

**BEFORE THE
MISSISSIPPI PUBLIC SERVICE COMMISSION
JACKSON, MISSISSIPPI**

MISSISSIPPI PUBLIC SERVICE COMMISSION

2010-AD-2

**IN RE: PROPOSAL OF THE MISSISSIPPI PUBLIC SERVICE
COMMISSION TO POSSIBLY AMEND CERTAIN RULES OF
PRACTICE AND PROCEDURE**

ORDER ISSUING PROPOSED RULES

The Mississippi Public Service Commission (Commission) declared its intent to investigate the development and implementation of energy efficiency programs and standards by Order entered in this docket on January 15, 2010. This Order delineated guidelines for parties desiring to intervene and/or submit comments. Collaborative Meetings were held on September 28, 2010, October 26, 2010 and December 2, 2010. The Commission considered the comments submitted as well as the products of the Collaborative Meetings and issued Proposed Rules for Energy Efficiency Programs, a copy of which is attached hereto as Exhibit "A", which are subject to the procedures of Miss. Code Ann. § 77-3-45 and the Mississippi Administrative Procedures Act, Miss. Code Ann. §§ 25-43-1.101 *et. seq.* At the time, the Commission found that an economic impact statement was not required for the proposed rules. However, after considering Comments filed by intervenors, the Commission determined that an economic impact study was in the best interest of ratepayers and requested the Mississippi Public Utilities Staff to perform such a study. A copy of the resulting economic impact statement is attached hereto as Exhibit "B".

All persons and parties who desire to participate in a public hearing are directed to file with the Commission notice of their intent to participate and written comments or

testimony on or before February 1, 2013. A public hearing will be set by subsequent Order of the Commission.

The Executive Secretary is directed to transmit a copy of this Order and a concise summary of the economic impact statement to the Secretary of State's Office in accordance with the Mississippi Administrative Procedures Act, Miss. Code Ann. §§25-43-1.101 *et seq.* The proposed rules, any additions and modification thereof, shown to be necessary or appropriate for adoption by the Commission at the public hearing, shall become effective immediately upon entry of the Final Order.

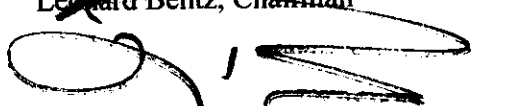
The Executive Secretary is also directed to transmit a copy of this Order to all parties of record in and any other parties of interest identified. The Executive Secretary of the Commission is further instructed to publish notice of this proceeding in a newspaper of general circulation published in Jackson, Mississippi, all as provided by Miss. Code Ann. § 77-3-47 and in accordance with the Commission's Public Utilities Rules of Practice and Procedure.

This Order shall be deemed issued on the day it is served upon the parties herein by the Executive Secretary of this Commission who shall note the service date in the file of this Docket.

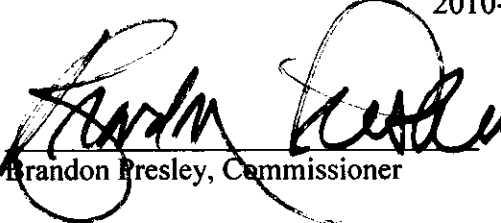
Chairman Lynn Posey voted Aye; Vice-Chairman Leonard Bentz voted Aye;
Commissioner Brandon Presley voted Aye.

Dated, this the 15th day of November 2012.

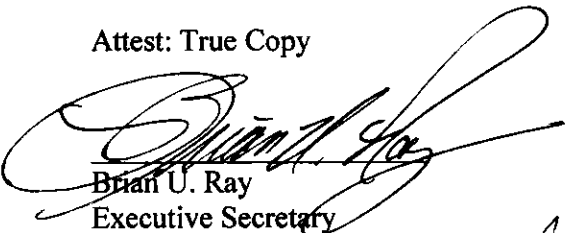


Leonard Bentz, Chairman

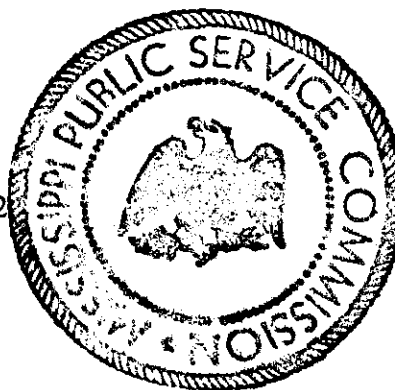
Lynn Posey, Vice-Chairman


Brandon Presley, Commissioner

Attest: True Copy


Brian U. Ray
Executive Secretary

Effective this the 15th day of November 2012



Chapter 29 CONSERVATION AND ENERGY EFFICIENCY PROGRAMS

Rule 29

100 Purpose

The Commission has developed these rules to implement energy efficiency programs and standards in Mississippi. The rules apply both to electric and natural gas service providers subject to the jurisdiction of the Mississippi Public Service Commission. The rules define “Quick Start” to encourage the early implementation of energy efficiency programs and to provide experience on which Mississippi’s service providers and the Commission can build Comprehensive Portfolios – long-term energy efficiency programs. The rules also define the elements of Comprehensive Portfolios.

101 Definitions

1. Administrator – The entity, which may be the service provider, responsible for creating and managing an energy efficiency program or portfolio.
2. Best Practice – An approach that experience indicates is more effective at delivering a particular outcome (*e.g.*, program design, implementation efficiency, cost effectiveness, EM&V) than other approaches. For the purpose of this rule, Best Practices are energy efficiency programs, measures, EM&V, and deemed savings successfully implemented in other jurisdictions and adapted for any economic, social, or demographic characteristics unique to Mississippi. Best Practices are identified by the National Action Plan for Energy Efficiency (NAPEE), by similar national organizations, and by utilities with significant long-term energy efficiency experience.
3. Comprehensive Portfolio – A collection of energy efficiency programs that, when taken together, provide appropriate organizational resources including financial, technical, outreach, marketing, service provider infrastructure, training, and education support sufficient to achieve widespread implementation of all types of significant cost-effective energy-efficiency improvements in all categories of retail customers.
4. Cost-effective – A standard used to describe a net-beneficial result for programs to be implemented, determined through a process that includes a review of relevant cost-benefit tests. A Cost-effective program would be one that can provide aggregate ratepayer benefits for a majority of utility customers.
5. Deemed Savings – Pre-determined, validated estimates of energy and/or demand savings attributable to particular energy efficiency measures, based upon engineering calculations, baseline studies, reasonable assumptions and/or experience. Deemed savings values must be revised periodically to reflect new technologies; new federal; state or local policies and codes; and additional experience.
6. Energy Efficiency – Reducing energy input to equipment and/or processes while maintaining or improving the customer's existing level of comfort and end-use functionality. Reduction in energy input may be achieved by substituting more advanced technology or by reorganizing the process to reduce waste heat, waste cooling, or energy. Demand response is a form of energy efficiency.
7. Energy Efficiency Savings – Energy (kWh, therms) and/or capacity (kW) savings

determined by comparing measured energy use before and after implementation of an energy efficiency measure or by reference to a set of Deemed Savings approved by the Commission.

8. Evaluation, Measurement, and Verification (EM&V) – Studies and activities performed to determine the actual savings and other effects from energy efficiency programs and measures.
9. Measure – The equipment, materials and/or practices that, when put into use at a customer site, result in a measurable and verifiable reduction in either purchased energy consumption; measured energy or peak demand; or both.
10. Portfolio – The entire group of programs offered by an Administrator.
11. Program – A particular energy efficiency service or set of services directed to a particular population.
12. Program Year – The year in which programs are administered and delivered. For the purposes of planning and reporting, a Program Year shall be considered a calendar year, January 1 through December 31.
13. Quick Start – A portfolio of energy efficiency programs selected from programs that have been widely implemented in other jurisdictions and can provide aggregate ratepayer benefits to a majority of utility customers. These programs can be implemented more quickly in Mississippi because they are already well-defined, have well-established track records, and require fewer showings to the Commission.

102 Administration and Implementation of Energy Efficiency Programs

1. Filing for Commission Approvals

- a. Quick Start Plans – Each electric and natural gas utility serving more the 25,000 customers (meters) and subject to the jurisdiction of the Commission shall file with the Commission for its approval a Quick Start Plan for energy efficiency programs for its service territory. These Plans shall be filed not later than three (3) months following the order adopting this Rule. Utilities serving 25,000 customers (meters) or fewer are exempt from filing Quick Start Plans.
- b. Comprehensive Portfolio Plans – No later than 36 months from the date of the Commission's order approving its Quick Start Plan, each electric and gas utility shall file a Comprehensive Portfolio Plan of energy efficiency programs. Utilities serving 25,000 or fewer customers (meters) are not exempt from this filing and shall submit descriptions of energy efficiency programs that are economically feasible to implement for their organization's size.
- c. Approval – A program, portfolio, or plan filed under these rules shall not be implemented until a Commission order is issued expressly approving the program, portfolio, or plan. The Commission shall establish a procedural schedule for the review of each program, portfolio, or plan filing.

2. Waivers

Exemptions from these rules may be granted by the Commission in accordance with the Commission's Rules of Practice and Procedure. Nothing in these rules shall preclude the Commission from modifying these rules on its own initiative or in response to a party's motion and after notice and hearing.

103 Quick Start Plan Filing Requirements

1. Service providers shall propose general program designs, specific programs, and specific measures and may propose programs and/or measures in any combination. The objective of Quick Start shall be: a) the development of increased utility program capabilities and infrastructure; b) the expansion of energy efficiency expertise throughout Mississippi; c) the identification of locally successful (and unsuccessful) energy efficiency program delivery strategies; and d) the initial delivery of energy savings benefits to a sizable cross section of utility customers.

Quick Start Plans shall include energy efficiency programs designed to cover the partial year remaining from the date of the Commission's order approving the Plan plus two successive full Program Years. Quick Start Plans may also include additional programs to be implemented in the first and/or second full Program Year. Quick Start Plans shall include energy efficiency programs that address all customer classes.

2. Energy Efficiency Programs in Quick Start

Energy efficiency programs should be capable of being implemented within four months of Plan approval.

All Quick Start programs shall be based on technologies that are commercially available. As appropriate, Quick Start programs shall be coordinated with and not duplicate related programs funded through other sources.

Programs filed by natural gas and electric utilities shall comply with the standards and rules regarding promotional practices as set forth by Commission Order in Docket 1994-UA-115.

Quick Start budgets shall be applied to programs of sufficient scale to provide meaningful energy and/or demand reductions for the applicable program time periods rather than to a larger number of smaller programs with minimal impacts.

Utilities shall file energy efficiency programs developing individual programs from the following general list of categories:

- a. *Customer Education* – This would include the education of customers on energy efficiency and conservation. It should, to the greatest extent possible, be a consistent statewide group of messages. It should include education of builders and equipment installers. The messages should encourage the efficient use of electricity and gas. The messages should increase awareness of opportunities to use electricity and natural gas more efficiently. This category of programs would apply to all customer classes.
- b. *Energy Audits and Evaluations Leading to Savings* – This would include home and commercial energy audits and audits of commercial and industrial processes and equipment. The audits and evaluations would produce recommendations for opportunities to implement site-specific efficiency and conservation measures. Programs would be designed for audits to lead to savings results and could

include cost-effective and economically justified customer incentives to encourage the implementation of site-specific measures. A training component to increase the number and quality of auditors may be needed. This category of programs would apply to all customer classes.

- c. *Inspection and Tune Up of Heating and Air Conditioning Systems* – This would be applicable to residential, commercial, and industrial systems. This category of programs would apply to all customer classes.
- d. *Lighting* – Improved lighting for residential, commercial, and industrial customers. This category of programs would apply to all customer classes.
- e. *Appliances* – Programs that offer rebates or other incentives on high-efficiency appliance and work with upstream trade allies to increase the sales of these products through the distribution chain. This category of programs most often applies to residential and small commercial customers.
- f. *Increased Deployment of Demand Response Programs* – Such programs already exist in Mississippi. This would look for additional opportunities to offer demand response programs including interruptible service, curtailment service, off-peak service, etc. In the near term, this category of programs would apply to commercial and industrial customer classes but may eventually extend to residential customers.
- g. *Weatherization and Whole-Home Retrofits* – A residential weatherization or comprehensive retrofit program that would be based solely on efficiency criteria using established home assessment protocols and often targeting least efficient homes first. This category of programs would apply to the residential customer class.
- h. *New Homes Program* – These residential programs provide incentives to builders who achieve a percentage of energy savings against a prescribed standard.
- i. *Commercial and Industrial Prescriptive Incentive Programs* – These programs offer a fixed-dollar incentive for multiple defined prescriptive measures (i.e., lighting, HVAC replacements, occupancy sensors, motors, etc.).
- j. *Commercial and Industrial Custom Incentive Programs* – In these programs the Administrator works with the customer to develop site-specific energy efficiency measures, and the incentive is based both on the amount of energy saved the total cost of the energy efficiency measures.
- k. *Commercial and Industrial Retro-Commissioning* – Existing buildings and comprehensively assessed and “tuned up” to optimize energy efficiency in their operations.

3. Quick Start Plan Portfolio Description

Each Quick Start Plan filing shall address the following portfolio elements:

- a. Demonstration that the portfolio of Quick Start programs serves all customer classes;
- b. A Quick Start budget and cost recovery proposal to be collected in an energy efficiency rider (see Section 106); and
- c. Any additional supporting information the Administrator may propose.

Although estimates of program costs must be included in proposals, Quick Start programs are exempt from the requirement to provide cost-effectiveness showings under the cost-benefit tests of Section 105. Estimated energy and demand savings and

an EM&V program shall be included for all Quick Start programs except a statewide education program.

4. Quick Start Plan Individual Program Descriptions

Each program in the Quick Start Plan should include the following general information:

- a. A general description of the program and the services to be provided;
- b. The target customer population addressed by the program;
- c. The specific program objectives;
- d. The identification of the specific EM&V procedures that will be implemented to determine whether the program has achieved its stated objectives;
- e. Anticipated implementation barriers and how they will be addressed;
- f. Any proposed customer incentives;
- g. Program's timeframe if the program term is limited;
- h. A plan for addressing over-subscription to the program and avoiding disruptive stop-start funding cycles;
- i. Estimated energy and peak demand savings and the basis for these savings estimates, which may use Deemed Savings;
- j. Estimated program costs and its proportion of the Quick Start budget; and
- k. Any additional information or analyses the service provider may propose.

104 Comprehensive Portfolio Plan Filing Requirements

1. Service providers shall propose general program designs, specific programs, and specific measures and may propose programs and/or measures in any combination. All programs (design, implementation, EM&V, etc.) shall be guided by Best Practices. As appropriate, Comprehensive Portfolio programs should be coordinated with and not duplicate related programs funded through other sources.

The Comprehensive Portfolio Plan shall include energy efficiency programs that address all customer classes. Plans shall cover at least one year and may cover up to three years.

Except for pilot or trial programs, Comprehensive Portfolio budgets should be applied to programs of sufficient scale to provide meaningful energy and/or demand reductions for the applicable program time periods instead of to a larger number of smaller programs with minimal impacts. Except for pilot or trial programs, technologies supporting energy efficiency programs should be commercially available. Program cost allocations should follow cost-causation principles – there shall be no cross subsidization between customer classes.

2. Comprehensive Portfolio Description and Support

Program plans shall be consistent with and reflect the effects of all energy efficiency programs in the electric utilities resource plans or natural gas utilities procurement plans.

Programs filed by natural gas and electric utilities shall comply with the standards and rules regarding promotional practices as set forth by Commission Order in Docket 1994-UA-115.

Each Comprehensive Portfolio Plan filing shall address the following portfolio-level elements:

- a. Demonstration that the scope of the Comprehensive Portfolio Plan serves all customer classes;
- b. A showing of providing aggregate ratepayer benefits to the majority of ratepayers;
- c. Cost-benefit analysis (see Section 105) listing total costs and benefits, including expected savings goals for the portfolio;
- d. A Comprehensive Portfolio budget and cost recovery proposal to be collected in an energy efficiency rider (see Section 106); and
- e. Any additional supporting information the utility may propose.

3. Comprehensive Portfolio Plan Individual Program Description Requirements

Program designs should reflect Best Practices. The proposed programs may continue to include, but are not limited to, those in Quick Start. For program implementation, a focus should be placed on local and diverse equipment and service providers to the extent these are available and competitively priced.

- a. For the Comprehensive Portfolio and each program a utility shall describe, in qualitative and quantitative terms, how its proposal will further or accomplish any or all of the following objectives or benefits that are reasonably applicable to the utility's proposal. Should the utility determine that its proposal does not address one or more of the listed objectives or benefits, the utility shall briefly explain why not.
 - i Energy savings directly attributable to program activities;
 - ii Long-term and permanent changes in behavior, attitudes, awareness, and knowledge about energy savings and use of energy efficient technologies in order to achieve energy savings;
 - iii Permanent electric peak demand reduction;
 - iv Energy cost savings and cost-effectiveness;
 - v Reliability enhancements;
 - vi Energy security benefits;
 - vii Environmental benefits;
 - viii Job creation and economic development/competitiveness benefits for Mississippi;
 - ix Increases in system-wide capacity;
 - x Improvement in energy affordability for all customers; and
 - xi Efficient program implementation.

b. Each program in the Comprehensive Portfolio should include the following information:

- i A general description of the program and the services to be provided;
- ii The target customer population addressed by the program;
- iii The specific program objectives;
- iv Targets for customer participation and energy use reductions;
- v The identification of the specific EM&V procedures that will be implemented to determine whether the program has achieved its stated objectives. The EM&V plan should appropriately balance the need to assess and improve program performance with EM&V costs. EM&V approaches should be guided by Best Practices. Portfolio EM&V cost targets should be no more than five percent of total portfolio costs although EM&V costs for some individual programs may be higher;
- vi Anticipated implementation barriers and how they will be addressed;
- vii Any proposed customer incentives;
- viii Program's timeframe if the program term is limited;
- ix A plan for addressing over-subscription to the program and avoiding disruptive stop-start funding cycles;
- x The prescribed cost-benefit analyses (see Section 105);
- xi Estimated energy and peak demand savings and the basis for these savings estimate, which may include Deemed Savings if approved by the Commission;
- xii Any additional information or analyses the service provider may propose.

4. Uniformity of Programs

Programs addressing both electric and gas customers in the same service territory shall be coordinated to the extent reasonable.

a. Customer Incentives

Programs may include financial and other incentives to encourage customers to make energy efficient investments if the incentives are cost justified and are a component of a program that can provide aggregate ratepayer benefits to the majority of utility customers.

Incentives may include information, technical assistance, leasing programs, product giveaways and direct financial inducements. Financial inducements may include but are not limited to rebates, discounted products and services, and low-rate financing.

All customer incentives shall be considered in the cost-benefit testing of programs. Costs of customer incentives shall be considered a direct program cost.

Incentives shall not be any higher than necessary to overcome the customer barriers to invest in the measure and should be reduced or eliminated as the measure becomes more of a standard practice.

b. Statewide Programs

The Commission, after notice and hearing, may direct utilities to offer uniform statewide energy efficiency and conservation programs if it determines such standardization to be the most cost-effective result and in the public interest. Utilities may request approval to offer statewide or region-wide programs for which public messages, commercial terms and conditions, and customer reception are best served by such an approach.

c. Pilot Programs

The Commission may approve pilot energy efficiency programs. A pilot program design is distinct from Quick Start and other program designs in that it shall include explicit questions that the pilot will address, explicit EM&V designed to address pilot questions, estimates of program costs and savings, and a provisional cost-benefit evaluation. Pilot Programs shall be of limited duration until reassessment after a pre-determined period. Pilot programs shall have characteristics from among the following:

- i Addressing a new end use, and
- ii Applying a new technology or a new delivery method.

Programs that are neither pilots nor Quick Start programs must comply with all of the plan filing requirements of this Section 104.

All costs for Pilot, Quick Start, and other programs shall be considered eligible for cost recovery.

105 Cost-Benefit Tests

Cost-benefit assessments for all energy efficiency programs shall be evaluated using the Total Resource Cost (TRC), the Program Administrator Cost (PAC) (also known as the Utility Cost Test (UCT)), the Participant (PCT), and the Rate Impact Measure (RIM) tests as defined in the California Standard Practices Manual: Economic Analysis of Demand Side Programs and Projects, July, 2002, ("Manual") and submitted to the Commission. The inputs for these tests shall be based as much as practicable on data local to Mississippi. The costs of program design; implementation; delivery; customer incentives; customer education and marketing; measurement of benefits; and administration are recognized parts of energy efficiency program costs that should be included in cost-benefit calculations. Cost-benefit results shall be presented for both an individual program and portfolio basis.

A utility shall use an evaluation period of either ten years (a natural gas utility may use an evaluation period of fifteen years) or the actual lives for each measure in a program to evaluate a program or portfolio.

Utilities may submit additional economic analyses information in support of a proposed program or portfolio.

Results of the tests shall be presented consistent with the descriptions shown in Table 1 or by other means approved by the Commission.

**TABLE 1 - Cost-Benefit Tests
with Primary and Secondary Means of Expressing Test Results**

Primary	Secondary
<i>Participant Test</i>	
Net present value ("NPV") (all participants)	Discounted payback (years) Benefit-cost ratio ("BCR") Net present value (average participant)
<i>Ratepayer Impact Measure (RIM) Test</i>	
Lifecycle revenue impact per unit of energy (kWh or therm) or demand customer (kW)	Lifecycle revenue impact per unit Annual revenue impact (by year, per kWh, kW, therm, or customer) First-year revenue impact (per kWh, kW, therm, or customer)
Net present value	BCR
<i>Total Resource Cost (TRC) Test</i>	
Net present value	BCR Levelized cost (cents or dollars per unit of energy or demand)
<i>Program Administrator Cost (PAC) Test</i>	
Net present value	BCR Levelized cost (cents or dollars per unit of energy or demand)

The Commission will rely on the formulas in the Manual and will assess the cost-benefit test results in the public interests.

106 Cost Recovery

Cost recovery shall be limited to the incremental costs which represent the program costs that are not already included in the then-current utility rates and shall include full and timely recovery of program costs and lost contribution to fixed cost. The Commission may decide to limit the time period during which utilities may recover lost contributions to fixed cost.

To address disincentives for energy efficiency investments, the utilities may propose an approach to earn a return on energy efficiency investments through a shared-savings or performance-incentive mechanism to make these investments more like other investments on which utilities earn a return. Prior to the Comprehensive Portfolio filing deadlines, the Commission intends to establish specific numerical energy savings targets expressed as

percentages of energy sales based on the experience of Quick Start and other relevant information.

A utility may request energy efficiency cost recovery through a rider.

A utility may request that costs from approved program budgets be included in the rider. A utility may request that cost recovery begin when the energy efficiency program is implemented and offered to customers. Utilities may also propose a mechanism to adjust budgets to deal with oversubscriptions and to avoid stop-start funding.

If a utility is recovering energy efficiency program costs through a rider, the utility shall file, contemporaneous with the Annual Report under Section 107, a re-determined Energy Efficiency Cost Rate ("EECR"). In support of this re-determined rate, the utility shall file a schedule of actual program costs for the reporting period, actual amounts collected under the rider for the reporting period, and approved program budgets for the current calendar year. The EECR shall be adjusted to reflect a reconciliation of any over- or under-recovery for the prior year and the approved budget for the current Program Year.

107 Annual Reporting Requirements

By April 1 annually, each electric and gas utility shall file an Annual Report addressing the performance of all approved energy efficiency programs. The report shall present:

1. The results of the prescribed EM&V measures for the Portfolio and each program;
2. A measure of each program's savings;
3. The amounts spent on each energy efficiency program and the total amounts spent on all programs; and
4. Any recommendations for expansion, reduction, alteration, addition, or elimination of any programs with justifications for the recommendations.

108 Records

All energy efficiency programs and measures are subject to inspection by the Commission.

All records of energy efficiency programs shall be maintained in sufficient detail to permit a thorough audit and evaluation of all program costs and program performance. This Section 108 does not limit the existing authority of the Mississippi Public Service Commission.

Chapter 29 CONSERVATION AND ENERGY EFFICIENCY PROGRAMS

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 - f. *Increased Deployment of Demand Response Programs* – Such programs already exist in Mississippi. This would look for additional opportunities to offer demand response programs including interruptible service, curtailment service, off-peak service, etc. In the near term, this category of programs would apply to commercial and industrial customer classes but may eventually extend to residential customers.
 - g. *Weatherization and Whole-Home Retrofits* – A residential weatherization or comprehensive retrofit program that would be based solely on efficiency criteria using established home assessment protocols and often targeting least efficient homes first. This category of programs would apply to the residential customer class.
 - h. *New Homes Program* – These residential programs provide incentives to builders who achieve a percentage of energy savings against a prescribed standard.
 - i. *Commercial and Industrial Prescriptive Incentive Programs* – These programs offer a fixed-dollar incentive for multiple defined prescriptive measures (i.e., lighting, HVAC replacements, occupancy sensors, motors, etc.).
 - j. *Commercial and Industrial Custom Incentive Programs* – In these programs the Administrator works with the customer to develop site-specific energy efficiency measures, and the incentive is based both on the amount of energy saved the total cost of the energy efficiency measures.
 - k. *Commercial and Industrial Retro-Commissioning* – Existing buildings and comprehensively assessed and “tuned up” to optimize energy efficiency in their operations.

3. **Quick Start Plan Portfolio Description**

Each Quick Start Plan filing shall address the following portfolio elements:

- a. Demonstration that the portfolio of Quick Start programs serves all customer classes;
- b. A Quick Start budget and cost recovery proposal to be collected in an energy efficiency rider (see Section 106); and
- c. Any additional supporting information the Administrator may propose.

Although estimates of program costs must be included in proposals, Quick Start programs are exempt from the requirement to provide cost-effectiveness showings under the cost-benefit tests of Section 105. Estimated energy and demand savings and

an EM&V program shall be included for all Quick Start programs except a statewide education program.

4. Quick Start Plan Individual Program Descriptions

Each program in the Quick Start Plan should include the following general information:

- a. A general description of the program and the services to be provided;
- b. The target customer population addressed by the program;
- c. The specific program objectives;
- d. The identification of the specific EM&V procedures that will be implemented to determine whether the program has achieved its stated objectives;
- e. Anticipated implementation barriers and how they will be addressed;
- f. Any proposed customer incentives;
- g. Program's timeframe if the program term is limited;
- h. A plan for addressing over-subscription to the program and avoiding disruptive stop-start funding cycles;
- i. Estimated energy and peak demand savings and the basis for these savings estimates, which may use Deemed Savings;
- j. Estimated program costs and its proportion of the Quick Start budget; and
- k. Any additional information or analyses the service provider may propose.

104 Comprehensive Portfolio Plan Filing Requirements

1. Service providers shall propose general program designs, specific programs, and specific measures and may propose programs and/or measures in any combination. All programs (design, implementation, EM&V, etc.) shall be guided by Best Practices. As appropriate, Comprehensive Portfolio programs should be coordinated with and not duplicate related programs funded through other sources.

The Comprehensive Portfolio Plan shall include energy efficiency programs that address all customer classes. Plans shall cover at least one year and may cover up to three years.

Except for pilot or trial programs, Comprehensive Portfolio budgets should be applied to programs of sufficient scale to provide meaningful energy and/or demand reductions for the applicable program time periods instead of to a larger number of smaller programs with minimal impacts. Except for pilot or trial programs, technologies supporting energy efficiency programs should be commercially available. Program cost allocations should follow cost-causation principles – there shall be no cross subsidization between customer classes.

2. Comprehensive Portfolio Description and Support

Program plans shall be consist with and reflect the effects of all energy efficiency programs in the electric utilities resource plans or natural gas utilities procurement plans.

Programs filed by natural gas and electric utilities shall comply with the standards and rules regarding promotional practices as set forth by Commission Order in Docket 1994-UA-115.

Each Comprehensive Portfolio Plan filing shall address the following portfolio-level elements:

- a. Demonstration that the scope of the Comprehensive Portfolio Plan serves all customer classes;
- b. A showing of providing aggregate ratepayer benefits to the majority of ratepayers;
- c. Cost-benefit analysis (see Section 105) listing total costs and benefits, including expected savings goals for the portfolio;
- d. A Comprehensive Portfolio budget and cost recovery proposal to be collected in an energy efficiency rider (see Section 106); and
- e. Any additional supporting information the utility may propose.

3. Comprehensive Portfolio Plan Individual Program Description Requirements

Program designs should reflect Best Practices. The proposed programs may continue to include, but are not limited to, those in Quick Start. For program implementation, a focus should be placed on local and diverse equipment and service providers to the extent these are available and competitively priced.

- a. For the Comprehensive Portfolio and each program a utility shall describe, in qualitative and quantitative terms, how its proposal will further or accomplish any or all of the following objectives or benefits that are reasonably applicable to the utility's proposal. Should the utility determine that its proposal does not address one or more of the listed objectives or benefits, the utility shall briefly explain why not.
 - i Energy savings directly attributable to program activities;
 - ii Long-term and permanent changes in behavior, attitudes, awareness, and knowledge about energy savings and use of energy efficient technologies in order to achieve energy savings;
 - iii Permanent electric peak demand reduction;
 - iv Energy cost savings and cost-effectiveness;
 - v Reliability enhancements;
 - vi Energy security benefits;
 - vii Environmental benefits;
 - viii Job creation and economic development/competitiveness benefits for Mississippi;
 - ix Increases in system-wide capacity;
 - x Improvement in energy affordability for all customers; and
 - xi Efficient program implementation.

b. Each program in the Comprehensive Portfolio should include the following information:

- i A general description of the program and the services to be provided;
- ii The target customer population addressed by the program;
- iii The specific program objectives;
- iv Targets for customer participation and energy use reductions;
- v The identification of the specific EM&V procedures that will be implemented to determine whether the program has achieved its stated objectives. The EM&V plan should appropriately balance the need to assess and improve program performance with EM&V costs. EM&V approaches should be guided by Best Practices. Portfolio EM&V cost targets should be no more than five percent of total portfolio costs although EM&V costs for some individual programs may be higher;
- vi Anticipated implementation barriers and how they will be addressed;
- vii Any proposed customer incentives;
- viii Program's timeframe if the program term is limited;
- ix A plan for addressing over-subscription to the program and avoiding disruptive stop-start funding cycles;
- x The prescribed cost-benefit analyses (see Section 105);
- xi Estimated energy and peak demand savings and the basis for these savings estimate, which may include Deemed Savings if approved by the Commission;
- xii Any additional information or analyses the service provider may propose.

4. Uniformity of Programs

Programs addressing both electric and gas customers in the same service territory shall be coordinated to the extent reasonable.

a. Customer Incentives

Programs may include financial and other incentives to encourage customers to make energy efficient investments if the incentives are cost justified and are a component of a program that can provide aggregate ratepayer benefits to the majority of utility customers.

Incentives may include information, technical assistance, leasing programs, product giveaways and direct financial inducements. Financial inducements may include but are not limited to rebates, discounted products and services, and low-rate financing.

All customer incentives shall be considered in the cost-benefit testing of programs. Costs of customer incentives shall be considered a direct program cost.

Incentives shall not be any higher than necessary to overcome the customer barriers to invest in the measure and should be reduced or eliminated as the measure becomes more of a standard practice.

b. Statewide Programs

The Commission, after notice and hearing, may direct utilities to offer uniform statewide energy efficiency and conservation programs if it determines such standardization to be the most cost-effective result and in the public interest. Utilities may request approval to offer statewide or region-wide programs for which public messages, commercial terms and conditions, and customer reception are best served by such an approach.

c. Pilot Programs

The Commission may approve pilot energy efficiency programs. A pilot program design is distinct from Quick Start and other program designs in that it shall include explicit questions that the pilot will address, explicit EM&V designed to address pilot questions, estimates of program costs and savings, and a provisional cost-benefit evaluation. Pilot Programs shall be of limited duration until reassessment after a pre-determined period. Pilot programs shall have characteristics from among the following:

- i Addressing a new end use, and
- ii Applying a new technology or a new delivery method.

Programs that are neither pilots nor Quick Start programs must comply with all of the plan filing requirements of this Section 104.

All costs for Pilot, Quick Start, and other programs shall be considered eligible for cost recovery.

105 Cost-Benefit Tests

Cost-benefit assessments for all energy efficiency programs shall be evaluated using the Total Resource Cost (TRC), the Program Administrator Cost (PAC) (also known as the Utility Cost Test (UCT)), the Participant (PCT), and the Rate Impact Measure (RIM) tests as defined in the California Standard Practices Manual: Economic Analysis of Demand Side Programs and Projects, July, 2002, ("Manual") and submitted to the Commission. The inputs for these tests shall be based as much as practicable on data local to Mississippi. The costs of program design; implementation; delivery; customer incentives; customer education and marketing; measurement of benefits; and administration are recognized parts of energy efficiency program costs that should be included in cost-benefit calculations. Cost-benefit results shall be presented for both an individual program and portfolio basis.

A utility shall use an evaluation period of either ten years (a natural gas utility may use an evaluation period of fifteen years) or the actual lives for each measure in a program to evaluate a program or portfolio.

Utilities may submit additional economic analyses information in support of a proposed program or portfolio.

Results of the tests shall be presented consistent with the descriptions shown in Table 1 or by other means approved by the Commission.

**TABLE 1 - Cost-Benefit Tests
with Primary and Secondary Means of Expressing Test Results**

Primary	Secondary
<i>Participant Test</i>	
Net present value ("NPV") (all participants)	Discounted payback (years) Benefit-cost ratio ("BCR") Net present value (average participant)
<i>Ratepayer Impact Measure (RIM) Test</i>	
Lifecycle revenue impact per unit of energy (kWh or therm) or demand customer (kW)	Lifecycle revenue impact per unit Annual revenue impact (by year, per kWh, kW, therm, or customer)
Net present value	First-year revenue impact (per kWh, kW, therm, or customer) BCR
<i>Total Resource Cost (TRC) Test</i>	
Net present value	BCR Levelized cost (cents or dollars per unit of energy or demand)
<i>Program Administrator Cost (PAC) Test</i>	
Net present value	BCR Levelized cost (cents or dollars per unit of energy or demand)

The Commission will rely on the formulas in the Manual and will assess the cost-benefit test results in the public interests.

106 Cost Recovery

Cost recovery shall be limited to the incremental costs which represent the program costs that are not already included in the then-current utility rates and shall include full and timely recovery of program costs and lost contribution to fixed cost. The Commission may decide to limit the time period during which utilities may recover lost contributions to fixed cost.

To address disincentives for energy efficiency investments, the utilities may propose an approach to earn a return on energy efficiency investments through a shared-savings or performance-incentive mechanism to make these investments more like other investments on which utilities earn a return. Prior to the Comprehensive Portfolio filing deadlines, the Commission intends to establish specific numerical energy savings targets expressed as

percentages of energy sales based on the experience of Quick Start and other relevant information.

A utility may request energy efficiency cost recovery through a rider.

A utility may request that costs from approved program budgets be included in the rider. A utility may request that cost recovery begin when the energy efficiency program is implemented and offered to customers. Utilities may also propose a mechanism to adjust budgets to deal with oversubscriptions and to avoid stop-start funding.

If a utility is recovering energy efficiency program costs through a rider, the utility shall file, contemporaneous with the Annual Report under Section 107, a re-determined Energy Efficiency Cost Rate ("EECR"). In support of this re-determined rate, the utility shall file a schedule of actual program costs for the reporting period, actual amounts collected under the rider for the reporting period, and approved program budgets for the current calendar year. The EECR shall be adjusted to reflect a reconciliation of any over- or under-recovery for the prior year and the approved budget for the current Program Year.

107 Annual Reporting Requirements

By April 1 annually, each electric and gas utility shall file an Annual Report addressing the performance of all approved energy efficiency programs. The report shall present:

1. The results of the prescribed EM&V measures for the Portfolio and each program;
2. A measure of each program's savings;
3. The amounts spent on each energy efficiency program and the total amounts spent on all programs; and
4. Any recommendations for expansion, reduction, alteration, addition, or elimination of any programs with justifications for the recommendations.

108 Records

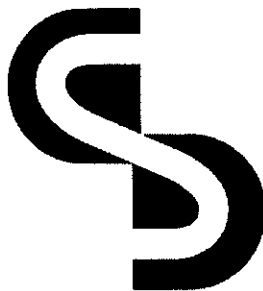
All energy efficiency programs and measures are subject to inspection by the Commission.

All records of energy efficiency programs shall be maintained in sufficient detail to permit a thorough audit and evaluation of all program costs and program performance. This Section 108 does not limit the existing authority of the Mississippi Public Service Commission.

**Economic Impact Statement of the
Mississippi Public Service Commission's
Proposed Energy Efficiency Rules,
Docket No. 2010-AD-2**

July 2, 2012

Completed by GDS Associates, Inc.



GDS Associates, Inc.
Engineers and Consultants



(a) A Description of the Need for and the Benefits Which Will Likely Accrue as the Result of the Potential Action

Several key benefits would likely accrue as a result of implementing the proposed rule in Mississippi:

1. **Reduced Energy Consumption** - Aggressive energy-efficiency initiatives Mississippi could prevent energy consumption in the residential, commercial, and industrial sectors from growing over the next twenty years. In the absence of such initiatives, energy consumption in these three sectors is forecast to grow by approximately 3% between 2010 and 2030. With energy efficiency policies in place, Mississippi's energy consumption could drop below its 2010 levels by 2030¹.
2. **Reduced Need for New Generating Capacity** - Fewer new power plants would likely be needed as a result of demand reduction associated with energy efficiency programs.
3. **Job Growth** - Increased investments in cost-effective energy efficiency would generate jobs. The public and private investments stimulated by energy-efficiency policies would deliver rapid and substantial benefits to the State.
4. **Reduced Water Consumption** - Water conservation is an important co-benefit of policies that promote the efficient use of electricity.

Projected Energy and Demand Savings

Table 1 below shows projected Year 1 energy savings and demand reduction for each sector. Year 1 energy savings were derived from the *Energy Efficiency in the South*² projection for Mississippi and serves as the basis for the economic tests used for the analysis in Section C. Year 1 demand reduction estimates are based on the load profile projections assumed as inputs for the benefit/cost models for each sector, as applied to the projected Year 1 energy savings.

Sector	Electric Energy Savings (MWh)	Natural Gas Energy Savings (MMBtu)	Electric Demand Reduction (MW)
Residential	66,988	71,429	18.5
Commercial	100,000	58,700	27.6
Industrial	174,200	1,005,700	47.0
Total	341,188	1,135,829	93.1

Table 1: Year 1 Energy Savings and Demand Reductions for Each Sector

Table 2 below shows projected cumulative 20-year energy savings and demand reduction. With energy efficiency policies in place, Mississippi may be able to avoid construction of roughly 800 MW of generating capacity.

Sector	Electric Energy Savings (GWh)	Natural Gas Energy Savings (BBtu)	Electric Demand Reduction (MW)
Residential	8,631	9,198	184.9
Commercial	9,270	5,932	207.0
Industrial	19,111	116,776	411.5
Total	37,012	131,906	803.4

Table 2: 20-Year Cumulative Energy Savings and Demand Reductions for Each Sector

Job Growth

Energy efficiency programs lead to job growth. According to an input-output calculation method from ACEEE (American Council for an Energy-Efficient Economy), Mississippi could be expected to experience net gains of 6,900 jobs annually by 2020, and 9,500 annually by 2030.³

Reduced Water Consumption

Water conservation is an important co-benefit of policies that promote the efficient use of electricity. According to the *Energy Efficiency in the South* study,

*"the freshwater consumed in the process of cooling conventional and nuclear thermoelectric power plants in the Southern NERC regions is forecast to grow to 334 billion gallons in 2020 and 381 billion gallons in 2030. Implementation of ... Energy-efficiency policies ... could avoid generation that in turn would save southern NERC regions 8.6 billion gallons of freshwater in 2020 and 20.1 billion gallons in 2030. On a percentage basis, this represents 56% of the projected growth in water consumption over the next decade, and 43% of the projected growth for the following decade. These savings in 2030 represent about one-quarter of the current total water needs of the City of Atlanta."*⁴

Mississippi could be expected to see savings of about 344 million gallons of fresh water in 2020 and 844 million gallons in 2030 based on projected avoided generating capacity of about 800 MW compared with a reduction of 19 GW for the southern NERC regions.

(b) An Estimate of the Cost to the Agency, and to Any Other State or Local Government Entities, of Implementing and Enforcing the Proposed Action, Including the Estimated Amount of Paperwork, and Any Anticipated Effect on State or Local Revenues

The cost to the agency in implementing and enforcing the proposed rule is best represented as the administration cost for the energy efficiency programs that would be created. This cost

would include planning, management, tracking and reporting, general paperwork, processing of rebate applications, and costs associated with program evaluation. Program administration costs would be considered as separate from rebate costs. As described in Section C, all program costs to be used as inputs to the benefit/cost models were estimated based on the projected energy savings for each key sector (residential, commercial, and industrial) in the State of Mississippi. Program cost factors were estimated based on budgets per kWh of electricity and per Therm of natural gas for several existing programs. These program cost factors were then applied to the projected electric and gas savings for Mississippi as shown in Section A.

Table 3 below shows the estimated Year 1 program administration costs projected for electric and natural gas programs in each sector. Total Year 1 program costs are estimated at just over \$15 Million.

Sector	Program Admin. Costs
Residential, elec.	\$ 1,568
Residential, gas	\$ 116
Commercial, elec.	\$ 1,755
Commercial, gas	\$ 72
Industrial, elec.	\$10,195
Industrial, gas	\$ 1,426
Total	\$15,132

Table 3: Year 1 Program Administration Costs (\$000)

Table 4 below shows the net present value of estimated lifetime program administration costs for all sectors to be nearly \$130 Million.

Sector	Program Admin. Costs
Residential, elec.	\$13,707
Residential, gas	\$ 831
Commercial, elec.	\$15,343
Commercial, gas	\$ 520
Industrial, elec.	\$89,137
Industrial, gas	\$10,243
Total	\$129,781

Table 4: NPV Lifetime Program Administration Costs (\$000)

(c) An estimate of the cost or economic benefit to all persons directly affected by the proposed action

Summary

Persons directly affected by the proposed action include program administrators, program participants, and utilities.

All program projections had lifetime benefit/cost model results of greater than 1.0 for the Total Resource Cost (TRC) Test and the Participant Test. The Ratepayer Impact (RIM) Test had mixed results, with benefit/cost ratios of close to neutral or below 1.0.

First year avoided energy costs were estimated to be \$21,692,000 and first year avoided capacity costs were estimated to be \$395,000 based on the derived energy efficiency program savings goals. Note that three different capacity forecasts were used to test the sensitivity of the benefit/cost model, and the results are shown in the discussion below. Differences in the capacity forecasts did have an impact on the benefit/cost model results, but the impacts were relatively minor; therefore, the capacity cost forecast developed from discussion with key utilities and the Public Service Commission (Electric Capacity Forecast 1) is the one highlighted in the benefit/cost results and the lifetime net present value of benefits results.

First year program costs were estimated as follows:

- Program participant net incremental installation cost (after rebate) - \$71,690,000
- Program rebate cost - \$53,996,000
- Program Administration cost - \$15,132,000

First year utility lost revenues (customer retail rate savings) were estimated to be \$24,123,000

Methodology

Dummy energy efficiency programs with savings goals derived from baselines and potential savings projected by the *Energy Efficiency in the South*¹ study were evaluated by sector using standard benefit/cost tests for energy efficiency - the Total Resource Cost (TRC) Test, the Participant Test, and the Ratepayer Impact Measure (RIM) Test. Derived first year savings projections by sector were compared with population-adjusted savings from the State of Wisconsin's existing *Focus on Energy Program* as a check of reasonableness. The magnitude of projected first year savings does not affect benefit/cost model results, but does affect the total projected first year and NPR lifetime dollar costs and savings.

Total Resource Cost (TRC) Test

Per the *California Public Service Commission Standard Practice Manual, 2001*, the TRC Test measures the net costs of an energy efficiency program as a resource option based on the total costs of the program, including both the participants' and the utility's costs. The benefits calculated in the TRC Test are the avoided supply costs, the reduction in transmission, distribution, generation, and capacity costs valued at marginal cost for the periods when there is a load reduction. The avoided supply costs should be calculated using net program savings (savings net of changes in energy use that would have happened in the absence of the program). The costs in the TRC Test are the program costs paid directly by both the utility and the participants, plus the increase in supply costs for the periods in which load is increased.

Participant Test

Per the *California Public Service Commission Standard Practice Manual, 2001*, the Participant Test is the measure of the quantifiable benefits to the customer due to participation in a program. The benefits of participation in an energy efficiency program include the reduction in the customer's utility bill(s), any incentive paid to the customer by the program, and any federal, state, or local tax credit received. The reductions to the utility bill(s) should be calculated using the actual retail rates that would have been charged for the energy service provided (electric demand or energy or gas). The costs to a program participant are all out-of-pocket expenses incurred as a result of participating in a program, plus any increases in the customer's utility bill(s). The out-of-pocket expenses include the cost of any equipment or materials purchased, including sales tax and installation; any ongoing operation and maintenance costs; any removal costs (less salvage value); and the value of the customer's time in arranging for installation of the measure, if significant.

Ratepayer Impact Measure (RIM) Test

As described in the *California Public Service Commission Standard Practice Manual, 2001*, the Ratepayer Impact Measure (RIM) Test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program. Rates will go down if the change in revenues from the program is greater than the change in utility costs. Conversely, rates will go up if revenues collected after program implementation are less than the total costs incurred by the utility in implementing the program. The benefits calculated in the RIM Test are the savings from avoided supply costs. These avoided costs include the reduction in transmission, distribution, generation, and capacity costs for periods when the load has been reduced and the increase in revenues for any periods in which load has been increased. The costs for the RIM Test are the program costs incurred by the utility, and/or other entities incurring costs in creating and administering the program, the incentives paid to the participant, decreased revenues for any periods in which load has been decreased, and increased supply costs for any period when load is increased. Results of the RIM Test are

probably less certain than those of other tests because the test is sensitive to the differences between long-term projections of marginal costs and long-term projections of rates – two cost streams that are difficult to quantify with certainty.

As described above, program savings from the *Energy Efficiency in the South*¹ study for each of the sectors were used as the basis for projecting program administrative costs, program incentive costs, and incremental cost of energy efficiency measures in the programs. It was necessary to make three key assumptions in completing the model inputs because the starting point was overall annual energy savings for generic programs, instead of results of a full energy efficiency potential study built from the bottom up from individual measures and saturation data:

1. Measure mix for electric and natural gas programs for each of the sectors – This is needed in order to determine a profile for each program, in order to obtain an average measure life and simple payback. Measure mixes assumed for each sector were obtained from previous energy efficiency potential studies completed by GDS Associates. The measure mixes from existing potential studies were then used to obtain weighted average measure life and simple payback for each sector's programs. Measure life is a direct input in the benefit/cost model, and average simple payback was used to estimate total incremental cost of the program measures from total avoided costs of the program.
2. Program costs per annual kWh of electricity saved and per Therm of natural gas saved – This was needed in order to project total program administrative costs and program incentive costs based on the annual energy savings per sector. This information was obtained from public information on budgets for electric and gas utilities' energy efficiency programs. Budgets included total administrative costs and incentive budgets for projected annual energy savings. This was used to determine an average administrative and incentive cost per annual kWh and Therm saved that were multiplied by the annual energy savings for each sector to obtain total program administrative and incentives costs that are required direct inputs to the benefit/cost model.
3. Load profile for each sector's programs – This was needed in order to estimate avoided capacity based on the annual energy savings per sector, and was input to the benefit cost model as an average load profile for all end uses contained in the program.

Avoided costs and retail rates for electricity and natural gas were obtained from Entergy Mississippi, Mississippi Power, Centerpoint Energy, and Atmos Energy.

Cost of electric capacity for Mississippi required input from several parties.

In many states, the avoided cost of electric capacity used in benefit/cost models is Cost of New Entry (CONE) of a natural gas fired turbine or similar technology. Mississippi (based on discussions with Mississippi Power, Entergy, and Public Service Commission staff members) currently has an abundance of generating capacity, such that some current projections don't include new capacity being needed until 2026. In order to address the uncertainty of avoided capacity costs and to provide an idea of the sensitivity of the benefit/cost model to avoided capacity cost, three different scenarios of the model were run:

Electric Capacity Forecast 1

This scenario utilizes the existing forecast of new capacity being added in 2026, with extremely low market capacity costs seen from 2013 to 2025. Capacity costs used in the model avoided cost inputs for 2013-2025 ranged from \$1.10/kW-yr to \$9.40/kW-yr. After 2025 a capacity cost generally between \$80/kW-yr and \$96/kW-yr is used in the model.

Electric Capacity Forecast 2

This scenario includes an accelerated need for new capacity, with new capacity added in 2019 rather than 2026, and essentially the same cost levels before and after new capacity addition as in Electric Capacity Forecast 1.

Electric Capacity Forecast 3

This scenario includes a delayed need for new capacity, with new capacity added in 2031 rather than 2026, and essentially the same cost levels before and after new capacity addition as in Electric Capacity Forecast 1.

For the purposes of the impact statement, Electric Capacity Forecast 1 is the only one based on current projections from Mississippi electric utilities. Forecast 2 and Forecast 3 should be viewed primarily as sensitivity tests of the model to variations in timing of capacity additions. Net Present Value totals for avoided capacity cost are shown in Table 5 below.

Results of the benefit/cost modeling for electric (three separate versions for the three different electric capacity cost forecasts) and gas programs in each sector are shown in Table 5 below. Key results (TRC Test results for Electric Capacity Forecast 1 and for Natural Gas) are shown in bold.

Sector	Fuel	Elect. Capacity Forecast	TRC	Participant	RIM
Residential	Elec.	1	1.65	1.58	1.06
Residential	Elec.	2	1.98	1.58	1.27
Residential	Elec.	3	1.52	1.58	0.98
Residential	N.G.	N/A	1.37	1.82	0.58
Commercial	Elec.	1	2.95	2.99	1.04
Commercial	Elec.	2	3.85	2.99	1.25
Commercial	Elec.	3	2.73	2.99	0.96
Commercial	N.G.	N/A	1.14	2.13	0.57
Industrial	Elec.	1	3.08	3.51	1.05
Industrial	Elec.	2	3.68	3.51	1.25
Industrial	Elec.	3	2.85	3.51	0.97
Industrial	N.G.	N/A	2.60	6.71	0.58

Table 5: Benefit/Costs Model Results for Each Sector

Residential and commercial natural gas energy efficiency programs had the lowest benefit/cost ratio in terms of the TRC Test (the standard benefit/cost test because of its broad perspective of program economic impacts) at 1.37 and 1.14, respectively. This would be expected because residential and commercial natural gas programs are typically dominated by measures that either directly or indirectly impact space heating – an end use that presents less opportunity for savings in the South than in northern climates.

Residential electric energy efficiency programs had a lower TRC Test benefit/cost ratio than commercial and industrial electric programs. This is commonly seen because lower runtimes of certain equipment (notably lighting) in residential applications limits savings potential, measures installed in residential applications are often shorter-lived than measures installed in commercial and industrial settings, and commercial and industrial customers have very limited tolerance for longer payback measures.

Natural gas energy efficiency programs had lower TRC Test benefit/cost ratios than electric energy efficiency programs.

TRC Test benefit/cost ratios for all three sectors and for both electric programs and natural gas were greater than 1.0, meaning that overall program lifetime benefits to the state would be greater than lifetime program costs in all cases.

Participant Test benefit/cost ratios for all three sectors and for both electric programs and natural gas programs were also greater than 1.0 in all cases, meaning that direct economic benefit to residential, commercial, and industrial customers in the form of immediate bill

savings and program incentives would expected to be greater than the cost of installing program measures.

Ratepayer Impact Measure (RIM) Test benefit/cost ratios were mixed. RIM test results were slightly better than 1.0 for electric programs but were under 1.0 for natural gas programs. This would indicate a neutral to negative impact on rates (neutral to higher rates). As described earlier, however, results of the RIM Test are less certain than results of the other tests, and the RIM Test often fails to consider the impact that energy efficiency programs have on avoiding new base generation facilities that are significant in impacting rates.

First year program costs and benefits are shown in Table 6 and Table 7, respectively. These represent an estimate of what program costs and benefits would be in Year 1 of Mississippi statewide programs based on the derived electric and natural gas energy savings. Note that Year 1 capacity cost savings are the same for all three electric capacity forecast models.

Sector	Fuel	Elect. Capacity Forecast	Net Incremental Equipment & Installation Costs	Rebate Costs (Benefit from Participant Perspective)	Program Admin. Costs	Lost Utility Revenue (Benefit from Participant Perspective)
Residential	Elec.	1, 2, 3	\$25,956	\$10,492	\$1,568	\$3,429
Residential	N.G.	N/A	\$ 5,416	\$ 1,041	\$ 116	\$ 605
Commercial	Elec.	1, 2, 3	\$ 9,090	\$11,745	\$1,755	\$3,839
Commercial	N.G.	N/A	\$ 1,981	\$ 652	\$ 72	\$ 368
Industrial	Elec.	1, 2, 3	\$17,328	\$17,236	\$10,195	\$7,800
Industrial	N.G.	N/A	\$11,920	\$12,830	\$ 1,426	\$8,082
Total			\$71,691	\$53,996	\$15,132	\$24,123

Table 6: Program Year 1 Costs (\$000)

Sector	Fuel	Elect. Capacity Forecast	Energy Savings (Avoided Supply Costs)	kW Savings (Capacity and T&D)	Retail Rate Savings (Lost Revenue Cost from Utility Perspective)
Residential	Elec.	1, 2, 3	\$3,531	\$ 91	\$3,429
Residential	N.G.	N/A	\$ 605	N/A	\$ 605
Commercial	Elec.	1, 2, 3	\$3,952	\$102	\$3,839
Commercial	N.G.	N/A	\$ 242	N/A	\$ 368
Industrial	Elec.	1, 2, 3	\$8,042	\$202	\$7,800
Industrial	N.G.	N/A	\$5,320	N/A	\$8,082
Total			\$21,692	\$395	\$24,123

Table 7: Program Year 1 Benefits (\$000)

Lifetime net present value program costs and benefits are shown in Table 8 and Table 9, respectively. These represent an estimate of what program costs and benefits would be through 2034 based on the derived electric and natural gas energy savings and projected lifetime of measures installed.

Sector	Fuel	Elect. Capacity Forecast	Net Incremental Equipment & Installation Costs	Rebate Costs (Benefit from Participant Perspective)	Program Admin. Costs	Lost Utility Revenue (Benefit from Participant Perspective)
Residential	Elec.	1, 2, 3	\$226,924	\$ 91,730	\$13,707	\$412,223
Residential	N.G.	N/A	\$ 38,917	\$ 7,480	\$ 831	\$ 64,853
Commercial	Elec.	1, 2, 3	\$ 79,471	\$102,683	\$15,343	\$441,725
Commercial	N.G.	N/A	\$ 14,234	\$ 4,683	\$ 520	\$ 22,215
Industrial	Elec.	1, 2, 3	\$151,493	\$150,693	\$89,137	\$911,402
Industrial	N.G.	N/A	\$ 85,643	\$ 92,187	\$10,243	\$488,499
Total			\$596,682	\$449,456	\$129,781	\$2,340,917

Table 8: NPV Lifetime Costs (\$000)

Differences in NPV capacity cost savings are shown in Table 9 for the three different capacity cost forecast models.

Sector	Fuel	Elect. Capacity Forecast	Energy Savings (Avoided Supply Costs)	kW Savings (Capacity and T&D)	Retail Rate Savings (Lost Revenue Cost from Utility Perspective)
Residential	Elec.	1	\$494,567	\$ 54,305	\$412,223
Residential	Elec.	2	\$494,567	\$161,868	\$412,223
Residential	Elec.	3	\$494,567	\$ 11,157	\$412,223
Residential	N.G.	N/A	\$ 64,853	N/A	\$ 64,853
Commercial	Elec.	1	\$529,853	\$ 53,098	\$441,725
Commercial	Elec.	2	\$529,853	\$170,719	\$441,725
Commercial	Elec.	3	\$529,853	\$ 9,889	\$441,725
Commercial	N.G.	N/A	\$ 22,215	N/A	\$ 22,215
Industrial	Elec.	1	\$1,095,416	\$110,822	\$911,402
Industrial	Elec.	2	\$1,095,416	\$346,541	\$911,402
Industrial	Elec.	3	\$1,095,416	\$ 21,440	\$911,402
Industrial	N.G.	N/A	\$488,499	N/A	\$488,499
Total			\$2,695,403	\$218,225	\$2,340,917

Table 9: NPV Lifetime Benefits (\$000)

Note on Effectiveness of Energy Efficiency Programs

Some arguments against energy efficiency programs described in the proposed rule are that energy efficiency programs overlook the human dimension, and that only the individual ratepayer can decide how best to allocate scarce resources.⁶ The result, it is argued, is that energy efficiency programs lead to inefficient outcomes by increasing rates for all ratepayers, but only benefiting a few of these ratepayers.⁷

Counter arguments include the following:

1. Energy Efficiency Programs have been shown to be cost effective - All of the New England states, for example, have achieved very high kWh savings as a percentage of total annual kWh sales, with actual program administrator costs ranging from \$.0082 to \$.03 per lifetime kWh saved.⁸
2. Energy Efficiency Programs Have Not Been Shown to Cause Rates to Increase -There are numerous causes for rates to increase, including need for additional capacity due to load growth, and it has not been shown conclusively that energy efficiency programs result in rate increases. Many states with energy efficiency programs have seen a neutral impact on rates or a moderating impact on rates after programs have been enacted.
3. The RIM Test Should not be the Primary Cost/Benefit Test for Energy Efficiency Programs - Unlike the TRC Test, the RIM Test fails to consider the impact on participants'

electric bills. Therefore, a program that would result in a consumer paying a higher rate would fail the RIM test, even if the program enabled the consumer to reduce usage so that the overall electric bill was less. Additionally, the inclusion of lost revenues as an actual "cost" in the RIM Test is not a common accounting practice for any other electric investment and thus, places an unfair penalty on energy efficiency.⁹

The December 2007 Energy Independence and Security Act (EISA) requires electric utilities to consider energy efficiency as a high priority resource.¹⁰

(d) An Analysis of the Impact of the Proposed Rule on Small Business

The impact of energy efficiency programs in Mississippi would be expected to have a positive impact on small businesses. This expectation is best illustrated by the Participant Test and TRC Test, modeled for small commercial customers.

The Participant Test lifetime electric energy efficiency program benefit/cost result for small businesses was 2.89 and TRC Test benefit/cost result was 2.70. These results are slightly lower than results of the same tests for overall commercial customers (2.99 Participant Test and 2.95 TRC Test), but this is most likely due to the fact that several measures with long expected lives that are appropriate for large commercial customers only (e.g. large centrifugal chillers and large motor measures) were eliminated from the small commercial program measure mix, thereby reducing the weighted average expected life for a small commercial measure from 12.4 years to 10.4 years.

The Participant Test lifetime natural energy efficiency program benefit/cost result for small businesses was 2.08 and TRC Test benefit/cost result was 1.12. These results are slightly lower than results of the same tests for overall commercial customers (2.13 Participant Test and 1.14 TRC Test), again most likely due to the fact that some longer lived measures were eliminated from the small commercial natural gas program measure mix.

The Ratepayer Impact Measure (RIM) Test lifetime benefit/cost result for small businesses was 0.99 for electric programs and 0.54 for natural gas programs. This indicates that rate increases could be possible due to loss of utility revenue and program administration costs; however, as pointed out earlier, RIM Test results are not certain given the many factors that can influence rates that are not considered in the RIM Test.

(e) A Comparison of the Costs and Benefits of the Proposed Rule to the Probable Costs and Benefits of Not Adopting the Proposed Rule or Significantly Amending an Existing Rule

The economic analysis completed in section (c) of this impact statement compares the costs and benefits of the proposed rule to the probable costs and benefits of not adopting the proposed rule. The costs of not adopting the proposed rule would be in the form of added energy use and added electric generation, transmission, and distribution capacity costs. Benefits of not adopting the proposed rule would include avoided program costs, avoided participant installation costs, and avoided utility lost revenue.

(f) A Determination of Whether Less Costly Methods or Less Intrusive Methods Exist for Achieving the Purpose of the Proposed Rule Where Reasonable Alternative Methods Exist Which Are Not Precluded by Law

The alternative to energy efficiency programs in the proposed rule to achieve similar energy production would be new generation sources for electricity and purchasing and burning additional natural gas for space heating and for industrial process applications.

In order to determine whether these approaches would be a less costly method of achieving the purpose of the proposed rule, GDS compared the levelized cost per unit of energy for energy efficiency programs based on the projected energy savings and program costs shown in Sections a and c to the levelized cost of supply side alternatives (power generation including transmission and distribution costs, and the costs of natural gas).

Table 10 below shows minimum, average, and maximum levelized costs (\$/kWh) for conventional coal plants, advanced coal plants including carbon capture and storage, conventional combustion turbines, and advanced combustion turbines including carbon capture and storage. Levelized cost includes capital overnight cost, fixed O&M, variable O&M, fuel cost, and transmission and distribution cost.

Generation Technology	Min. Levelized Cost (\$/kWh)	Avg. Levelized Cost (\$/kWh)	Max. Levelized Cost (\$/kWh)
Conventional Coal	\$0.0855	\$0.0941	\$0.1108
Advanced Coal with CCS	\$0.1263	\$0.1362	\$0.1545
Conventional Combustion Turbine	\$0.0600	\$0.0661	\$0.0741
Advanced Combustion Turbine with CCS	\$0.0808	\$0.0893	\$0.1040

Table 10: Levelized Cost of Common Electricity Generation Technologies⁵

Natural gas prices are difficult to forecast due to the volatility of the commodity price, but a delivered price of \$8.00/MMBtu is a widely used estimate.

Table 11 below shows the levelized cost (20 year) of electric and gas energy efficiency programs as modeled in Sections a. and c. In the first scenario for each fuel type only measure installation costs, rebate costs, and program administration costs were included. In the second scenario, lost utility revenue was also included as a cost (although ratepayers would see this as a benefit).

Program	Costs Included	Levelized Cost Electricity (\$/kWh)	Levelized Cost Natural Gas (\$/MMBtu)
Electric	Installation Cost, Rebates, and Program Admin.	\$0.0249	-
Electric	All program costs plus Utility Lost Revenue	\$0.0726	-
Natural Gas	Installation Cost, Rebates, and Program Admin.	-	\$1.93
Natural Gas	All program costs plus Utility Lost Revenue	-	\$6.29

Table 11: Levelized Cost of Energy Efficiency Programs

Electric energy efficiency programs were more cost effective than all coal and combustion turbine technology options on a levelized cost (\$/kWh) basis when only direct program costs are considered. When lost utility revenue is included along with program costs, the levelized program costs per kWh are in the range of levelized cost for a conventional combustion turbine (higher than average, but lower than the maximum projected).

Natural gas energy efficiency programs were more cost effective on a levelized cost basis (\$/MMBtu) than burning natural gas at an equivalent level of consumption.

(g) A Description of Reasonable Alternative Methods, Where Applicable, for Achieving the Purpose of the Proposed Action Which Were Considered by the Agency and a Statement of Reasons for Rejecting Those Alternatives in Favor of the Proposed Rule

Alternative methods for achieving a similar purpose of the proposed rule (based on the level of projected savings for electric and natural gas energy efficiency programs) would include supply side options in the form of new electricity generation and burning of additional natural gas for space heating and process requirements, as discussed in Section f.

The estimated electric demand reduction by 2032 would be approximately 800 MW, as discussed in section a. In the absence of the programs that would be part of the proposed rule, this shortfall would likely need to be made up by some combination of base generation and peaking units (most likely in the form of coal or other fuel base generating stations and natural gas-fueled combustion turbines or similar). Levelized cost estimates for new generation shown in Section f. are costs for conventional and advanced coal stations and conventional and advanced combustion turbines.

(h) A Detailed Statement of the Data and Methodology Used to Prepare the Economic Impact Statement

Projections of potential savings for Mississippi's commercial, industrial, and residential sectors from Energy Efficiency in the South, Appendix G, State Profiles of Energy Efficiency Opportunities in the South: Mississippi, April 2010, Georgia Institute of Technology and Duke University.

GDS Associates Benefit/Cost Model was used to complete all economic tests for energy efficiency programs.

Weighted average commercial, industrial, and residential natural gas measure life and payback data from GDS Associates' 2009 SMEPA Potential Study measure data.

Weighted average commercial, industrial, and residential natural gas measure life and payback data from GDS Associates' 2009 Wisconsin Potential Study measure data. Projected annual energy consumption for weather-sensitive measures was weather-adjusted to Mississippi climatic conditions using a ratio of Heating Degree Days (Mississippi HDD/Wisconsin HDD).

Average program cost data (\$/KWh electricity and \$/Therm natural gas) and percent of program costs attributed to program administration from AEP TNC, Centerpoint Houston, and Ameren Illinois 2011 Projections.

Electric rates and avoided cost data provided by Mississippi Power Company and Entergy Mississippi, Inc.

Natural Gas rates and avoided cost data provided by Centerpoint and Atmos Energy.

Additional detailed methodology discussion is provided in Sections (c) and (d) of the impact statement.

References

1. *Energy Efficiency in the South, Appendix G, State Profiles of Energy Efficiency Opportunities in the South: Mississippi*, April 2010, Georgia Institute of Technology and

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2. *Energy Efficiency in the South, Appendix G, State Profiles of Energy Efficiency Opportunities in the South: Mississippi*, pp. 5-7.
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 9. *Testimony of Richard F. Spellman, Caroline L. Guidry, and John L. Kaduk before the Georgia Public Service Commission - May 7, 2010*, p. 27.
 10. *Testimony of Richard F. Spellman, Caroline L. Guidry, and John L. Kaduk before the Georgia Public Service Commission - May 7, 2010*, p. 6.