibit. As previously stated, the energy efficiency measures that comprise the economic potential for each the RIM and the TRC portfolios are listed in Schedule 5 of my exhibit.

Q. Please identify the projected achievable potential and associated measures for Gulf Power based on the RIM/PT and TRC/PT cost-effectiveness tests for the period 2010 through 2019.

A. Itron has provided projections of achievable potential for three scenarios of customer incentive in both the RIM/PT and TRC/PT portfolios of energy efficiency measures. These results represent a subset of the economic potential that could be achieved over the ten year period 2010 through 2019 based on a number of factors discussed previously in my testimony. The achievable potential represents a theoretical value based on the supply-curve implementation of measures and does not necessarily reflect the specific measures that may be feasible in the program design phase of this process. The total achievable potential for each of these three individual scenarios is included in Table 1, Schedule 9 of my exhibit.

In addition, Itron provided estimates of achievable potential for DR in both a low enrollment and high enrollment scenario. These values are shown in Table 2, Schedule 9 of my exhibit. As stated previously in my testimony, there is no cost-effective achievable potential associated with the PV measures.

As referenced earlier, the energy efficiency measure list for the RIM/PT and TRC/PT achievable potential portfolios is provided in Schedule 6 of my exhibit.

Gulf Power's proposed goals are the achievable potential results of the RIM high incentive scenario and the high enrollment scenario for DR as reflected in Schedule 1 of my exhibit.

Q. For Gulf Power, please describe the sensitivity of the economic potential with regard to high and low capital costs for generation, high fuel and CO_2 costs, low fuel and CO_2 costs, and no future CO_2 costs.

A. Gulf performed five sensitivities of the economic potential for both TRC and RIM passing measures. The sensitivities are (1) high capital cost, (2) low capital cost, (3) low fuel/low CO_2 cost, (4) high fuel/high CO_2 cost, and (5) no CO_2 cost. These sensitivities were accomplished as adjustments to the avoided cost inputs of the cost-effectiveness screening. It is important to recognize that any of these adjustments may have led to different integrated resource plans as starting points for DSM evaluation and, therefore, should not be considered proxies for the achievable potential results. Similarly, the economic potential represented by these sensitivities is by no means based on the same thorough planning process utilized for the base case results. The results of the sensitivities do show, however, that the baseline case Gulf used in this goal setting process is on the higher-end of the ranges represented.

Complete details of the economic potential and associated number of passing measures for each sensitivity are included as Schedule 10 of my exhibit.

Q. For Gulf Power, what are the 2010-2019 annual bill impacts on residential customers using 1,200 kWh/month with no incremental DSM added?

A. Gulf Power estimated the bill impacts for no incremental DSM by calculating the costs associated with supplying the amount of energy and demand defined in the proposed goals with the avoided supply-side unit. This is the amount of increased load Gulf would have if the achievable potential for energy efficiency and demand savings was not met through DSM. This approach is analogous to how the benefits of reducing energy and demand through DSM would be calculated.

This method, because it produces capacity and energy related costs over a longer period than the ten year horizon of the proposed DSM goals, can better represent cumulative bill impacts as a net present value (NPV) equivalent. In this case, the NPV bill impact is $180.32 for a residential customer using 1,200 kWh per month. Calculating this bill impact only during the first ten years does not reflect the substantial capacity and energy costs associated with no DSM in future years. For purposes of comparison, however, the calculated bill impact for each year 2010 through 2019 of this no DSM scenario is presented in Schedule 11 of my exhibit.

Q. For Gulf Power, what are the 2010-2019 annual bill impacts on residential customers using 1,200 kWh/month for the projected TRC achievable portfolio, the projected RIM achievable portfolio, and the Company's proposed DSM goals?

A. The annual bill impacts for the RIM and TRC achievable portfolios as well as Gulf's proposed goals are calculated by utilizing Itron's estimates of the total costs of achieving the maximum energy and demand savings in each of the RIM and TRC portfolios. Unlike the costs associated with the no

DSM case, the costs associated with achieving these energy and demand reductions will conclude at the end of the ten year period 2010 through 2019.

For comparison to the no DSM estimate of $180.32, these values can also be represented in a NPV form as $152.35 for the RIM portfolio and $282.50 for the TRC portfolio. Since Gulf's proposed goals are equivalent to the RIM portfolio, this calculation demonstrates the bill impact for achievement of these goals is less than the bill impact for no incremental DSM. The annual bill impacts associated with achieving the maximum energy and demand savings in the RIM and TRC portfolios is provided in Schedule 11 of my exhibit.

Section 5: Conclusions

Q. How much DSM is reasonably achievable during the 2010-2019 period for Gulf Power?

A. Based on Gulf's planning process and the results of Itron's achievable potential projections for energy efficiency and demand response, a cumulative annual total of 159 GWh energy reduction, 69 MW summer peak demand reduction, and 46 MW winter peak demand reduction is reasonably achievable for the period 2010 through 2019. Therefore, Gulf Power is proposing these annual energy and seasonal peak demand reductions as goals for the period 2010 through 2019 as shown in Schedule 1 of my exhibit.

Q. Has Gulf Power used a sound and reasonable process consistent with

Florida's statutory and rule-based requirements to determine its 2010 through 2019 DSM goals?

A. Yes. Gulf Power has proposed goals based on a full assessment of technical, economic, and achievable potential for demand-side conservation and efficiency measures, including demand-side renewable energy systems in a manner consistent with requirements of section 366.82(3), Florida Statutes, and FPSC Rule 25-17.0021.

Q. Should Gulf Power's proposed 2010-2019 DSM goals be approved?

A. Yes.

Q. Does this conclude your testimony?

A. Yes.

AFFIDAVIT

STATE OF FLORIDA)
)
COUNTY OF ESCAMBIA)

Docket No. 080410-EG

Before me the undersigned authority, personally appeared John N. Floyd, who being first duly sworn, deposes, and says that he is the Economic Evaluation and Market Reporting Team Leader in the Marketing Services Department at Gulf Power Company, a Florida corporation, that the foregoing is true and correct to the best of his knowledge, information, and belief. He is personally known to me.

John N. Floyd
John N. Floyd
Economic Evaluation and Market Reporting
Team Leader

Sworn to and subscribed before me this 29th day of May, 2009.

Mallory M. Vaughn
Notary Public, State of Florida at Large

NOTARY PUBLIC STATE OF FLORIDA
MALLORY M. VAUGHN
MY COMMISSION # DD 576635
EXPIRES: July 23, 2010
1-800-3-NOTARY FL Notary Discount Assoc. Co.

Proposed Numeric Conservation Goals -- Savings at the Generator

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Residential										
Annual Energy (GWh)	2.0	6.0	12.3	20.5	30.3	41.3	53.2	65.3	76.5	86.8
Summer System Peak (MW)	1.9	4.7	8.4	12.9	18.0	23.7	29.8	35.9	41.6	47.0
Winter System Peak (MW)	1.8	4.3	7.4	11.1	15.4	20.0	25.0	30.0	34.7	39.2
Commercial/Industrial										
Annual Energy (GWh)	2.7	7.3	13.4	20.7	28.7	37.2	46.1	55.1	63.9	72.2
Summer System Peak (MW)	1.2	2.8	4.7	6.9	9.3	11.8	14.4	17.0	19.5	21.9
Winter System Peak (MW)	0.5	1.0	1.6	2.3	3.0	3.8	4.6	5.4	6.2	7.0
Total										
Annual Energy (GWh)	**4.7**	**13.4**	**25.7**	**41.2**	**59.0**	**78.5**	**99.3**	**120.4**	**140.4**	**159.0**
Summer System Peak (MW)	**3.1**	**7.4**	**13.1**	**19.8**	**27.4**	**35.5**	**44.2**	**52.8**	**61.1**	**68.9**
Winter System Peak (MW)	**2.3**	**5.3**	**9.0**	**13.4**	**18.4**	**23.8**	**29.6**	**35.4**	**40.9**	**46.2**

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GULF POWER COMPANY
Comparison of Current Goals and Proposed Goals
At the Generator

Residential — Annual Energy Reduction (GWh)

Year	Current	Proposed	Difference	% change
2010	2.7	2.0	(0.7)	-26%
2011	5.4	6.0	0.6	12%
2012	8.1	12.3	4.2	52%
2013	10.8	20.5	9.7	90%
2014	13.5	30.3	16.8	124%

Residential — Summer Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	7.2	1.9	(5.3)	-73%
2011	14.4	4.7	(9.7)	-68%
2012	21.6	8.4	(13.2)	-61%
2013	28.7	12.9	(15.8)	-55%
2014	35.9	18.0	(17.9)	-50%

Residential — Winter Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	8.8	1.8	(7.0)	-79%
2011	17.5	4.3	(13.2)	-76%
2012	26.3	7.4	(18.9)	-72%
2013	35.0	11.1	(23.9)	-68%
2014	43.7	15.4	(28.3)	-65%

Commercial/Industrial — Annual Energy Reduction (GWh)

Year	Current	Proposed	Difference	% change
2010	2.6	2.7	0.1	5%
2011	5.2	7.3	2.1	41%
2012	7.8	13.4	5.6	72%
2013	10.4	20.7	10.3	99%
2014	13.0	28.7	15.7	121%

Commercial/Industrial — Summer Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	1.1	1.2	0.1	6%
2011	2.2	2.8	0.6	26%
2012	3.3	4.7	1.4	43%
2013	4.4	6.9	2.5	58%
2014	5.5	9.3	3.8	70%

Commercial/Industrial — Winter Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	0.3	0.5	0.2	50%
2011	0.7	1.0	0.3	42%
2012	1.0	1.6	0.6	61%
2013	1.4	2.3	0.9	64%
2014	1.7	3.0	1.3	79%

Total — Annual Energy Reduction (GWh)

Year	Current	Proposed	Difference	% change
2010	5.3	4.7	(0.6)	-11%
2011	10.6	13.4	2.8	26%
2012	15.9	25.7	9.8	62%
2013	21.2	41.2	20.0	94%
2014	26.5	59.0	32.5	123%

Total — Summer Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	8.3	3.1	(5.2)	-63%
2011	16.6	7.4	(9.2)	-55%
2012	24.9	13.1	(11.8)	-47%
2013	33.1	19.8	(13.3)	-40%
2014	41.4	27.4	(14.0)	-34%

Total — Winter Peak Reduction (MW)

Year	Current	Proposed	Difference	% change
2010	9.1	2.3	(6.8)	-75%
2011	18.2	5.3	(12.9)	-71%
2012	27.3	9.0	(18.3)	-67%
2013	36.4	13.4	(23.0)	-63%
2014	45.4	18.4	(27.0)	-59%

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**Comparison of Achieved kW and kWh Reductions
With Public Service Commission Established Goals
At the Generator**

Residential

	GWh Energy Reduction			Summer Peak MW Reduction			Winter Peak MW Reduction		
	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance
2005	3.48	3.4	2%	3.94	7.8	-49%	4.62	9.5	-51%
2006	4.84	6.7	-28%	6.19	15.5	-60%	7.76	19.0	-59%
2007	6.26	10.1	-38%	8.96	23.3	-62%	11.11	28.5	-61%
2008	6.43	13.4	-52%	8.87	31.0	-71%	10.89	38.0	-71%
2009		16.8			38.8			47.4	
2010		19.5			46.0			56.2	
2011		22.2			53.2			64.9	
2012		24.9			60.4			73.7	
2013		27.6			67.5			82.4	
2014		30.3			74.7			91.1	

Commercial/Industrial

	GWh Energy Reduction			Summer Peak MW Reduction			Winter Peak MW Reduction		
	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance
2005	15.79	2.3	587%	14.78	14.1	5%	7.52	6.9	9%
2006	18.46	4.5	310%	23.86	22.9	4%	11.93	11.1	18%
2007	22.12	7.1	212%	30.16	29.3	3%	15.41	14.1	9%
2008	24.32	9.7	151%	31.10	30.4	2%	15.72	14.4	9%
2009		12.3			31.5			14.8	
2010		14.9			32.6			15.1	
2011		17.5			33.7			15.5	
2012		20.1			34.8			15.8	
2013		22.7			35.9			16.2	
2014		25.3			37.0			16.5	

Total

	GWh Energy Reduction			Summer Peak MW Reduction			Winter Peak MW Reduction		
	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance	Total Achieved	Com. Appr. Goal	% Variance
2005	19.27	5.70	238%	18.72	21.90	-15%	12.14	16.40	-26%
2006	23.30	11.20	108%	30.05	38.40	-22%	19.69	30.10	-35%
2007	28.38	17.20	65%	39.12	52.60	-26%	26.52	42.60	-38%
2008	30.75	23.10	33%	39.97	61.40	-35%	26.61	52.40	-49%
2009		29.10			70.30			62.20	
2010		34.40			78.60			71.30	
2011		39.70			86.90			80.40	
2012		45.00			95.20			89.50	
2013		50.30			103.40			98.60	
2014		55.60			111.70			107.60	

Technical Potential Measure List

	Residential Energy Efficiency
1	13 EER Geothermal Heat Pump
2	14 SEER Split-System Air Conditioner
3	14 SEER Split-System Heat Pump
4	15 SEER Split-System Air Conditioner
5	15 SEER Split-System Heat Pump
6	17 SEER Split-System Air Conditioner
7	17 SEER Split-System Heat Pump
8	19 SEER Split-System Air Conditioner
9	AC Heat Recovery Units
10	AC Maintenance (Indoor Coil Cleaning)
11	AC Maintenance (Outdoor Coil Cleaning)
12	Attic Venting
13	Ceiling R-0 to R-19 Insulation
14	Ceiling R-19 to R-38 Insulation
15	CFL (18-Watt integral ballast)
16	Default Window With Sunscreen
17	Double Pane Clear Windows to Double Pane Low-E Windows
18	Duct Repair
19	Electronically Commutated Motors (ECM) on an Air Handler Unit
20	Energy Star CW CEE Tier 1 (MEF=1.8)
21	Energy Star CW CEE Tier 2 (MEF=2.0)
22	Energy Star CW CEE Tier 3 (MEF=2.2)
23	Energy Star Desktop PC
24	Energy Star DVD Player
25	Energy Star DW (EF=0.68)
26	Energy Star Laptop PC
27	Energy Star Set-Top Box
28	Energy Star TV
29	Energy Star TV
30	Energy Star VCR
31	Faucet Aerators
32	HE Freezer
33	HE Refrigerator - Energy Star version of above
34	HE Room Air Conditioner - EER 11
35	HE Room Air Conditioner - EER 12
36	HE Water Heater (EF=0.93)
37	Heat Pump Water Heater (EF=2.9)
38	Heat Trap
39	High Efficiency CD (EF=3.01 w/moisture sensor)
40	High Efficiency One Speed Pool Pump (1.5 hp)
41	HVAC Proper Sizing
42	Low Flow Showerhead
43	Photocell/timeclock
44	Pipe Wrap
45	Premium T8, Elecctronic Ballast
46	Proper Refrigerant Charging and Air Flow
47	PV-Powered Pool Pumps

Technical Potential Measure List

48 Radient Barrier
49 Reflective Roof
50 Sealed Attic w/Sprayed Foam Insulated Roof Deck
51 Single Pane Clear Windows to Double Pane Low-E Windows
52 Solar Water Heat
53 Two Speed Pool Pump (1.5 hp)
54 Variable-Speed Pool Pump (<1 hp)
55 Wall 2x4 R-0 to Blow-In R-13 Insulation
56 Water Heater Blanket
57 Water Heater Temperature Check and Adjustment
58 Water Heater Timeclock
59 Weather Strip/Caulk w/Blower Door
60 Window Film
61 Window Tinting

Commercial Energy Efficiency

1 Aerosole Duct Sealing
2 Air Handler Optimization
3 Anti-sweat (humidistat) controls
4 Ceiling Insulation
5 Centrifugal Chiller, 0.51 kW/ton, 500 tons
6 CFL Hardwired, Modular 18W
7 CFL Screw-in 18W
8 Chiller Tune Up/Diagnostics
9 Compressor VSD retrofit
10 Continuous Dimming
11 Convection Oven
12 Cool Roof
13 Copier Power Management Enabling
14 CRT Monitor Power Management Enabling
15 Demand Control Ventilation (DCV)
16 Demand controlled circulating systems
17 Demand Defrost Electric
18 Demand Hot Gas Defrost
19 Duct/Pipe Insulation
20 DX Coil Cleaning
21 DX Packaged System, EER=10.9, 10 tons
22 DX Tune Up/ Advanced Diagnostics
23 Efficient compressor motor
24 Efficient Fryer
25 Electronically Commutated Motors (ECM) on an Air Handler Unit
26 EMS - Chiller
27 EMS Optimization
28 Energy Recovery Ventilation (ERV)
29 Energy Star or Better Copier
30 Energy Star or Better CRT Monitor
31 Energy Star or Better LCD Monitor
32 Evaporator fan controller for MT walk-ins
33 Floating head pressure controls

Technical Potential Measure List

34 Freezer-Cooler Replacement Gaskets
35 Geothermal Heat Pump, EER=13, 10 tons
36 Geothermal Heat Pump, EER=13, 10 tons
37 HE PTAC, EER=9.6, 1 ton
38 Heat Pump Water Heater (air source)
39 Heat Recovery Unit
40 Heat Trap
41 High Bay T5
42 High Efficiency Chiller Motors
43 High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
44 High Efficiency Water Heater (electric)
45 High Pressure Sodium 250W Lamp
46 High R-Value Glass Doors
47 High-efficiency fan motors
48 Hot Water Pipe Insulation
49 Hybrid Dessicant-DX System (Trane CDQ)
50 LCD Monitor Power Management Enabling
51 LED Display Lighting
52 LED Exit Sign
53 Lighting Control Tuneup
54 Multiplex Compressor System
55 Night covers for display cases
56 Occupancy Sensor
57 Occupancy Sensor (hotels)
58 Optimize Controls
59 Outdoor Lighting Controls (Photocell/Timeclock)
60 Oversized Air Cooled Condenser
61 Packaged HP System, EER=10.9, 10 tons
62 PC Manual Power Management Enabling
63 PC Network Power Management Enabling
64 Premium T8, Electronic Ballast
65 Premium T8, EB, Reflector
66 Printer Power Management Enabling
67 PSMH, 250 W, electronic ballast
68 PSMH, 250W, magnetic ballast
69 Refrigeration Commissioning
70 Roof Insulation
71 Separate Makeup Air / Exhaust Hoods AC
72 Solar Water Heater
73 Strip curtains for walk-ins
74 Thermal Energy Storage (TES)
75 Variable Speed Drive Control
76 Vending Misers (cooled machines only)
77 VSD for Chiller Pumps and Towers
78 Window Film (Standard)

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Technical Potential Measure List

	Industrial Energy Efficiency
1	Aerosole Duct Sealing - Chiller
2	Air conveying systems
3	Bakery - Process
4	Bakery - Process (Mixing) - O&M
5	Centrifugal Chiller, 0.51 kW/ton, 500 tons
6	CFL Hardwired, Modular 18W
7	CFL Screw-in 18W
8	Chiller Tune Up/Diagnostics
9	Clean Room - Controls
10	Clean Room - New Designs
11	Comp Air - ASD (100+ hp)
12	Comp Air - ASD (1-5 hp)
13	Comp Air - ASD (6-100 hp)
14	Comp Air - Motor practices-1 (100+ HP)
15	Comp Air - Motor practices-1 (1-5 HP)
16	Comp Air - Motor practices-1 (6-100 HP)
17	Comp Air - Replace 100+ HP motor
18	Comp Air - Replace 1-5 HP motor
19	Comp Air - Replace 6-100 HP motor
20	Compressed Air - Controls
21	Compressed Air - System Optimization
22	Compressed Air- Sizing
23	Compressed Air-O&M
24	Cool Roof - Chiller
25	Direct drive Extruders
26	Drives - EE motor
27	Drives - Optimization process (M&T)
28	Drives - Process Control
29	Drives - Process Controls (batch + site)
30	Drives - Scheduling
31	Drying (UV/IR)
32	Duct/Pipe Insulation - Chiller
33	DX Coil Cleaning
34	DX Packaged System, EER=10.9, 10 tons
35	DX Tune Up/ Advanced Diagnostics
36	Efficient Curing ovens
37	Efficient desalter
38	Efficient drives
39	Efficient drives - rolling
40	Efficient electric melting
41	Efficient grinding
42	Efficient Machinery
43	Efficient practices printing press
44	Efficient Printing press (fewer cylinders)
45	Efficient processes (welding, etc.)
46	Efficient Refrigeration - Operations
47	EMS - Chiller
48	EMS Optimization - Chiller

Technical Potential Measure List

49 Extruders/injection Moulding-multipump
50 Fans - ASD (100+ hp)
51 Fans - ASD (1-5 hp)
52 Fans - ASD (6-100 hp)
53 Fans - Controls
54 Fans - Motor practices-1 (100+ HP)
55 Fans - Motor practices-1 (1-5 HP)
56 Fans - Motor practices-1 (6-100 HP)
57 Fans - O&M
58 Fans - Replace 100+ HP motor
59 Fans - Replace 1-5 HP motor
60 Fans - Replace 6-100 HP motor
61 Fans - System Optimization
62 Fans- Improve components
63 Gap Forming papermachine
64 Geothermal Heat Pump, EER=13, 10 tons
65 Heat Pumps - Drying
66 Heating - Optimization process (M&T)
67 Heating - Process Control
68 Heating - Scheduling
69 High Bay T5
70 High Consistency forming
71 High Efficiency Chiller Motors
72 Hybrid Dessicant-DX System (Trane CDQ)
73 Injection Moulding - Direct drive
74 Injection Moulding - Impulse Cooling
75 Intelligent extruder (DOE)
76 Light cylinders
77 Low Pressure Nozzle
78 Machinery
79 Membranes for wastewater
80 Micro Watering System
81 Near Net Shape Casting
82 New transformers welding
83 O&M - Extruders/Injection Moulding
84 O&M/drives spinning machines
85 Occupancy Sensor
86 Optimization control PM
87 Optimization Refrigeration
88 Optimize Controls
89 Optimize drying process
90 Other Process Controls (batch + site)
91 Power recovery
92 Premium T8, Elecctronic Ballast
93 Process control
94 Process control
95 Process Drives - ASD
96 Process optimization
97 Pump Retrofit - Irrigation

Technical Potential Measure List

98 Pumps - ASD (100+ hp)
99 Pumps - ASD (1-5 hp)
100 Pumps - ASD (6-100 hp)
101 Pumps - Controls
102 Pumps - Motor practices-1 (100+ HP)
103 Pumps - Motor practices-1 (1-5 HP)
104 Pumps - Motor practices-1 (6-100 HP)
105 Pumps - O&M
106 Pumps - Replace 100+ HP motor
107 Pumps - Replace 1-5 HP motor
108 Pumps - Replace 6-100 HP motor
109 Pumps - Sizing
110 Pumps - System Optimization
111 Refinery Controls
112 Replace V-Belts
113 Replace V-belts
114 Roof Insulation - Chiller
115 Thermal Energy Storage (TES) - Chiller
116 Top-heating (glass)
117 VSD for Chiller Pumps and Towers
118 Window Film (Standard) - Chiller

Residential Demand Response

1 In home display with peak threshold warning system and pre-set control strategies
2 On-Off Switching via low-power wireless communication technology
3 Smart Thermostats
4 Switch - Cycling Program
5 Switch - Shedding Program

Commercial/Industrial Demand Response

1 Automated control strategies
2 Direct load control system

Residential PhotoVoltaic

1 Rooftop solar PV

Commercial PhotoVoltaic

1 PV Mounted on Commercial Parking Lot Shade Structures
2 Rooftop solar PV

Economic Potential Measure List

RIM Portfolio
Residential Energy Efficiency

1. 14 SEER Split-System Air Conditioner
2. 14 SEER Split-System Heat Pump
3. 15 SEER Split-System Air Conditioner
4. 15 SEER Split-System Heat Pump
5. 17 SEER Split-System Air Conditioner
6. 17 SEER Split-System Heat Pump
7. 19 SEER Split-System Air Conditioner
8. AC Heat Recovery Units
9. AC Maintenance (Indoor Coil Cleaning)
10. AC Maintenance (Outdoor Coil Cleaning)
11. Ceiling R-0 to R-19 Insulation
12. Ceiling R-19 to R-38 Insulation
13. CFL (18-Watt integral ballast), 0.5 hr/day
14. CFL (18-Watt integral ballast), 2.5 hr/day
15. CFL (18-Watt integral ballast), 6.0 hr/day
16. Default Window With Sunscreen
17. Double Pane Clear Windows to Double Pane Low-E Windows
18. Duct Repair
19. Electronically Commutated Motors (ECM) on an Air Handler Unit
20. Energy Star CW CEE Tier 2 (MEF=2.0)
21. Energy Star CW CEE Tier 3 (MEF=2.2)
22. Energy Star Desktop PC
23. Energy Star DVD Player
24. Energy Star DW (EF=0.68)
25. Energy Star Laptop PC
26. Energy Star Set-Top Box
27. Energy Star TV
28. Energy Star VCR
29. Faucet Aerators
30. HE Freezer
31. HE Refrigerator - Energy Star version of above
32. HE Room Air Conditioner - EER 11
33. HE Room Air Conditioner - EER 12
34. Heat Pump Water Heater (EF=2.9)
35. Heat Trap
36. High Efficiency CD (EF=3.01 w/moisture sensor)
37. High Efficiency One Speed Pool Pump (1.5 hp)
38. HVAC Proper Sizing
39. HVAC Proper Sizing
40. Low Flow Showerhead
41. Pipe Wrap

TRC Portfolio
Residential Energy Efficiency

14 SEER Split-System Air Conditioner
AC Heat Recovery Units
AC Maintenance (Indoor Coil Cleaning)
AC Maintenance (Outdoor Coil Cleaning)
Ceiling R-0 to R-19 Insulation
CFL (18-Watt integral ballast), 0.5 hr/day
CFL (18-Watt integral ballast), 2.5 hr/day
CFL (18-Watt integral ballast), 6.0 hr/day
Default Window With Sunscreen
Double Pane Clear Windows to Double Pane Low-E Windows
Duct Repair
Electronically Commutated Motors (ECM) on an Air Handler Unit
Energy Star CW CEE Tier 2 (MEF=2.0)
Energy Star Desktop PC
Energy Star DVD Player
Energy Star DW (EF=0.68)
Energy Star Laptop PC
Energy Star Set-Top Box
Energy Star TV
Energy Star VCR
Faucet Aerators
HE Freezer
HE Refrigerator - Energy Star version of above
HE Room Air Conditioner - EER 11
Heat Pump Water Heater (EF=2.9)
Heat Trap
High Efficiency CD (EF=3.01 w/moisture sensor)
High Efficiency One Speed Pool Pump (1.5 hp)
HVAC Proper Sizing
HVAC Proper Sizing
Low Flow Showerhead
Pipe Wrap
Proper Refrigerant Charging and Air Flow
Reflective Roof
RET 2L4'T8, 1EB
ROB 2L4'T8, 1EB
Two Speed Pool Pump (1.5 hp)
Variable-Speed Pool Pump (<1 hp)
Water Heater Blanket
Water Heater Temperature Check and Adjustment
Water Heater Timeclock

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Economic Potential Measure List

42 Proper Refrigerant Charging and Air Flow
43 PV-Powered Pool Pumps
44 Radient Barrier
45 Reflective Roof
46 RET 2L4'T8, 1EB
47 ROB 2L4'T8, 1EB
48 Sealed Attic w/Sprayed Foam Insulated Roof Deck
49 Sealed Attics
50 Solar Water Heat
51 Two Speed Pool Pump (1.5 hp)
52 Variable-Speed Pool Pump (<1 hp)
53 Wall 2x4 R-0 to Blow-In R-13 Insulation
54 Water Heater Blanket
55 Water Heater Temperature Check and Adjustment
56 Water Heater Timeclock
57 Window Film
58 Window Tinting

RIM Portfolio
Commercial Energy Efficiency

1 Aerosole Duct Sealing
2 Air Handler Optimization
3 Anti-sweat (humidistat) controls
4 Ceiling Insulation
5 Centrifugal Chiller, 0.51 kW/ton, 500 tons
6 CFL Hardwired, Modular 18W
7 CFL Screw-in 18W
8 Chiller Tune Up/Diagnostics
9 Compressor VSD retrofit
10 Continuous Dimming
11 Convection Oven
12 Cool Roof - Chiller
13 Cool Roof - DX
14 Copier Power Management Enabling
15 Demand Control Ventilation (DCV)
16 Demand controlled circulating systems
17 Demand Defrost Electric
18 Demand Hot Gas Defrost
19 Duct/Pipe Insulation
20 DX Coil Cleaning
21 DX Packaged System, EER=10.9, 10 tons
22 DX Tune Up/ Advanced Diagnostics
23 Efficient compressor motor
24 Efficient Fryer
25 Electronically Commutated Motors (ECM) on an Air Handler Unit
26 EMS - Chiller

Weather Strip/Caulk w/Blower Door
Window Film
Window Tinting

TRC Portfolio
Commercial Energy Efficiency

Aerosole Duct Sealing
Air Handler Optimization
Anti-sweat (humidistat) controls
Ceiling Insulation
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
CFL Screw-in 18W
Chiller Tune Up/Diagnostics
Compressor VSD retrofit
Continuous Dimming
Cool Roof - Chiller
Cool Roof - DX
Copier Power Management Enabling
Demand controlled circulating systems
Demand Defrost Electric
Demand Hot Gas Defrost
DX Coil Cleaning
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Efficient compressor motor
Electronically Commutated Motors (ECM) on an Air Handler Unit
EMS - Chiller
EMS Optimization
Energy Recovery Ventilation (ERV)
Energy Star or Better Copier
Energy Star or Better Monitor

Economic Potential Measure List

27 EMS Optimization
28 Energy Recovery Ventilation (ERV)
29 Energy Star or Better Copier
30 Energy Star or Better Monitor
31 Evaporator fan controller for MT walk-ins
32 Floating head pressure controls
33 Freezer-Cooler Replacement Gaskets
34 Geothermal Heat Pump, EER=13, 10 tons
35 HE PTAC, EER=9.6, 1 ton
36 Heat Pump Water Heater (air source)
37 Heat Recovery Unit
38 Heat Trap
39 High Bay T5
40 High Efficiency Chiller Motors
41 High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
42 High Efficiency Water Heater (electric)
43 High Pressure Sodium 250W Lamp
44 High R-Value Glass Doors
45 High-efficiency fan motors
46 Hot Water Pipe Insulation
47 Hybrid Dessicant-DX System (Trane CDQ)
48 LED Display Lighting
49 LED Exit Sign
50 Lighting Control Tuneup
51 Lighting Control Tuneup
52 Monitor Power Management Enabling
53 Multiplex Compressor System
54 Night covers for display cases
55 Occupancy Sensor
56 Occupancy Sensor (hotels)
57 Optimize Controls
58 Outdoor Lighting Controls (Photocell/Timeclock)
59 Oversized Air Cooled Condenser
60 Packaged HP System, EER=10.9, 10 tons
61 PC Manual Power Management Enabling
62 PC Network Power Management Enabling
63 Premium T8, EB, Reflector
64 Premium T8, Elecctronic Ballast
65 Printer Power Management Enabling
66 PSMH, 250W, magnetic ballast
67 Refrigeration Commissioning
68 ROB Premium T8, 1EB

Evaporator fan controller for MT walk-ins
Floating head pressure controls
Freezer-Cooler Replacement Gaskets
Geothermal Heat Pump, EER=13, 10 tons
HE PTAC, EER=9.6, 1 ton
Heat Pump Water Heater (air source)
Heat Recovery Unit
Heat Trap
High Bay T5
High Efficiency Chiller Motors
High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
High Efficiency Water Heater (electric)
High Pressure Sodium 250W Lamp
High R-Value Glass Doors
High-efficiency fan motors
Hot Water Pipe Insulation
Hybrid Dessicant-DX System (Trane CDQ)
LED Display Lighting
LED Exit Sign
Lighting Control Tuneup
Lighting Control Tuneup
Monitor Power Management Enabling
Multiplex Compressor System
Night covers for display cases
Occupancy Sensor
Occupancy Sensor (hotels)
Optimize Controls
Outdoor Lighting Controls (Photocell/Timeclock)
Oversized Air Cooled Condenser
PC Manual Power Management Enabling
PC Network Power Management Enabling
Premium T8, EB, Reflector
Premium T8, Elecctronic Ballast
Printer Power Management Enabling
PSMH, 250W, magnetic ballast
Refrigeration Commissioning
ROB Premium T8, 1EB
ROB Premium T8, EB, Reflector
Roof Insulation
Separate Makeup Air / Exhaust Hoods AC
Strip curtains for walk-ins
Thermal Energy Storage (TES)

Economic Potential Measure List

69 ROB Premium T8, EB, Reflector
70 Roof Insulation
71 Separate Makeup Air / Exhaust Hoods AC
72 Solar Water Heater
73 Strip curtains for walk-ins
74 Thermal Energy Storage (TES)
75 Variable Speed Drive Control
76 Vending Misers (cooled machines only)
77 VSD for Chiller Pumps and Towers
78 Window Film (Standard)

RIM Portfolio
Industrial Energy Efficiency

1 Aerosole Duct Sealing
2 Aerosole Duct Sealing - Chiller
3 Air conveying systems
4 Bakery - Process
5 Bakery - Process (Mixing) - O&M
6 Centrifugal Chiller, 0.51 kW/ton, 500 tons
7 CFL Hardwired, Modular 18W
8 CFL Screw-in 18W
9 Chiller Tune Up/Diagnostics
10 Clean Room - Controls
11 Clean Room - New Designs
12 Comp Air - ASD (100+ hp)
13 Comp Air - ASD (1-5 hp)
14 Comp Air - ASD (6-100 hp)
15 Comp Air - Motor practices-1 (100+ HP)
16 Comp Air - Motor practices-1 (1-5 HP)
17 Comp Air - Motor practices-1 (6-100 HP)
18 Comp Air - Replace 100+ HP motor
19 Comp Air - Replace 1-5 HP motor
20 Comp Air - Replace 6-100 HP motor
21 Compressed Air - Controls
22 Compressed Air - System Optimization
23 Compressed Air- Sizing
24 Compressed Air-O&M
25 Cool Roof - Chiller
26 Cool Roof - DX
27 Direct drive Extruders
28 Drives - EE motor
29 Drives - Optimization process (M&T)
30 Drives - Process Control
31 Drives - Process Controls (batch + site)

Variable Speed Drive Control
Vending Misers (cooled machines only)
VSD for Chiller Pumps and Towers
Window Film (Standard)

TRC Portfolio
Industrial Energy Efficiency

Aerosole Duct Sealing
Aerosole Duct Sealing - Chiller
Air conveying systems
Bakery - Process
Bakery - Process (Mixing) - O&M
Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
CFL Screw-in 18W
Chiller Tune Up/Diagnostics
Clean Room - Controls
Clean Room - New Designs
Comp Air - ASD (100+ hp)
Comp Air - ASD (6-100 hp)
Comp Air - ASD (6-100 hp)
Comp Air - Motor practices-1 (100+ HP)
Comp Air - Motor practices-1 (1-5 HP)
Comp Air - Motor practices-1 (6-100 HP)
Comp Air - Replace 100+ HP motor
Comp Air - Replace 6-100 HP motor
Compressed Air - Controls
Compressed Air - System Optimization
Compressed Air- Sizing
Compressed Air-O&M
Cool Roof - Chiller
Cool Roof - DX
Direct drive Extruders
Drives - EE motor
Drives - Optimization process (M&T)
Drives - Process Control
Drives - Process Controls (batch + site)
Drives - Scheduling

Economic Potential Measure List

32	Drives - Scheduling	Drying (UV/IR)
33	Drying (UV/IR)	DX Coil Cleaning
34	Duct/Pipe Insulation	DX Packaged System, EER=10.9, 10 tons
35	Duct/Pipe Insulation - Chiller	DX Tune Up/ Advanced Diagnostics
36	DX Coil Cleaning	Efficient Curing ovens
37	DX Packaged System, EER=10.9, 10 tons	Efficient desalter
38	DX Tune Up/ Advanced Diagnostics	Efficient drives
39	Efficient Curing ovens	Efficient drives - rolling
40	Efficient desalter	Efficient electric melting
41	Efficient drives	Efficient grinding
42	Efficient drives - rolling	Efficient Machinery
43	Efficient electric melting	Efficient practices printing press
44	Efficient grinding	Efficient Printing press (fewer cylinders)
45	Efficient Machinery	Efficient processes (welding, etc.)
46	Efficient practices printing press	Efficient Refrigeration - Operations
47	Efficient Printing press (fewer cylinders)	EMS - Chiller
48	Efficient processes (welding, etc.)	EMS Optimization - Chiller
49	Efficient Refrigeration - Operations	Extruders/injection Moulding-multipump
50	EMS - Chiller	Fans - ASD (100+ hp)
51	EMS Optimization - Chiller	Fans - ASD (6-100 hp)
52	Extruders/injection Moulding-multipump	Fans - Controls
53	Fans - ASD (100+ hp)	Fans - Motor practices-1 (100+ HP)
54	Fans - ASD (1-5 hp)	Fans - Motor practices-1 (1-5 HP)
55	Fans - ASD (6-100 hp)	Fans - Motor practices-1 (6-100 HP)
56	Fans - Controls	Fans - O&M
57	Fans - Motor practices-1 (100+ HP)	Fans - Replace 100+ HP motor
58	Fans - Motor practices-1 (1-5 HP)	Fans - Replace 6-100 HP motor
59	Fans - Motor practices-1 (6-100 HP)	Fans - System Optimization
60	Fans - O&M	Fans- Improve components
61	Fans - Replace 100+ HP motor	Gap Forming papermachine
62	Fans - Replace 1-5 HP motor	Heat Pumps - Drying
63	Fans - Replace 6-100 HP motor	Heating - Optimization process (M&T)
64	Fans - System Optimization	Heating - Process Control
65	Fans- Improve components	Heating - Scheduling
66	Gap Forming papermachine	High Bay T5
67	Geothermal Heat Pump, EER=13, 10 tons	High Consistency forming
68	Heat Pumps - Drying	High Efficiency Chiller Motors
69	Heating - Optimization process (M&T)	Hybrid Dessicant-DX System (Trane CDQ)
70	Heating - Process Control	Injection Moulding - Direct drive
71	Heating - Scheduling	Injection Moulding - Impulse Cooling
72	High Bay T5	Intelligent extruder (DOE)
73	High Consistency forming	Light cylinders
74	High Efficiency Chiller Motors	Machinery
75	Hybrid Dessicant-DX System (Trane CDQ)	Membranes for wastewater

Economic Potential Measure List

76 Injection Moulding - Direct drive
77 Injection Moulding - Impulse Cooling
78 Intelligent extruder (DOE)
79 Light cylinders
80 Machinery
81 Membranes for wastewater
82 Near Net Shape Casting
83 New transformers welding
84 O&M - Extruders/Injection Moulding
85 O&M/drives spinning machines
86 Occupancy Sensor
87 Optimization control PM
88 Optimization Refrigeration
89 Optimize Controls
90 Optimize drying process
91 Other Process Controls (batch + site)
92 Power recovery
93 Premium T8, Elecctronic Ballast
94 Process control
95 Process Drives - ASD
96 Process optimization
97 Pumps - ASD (100+ hp)
98 Pumps - ASD (1-5 hp)
99 Pumps - ASD (6-100 hp)
100 Pumps - Controls
101 Pumps - Motor practices-1 (100+ HP)
102 Pumps - Motor practices-1 (1-5 HP)
103 Pumps - Motor practices-1 (6-100 HP)
104 Pumps - O&M
105 Pumps - Replace 100+ HP motor
106 Pumps - Replace 1-5 HP motor
107 Pumps - Replace 6-100 HP motor
108 Pumps - Sizing
109 Pumps - System Optimization
110 Refinery Controls
111 Replace V-belts
112 Roof Insulation
113 Roof Insulation - Chiller
114 Top-heating (glass)
115 VSD for Chiller Pumps and Towers
116 Window Film (Standard)
117 Window Film (Standard) - Chiller

Near Net Shape Casting
New transformers welding
O&M - Extruders/Injection Moulding
O&M/drives spinning machines
Occupancy Sensor
Optimization control PM
Optimization Refrigeration
Optimize Controls
Optimize drying process
Other Process Controls (batch + site)
Power recovery
Premium T8, Elecctronic Ballast
Process control
Process Drives - ASD
Process optimization
Pumps - ASD (100+ hp)
Pumps - ASD (6-100 hp)
Pumps - Controls
Pumps - Motor practices-1 (100+ HP)
Pumps - Motor practices-1 (1-5 HP)
Pumps - Motor practices-1 (6-100 HP)
Pumps - O&M
Pumps - Replace 100+ HP motor
Pumps - Replace 6-100 HP motor
Pumps - Sizing
Pumps - System Optimization
Refinery Controls
Replace V-belts
Roof Insulation
Roof Insulation - Chiller
Top-heating (glass)
VSD for Chiller Pumps and Towers
Window Film (Standard)
Window Film (Standard) - Chiller

Achievable Potential Measure List

	RIM Portfolio Residential Energy Efficiency	TRC Portfolio Residential Energy Efficiency
1	14 SEER Split-System Air Conditioner	14 SEER Split-System Air Conditioner
2	AC Maintenance (Indoor Coil Cleaning)	AC Maintenance (Indoor Coil Cleaning)
3	AC Maintenance (Outdoor Coil Cleaning)	AC Maintenance (Outdoor Coil Cleaning)
4	Ceiling R-0 to R-19 Insulation	Ceiling R-0 to R-19 Insulation
5	Default Window With Sunscreen	CFL (18-Watt integral ballast), 0.5 hr/day
6	Double Pane Clear Windows to Double Pane Low-E Windows	Default Window With Sunscreen
7	Duct Repair	Double Pane Clear Windows to Double Pane Low-E Windows
8	Electronically Commutated Motors (ECM) on an Air Handler Unit	Duct Repair
9	Energy Star CW CEE Tier 2 (MEF=2.0)	Electronically Commutated Motors (ECM) on an Air Handler Unit
10	HE Refrigerator - Energy Star version of above	Energy Star CW CEE Tier 2 (MEF=2.0)
11	HE Room Air Conditioner - EER 11	Faucet Aerators
12	Heat Pump Water Heater (EF=2.9)	HE Freezer
13	High Efficiency CD (EF=3.01 w/moisture sensor)	HE Refrigerator - Energy Star version of above
14	Proper Refrigerant Charging and Air Flow	HE Room Air Conditioner - EER 11
15	Reflective Roof	Heat Pump Water Heater (EF=2.9)
16	Variable-Speed Pool Pump (<1 hp)	High Efficiency CD (EF=3.01 w/moisture sensor)
17	Window Film	Low Flow Showerhead
18	Window Tinting	Proper Refrigerant Charging and Air Flow
19		Reflective Roof
20		Variable-Speed Pool Pump (<1 hp)
21		Water Heater Timeclock
22		Weather Strip/Caulk w/Blower Door
23		Window Film
24		Window Tinting

	RIM Portfolio Commercial Energy Efficiency	TRC Portfolio Commercial Energy Efficiency
1	Air Handler Optimization	Air Handler Optimization
2	Ceiling Insulation	Ceiling Insulation
3	Centrifugal Chiller, 0.51 kW/ton, 500 tons	Centrifugal Chiller, 0.51 kW/ton, 500 tons
4	CFL Hardwired, Modular 18W	CFL Hardwired, Modular 18W
5	Chiller Tune Up/Diagnostics	Chiller Tune Up/Diagnostics
6	Compressor VSD retrofit	Compressor VSD retrofit
7	Continuous Dimming	Continuous Dimming
8	Cool Roof - Chiller	Cool Roof - Chiller
9	Cool Roof - DX	Cool Roof - DX
10	Copier Power Management Enabling	Copier Power Management Enabling
11	Demand controlled circulating systems	Demand controlled circulating systems
12	DX Packaged System, EER=10.9, 10 tons	DX Packaged System, EER=10.9, 10 tons
13	DX Tune Up/ Advanced Diagnostics	DX Tune Up/ Advanced Diagnostics
14	Electronically Commutated Motors (ECM) on an Air Handler Unit	Electronically Commutated Motors (ECM) on an Air Handler Unit

Achievable Potential Measure List

15	EMS - Chiller	EMS - Chiller
16	EMS Optimization	EMS Optimization
17	Energy Recovery Ventilation (ERV)	Energy Recovery Ventilation (ERV)
18	Evaporator fan controller for MT walk-ins	Evaporator fan controller for MT walk-ins
19	Geothermal Heat Pump, EER=13, 10 tons	Geothermal Heat Pump, EER=13, 10 tons
20	HE PTAC, EER=9.6, 1 ton	HE PTAC, EER=9.6, 1 ton
21	Heat Pump Water Heater (air source)	Heat Pump Water Heater (air source)
22	Heat Recovery Unit	Heat Recovery Unit
23	High Efficiency Chiller Motors	High Efficiency Chiller Motors
24	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%
25	High Efficiency Water Heater (electric)	High Efficiency Water Heater (electric)
26	High Pressure Sodium 250W Lamp	High Pressure Sodium 250W Lamp
27	High R-Value Glass Doors	High R-Value Glass Doors
28	High-efficiency fan motors	High-efficiency fan motors
29	Hybrid Dessicant-DX System (Trane CDQ)	Hot Water Pipe Insulation
30	LED Display Lighting	Hybrid Dessicant-DX System (Trane CDQ)
31	LED Exit Sign	LED Display Lighting
32	Lighting Control Tuneup	LED Exit Sign
33	Multiplex Compressor System	Lighting Control Tuneup
34	Occupancy Sensor	Multiplex Compressor System
35	Occupancy Sensor (hotels)	Occupancy Sensor
36	Optimize Controls	Occupancy Sensor (hotels)
37	Outdoor Lighting Controls (Photocell/Timeclock)	Optimize Controls
38	Oversized Air Cooled Condenser	Outdoor Lighting Controls (Photocell/Timeclock)
39	Premium T8, EB, Reflector	Oversized Air Cooled Condenser
40	ROB Premium T8, 1EB	Premium T8, EB, Reflector
41	ROB Premium T8, EB, Reflector	ROB Premium T8, 1EB
42	Roof Insulation	ROB Premium T8, EB, Reflector
43	Variable Speed Drive Control	Roof Insulation
44	VSD for Chiller Pumps and Towers	Variable Speed Drive Control
45	Window Film (Standard)	VSD for Chiller Pumps and Towers
46		Window Film (Standard)

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Achievable Potential Measure List

RIM Portfolio
Industrial Energy Efficiency

1 CFL Hardwired, Modular 18W
2 Chiller Tune Up/Diagnostics
3 Clean Room - Controls
4 Clean Room - New Designs
5 Comp Air - Motor practices-1 (1-5 HP)
6 Comp Air - Motor practices-1 (6-100 HP)
7 Comp Air - Replace 100+ HP motor
8 Comp Air - Replace 6-100 HP motor
9 Compressed Air - Controls
10 Cool Roof - Chiller
11 Cool Roof - DX
12 Direct drive Extruders
13 Drives - EE motor
14 Drives - Process Control
15 Drives - Process Controls (batch + site)
16 Drying (UV/IR)
17 DX Tune Up/ Advanced Diagnostics
18 Efficient Curing ovens
19 Efficient desalter
20 Efficient drives
21 Efficient drives - rolling
22 Efficient electric melting
23 Efficient grinding
24 Efficient Machinery
25 Efficient Printing press (fewer cylinders)
26 Efficient processes (welding, etc.)
27 EMS - Chiller
28 EMS Optimization - Chiller
29 Extruders/injection Moulding-multipump
30 Fans - Controls
31 Fans - Motor practices-1 (1-5 HP)
32 Fans - Motor practices-1 (6-100 HP)
33 Fans - Replace 100+ HP motor
34 Fans - Replace 6-100 HP motor
35 Fans - System Optimization
36 Heat Pumps - Drying
37 Heating - Process Control
38 High Efficiency Chiller Motors
39 Hybrid Dessicant-DX System (Trane CDQ)
40 Injection Moulding - Direct drive
41 Injection Moulding - Impulse Cooling
42 Light cylinders
43 Machinery

TRC Portfolio
Industrial Energy Efficiency

Centrifugal Chiller, 0.51 kW/ton, 500 tons
CFL Hardwired, Modular 18W
Chiller Tune Up/Diagnostics
Clean Room - Controls
Clean Room - New Designs
Comp Air - Motor practices-1 (100+ HP)
Comp Air - Motor practices-1 (1-5 HP)
Comp Air - Motor practices-1 (6-100 HP)
Comp Air - Replace 100+ HP motor
Comp Air - Replace 6-100 HP motor
Compressed Air - Controls
Cool Roof - Chiller
Cool Roof - DX
Direct drive Extruders
Drives - EE motor
Drives - Process Control
Drives - Process Controls (batch + site)
Drives - Scheduling
Drying (UV/IR)
DX Packaged System, EER=10.9, 10 tons
DX Tune Up/ Advanced Diagnostics
Efficient Curing ovens
Efficient desalter
Efficient drives
Efficient drives - rolling
Efficient electric melting
Efficient grinding
Efficient Machinery
Efficient Printing press (fewer cylinders)
Efficient processes (welding, etc.)
EMS - Chiller
EMS Optimization - Chiller
Extruders/injection Moulding-multipump
Fans - Controls
Fans - Motor practices-1 (100+ HP)
Fans - Motor practices-1 (1-5 HP)
Fans - Motor practices-1 (6-100 HP)
Fans - Replace 100+ HP motor
Fans - Replace 6-100 HP motor
Fans - System Optimization
Heat Pumps - Drying
Heating - Process Control
Heating - Scheduling

Achievable Potential Measure List

44	Membranes for wastewater	High Efficiency Chiller Motors
45	New transformers welding	Hybrid Dessicant-DX System (Trane CDQ)
46	O&M/drives spinning machines	Injection Moulding - Direct drive
47	Occupancy Sensor	Injection Moulding - Impulse Cooling
48	Optimization control PM	Intelligent extruder (DOE)
49	Optimization Refrigeration	Light cylinders
50	Optimize drying process	Machinery
51	Other Process Controls (batch + site)	Membranes for wastewater
52	Process control	New transformers welding
53	Process optimization	O&M/drives spinning machines
54	Pumps - Motor practices-1 (1-5 HP)	Occupancy Sensor
55	Pumps - Motor practices-1 (6-100 HP)	Optimization control PM
56	Pumps - Replace 100+ HP motor	Optimization Refrigeration
57	Pumps - Replace 6-100 HP motor	Optimize drying process
58	Pumps - System Optimization	Other Process Controls (batch + site)
59	Roof Insulation	Power recovery
60	Roof Insulation - Chiller	Power recovery
61	VSD for Chiller Pumps and Towers	Process optimization
62	Window Film (Standard)	Pumps - Motor practices-1 (100+ HP)
63	Window Film (Standard) - Chiller	Pumps - Motor practices-1 (1-5 HP)
64		Pumps - Motor practices-1 (6-100 HP)
65		Pumps - Replace 100+ HP motor
66		Pumps - Replace 6-100 HP motor
67		Pumps - System Optimization
68		Refinery Controls
69		Roof Insulation
70		Roof Insulation - Chiller
71		VSD for Chiller Pumps and Towers
72		Window Film (Standard)
73		Window Film (Standard) - Chiller

Table 1
Summary of Energy Efficiency Technical Potential Results

	Annual Energy (GWh)	Summer System Peak (MW)	Winter System Peak (MW)
Residential	1,968	534	341
Commercial/Industrial	1,377	264	155
Total	**3,345**	**798**	**496**

Table 2
Summary of Demand Response Technical Potential Results

	Annual Energy (GWh)	Summer System Peak (MW)	Winter System Peak (MW)
Residential	N/A	198	209
Commercial/Industrial	N/A	98	41
Total	**N/A**	**296**	**250**

Table 3
Summary of Solar Photovoltaic Technical Potential Results

	Annual Energy (GWh)	Summer System Peak (MW)	Winter System Peak (MW)
Residential	2,509	911	166
Commercial/Industrial	1,429	541	69
Total	**3,938**	**1,452**	**235**

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Summary of Energy Efficiency Economic Potential Results

	Annual Energy (GWh)		Summer System Peak (MW)		Winter System Peak (MW)	
	RIM	TRC	RIM	TRC	RIM	TRC
Residential	2,331	1,716	672	443	397	185
Commercial/Industrial	1,462	1,367	282	252	155	112
Total	**3,793**	**3,083**	**954**	**695**	**552**	**297**

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Table 1
Summary of Energy Efficiency Achievable Potential Results

	Annual Energy (GWh)		Summer System Peak (MW)		Winter System Peak (MW)	
	RIM	TRC	RIM	TRC	RIM	TRC
Residential						
Low Incentive (33%)	45	59	16	17	4	5
Mid Incentive (50%)	58	78	22	24	6	9
High Incentive (maximum or 2 yr payback)	87	154	36	52	26	48
Commercial/Industrial						
Low Incentive (33%)	39	42	7	7	2	2
Mid Incentive (50%)	52	61	11	11	2	3
High Incentive (maximum or 2 yr payback)	72	98	16	19	4	6
Total						
Low Incentive (33%)	85	101	23	24	5	7
Mid Incentive (50%)	110	139	32	35	9	12
High Incentive (maximum or 2 yr payback)	159	252	52	71	30	54

Table 2
Summary of Demand Response Achievable Potential Results

	Annual Energy (GWh)	Summer System Peak (MW)	Winter System Peak (MW)
Residential			
High Enrollment	N/A	11	13
Low Enrollment	N/A	7	8
Commercial/Industrial			
High Enrollment	N/A	6	3
Low Enrollment	N/A	7	2
Total			
High Enrollment	N/A	17	17
Low Enrollment	N/A	14	10

Summary of the Economic Potential Sensitivity Results

	# of Passing Measures		Annual Energy (GWh)		Summer System Peak (MW)		Winter System Peak (MW)	
	RIM	TRC	RIM	TRC	RIM	TRC	RIM	TRC
Residential								
Base	58	44	2,331	1,716	443	386	397	185
Low Capital	57	43	2,331	1,685	440	386	397	178
High Capital	57	43	2,331	1,716	443	386	397	185
$0 Carbon	31	40	1,434	1,565	413	385	250	173
Low Fuel/Carbon	27	37	1,236	1,396	392	370	229	144
High Fuel/Carbon	58	44	2,339	1,743	447	386	397	190
Commercial/Industrial								
Base	195	181	1,462	1,367	252	228	155	112
Low Capital	194	180	1,462	1,367	252	228	155	112
High Capital	194	180	1,462	1,371	255	228	155	115
$0 Carbon	137	179	1,072	1,319	244	228	120	107
Low Fuel/Carbon	98	177	581	1,314	242	228	89	106
High Fuel/Carbon	195	183	1,477	1,376	256	228	157	116
Total								
Base	253	225	3,793	3,083	695	614	552	297
Low Capital	251	223	3,793	3,052	692	614	552	290
High Capital	251	223	3,793	3,087	698	614	552	300
$0 Carbon	168	219	2,506	2,884	657	613	370	280
Low Fuel/Carbon	125	214	1,817	2,710	634	598	318	250
High Fuel/Carbon	253	227	3,816	3,119	703	614	554	306

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	NPV		Annual Bill Impact for 1,200 kWh/Month Residential Customer									
			2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
No DSM	$ 180.32		$ 0.47	$ 1.75	$ 3.22	$ 5.23	$ 9.97	$ 14.16	$ 17.80	$ 21.21	$ 24.48	$ 27.63
RIM Portfolio/Proposed Goals	$ 152.35		$ 6.25	$ 11.05	$ 16.27	$ 20.49	$ 24.01	$ 26.87	$ 28.99	$ 29.52	$ 28.32	$ 27.08
TRC Portfolio	$ 282.50		$ 7.36	$ 13.52	$ 21.22	$ 29.79	$ 39.56	$ 51.08	$ 63.44	$ 71.31	$ 78.31	$ 84.76