SULLIVAN, MOUNTJOY, STAINBACK & MILLER PSC
ATTORNEYS AT LAW

Ronald M. Sullivan
Jesse T. Mountjoy
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Michael A. Fiorella
Allen W. Holbrook
R. Michael Sullivan
Bryan R. Reynolds
Tyson A. Kamuf
Mark W. Starnes
C. Ellsworth Mountjoy
Susan Montalvo-Gesser

January 28, 2011

Via Hand Delivery

Jeff DeRouen
Executive Director
Public Service Commission
211 Sower Boulevard, P.O. Box 615
Frankfort, Kentucky 40602-0615

Re: Big Rivers Electric Corporation's 2010 Integrated Resource Plan
PSC Case No. 2010-00443

Dear Mr. DeRouen:

Enclosed for filing in the above referenced matter are an original and ten copies of Big Rivers Electric Corporation's responses to the Commission Staff's First Information Request and to the Attorney General's Initial Requests for Information. I certify that a copy of this letter and the responses have been served on the parties on the attached service list.

Sincerely yours,

Tyson Kamuf

TAK/ej
Enclosures

cc; w/enclosure: Service List

Telephone (270) 926-4000
Telecopier (270) 683-6694

100 St. Ann Building
PO Box 727
Owensboro, Kentucky
42302-0727

SERVICE LIST

Hon. Dennis G. Howard, II
Hon. Lawrence W. Cook
Assistant Attorney General
1024 Capital Center Drive
Suite 200
Frankfort, KY 40601

Office of the Attorney General of the Commonwealth of Kentucky

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36 East Seventh Street
Suite 1510
Cincinnati, Ohio 45202

David C. Brown, Esq.
Stites & Harbison
1800 Providian Center
400 West Market Street
Louisville, KY 40202

Counsel for Alcan Primary Products Corporation and Century Aluminum of Kentucky General Partnership

VERIFICATION

I, David G. Crockett, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

David G. Crockett

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by David G. Crockett on this the 28th day of January, 2011.

Paula Mitchell
Notary Public, Ky. State at Large
My Commission Expires 1-12-13

VERIFICATION

I, Mark A. Hite, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Mark A. Hite

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Mark A. Hite on this the 28th day of January, 2011.

Paula Mitchell
Notary Public, Ky. State at Large
My Commission Expires 1-12-13

VERIFICATION

I, Jeffrey R. Huber, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Jeffrey R. Huber

STATE OF GEORGIA)
COUNTY OF COBB)

SUBSCRIBED AND SWORN TO before me by Jeffrey R. Huber on this the 27th day of January, 2011.

PEGGY HICKS NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES JAN 7, 2015

Notary Public,
My Commission Expires 1-7-2015

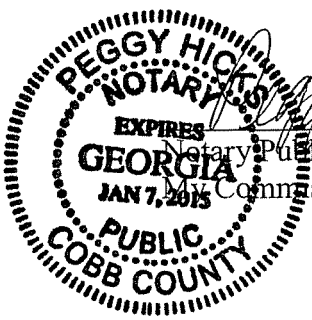
VERIFICATION

I, John W. Hutts, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

John W. Hutts

STATE OF GEORGIA)
COUNTY OF COBB)

SUBSCRIBED AND SWORN TO before me by John W. Hutts on this the _27th__ day of January, 2011.



Notary Public, State of Georgia
My Commission Expires 1-7-2015

VERIFICATION

I, Michael J. Mattox, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Michael J. Mattox

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Michael J. Mattox on this the 28th day of January, 2011.

Paula Mitchell
Notary Public, Ky. State at Large
My Commission Expires 1-12-13

VERIFICATION

I, Russell L. Pogue, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Russell L. Pogue

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Russell L. Pogue on this the 28th day of January, 2011.

Paula Mitchell
Notary Public, Ky. State at Large
My Commission Expires 1-12-13

VERIFICATION

I, Amber M. Roberts, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Amber M. Roberts

STATE OF GEORGIA)
COUNTY OF COBB)

SUBSCRIBED AND SWORN TO before me by Amber M. Roberts on this the 27 day of January, 2011.

PEGGY HICKS NOTARY PUBLIC COBB COUNTY GEORGIA EXPIRES JAN 7, 2015

Notary Public
My Commission Expires 1-7-2015

VERIFICATION

I, Thomas L. Shaw, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Thomas L. Shaw

Thomas L. Shaw

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Thomas L. Shaw on this the 28th day of January, 2011.

Paula Mitchell
Notary Public, Ky. State at Large
My Commission Expires 1-12-13

VERIFICATION

I, Jacob M. Thomas, verify, state, and affirm that I prepared, or supervised the preparation of, the data request responses for which I am the respondent and filed with this verification, and that those responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Jacob M. Thomas

STATE OF GEORGIA)
COUNTY OF COBB)

SUBSCRIBED AND SWORN TO before me by Jacob M. Thomas on this the 27 day of January, 2011.

PEGGY HICKS NOTARY PUBLIC GEORGIA COBB COUNTY EXPIRES JAN 7 2015

Notary Public, State of Georgia
My Commission Expires 1-7-2015

BIG RIVERS ELECTRIC CORPORATION

2010 INTEGRATED RESOURCE PLAN OF
BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2010-00443

Response to Commission Staff's First Information Request dated January 12, 2011

January 28, 2011

Item 1) Refer to the second paragraph on page 5-11 of Big Rivers' IRP. Provide a list and description of the specific pilot projects (1) currently underway and (2) planned.

Response) The specific pilot projects which are currently underway or planned are listed below. The purpose of each project is outlined in the Attachment to this response.

1) Currently Underway
   - Residential weatherization (material evaluation and process development)
   - Commercial Lighting (trade ally development)
   - High efficiency security lighting (qualitative evaluation)
   - Energy Star new home construction (incentive evaluation)
   - Energy Star refrigerator replacement (incentive and promotion evaluation)

2) Planned
   - Energy Star clothes washer (incentive and promotion evaluation)
   - Energy Star HVAC tune-up (incentive and promotion evaluation)
   - Manufactured home weatherization (material and process development)

Respondent) Russell L. Pogue

Big Rivers Electric Corporation
2011 Proposed DSM Pilot Plan Summaries
January 2011

Clothes Washer Replacement Rebate Pilot

Purpose

The purpose of the pilot is to test promotional mediums for the incentive to members and the effectiveness of the incentive amount. The member will be required to provide proof of purchase and installation at the service address. The member will also be required to fill out a survey to determine the energy source for the dryer and where the member heard about the program.

HVAC & Refrigeration Tune-Up

Purpose

The purpose of this pilot is to test the effectiveness of cash incentive payments to motivate members to initiate annual maintenance for their air conditioning equipment. The pilot will also measure the average length of time since the previous maintenance call for each unit.

Manufactured Home Weatherization Pilot

Purpose

The purpose of this pilot is to determine the benefit, cost and procedures for weatherizing homes. Hoosier Energy in Indiana has deemed their manufactured home weatherization program a success and their staff have expressed willingness to demonstrate their program in the first quarter of 2011.

Starting with the Hoosier program, Big Rivers and member staff will use their combined knowledge of residential energy efficiency to develop the list of measures and the process which will result in the maximum benefit at the lowest cost to the retail member and Big Rivers.

Residential Weatherization Pilot

Purpose

The purpose of this pilot is to determine the benefit and cost of and developing procedures for weatherizing homes. Previous pilot projects at MCRECC and JPEC have shown the envelope of a home can be made substantially tighter using basic weatherization methods currently available in a cost effective and reliable way. Big Rivers and member staff will use their combined knowledge of residential energy efficiency to develop the list of measures and the

process which will result in the maximum benefit at the lowest cost to the retail member and Big Rivers.

Energy STAR New Home Program

Purpose

The purpose of the pilot is to test communication of the incentive to the members and the effectiveness of the incentive amount. The Energy STAR new-home construction standard is an objective, reliable and verifiable energy-efficiency program that ensures the member will see substantial savings from his or her new home.

The Energy STAR-certified contractor will complete a whole-house analysis ensuring quality work and energy efficiency criteria are met. This rater works closely with the builder to determine the needed energy-saving equipment, construction techniques and administration of required on-site diagnostic testing/inspections are documented in order to assure the home is eligible to earn the Energy STAR certification. The home must meet the guidelines, making it 15-30% more efficient than standard homes.

Refrigerator Replacement Rebate Pilot

Purpose

The purpose of the pilot is to test communication of the incentive to the members and the effectiveness of the incentive amount. The member will be required to provide proof of purchase and the haul-away and recycling of the old unit. The member will also be required to fill out a survey to determine the condition of the old refrigerator and where the member heard of the program.

Commercial High Efficiency Lighting Replacement Rebate Pilot

Purpose

The purpose of the pilot is to determine incentive levels necessary to motivate members to upgrade, test methods of promoting high efficiency commercial lighting to retail commercial members, and establish methods of design and installation that allow the use of local contractors. A process of verification will be established during this pilot.

Big Rivers Electric Corporation
2011 Proposed DSM Pilot Plan Summaries
January 2011

LED/Induction Security Lighting Evaluation Pilot Plan

Purpose

The purpose of this pilot is to test the light quality and quantity, energy consumption and product durability of both Light Emitting Diode (LED) and Induction lamps as potential replacements of the Mercury Vapor (MV) lamp. Both LED and Induction lamps have an estimated life of 90,000 to 100,000 hours. This may allow significantly fewer service calls to each service over the life of the lamps compared to the Metal Halide ("MH") lamp. The cost of both LED and Induction lamps is expected to be significantly higher than the MH lamp.

BIG RIVERS ELECTRIC CORPORATION

2010 INTEGRATED RESOURCE PLAN OF
BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2010-00443

Response to Commission Staff's First Information Request dated January 12, 2011

January 28, 2011

Item 2) Refer to the third paragraph under the heading Transmission System on page 6-3 of Big Rivers' IRP. Provide the current cost estimate of the new two-way radio systems planned for Big Rivers and its three distribution cooperatives in 2012.

Response) The total cost estimate for the two-way radio system is $6,957,000.

Respondent) David G. Crockett

BIG RIVERS ELECTRIC CORPORATION

2010 INTEGRATED RESOURCE PLAN OF
BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2010-00443

Response to Commission Staff's First Information Request dated January 12, 2011

January 28, 2011

Item 3) Refer to page 8-9 of Big Rivers' IRP. Explain whether each of the new Demand-Side Management ("DSM") programs listed there will be offered by each of Big Rivers' three cooperatives.

a. If yes, provide documentation that each cooperative will offer each new DSM program.

b. If no, provide a schedule which lists each new DSM program and the names of the cooperatives that have not committed to offer that program.

c. For each cooperative that has not committed to offer a new DSM program, provide the analysis which shows that the new program would not reduce customers' consumption and would not delay the need for new generating capacity.

d. Describe in detail Big Rivers' ability to require each of its member cooperatives to offer all cost-effective DSM programs to their retail customers.

Response) Yes, each Member Cooperative has committed to offer each of the programs, when the programs prove cost effective for the Member Cooperative. The analysis performed by GDS Associates, Inc. ("GDS") is based on a number of cost and benefit assumptions and modeling, and may not reflect realities of the local markets in the Members' service territories. Pilot programs are currently underway to verify the costs of products, services and a number of other costs associated with motivating retail members to participate in programs.

a. Please see the letters from Jackson Purchase Energy Corporation, Kenergy Corp., and Meade County Rural Electric Cooperative Corporation ("the Member Cooperatives" or "the Members") which are attached.

b. Not applicable.

c. Not applicable.

d. Big Rivers has no ability to require its Member Cooperatives to offer DSM programs to their retail customers.

Respondent) Russell L. Pogue

Jackson Purchase Energy
P.O. Box 4030 • 2900 Irvin Cobb Drive
Paducah, KY 42002-4030
270.442.7321 • 800.633.4044
Visit our Web Site www.JPEnergy.com

January 17, 2011

Russ Pogue
PO Box 24
Henderson, KY 42419-0024

Re: Letter of Intent to Participate

Dear Russ:

Jackson Purchase Energy Corporation (JPEC) indicates, by this letter, its intent to participate in the energy-efficiency pilot programs listed below:

- Residential Efficient Lighting
- Residential Efficient Products
- Residential Advanced Technologies
- Residential Weatherization
- Residential New Construction
- C&I Lighting
- C&I HVAC

We understand that each program we participate in will be adapted to our service territory and will be proven cost-effective before it is offered.

Sincerely,

Izell White, Vice President
Human Resources & Member Relations

Case No. 2010-00443
Respondent: Russell L. Pogue
Item 3a – Attachment
Page 1 of 3

P.O. Box 1389 • 3111 Fairview Drive
Owensboro, Kentucky 42302-1389
(800) 844-4832

January 14, 2011

Mr. Russ Pogue
Big Rivers Electric Corporation
PO Box 24
Henderson, KY 42419-0024

Dear Russ:

Kenergy will participate in pilot and/or permanent Demand Side Management (DSM) programs listed on pages 8-9 of the 2010 Big Rivers Electric Integrated Resource Plan. These programs include:

- Residential Efficient Lighting
- Residential Efficient Products
- Residential Advanced Technologies
- Residential Weatherization
- Residential New Construction
- Commercial & Industrial Lighting
- Commercial & Industrial HVAC

Kenergy understands that Big Rivers Electric Corporation will fund one hundred percent of the cost to administer pilot and/or permanent DSM programs for Kenergy members.

Sincerely,

David Hamilton
Member Services Director

Case No. 2010-00443
Respondent: Russell L. Pogue
Item 3a – Attachment
Page 2 of 3

Meade County RECC

P.O. Box 489
Brandenburg, KY 40108-0489
(270) 422-2162
Fax: (270) 422-4705

January 18, 2011

RUSS POGUE
PO BOX 24
HENDERSON KY 42419-0024

Re: Letter of Intent to Participate

Dear Russ:

Meade County RECC indicates, by this letter, its intent to offer all the energy-efficiency pilot programs listed below, if they are found to be cost effective.

- Residential Efficient Lighting
- Residential Efficient Products
- Residential Advanced Technologies
- Residential Weatherization
- Residential New Construction
- C&I Lighting
- C/I HVAC

Our participation in these programs would include administration and promotion of these programs, but would not include any "out-of-pocket" expenses.

Sincerely,

Burns E. Mercer
President/CEO

Case No. 2010-00443
Respondent: Russell L. Pogue
Item 3a – Attachment
Page 3 of 3

BIG RIVERS ELECTRIC CORPORATION

2010 INTEGRATED RESOURCE PLAN OF BIG RIVERS ELECTRIC CORPORATION CASE NO. 2010-00443

Response to Commission Staff's First Information Request dated January 12, 2011

January 28, 2011

Item 4) Refer to page 8-9 of Big Rivers' 2010 IRP. Provide a list of any other energy efficiency programs considered and an explanation as to why they were not included in the programs selected for implementation.

Response) Please see Appendices 2, 3, and 5 of Appendix B – Demand Side Management: Big Rivers Final Potential Study of Big Rivers' 2010 Integrated Resource Plan ("IRP") for a list of all Residential and Commercial/Industrial measures and programs that were analyzed. Appendix 2 provides Residential sector data, Appendix 3 provides Commercial/Industrial sector data, and Appendix 5 provides supporting documents, including tables, for the recommended programs. Big Rivers gave GDS a pre-determined program portfolio budget of $1 million. This budget was used to build a program portfolio that is cost-effective and can be implemented across a high number of participants based on market potential. Spreading that budget across more programs would likely result in less energy savings since resources would not be as focused.

Finally, please see tables attached hereto for those measures included in the programs, and for explanations regarding those measures excluded from the programs. The two left-most columns of the first table - Measure # and Measure Name - match the two left-most columns, one for one, in the table shown at the end of Appendix 2-1 (Residential) of the DSM Study (Appendix B of Big Rivers 2010 IRP). The two left-most columns of the second table - Measure # and Measure Name - match the two left-most columns, one for one, in the table shown at the end of Appendix 3-1 (Commercial/Industrial) of the DSM Study (Appendix B of Big Rivers 2010 IRP).

Respondent) Amber M. Roberts

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
Electric Appliances - Single Family/Mobile Home			
1	Energy Star® Compliant Top-Mount Refrigerator	Included	N/A
2	Energy Star® Compliant Side-by-Side Refrigerator	Included	N/A
3	Energy Star® Compliant Chest Freezer	Not Included	Not Cost Effective
4	Energy Star® Compliant Upright Freezer (Manual Def.)	Not Included	Not Cost Effective
5	Energy Star® Dehumidifer	Not Included	The incremental cost does not warrant an incentive to result in installation
6	Second Refrigerator Turn In	Not Included	Uncertain savings
7	Second Freezer Turn In	Not Included	Uncertain savings
8	Energy Star® Compliant Top-Mount Refrigerator	Included	N/A
9	Energy Star® Compliant Side-by-Side Refrigerator	Included	N/A
10	Energy Star® Compliant Chest Freezer	Not Included	Not Cost Effective
11	Energy Star® Compliant Upright Freezer (Manual Def.)	Not Included	Not Cost Effective
12	Energy Star® Dehumidifer	Not Included	The incremental cost does not warrant an incentive to result in installation
13	Second Refrigerator Turn In	Not Included	Uncertain savings
14	Second Freezer Turn In	Not Included	Uncertain savings
Consumer Electronics - Single Family/Mobile Home			
15	Home Electronics	Not Included	Budget constraints
16	Televisions	Not Included	Budget constraints
17	Energy Star® Desktop Computer	Not Included	Budget constraints
18	Energy Star® Computer Monitor	Not Included	Budget constraints
19	Energy Star® Laptop Computer	Not Included	Budget constraints
20	Home Electronics	Not Included	Budget constraints
21	Televisions	Not Included	Budget constraints

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
22	Energy Star® Desktop Computer	Not Included	Budget constraints
23	Energy Star® Computer Monitor	Not Included	Budget constraints
24	Energy Star® Laptop Computer	Not Included	Budget constraints
Lighting - Single Family /Mobile Home			
25	CFL (vs. Incandescent) - 5 hours/day	Included	N/A
26	CFL (vs. Incandescent) - 3 hours/day	Included	N/A
27	CFL (vs. Incandescent) - 1 hours/day	Included	N/A
28	LED (vs. Incandescent)	Included	N/A
29	LED (vs. CFL)	Included	N/A
30	CFL (vs. Incandescent) - 5 hours/day	Included	N/A
31	CFL (vs. Incandescent) - 3 hours/day	Included	N/A
32	CFL (vs. Incandescent) - 1 hours/day	Included	N/A
33	LED (vs. Incandescent)	Included	N/A
34	LED (vs. CFL)	Included	N/A
Electric Water Heating - Single Family/Mobile Homes			
35	Low Flow Faucets	Not included	Major faucets likely to already be equipped
36	Low Flow Showerhead	Included	Weatherization Package
37	Water Heater Blanket	Included	Weatherization Package
38	Pipe Wrap	Not included	Duplicate/Decreased savings
39	Efficient Water Heater	Included	N/A
40	Heat Pump Water Heater	Included	N/A
41	Solar Water Heating	Included	N/A
42	Energy Star® Dishwasher (Electric Water Heating)	Not included	Low incremental cost - incentive may not be necessary

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
43	Energy Star® Dishwasher (Non-Electric WH)	Not included	Low incremental cost - incentive may not be necessary
44	Energy Star® Clothes Washer (w/ Elec. WH & Elec. Dryer)	Included	N/A
45	Energy Star® Clothes Washer (w/ NG WH & Elec. Dryer)	Included	N/A
46	Low Flow Faucets	Not included	Major faucets likely to already be equipped
47	Low Flow Showerhead	Included	Weatherization Package
48	Water Heater Blanket	Included	Weatherization Package
49	Pipe Wrap	Not included	Duplicate/Decreased savings
50	Efficient Water Heater	Included	N/A
51	Energy Star® Dishwasher (Electric Water Heating)	Not included	Low incremental cost - incentive may not be necessary
52	Energy Star® Dishwasher (Non-Electric WH)	Not included	Low incremental cost - incentive may not be necessary
53	Energy Star® Clothes Washer (w/ Elec. WH & Elec. Dryer)	Included	N/A
54	Energy Star® Clothes Washer (w/ NG WH & Elec. Dryer)	Included	N/A
Space Heating and Space Cooling Shell Measures - Single Family Homes w/ Electric AC Only (& Gas Heat)			
55	Insulation - Ceiling (R-0 to R-19)	Not Included	Not widely applicable
56	Insulation - Floor (R-0 to R-19)	Included	Weatherization Package
57	Energy Star® Windows	Not Included	Not Cost Effective
58	Insulation -Ceiling (R-19 to R-38)	Not Included	Not Cost Effective
59	Air Infiltration	Included	Weatherization Package
60	Duct Sealing	Included	Weatherization Package
61	Radiant Barriers	Not Included	Not Cost Effective
Space Heating and Space Cooling Shell Measures - Single Family Homes w/ Electric Heat Pump			
62	Insulation - Ceiling (R-0 to R-19)	Not Included	Not widely applicable
63	Insulation - Floor (R-0 to R-19)	Included	Weatherization Package

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
64	Energy Star® Windows	Not Included	Not Cost Effective
65	Insulation -Ceiling (R-19 to R-38)	Not Included	Not Cost Effective
66	Air Infiltration	Included	Weatherization Package
67	Duct Sealing	Included	Weatherization Package
68	Radiant Barriers	Not Included	Not Cost Effective
Space Heating and Space Cooling Shell Measures - Single Family Homes w/ Electric Furnace			
69	Insulation - Ceiling (R-0 to R-19)	Not Included	Not widely applicable
70	Insulation - Floor (R-0 to R-19)	Included	Weatherization Package
71	Energy Star® Windows	Not Included	Not Cost Effective
72	Insulation -Ceiling (R-19 to R-38)	Not Included	Not Cost Effective
73	Air Infiltration	Included	Weatherization Package
74	Duct Sealing	Included	Weatherization Package
75	Radiant Barriers	Not Included	Not Cost Effective
Space Heating and Space Cooling Shell Measures - Mobile Homes w/ Electric AC Only (& Gas Heat)			
76	Air Infiltration	Included	N/A
77	Insulation - Floor (R-11 to R-30)	Included	N/A
78	Energy Star® Windows	Not Included	Not Cost Effective
79	Duct Sealing	Included	N/A
Space Heating and Space Cooling Shell Measures - Mobile Homes w/ Electric Heat Pump			
80	Air Infiltration	Included	N/A
81	Insulation - Floor (R-11 to R-30)	Included	N/A
82	Energy Star® Windows	Not Included	Not Cost Effective
83	Duct Sealing	Included	N/A

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
Space Heating and Space Cooling Shell Measures - Mobile Homes w/ Electric Heat			
84	Air Infiltration	Included	N/A
85	Insulation - Floor (R-11 to R-30)	Included	N/A
86	Energy Star® Windows	Not Included	Not Cost Effective
87	Duct Sealing	Included	N/A
Space Heating and Space Cooling Equipment - Single Family/Mobile Homes			
88	HVAC Tune-Up	Not Included	Marginally cost effective
89	Energy Star® Room A/C	Not Included	Marginally cost effective
90	Second Energy Star® Room A/C	Not Included	Not Cost Effective
91	High Efficiency Central AC	Not Included	Not Cost Effective
92	High Efficiency Central AC/Early Retire	Not Included	Not Cost Effective
93	High Efficiency Heat Pump (HP Upgrade)	Not Included	Not Cost Effective
94	High Efficiency Heat Pump/Early Retire (HP Upgrade)	Not Included	Not Cost Effective
95	Ground Source Heat Pump (HP Upgrade)	Included	N/A
96	Ground Source Heat Pump/Early Retire (HP Upgrade)	Not Included	Not Cost Effective
97	Heat Pump (Replacing Electric Furnace)	Not Included	Not Cost Effective
98	Heat Pump/Early Retire (Replacing Electric Furnace)	Not Included	Not Cost Effective
99	Dual Fuel Heat Pump Upgrade (Replacing New ASHP)	Not Included	Budget constraints
100	Dual Fuel Heat Pump (Replacing Electric Furnace)	Not Included	Budget constraints
101	HVAC Tune-Up	Not Included	Marginally cost effective
102	Energy Star® Room A/C	Not Included	Not Cost Effective
103	Second Energy Star® Room A/C	Not Included	Not Cost Effective
104	High Efficiency Central AC	Not Included	Not Cost Effective

Big Rivers Electric Corporation
2010 Intergrated Resource Plan
Supplemental Information for Table Ending Appendix 2-1
Appendix 2-1 Residential Measure Descriptions, Assumptions, and Sources
Demand Side Management Potential Study (Appendix B of 2010 Big Rivers IRP)

Measure #	Measure Name	Included/ Not Included	Reason for Not Including
105	High Efficiency Central AC/Early Retire	Not Included	Not Cost Effective
106	High Efficiency Heat Pump (HP Upgrade)	Not Included	Not Cost Effective
107	High Efficiency Heat Pump/Early Retire (HP Upgrade)	Not Included	Not Cost Effective
108	Heat Pump (Replacing Electric Furnace)	Not Included	Not Cost Effective
109	Heat Pump/Early Retire (Replacing Electric Furnace)	Not Included	Not Cost Effective
110	Dual Fuel Heat Pump Upgrade (Replacing New ASHP)	Not Included	Budget constraints
111	Dual Fuel Heat Pump (Replacing Electric Furnace)	Not Included	Budget constraints
Other			
112	In Home Energy Display Monitor	Not Included	Not Cost Effective
113	Pre-Pay Metering	Not Included	Non-traditional Program
114	Pool Pump and Motor	Not Included	Not Cost Effective
115	In Home Energy Display Monitor	Not Included	Not Cost Effective
116	Pre-Pay Metering	Not Included	Non-traditional Program
Multi-Family Units			
117	Multi-Family Homes Efficiency Kit	Not included	Included to capture total potential - can receive weatherization program kit
New Construction Homes - Single Family			
118	New Construction - 15% more efficient	Included	N/A
119	New Construction - 15% more efficient	Included	N/A
120	New Construction - 35% more efficient	Included	N/A
121	New Construction - 35% more efficient	Included	N/A
122	New Construction - 15% more efficient	Included	N/A
123	New Construction - 15% more efficient	Included	N/A

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Measure #	Measure Name	Included/ Not Included	Reason for Not Including
1	*Lighting*		
1-1	Compact Fluorescent	Included	N/A
1-2	LED Exit Sign	Included	N/A
1-3	Standard T8 (vs T12) 4ft	Included	N/A
1-4	High Performance T8 (vs T12) 4ft	Included	N/A
1-5	High Performance T8HO (vs T12) 8ft	Included	N/A
1-6	Occupancy Sensor (under 500W)	Included	N/A
1-7	Occupancy Sensor (over 500W)	Included	N/A
1-8	Pulse Start Metal Halide 100W - 300W	Not Included	Low market share
1-9	Pulse Start Metal Halide > 300W	Not Included	Low market share
1-10	High performance T5 (replacing T8)	Not Included	Low market share
1-11	CFL Hard Wired Fixture	Not Included	Budget constraints
1-12	CFL High Wattage 31-115	Not Included	Budget constraints
1-13	CFL High Wattage 150-199	Not Included	Budget constraints
2	*Space Cooling*		
2-1	Split AC (10 SEER, 7.7 HSPF to 14.5 SEER, 8.5 HSPF)	Included	N/A
2-2	Split AC (10 SEER, 7.7 HSPF to 15 SEER, 8.5 HSPF)	Included	N/A
2-3	Split AC (10 SEER, 7.7 HSPF to 16 SEER, 8.5 HSPF)	Included	N/A
2-4	Split AC (10 SEER, 7.7 HSPF to 14.5 SEER, 8.5 HSPF)	Included	N/A
2-5	Split AC (10 SEER, 7.7 HSPF to 15 SEER, 8.5 HSPF)	Included	N/A
2-6	Split AC (10 SEER, 7.7 HSPF to 16 SEER, 8.5 HSPF)	Included	N/A
2-7	DX Packaged System (EER=10.9)	Included	N/A
2-8	DX Packaged System (CEE Tier 2)	Included	N/A

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Measure #	Measure Name	Included/ Not Included	Reason for Not Including
2-9	DX Packaged System (CEE Tier 2)	Included	N/A
2-10	Air Cooled Chiller	Included	N/A
2-11	Air Cooled Chiller	Included	N/A
2-12	PTAC	Included	N/A
2-13	PTAC	Included	N/A
2-14	PTAC	Included	N/A
2-15	PTAC	Included	N/A
3	***Space Heating***		
3-1	PTHP	Included	N/A
3-2	PTHP	Included	N/A
3-3	PTHP	Included	N/A
3-4	PTHP	Included	N/A
4	***Ventilation***		
4-1	Motors	Not Included	Budget constraints/Low market share
4-2	Motors	Not Included	Budget constraints/Low market share
4-3	Motors	Not Included	Budget constraints/Low market share
4-4	Motors	Not Included	Budget constraints/Low market share
4-5	Variable Frequency Drives	Included	N/A
4-6	Variable Frequency Drives	Included	N/A
4-7	Variable Frequency Drives	Included	N/A
5	***Motors (Non-Ventilation)***		
5-1	Motors	Not Included	Budget constraints/Low market share
5-2	Motors	Not Included	Budget constraints/Low market share

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Measure #	Measure Name	Included/ Not Included	Reason for Not Including
5-3	Motors	Not Included	Budget constraints/Low market share
5-4	Motors	Not Included	Budget constraints/Low market share
5-5	Variable Frequency Drives	Included	N/A
5-6	Variable Frequency Drives	Included	N/A
5-7	Variable Frequency Drives	Included	N/A
6	***Water Heating***		
6-1	High Efficiency Storage (tank)	Not Included	Budget constraints
6-2	Pre-Rinse Sprayer, Low flow, Commercial Application	Not Included	Budget constraints/Low market share
6-3	On Demand (tankless)	Not Included	Not Cost Effective
6-4	Tank Insulation	Not Included	Budget constraints
7	***Cooking***		
7-1	Electric Energy Star Fryers	Not Included	Not Cost Effective
7-2	Electric Energy Star Steamers,3-6 pan	Not Included	Low market share
7-3	Energy Star Hot Food Holding Cabinet	Not Included	Low market share
7-4	Energy Star Convection Ovens	Not Included	Not Cost Effective
7-5	Energy Star Griddles	Not Included	Not Cost Effective
8	***Refrigeration***		
8-1	Glass Door Freezer, <15-49 cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-2	Glass Door Freezer, 50+ cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-3	Solid Door Freezer, <15-49 cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-4	Solid Door Freezer, 50+ cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-5	Glass Door Refrigerator, <15 - 49 cu ft	Not Included	Budget constraints/Low market share
8-6	Glass Door Refrigerator, 50+ cu ft, Energy Star	Not Included	Budget constraints/Low market share

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Measure #	Measure Name	Included/ Not Included	Reason for Not Including
8-7	Solid Door Refrigerator, <15 cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-8	Solid Door Refrigerator, 50+ cu ft, Energy Star	Not Included	Budget constraints/Low market share
8-9	Commercial Refrigeration Tune-Up, Medium Temp ,not self containe	Not Included	Not Cost Effective
8-10	Commercial Refrigeration Tune-Up, Low Temp, not self contained	Not Included	Not Cost Effective
8-11	Anti-sweat heater controls on freezers	Not Included	Budget constraints/Low market share
8-12	Anti-sweat heater controls, on refrigerators	Not Included	Budget constraints/Low market share
8-13	Vending Miser, Cold Beverage	Not Included	Budget constraints/Low market share
8-14	Brushless DC Motors for freezers and coolers	Not Included	Budget constraints/Low market share
8-15	Humidity Door Heater Controls for freezers and coolers	Not Included	Budget constraints/Low market share
8-16	Refrigerated Case Covers	Not Included	Budget constraints/Low market share
8-17	Zero Energy Doors for freezers and coolers	Not Included	Not Cost Effective
8-18	Evaporator Coil Defrost Control	Not Included	Not Cost Effective
8-19	Evaporator Fan Motor Control for freezers and coolers	Not Included	Not Cost Effective
8-20	Permanent Split Capacitor Motor	Not Included	Budget constraints/Low market share
8-21	Ice Machine, Energy Star, Self-Contained	Not Included	Budget constraints/Low market share
8-22	LED Case Lighting (5 door case)	Not Included	Not Cost Effective
9	***Office Equipment/Appliances***		
9-1	Watt Sensors on Office Electronics	Not Included	Not Cost Effective
9-2	Watt Sensors on Office Electronics	Not Included	Not Cost Effective
10	***Compressed Air***		
10-1	Fix Air Leaks	Not Included	Budget constraints/Low market share
10-2	Fix Air Leaks	Not Included	Budget constraints/Low market share
10-3	Fix Air Leaks	Not Included	Budget constraints/Low market share

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Measure #	Measure Name	Included/ Not Included	Reason for Not Including
10-4	Engineered Nozzles for blow-off	Not Included	Budget constraints/Low market share

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Item 5) Refer to page 8-12, paragraph 2, of Big Rivers' IRP. Provide a detailed explanation of the assumption that similar energy efficiency programs with the same savings will occur in the fourth through fifteenth years of the programs.

Response) Typically once energy efficiency programs are implemented as part of a resource plan they are continued in order to meet certain goals, even though the programs may change over time. For example, if/when compact fluorescent lights ("CFLs") are considered common practice and programs are halted for that technology, Big Rivers may include another technology in place of CFLs in order to keep energy efficient lighting as a resource.

Respondent) Amber M. Roberts

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Item 6) Refer to page 8-12, paragraph 2, and Appendix B, page 6, of Big Rivers' IRP. Provide a detailed explanation as to how the DSM study contained in Appendix B was utilized in the final analysis of the DSM programs selected for implementation.

Response) Appendix B - Demand Side Management: Big Rivers Final Potential Study of Big Rivers' 2010 IRP ("the DSM Study") helps support the National Action Plan for Energy Efficiency ("NAPEE") recommendation (*see*: http://www.epa.gov/cleanenergy/documents/suca/potential_guide.pdf) to "make a strong, long-term commitment to implement cost-effective energy efficiency as a resource". Conducting a Potential Study helps establish a cost effective, long-term plan for energy efficiency by using regional-specific information. This study was used to build an energy efficiency case for Big Rivers by analyzing their customers, current saturation of technologies, and other specific data in order to design a program portfolio for implementation in the coming years. The program portfolio that is presented in Big Rivers' 2010 IRP is a result of what measures passed the Total Resource Cost ("TRC") test along with an analysis of market share and availability of technologies. In order to reach those results, the DSM Study takes each measure through a step-by-step process (*see* Section 5 of the DSM Study, beginning on page 21 thereof, for details).

Respondent) Amber M. Roberts

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Item 7) Refer to on page 8-12, paragraph 3, of Big Rivers' IRP.

a. Explain why the total energy savings and cumulative annual savings listed for years 2011 and 2025, respectively, do not match the totals listed on page 8-13 in Table 8.6.

b. Explain why the total winter peak demand savings for all programs listed for 2011 and 2025, respectively, do not match the totals listed on page 8-13 in Table 8.7.

Response) a. That was an oversight. Table 8.6 is correct and was inserted into the document, but the text in the paragraph was not changed.

b. That was an oversight. Table 8.7 is correct and was inserted into the document, but the text in the paragraph was not changed.

Respondent) Amber M. Roberts

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Item 8) Refer to page 8-14, Table 8.8, of the IRP. Explain the decrease in residential cumulative energy savings by season in the lighting section for years 2020 and 2025 when compared to 2015.

Response) Residential Lighting programs are changing within the next few years because of the new federal requirements put in place for incandescent bulbs. The Big Rivers Residential Lighting Program assumes that the first 3 years of the program will be strictly driven by CFLs and, thereafter, will be driven by light emitting diodes ("LEDs"). Savings attributable to CFLs installed in 2013 will fall off in 2019 (after the seven-year useful life is reached) and the savings thereafter are due to LEDs. Because LEDs are more expensive and, therefore, have a higher incentive to promote customer participation, fewer participants were assumed and savings decreased.

Respondent) Amber M. Roberts

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Item 9) Refer to page 8-14, Table 8.9, of the IRP. Explain the decrease in residential cumulative annual peak demand savings by season in the lighting section for years 2020 and 2025 when compared to 2015.

Response) Please see Big Rivers' response to Item PSC 1-8 of the Commission Staff's First Information Request ("Staff's Initial Data Request").

Respondent) Amber M. Roberts

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Item 10) Refer to page 8-15, paragraph 4, of the IRP, regarding projected costs. Provide a detailed listing of the types and amounts of costs that will be included under each of the identified administrative costs.

Response) GDS has over 15 years of experience evaluating, designing, and implementing programs. Based on that experience, administrative costs are bundled and include program design, program implementation, reporting and tracking, marketing, and labor costs. Specific program costs vary greatly among different types of programs (*e.g.*, CFL lighting programs have low administrative and marketing costs, whereas New Construction programs have high administrative and educational costs). Because of this, GDS did not break out these costs individually, as the program evaluations that were used do not include this detailed information.

Respondent) Amber M. Roberts

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Item 11) Refer to page 8-16, Tables 8.13 and 8.14, of the IRP. Provide all information, studies, etc. upon which Big Rivers relied to determine the incentive and administrative costs for each of the energy efficiency programs.

Response) GDS relied upon over 15 years of experience evaluating, designing, and implementing programs to set the administrative and incentive budgets for each program. Typically, administrative costs for energy efficiency programs range anywhere from 5% to 50%, or more, of total program costs. However, since Big Rivers indicated its programs would be less intense on the administrative side, and based upon its experience, GDS used an average of around 30% for those programs. Incentives make up the difference of the total budget minus the administrative budget.

Below is additional information about the percentage of administrative costs to total program budgets (in parenthesis), plus links to relevant reports, for a few other states.

Texas (10%):
(www.raponline.org/docs/RAP_Motamedi_TexasModelResearchBrief_2009_10_14.pdf)

Maine (Business – 50%,
Residential – 15% for low income, 23% for appliance program, 69% for lighting)
(www.efficiencymaine.com/docs/reports/EMO16444_AnnualReport_2010.pdf)

Connecticut (5% cap):
(http://www.raponline.org/docs/DOE_CTSurveyAndStatistics.pdf)

Vermont (Business - 31%, Residential – 49%):
(http://www.efficiencyvermont.com/stella/filelib/FINAL2009AnnualReport.pdf)

Respondent) Amber M. Roberts

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Item 12) Refer to page 8-18, Table 8.17, of the IRP. Explain what makes up and accounts for the Net Present Value benefits listed in the Non-Electric and Other columns.

Response) - Residential Lighting: Other Benefits of $262,255 are from the avoided bulb purchases, based on the useful life of a new CFL or LED bulbs, the customer avoids purchasing a number of lower efficiency bulbs.

- Residential Appliances: Non-Electric Benefits of $808,082 are from the decreased amount of water usage by a high efficiency clothes washer, and from the fuel savings when using a non-electric water heater.

- Residential Weatherization: Other Benefits of $168,112 are from avoided bulb purchases (based on the CFLs in the Weatherization Care Package). Non-Electric Benefits of $7,854,141 are from fuel savings based on non-electric heating.

- Residential New Construction: Non-Electric Benefits of $654,051 are from the non-electric heating measures.

Respondent) Amber M. Roberts

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Item 13) Refer to pages 8-24 to 8-26 of the IRP, specifically, the first paragraph on page 8-26. Provide an expanded discussion of why "[t]he development of a CO_2 plan is not possible at this time...."

Response) Current legislative activity has not provided additional clarity as to how CO_2 will be controlled at stationary sources. In addition to the lack of clear legislative direction, EPA has not provided any direct information on either the acceptable ambient air levels for CO_2 or the reductions of CO_2 from stationary sources. Additionally, the United States Department of Energy prepared a report, dated December 2010 (*see:* http://www.netl.doe.gov/technologies/carbon_seq/refshelf/CCSRoadmap.pdf), states that small- and large-scale field tests of control technologies will occur over the next decade before full-scale, commercial demonstrations of those technologies can begin by at least 2020.

Without clear directives as to the amount of CO_2 to be reduced, the timing of the reductions and the cost and availability of control equipment, it is difficult to develop a plan at this time to control CO_2 emissions.

Respondent) Thomas L. Shaw

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Item 14) Refer to page 8-26 of the IRP under the heading Mercury. The latter part of the paragraph states that, if mercury control should be on a unit-by-unit basis, Big Rivers' coal-fired units would likely require additional controls. The last sentence indicates that previous test results showed, with the installation of Flue Gas Desulfurization ("FGD") equipment and Selective Catalytic Reduction ("SCR") devices, that Big Rivers' coal-fired units would comply with Phases 1 and 2 of the Clean Air Mercury Rule. Table 8.21 on page 8-24 reflects that all of Big Rivers' coal-fired units are equipped with FGDs but that five units, the three Coleman units and the two Green units, do not have SCRs. Provide the most current estimates of the costs of retrofitting these units with SCRs.

Response) Table 8.21 identifies the Big Rivers' units equipped with FGDs, and also shows that neither Big Rivers' Reid Unit 1 nor Big Rivers' Reid CT are equipped with FGDs.

The January 2010 estimates for installing SCRs on the Green units are:

1. Green 1 SCR installation - $58 million and
2. Green 2 SCR installation - $50 million

Big Rivers does not have a current cost estimate for installing SCRs on the Coleman units (last estimate was done in 1999) and, with the 2006 FGD retrofit, space for installing SCRs will be limited and may not be possible.

Respondent) Thomas L. Shaw

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Item 15) Refer to page 8-27 regarding compliance with NO_x emissions which refers to the U.S. Environmental Protection Agency's ("EPA") release of its proposed Clean Air Transport Rule ("CATR") in July 2010. This final sentence in the paragraph states that, if Big Rivers determines that an insufficient number of allowances for SO_2 and NO_x have been allocated, it will have to determine whether to purchase allowances or install additional emission controls. Given that the CATR rule is to become effective January 1, 2012, describe the steps Big Rivers anticipates taking in advance of that date and the timeline for same.

Response) If the proposed CATR rule is finalized and the first compliance date remains at January 1, 2012, Big Rivers' current response would be to reduce generation or purchase allowances, if they are available and a cost-effective option, to maintain compliance. In the event the CATR rule is finalized, Big Rivers estimates a 4 year time line to design, permit, and construct control equipment to meet the final CATR rule requirements. On January 7, 2011, EPA proposed two additional options for allocation of SO_2 and NO_x allowances and neither option will change Big Rivers' ability to meet the projected generation in 2012 without a reduction in generation or purchase of allowances.

Respondent) Thomas L. Shaw

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Item 16) Refer to Appendix A, 2009 Load Forecast ("Load Forecast"), page 1, Table 1.1, and page 5, Table 1.3.

a. Explain the difference between the Total System and Rural System.

b. The units for Peak Demand (CP) are not listed in Table 1.1. For 2003, Rural System Energy Requirements are 2,089,678 MWH and Peak Demand (CP) is 466,551 for 104,764 customers. Explain whether peak demand units are kW or MW.

c. Table 1.3 lists Peak Demand and Rural Demand in MW. The numbers appear to be quite large. Explain whether the units should be kW rather than MW. Provide a list of any other Tables, Charts and Graphs that should be corrected.

Response) a. As defined on page 1 of the 2009 Load Forecast, the rural system represents energy and peak demand corresponding to all customers that are not classified as direct serve customers. Direct serve accounts include all those customers that are directly connected to Big Rivers' transmission facilities. Total system includes energy and peak demand requirements for all rural and direct serve customers.

b. The CP demand values listed in Table 1.1 are expressed in kW.

c. The peak demand and rural demand accounts listed in Table 1.3 are labeled incorrectly. They are expressed in kW. There are no other Tables, Charts, and Graphs that should be corrected.

Respondent) John W. Hutts

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Item 17) Refer to the Load Forecast, page 6, Figure 1.1.

a. The Peak Demand graph does not appear to agree with Table 1.1 or Table 1.3. Explain whether the graph or the tables are incorrect.

b. Explain what happened in 1997 and 1998 to account for the drop in both energy requirements and coincident peak demand.

Response) a. Table 1.1, Table 1.3 and Figure 1.1 are correct. Apparent inconsistencies are due to the situation involving the potential loss of two large aluminum smelter loads and comparison of summer vs. winter peak demands for 2008.

Table 1.1 lists peak demands at the total system and rural system levels. In 1998, total system demand includes load (605 MW) for two aluminum smelters that were not served after 1998. The peak values for 2008 represent actual peak demands that occurred during the winter season. The total system energy and total system peak demand amounts presented in Table 1.1 correspond to the values presented graphically in Figure 1.1.

Table 1.3 lists energy sales to Big Rivers' Member Cooperatives (excluding generation and transmission losses), total system peak demand, and rural system peak demand for years 2007 and 2008. The purpose of Table 1.3 is to compare actual energy and peak demand values for 2007 and 2008 to those projected in the 2007 Load Forecast. In the 2007 Load Forecast, Big Rivers was projected to be summer peaking in 2007 and 2008; therefore, the peak demands presented in Table 1.3 are the projected summer peaks for 2007 and 2008 and actual summer peaks for 2007 and 2008. As a result, the summer peaks presented in Table 1.3 do not correspond to the winter season peaks presented in Table 1.1 and Figure 1.1.

Figure 1.1 presents total system energy requirements, including generation and transmission losses, and total system peak demand. Energy and peak demands presented in the graph correspond to the total system amounts presented in Table 1.1. The large drops in energy and peak demand in Figure 1.1 correspond to Big Rivers no

longer providing electric service to two aluminum smelters (605 MW and 5,142 GWH in 1998).

b. Big Rivers stopped providing electric service to two aluminum smelters in July 1998 (annual requirements at the time of approximately 605 MW and 5,142 GWH). The data presented in Table 1.1 and Figure 1.1 exclude smelter requirements for the forecast period; however, for transmission planning purposes, Big Rivers develops a forecast scenario that includes smelter requirements throughout the forecast horizon.

Respondent) John W. Hutts

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Item 18) Refer to the Load Forecast, page 14, Section 3.1.

a. Explain whether "the number of residential customers served by county" is equal to the number of residential customer accounts derived from the cooperative's billing data. If not, explain how the cooperative knows the actual number of residential customers served through each customer account.

b. If a county is served by two member cooperatives, explain whether the respective county weighting factors should sum to one. Explain whether, in the formula for CTYWGT, if RCON should be divided by HHOLD rather than multiplied.

Response) a. The number of residential customers served by county is equal to the number of residential customer accounts derived from the Member Cooperatives' billing data.

b. The county weights represent the proportion of county households served by the cooperative. If two different cooperatives served 100% of all households in a given county, then the respective cooperative county weights for that given county would sum to 100%. The equation presented in Section 3.1 of the Load Forecast report should be: CTYWGT = RCON / HHOLD.

Respondent) John W. Hutts

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Item 19) Refer to the Load Forecast, Sections 4, 5, 6 and 7.

a. The EPA has new air and water quality regulations pending that may affect both the use of coal in the production of electricity and the price of electricity in the near future. Explain whether and how the load forecast accounts for pending EPA regulations for air and water quality.

b. There are proposed new EPA regulations on carbon emissions. Explain whether and how the load forecast accounts for the potential limits on carbon emissions.

Response) a. Big Rivers' 2009 Load Forecast does not account for pending EPA regulations regarding air and water quality. It is not known to what extent pending regulations will impact the price of electricity or any other factors influencing electricity consumption. Big Rivers, in conjunction with filing requirements with the Rural Utilities Services (RUS), updates its official load forecast every two years. Future forecasts, including all updates/scenarios developed by Big Rivers during years when the forecast is not filed with RUS, will address EPA regulations as they are established.

b. Big Rivers' 2009 Load Forecast does not account for pending EPA regulations regarding carbon emissions. It is not known to what extent pending regulations will impact the price of electricity or any other factors influencing electricity consumption. Big Rivers, in conjunction with filing requirements with the Rural Utilities Services (RUS), updates its official load forecast every two years. Future forecasts, including all updates/scenarios developed by Big Rivers during years when the forecast is not filed with RUS, will address EPA regulations as they are established.

Respondent) John W. Hutts

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Item 20) Refer to the Load Forecast, page 17, Sections 4.4 and 4.5. Explain how the real price of electricity to large commercial, industrial and direct-serve customers changes over the forecast period.

Response) It was assumed that the real price of electricity to direct serve and large commercial customers would not change significantly over the forecast horizon; however, a real price projection for this customer class was not developed when preparing the load forecast. The energy forecasts for all direct serve and large commercial customers were based on historical consumption and information obtained from these customers by representatives of the Member Cooperatives regarding future industrial operations. The current tariffs under which all direct serve and large commercial customers are served are presented on the Commission's website.

Respondent) John W. Hutts

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Item 21) Refer to the Load Forecast, Section 5 and 6, Short-Term and Long-Term Energy Sales and Peak Demand Forecast.

a. Big Rivers' system peak occurs in the winter. Provide, by customer class, the number of customers that have access at their premises to natural gas.

b. Describe the extent to which Big Rivers' distribution cooperatives are actively marketing electric heating.

c. When new EPA air and water quality rules take effect, the relative prices of electricity and natural gas and propane will likely change. Explain how the load forecast accounts for these changes.

d. Explain whether it will be in the customers' best interests if the distribution cooperatives actively promote electric heat after new EPA rules take effect.

e. There is no explicit discussion of how DSM programs are incorporated into either the short-term or the long-term forecasts. Explain how the forecasts account for current and planned DSM programs.

f. Explain how Big Rivers' and the distribution cooperatives' DSM programs will change when the new EPA air and water quality rules take effect and how those changes will affect the load forecast.

Response) a. Big Rivers conducted a residential survey in 2007, and the results indicate that 51.2% of all residential customers use gas as their primary heating source as follows.

1. Natural gas furnace 25.8%,
2. Natural gas/propane space heating 4.0%,
3. Propane furnace 18.6%, and
4. Other gas 2.8%.

Natural gas market shares are not available for other customer classifications. The residential class represents approximately 87% of all customers served by Big Rivers' Member Cooperatives.

b. Big Rivers and its Member Cooperatives do promote electricity as a heating source, but only high efficiency air-source and ground-source heat pumps. Big Rivers' Member Cooperatives explain the costs associated with various heating and cooling systems on their websites and have historically promoted heat pumps through a variety of media, such as Kentucky Living, Members' Newsletters and bill inserts, and activities including their Home Energy Expos.

c. Big Rivers' 2009 Load Forecast does not account for pending EPA regulations regarding air and water quality. It is not known to what extent pending regulations will impact the price of electricity or any other factors influencing electricity consumption. Big Rivers updates its load forecast every two years. Future forecasts will address EPA regulations as they are established. If the resulting regulations increase electricity prices, it is assumed that energy consumption will be negatively impacted, the extent to which has yet to be determined. Also, please see Big Rivers' response to Item PSC 1-19 of the Staff's Initial Data Requests.

d. It is always in the best interest of the customer to strive for the highest efficiency, cost effective heating technology available. Resistance electric heat represents the lowest efficiency available in the electric heating market, while air-source and ground-source heat pumps achieve the highest efficiency. Big Rivers' Members have consistently provided educational opportunities and promoted the higher efficiency heat pumps and, by doing so, discouraged use of resistance heating.

e. The residential and small commercial energy models for Big Rivers' Member Cooperatives are based on historical data that reflects the impacts of existing energy conservation efforts; therefore, the impacts of existing energy conservation are captured indirectly through the use of impacted sales. At the time the load forecast was developed in early 2009, neither Big Rivers, nor any of its Member Cooperatives, had plans to implement any new energy efficiency or demand side programs; therefore, the forecast includes no impacts for new programs. Once new

programs are implemented, the impacts will be accounted for in the forecast by making post-modeling adjustments to the modeled amounts.

f. Big Rivers' 2009 Load Forecast does not account for pending EPA regulations regarding air and water quality. It is not known to what extent pending regulations will impact Big Rivers', or its Members', current evaluation of energy efficiency and demand side program planning. Once any pending regulations are finalized, Big Rivers and its Member Cooperatives will assess their impacts on existing and planned energy efficiency and demand side programs. Also, please see Big Rivers' response to Item PSC 1-19 of the Staff's Initial Data Requests.

Respondents) a. John W. Hutts

b. Russell L. Pogue

c. John W. Hutts

d. Russell L. Pogue

e. John W. Hutts

f. John W. Hutts

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Item 22) Refer to the Load Forecast, Section 5, Short-Term Energy Sales and Peak Demand Forecast. This section includes no presentation or discussion of the models used to make projections.

a. For each customer class's short-term energy sales forecast and peak demand forecast, provide and discuss all of the models and equations used, a discussion of the steps taken to obtain the final forecast, and a description of the variables (and or the derivation of the variables) used in each equation.

b. Explain what data was obtained from the individual distribution cooperatives and how that data was used in the forecast equations.

c. Some utilities perform customer appliance surveys to establish a baseline for type and vintage of appliances used in the service territory. Explain whether or not Big Rivers has incorporated this type of data into the forecasts.

d. If not provided above, provide the equation for and explanation of how "[a]n average coincidence factor, based on historical data, was applied to rural system CP demand to compute projections of rural system NCP."

e. Explain how Big Rivers uses the short-term energy sales and peak forecasts and why the forecasts do not include the direct serve and large industrial customers.

f. Explain how much of Big Rivers' load is interruptible, how often customer loads are interrupted, and how the ability to interrupt customer load is incorporated into the peak forecasts.

Response) a. **Energy Sales** - Big Rivers short-term energy sales forecast (2009-2010) is based on the aggregate sales forecasts developed for its three Member Cooperatives. Projections for the residential and small commercial classes are based on regression models. The short-term energy sales forecast for the large commercial class is based on projections developed by the Member Cooperatives. Energy sales for all other classes (street lighting, irrigation, public buildings) are based on historical trends. The

regression models, including the data inputs, regression coefficients, associates model statistics, and the model projections are provided on the CD accompanying this response, and in the folder labeled 'PSC Q 1-22a Attachment 1 - 2011-01-28'. MetrixND software, licensed by Itron, was used to estimate the regression models and generate the output files.

The short-term residential use per customer and small commercial use per customer models for each Member Cooperative specify relationships between energy use per customer, a time trend, heating degree days and cooling degree days. The short-term residential customer models for each Member Cooperative capture the recent year trend in customers. Recent year trends in number of customers, employment and/or number of households were considered in development of the short-term small commercial customer forecasts. Short-term energy sales for the residential and small commercial classes are equal to the respective products of energy use per customer and number of customers.

The final monthly and annual energy forecasts presented in the 2009 Load Forecast for years 2009-2010 are based on the regression outputs, calibrated to the base historical year (2008). The residential and small commercial models were adjusted by applying a calibration factor to each modeled amount in the forecast horizon. The calibration factor for each model is equal to the actual 2008 base year value divided by the model estimate for 2008.

Peak Demand – Big Rivers short-term rural system peak demand forecast is based on the aggregate of the Member Cooperative rural system peak demand forecasts. The Member Cooperative rural system peak demand forecasting models are provided on the CD accompanying this response, and in the folder labeled 'PSC Q 1-22a Attachment 1 - 2011-01-28'. Big Rivers' short-term total system peak demand forecast is the sum of the rural system peak demand forecast and the large commercial peak demand forecast. The short-term large commercial peak demand forecast is based on projections developed by the Member Cooperatives. The model specifications and associated

statistics are presented in Appendix D of the 2009 Load Forecast, which is Appendix B of Big Rivers' 2010 IRP.

The summer rural system peak demand model for each Member Cooperative specifies the relationship between summer peak, annual rural system energy sales, and maximum summer temperature. Similarly, the winter rural system peak demand model for each Member Cooperative specifies the relationship between winter peak, annual rural system energy sales, and minimum winter temperature.

A discussion of the process used to develop the forecast is summarized in Section 1.4 of the 2009 Load Forecast and described in greater detail by class in Section 6 of the 2009 Load Forecast. Annual energy and peak demand projections were broken down by month by applying average monthly load shapes to the annual forecasted amounts.

Identification of Regression Models provided on the CD accompanying this response, and in the folder labeled 'PSC Q 1-22a Attachment 1 - 2011-01-28'

Coopname_RCON_ST: Residential customer model – short-term
Coopname_RCON_LT: Residential customer model – long-term
Coopname_SCON_ST: Small commercial customer model – short-term
Coopname_SCON_LT: Small commercial customer model – long-term
Coopname_RUSE_ST: Residential energy use model – short-term
Coopname_RUSE_LT: Residential energy use model – long-term
Coopname_SCUSE_ST: Small commercial energy use model – short-term
Coopname_SCUSE_LT: Small commercial energy use model – long-term
Coopname_Summerkw: Rural system summer peak demand – short & long term
Coopname_Winterkw: Rural system winter peak demand – short & long term

b. The individual Member Cooperatives provided their respective class billing histories which provided

1. number of customers by class,

2. kWh sales by class,
3. sales revenues by class,
4. total system peak demand, and
5. rural system peak demand.

The customer and energy sales data provided by the Member Cooperatives became the dependent variables in the econometric models developed to forecast

1. residential customers,
2. residential use per customer,
3. small commercial customers,
4. small commercial use per customer, and
5. rural system peak demand.

The Member Cooperatives also provided the final projections of energy sales and peak demand for every large commercial customer (identified as any customer with peak demand >= 1.000 kW), including direct serve customers. The Members also participated in reviews, and provided approvals, of their respective economic outlook.

c. Big Rivers conducted a Residential End-Use and Energy Efficiency Survey in 2007, which addressed in part the types and number of appliances used in the home. The data from this survey and future surveys will provide the basis for the electric market shares (electric heating, electric water heating, AC, *etc.*) that are input into the residential energy forecast model.

d. Rural system demand for each of Big Rivers' individual Member Cooperatives represents the highest 60-minute rural system level demand for the individual Member Cooperative during the month. Rural system peak demand for Big Rivers represents their highest rural system level demand measured during a month. In many instances, the Member Cooperatives' rural system peaks are not coincident with respect to date and time with Big Rivers' rural system peak. From 2001 to 2008, Big Rivers average coincidence factor (Big Rivers rural system peak divided by the sum of the Member Cooperatives' rural system peaks) has been 99.2% in the summer and 99.1%

in the winter. Projections of Big Rivers' rural system peak demand were divided by these respective coincidence factors to produce projections of Big Rivers NCP rural system peak demand for the summer and winter seasons. Stated another way, Big Rivers' rural system CP demand represents their 1-hour peak demand, and Big Rivers' rural system NCP demand represents the sum of the Member Cooperatives' rural system demands.

e. Big Rivers uses the short-term energy sales and peak forecasts for a variety of purposes. These include, but are not limited to, budgeting, off-system sales strategy, ad-hoc studies and analyses, reporting to various entities, such as the Kentucky Public Service Commission, SERC Reliability Corporation and Midwest ISO.

Big Rivers' short-term energy sales forecast shown on page A-1 of the 2009 Load Forecast does include direct serve/large industrial energy sales as shown on page A-5. The Load Forecast is prepared under RUS requirements, which only require a total system peak. The direct serve/large industrial peak can be determined by calculating the difference between the total system and rural system peak shown on pages A-1 and A-2 respectively.

f. Big Rivers does not have load that can be reliably interrupted such that it could be incorporated in peak forecasts. Section 7(2)e) on page 7-7 of the 2010 IRP discusses interruptible load as it relates to the 2010 IRP and the 2009 Load Forecast and states, "Big Rivers does not provide electric service to any retail or wholesale customers under an interruptible or curtailable contract or tariff. Big Rivers offers a Voluntary Curtailment Rider, which provides a means for potentially reducing system peak demand during peak periods. Since the rider is voluntary it is not considered as a means for reducing load in this IRP. In the last ten years (2000-2009), there have been four curtailments utilizing the Voluntary Curtailment Rider, one in 2008 and three in 2009, affecting two customers."

Respondents) a. - d John W. Hutts

e. – f. Michael J. Mattox

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Item 23) Refer to the Load Forecast, Section 6, Long-Term Energy Sales and Peak Demand Forecast. This section includes no presentation or discussion of the models used to make projections.

a. For each customer class's long-term energy sales forecast and each peak demand forecast, provide and discuss all of the models and equations used, a discussion of the steps taken to obtain the final forecast and a description of the variables (and or the derivation of the variables) used in each equation.

b. Explain how much of Big Rivers' load is interruptible, how often customer loads are interrupted, and how the ability to interrupt customer load is incorporated into peak forecasts.

Response) a. **Energy Sales** - Big Rivers long-term energy sales forecast (2011-2023) is based on the aggregate sales forecasts developed for its three Member Cooperatives. Projections for the residential and small commercial classes are based on regression models. The long-term energy sales forecast for the large commercial class is based on projections developed by the Member Cooperatives. Energy sales for all other classes (street lighting, irrigation, public buildings) are based on historical trends. The regression models, including the data inputs, regression coefficients, associates model statistics, and the model projections are provided in the folder labeled 'PSC Q 1-22a Attachment 1 - 2011-01-28' on the CD provided with Big Rivers' response to Item PSC 1-22(a) of the Staff's Initial Data Requests. MetrixND software, licensed by Itron, was used to estimate the regression models and generate the output files. The model specifications and associated statistics are also presented in Appendix D of the 2009 Load Forecast, which is Appendix B of the 2010 IRP.

The long-term residential use per customer model for the residential class and for each Member Cooperative specifies the relationship between energy use and three indexes representing base, heating, and cooling consumption. Refer to Sections 6.2.1 and

8.3 of the 2009 Load Forecast for details regarding development of the residential energy use model.

The small commercial use per customer model for each Member Cooperative specifies relationships between energy use, retail sales, employment, heating degree days, and cooling degree days. One or more of the small commercial use models contain a lagged dependent variable, one or more binary variables, or an autoregressive parameter to correct for serial autocorrelation.

The long-term residential customer model for each Member Cooperative captures the relationship between customers and number of households. In addition, one or more of the models may include a lagged dependent variable, a binary variable, or an autoregressive parameter to correct for serial autocorrelation.

The small commercial customer model for each Member Cooperative models the relationship between number of customers and employment. One or more models may also include a lagged dependent variable, a binary variable, or an autoregressive parameter to correct for serial autocorrelation.

Short-term energy sales for the residential and small commercial classes are equal to the respective products of energy use per customer and number of customers.

The energy forecasts presented in the 2009 Load Forecast for years 2011-2023 are based on the regression outputs from the long-term models, calibrated to the results of the short-term forecast. Calibration of each long-term model was conducted by applying growth from each respective long-term model to projected values from the prior year. For example, average residential use per customer projected for 2011 is equal to the projected value for 2010, which is based on the short-term forecast, plus the change from 2010 to 2011 projected in the long-term model.

Peak Demand – Big Rivers long-term rural system peak demand forecast is based on the aggregate of the Member Cooperatives' rural system peak demand forecasts. The Member Cooperatives' rural system peak demand forecasting models were provided in the folder labeled 'PSC Q 1-22a Attachment 1 - 2011-01-28' provided

on the CD in Big Rivers' response to Item PSC 1-22(a) of the Staff's Initial Data Requests. Big Rivers' long-term total system peak demand forecast is the sum of the rural system peak demand forecast and the large commercial peak demand forecast. The long-term large commercial peak demand forecast is based on projections developed by the Member Cooperatives. The model specifications and associated statistics are presented in Appendix D of the 2009 Load Forecast, which is Appendix B of the 2010 IRP.

The summer rural system peak demand model for each Member Cooperative specifies the relationship between summer peak, annual rural system energy sales, and maximum summer temperature. Similarly, the winter rural system peak demand model for each Member Cooperative specifies the relationship between winter peak, annual rural system energy sales, and minimum winter temperature.

b. Please see the Company's response to Item PSC 1-22(f) of the Staff's Initial Data Requests.

Respondents) a. John W. Hutts

b. Michael J. Mattox

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Item 24) Refer to the Load Forecast, Section 6.2.1, page 22. Explain the meaning of "vintaging of heating and cooling systems". Does this phrase mean the aging of existing residential systems or the replacement of older, less efficient systems with more efficient systems or something else?

Response) The term vintaging of equipment refers to the replacement of older, inefficient equipment with newer, more efficient equipment.

Respondent) John W. Hutts

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Item 25) Refer to the Load Forecast, Section 6.2.4, page 24. Explain how total native system requirements relate to total rural system requirements.

Response) Refer to Section 6.3 of the 2009 Load Forecast, which is located in Appendix B of the 2010 IRP. Total system native requirements are defined as Big Rivers' total energy sales to its Member Cooperatives, excluding sales to the two aluminum smelters in years prior to 1998, plus generation and transmission losses. Rural system requirements are defined as total energy sales to Big Rivers' Member Cooperatives, excluding sales to direct serve customers as defined in Big Rivers' response to Item PSC 1-16(a) of the Staff Initial Data Requests.

Respondent) John W. Hutts

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Item 26) Refer to the Load Forecast, Section 7.

a. Refer to Section 7.1.1 on page 25. Explain the characteristics of the large commercial customer class which support the assumption that it is non-weather sensitive.

b. Refer to Section 7.2.2 on page 27. Explain whether or not the Pessimistic Outlook takes into account the new EPA air and water quality rules that are scheduled to take effect in the near future.

c. Explain whether the Economy Scenarios in Section 7.2 take into account any potential local or regional economic events or whether the Optimistic and Pessimistic Outlooks are driven by national macroeconomic events only.

d. There is no discussion of probability of occurrence for the four Range Forecasts or how these forecasts are used relative to the base case forecast. Explain and discuss the probabilities of occurrence associated with each of the four scenarios, as well as the base case forecast.

Response) a. The vast majority of load for the large commercial class is process oriented and motor related. As such, relative to the total energy sales for the class, sales associated with space heating and space cooling are minimal.

b. The pessimistic forecast scenario does not address pending regulations at the EPA regarding air and water quality.

c. The optimistic and pessimistic forecast scenarios take into account local economic activity rather than national events. Projected growth rates in local household income, number of households, employment, gross regional product and retail sales were adjusted up or down to reflect optimistic and pessimistic outlooks.

d. The base case forecast represents the expected case and reflects assumptions that Big Rivers management concluded were the most likely. The base case

forecast is reflective of a 50%/50% probability forecast. Forecast simulations were not developed, so the probability of occurrence for each scenario cannot be determined. However, the projected growth rates for the high/low economic scenarios, and the high/low level for heating and cooling degree days in the extreme and mild weather scenarios were based in large part on extreme values over the last twenty years, so these scenarios are assumed to most closely resemble a 90% bandwidth forecast.

Respondent) John W. Hutts

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Item 27) Refer to Appendix B, the "Demand-Side Management (DSM) Potential Report for Big Rivers Electric Corporation" prepared by GDS Associates, Inc. ("GDS Report"), page 6. The last sentence in the first paragraph reads, "[t]he authors of this report emphasize that only energy efficiency measures that cost less than new power supply resources are considered to be cost effective".

a. Explain whether, with the statement, the authors are excluding the types of measures that utilities may target at delaying or avoiding the need to upgrade existing, or install new, transmission facilities.

b. Explain whether, with this statement, the authors are excluding the types of measures that may permit a utility to avoid running, or running as often, its existing higher-cost supply-side resources.

Response) a. No, in preparing this study, GDS did not exclude cost effectiveness screening for measures that utilities may target for the purposes of delaying or avoiding the need for new transmission facilities.

b. No, in preparing this study, GDS did not exclude from cost effectiveness screening for measures that may permit a utility to avoid running, or running as often, its existing higher-cost supply-side resources.

Respondent) Amber M. Roberts

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Item 28) Refer to pages 9 and 13 of the GDS Report. The last paragraph on page 9 refers to Big Rivers' program potential being based on first-year spending of $1 million with a combined budget for 10 years of $17.4 million. The last paragraph on page 13, citing a study by the American Council for an Energy Efficient Economy, states that "[t]he top energy efficiency states spend roughly 2% of annual electric sales revenue on energy efficiency programs".

a. Explain in detail how spending levels for Big Rivers were determined.

b. Provide the amounts if Big Rivers' spending were budgeted at one percent of its annual revenues and at two percent of its annual revenues.

Response) a. The DSM potential study assumed $1 million spending for the purpose of analysis, which was selected to approximate 1% of revenue from the rural load, since the Energy Efficiency programs are to apply to the rural load. The rural load does not include large industrials or the smelters.

b.

	2009	2008
Revenue Members' Rural Load	$92.0 Million	$85.7 Million
1%	$920,000	$857,000
2%	$1,840,000	$1,714,000
Total Electric Energy Revenue	$326.7 Million	$204.5 Million
1%	$3,267,000	$2,045,000
2%	$6,534,000	$4,090,000

Respondent) Russell L. Pogue

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Item 29) Refer to pages 20 and 21 of the GDS Report. Explain whether each of the existing DSM programs listed is offered by every one of Big Rivers' three distribution cooperatives.

a. If each DSM program is not offered by all three cooperatives, provide a schedule which lists each existing DSM program and the names of the cooperatives that do not offer that program.

b. For each cooperative that does not offer an existing DSM program, provide the analysis which shows that offering the program would not reduce retail customers' consumption and would not delay the need for new generating capacity.

Response) a. - b. Each of the existing DSM programs listed is offered by every one of the Big Rivers Member Cooperatives.

Respondent) Russell L. Pogue

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Item 30) Refer to page 22 of the GDS Report regarding the estimates of annual measure savings.

a. Provide a listing of the program evaluations conducted by other utilities and other program administrators.

b. Provide a listing and explanation of the qualitative and quantitative criteria utilized in selecting information comparable to Big Rivers.

Response) a. Please refer to the last tables in Appendix 2-1 (Residential) and Appendix 3-1 (Commercial) of the DSM Study (Appendix B of the 2010 IRP) for a full listing of measure-by-measure sources used for savings assumptions.

b. When available, GDS used data directly from Big Rivers. If Big Rivers did not have the data then local, regional and national data were utilized (in that order). As shown in the listing of data sources referenced in the response to Item PSC 1-30(a) immediately above, calculators and modeling software were used when appropriate for weather dependent measures.

Respondent) Amber M. Roberts

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Item 31) Refer to page 32 of the GDS Report regarding energy efficiency measures examined.

a. Provide a list of all studies that were relied upon for developing the list of energy efficiency measures.

b. Identify the individuals who conducted the qualitative screening, provide the relevant portions of their backgrounds that make them qualified to conduct the screening, and provide a general description of the steps and/or procedures that constitute the qualitative screening process.

Response) a. GDS relies on past studies that have been performed by major industry players (ACEEE, Energy Star., *etc.*), but also depends on experience within GDS to compose the most applicable measure list for each study. For the detailed listing, please see Big Rivers' response to Item PSC 1-30(a) of the Staff's Initial Data Request.

b. GDS follows the National Action Plan for Energy Efficiency Guide for Conducting Potential Studies (*see*: http://www.epa.gov/cleanenergy/documents/suca/potential_guide.pdf). Benefit/Cost screening is the first and most important step to conducting these studies. Assumptions are based on client specific data (avoided costs, measure savings, customer counts, energy/demand forecasts, etc.) and are taken through a process to help determine the best programs for implementation in the territory. A detailed description of the screening process is provided in Section 5, beginning on page 21, of the DSM Study (Appendix B of the 2010 IRP).

The GDS personnel conducting the qualitative screening were Amber M. Roberts, CEM, and Jeffrey R. Huber. Ms. Roberts conducted the Commercial and Industrial screening for the DSM Study. Mr. Huber conducted the Residential screening for the DSM Study.

Ms. Roberts joined GDS in November 2001 and has experience in managing, developing, and evaluating energy, efficiency renewable energy, and other

types of projects. Since joining GDS, Ms. Roberts has assisted with and/or managed the development of (1) electric and gas technical potential studies; (2) benefit/cost analysis of energy efficiency and renewable energy resources; (3) web-based data tracking and reporting systems for energy efficiency and renewable energy resources; (4) data collection and analysis; (5) telephone interviews; (6) statistical and financial analysis; and (7) case studies and market research in-depth interviews for utilities and state agencies. Among the utilities and states agencies for which she has done the latter, are (1) Connecticut Energy Conservation Management Board ("ECMB"), (2) Utah Energy Office, (3) NSTAR, (4) the Maine Public Utilities Commission, (5) Wisconsin Energy Conservation Corporation ("WECC"), (6) Keyspan Energy Systems, (7) the Vermont Department of Public Service, (8) the New York Energy Research and Development Authority, (9) Brazos Electric, (10)Arkansas Electric, and (11) Ameren, IL.

Ms. Roberts also has extensive experience with the design, implementation and evaluation of energy efficiency and demand response programs. She has completed numerous program evaluation and market research projects (including end-use metering, mail and phone surveys, internet-based surveys, in-depth interviews, focus groups, *etc.*). She also has extensive project experience involving detailed measurement and verification of energy savings benefits.

Ms. Roberts earned her BS in Mechanical Engineering Technology (2005) from Southern Polytechnic State University in Marietta, Georgia. She is also a Certified Energy Manager ("CEM") and a Certification Demand Side Management Professional ("CDSM") who has received certification in International Monitoring and Verification Protocols ("CMVP").

Mr. Huber joined GDS in October 2005 and has experience in developing and evaluating energy efficiency, renewable energy, and other types of projects. Since joining GDS, he has assisted with the development of (1) electric and gas technical potential studies; (2) benefit/cost analysis of energy efficiency and renewable energy resources; (3) data collection and analysis; (4) telephone interviews; (5) statistical and

financial analysis; and (6) case studies and market research in-depth interviews for utilities and state agencies.

Mr. Huber also provides technical support to GDS clients on energy efficiency program design and implementation projects, benefit/cost analyses for energy efficiency programs, and other market research studies. He is experienced in conducting statistical analyses (frequency distributions, cross tabulations, multivariate analyses) and he is proficient in MS Office (Word, Excel, PowerPoint). Mr. Huber has a BA in Criminology (2001) from the University of Florida and a MA in Anthropology (2004) from the University of Tennessee.

Respondents) Amber M. Roberts
Jeffrey R. Huber

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Item 32) Refer to page 35, second paragraph, of the GDS Report regarding current tax credits for energy efficiency. Since these credits were recently extended to some degree, describe the impact such extension would have on this analysis.

Response) The tax-credit was only extended through the end of 2011 with a significantly reduced cap. The impact to this analysis would be minimal.

Respondent) Amber M. Roberts

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Item 33) Refer to pages 58-66 of the GDS Report, which addresses its analysis of demand response programs.

a. The other five generating utilities regulated by the Commission have all been authorized to implement direct load control programs for residential air conditioning loads, either as pilots or full scale programs. Explain whether any review of those programs or the relevant Commission cases was performed by either Big Rivers or GDS.

b. Under Key Assumptions and Inputs on page 63, Total Resource Cost annual incentives are shown for "Air Conditioner – 33% cycling", "Air Conditioner-50% cycling", and "Water Heater – 40/50 gallon". Explain in detail how each of these incentive amounts was selected.

Response) a. Big Rivers' Staff did perform a review of direct load control programs by visiting each utility's website. Staff did not perform an analysis of the direct load control programs of the other five generating utilities or review any Commission cases.

b. All of the incentive amounts were selected as approximate values for the purpose of screening based on GDS' experience working with other demand response programs. Demand response incentives can take many forms and different levels of magnitude, depending on the customer base of the cooperative system. For the screening analysis, GDS has assumed monthly payments of $3 per month for AC 33% cycling and $4 per month for AC 50% cycling and Water Heating. Had the programs passed the TRC screening and were Big Rivers pursing a direct control program, then Big Rivers would have considered incentive levels appropriate for Big Rivers' Members during program development.

Respondents) a. Russell L. Pogue

b. Jacob M. Thomas

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January 28, 2011

Item 34) Refer to page 66 of the GDS Report. In the study, what steps were taken to determine the impact of the demand response programs for the two cooperatives with AMI versus the cooperative without AMI?

Response) The costs in the benefit-cost analysis of Demand Response are based on implementation of direct control through AMI systems. The alternative of a radio-based control system would not be pursued by Big Rivers if a direct control program was being implemented since two-thirds of the Members have AMI. Had direct control programs passed the screening analysis, further study would have been conducted to determine the economics of alternatives for the cooperative without AMI, such as pager controls. Programs that do not require direct control of an end-use appliance, such as dynamic pricing, would be available to all Members regardless of AMI implementation.

Respondent) Jacob M. Thomas

BIG RIVERS ELECTRIC CORPORATION

2010 INTEGRATED RESOURCE PLAN OF
BIG RIVERS ELECTRIC CORPORATION
CASE NO. 2010-00443

Response to Commission Staff's First Information Request dated January 12, 2011

January 28, 2011

Item 35) Refer to page 84 of the GDS Report. Provide a detailed explanation of how the projected participation levels were determined.

Response) Program participation was a direct result of the predetermined program budget ($1million in the first year) that GDS was given. Incentives were a portion of this budget, and given a certain incentive amount for each program, participants were added until that incentive budget reached $0. For a detailed explanation of participants, please look within each program description (*see* Section 9, beginning on page 67, of the DSM Study (Appendix B of the 2010 IRP)).

Respondent) Amber M. Roberts