

Drill Box
EAST KENTUCKY POWER COOP
PSC CASE NO. 2006-00547
PUBLIC SERVICE
COMMISSION
MAY 17 2007
RECEIVED
SECOND DATA REQUEST RESPONSE
COMMISSION STAFF'S REQUEST
DATED 5/9/07
FILED 5/16/07

Original

RECEIVED

MAY 17 2007

PUBLIC SERVICE
COMMISSION

May 16, 2007

HAND DELIVERED

Ms. Elizabeth O'Donnell
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

Re: PSC Case No. 2006-00547

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission in the above-referenced case, an original and seven copies of the Responses of East Kentucky Power Cooperative, Inc. to the Commission Staff Second Data Request dated May 9, 2007.

Very truly yours,



Charles A. Lile
Senior Corporate Counsel

Enclosures

Cc: Dennis G. Howard, II, Esq.- Attorney General
Lawrence W. Cook, Esq.- Attorney General

RECEIVED
MAY 17 2007
PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER)
COOPERATIVE, INC. FOR CONTINUATION OF) CASE NO.
THE TOUCHSTONE ENERGY HOME PROGRAM REBATE) 2006-00547

CERTIFICATE

STATE OF KENTUCKY)
)
COUNTY OF CLARK)

William A. Bosta, being duly sworn, states that he has supervised the preparation of the responses of East Kentucky Power Cooperative, Inc. to the Public Service Commission Staff Data Requests in the above-referenced case dated May 9, 2007, and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.

William A. Bosta
William A. Bosta

Subscribed and sworn before me on this 16th day of May, 2007.

Peggy S. Griffin
Notary Public

My Commission expires: December 8, 2009

RECEIVED
MAY 17 2007
PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY POWER)
COOPERATIVE FOR CONTINUATION OF)
TOUCHSTONE ENERGY HOME REBATE) CASE NO.
PROGRAM) 2006-00547

RESPONSES TO COMMISSION STAFF'S SECOND DATA REQUEST
TO EAST KENTUCKY POWER COOPERATIVE, INC.
DATED MAY 9, 2007

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00547

CONTINUATION OF TOUCHSTONE ENERGY HOME REBATE PROGRAM

COMMISSION STAFF'S SECOND DATA REQUEST DATED 5/09/07

East Kentucky Power Cooperative, Inc. (EKPC) hereby submits responses to the Commission Staff's Second Data Request dated May 9, 2007. Each response with its associated supportive reference materials is individually tabbed.

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00547

**CONTINUATION OF TOUCHSTONE ENERGY HOME REBATE PROGRAM
RESPONSE TO SECOND DATA REQUEST**

COMMISSION STAFF'S SECOND DATA REQUEST DATED 5/09/07

REQUEST 1

RESPONSIBLE PERSON: William Bosta

COMPANY: East Kentucky Power Cooperative, Inc.

REQUEST 1. Has EKPC performed "California Tests" (ratepayer participant test, utility cost test, ratepayer impact measure test, total resource cost test) to determine the cost effectiveness of this program?

a. If the answer to Item 1 above is yes, provide all available workpapers including the results of these tests.

b. If the answer to Item 1 above is no, perform these tests and provide the results including all workpapers and explaining all assumptions.

RESPONSE 1 a-b. Yes. EKPC performed the "California Tests" and submitted the results in support of its original filing for approval of the Touchstone Energy Home program, Case No. 2003-00481. The results of those tests and the associated assumptions and workpapers are included herein as PSC-1, Attachment 1 to this request. In addition, EKPC performed "California Tests" in its 2006 IRP for the Touchstone Energy Home program and such information is provided in PSC-1, Attachment 2.

**CALIFORNIA TEST INFORMATION
FROM ORIGINAL APPLICATION
IN CASE 2003-00481**

SECTION III

KEY ASSUMPTIONS

- (1) The benefits and costs for this program are expressed in terms of the Standard California cost effectiveness tests. EKPC utilized the software package *DSManager* that was developed by the Electric Power Research Institute (EPRI). These tests are: (1) Ratepayer Impact Test; (2) Participant Test; and (3) Total Resource Cost Test.
- (2) EKPC's generation capacity credit is based on the difference in the heating/cooling load shape for a "Standard Home" versus a new home constructed to "Touchstone Energy Home" standards. EKPC has estimated that the expected peak winter reduction is 2.4 kW per participant and the peak summer reduction is 1.6 kW per participant. Avoided capacity costs were determined using EKPC's forecasted base load capacity capital cost.
- (3) EKPC's production cost savings are based on the estimated reduction in fuel and variable operating and maintenance expenses due to the decrease in kWh generated as a result of the program.
- (4) EKPC estimates that incremental administrative costs will average \$44,000 per year for the first five years of the program. In addition, EKPC will pay \$250 for a blower-door test on each new home. The Member Systems' variable costs are \$182 per new Participant.
- (5) Wholesale demand and energy rates are based on EKPC wholesale tariff Schedule E-2.
- (6) Retail rates are based on South Kentucky's RECC's residential rate. This rate serves as a proxy for EKPC's sixteen Member Systems' residential rates..
- (7) As a result of the positive benefit / cost ratio resulting from the EKPC Ratepayer Impact Test of 1.42 and the ratio from the Total Resource Cost Test of 1.84, EKPC and its Member Systems have included a rebate to participants of up to \$1,000. Inclusion of the rebate will still keep the EKPC Ratepayer Impact Test benefit/cost ratio above 1.0 and at the same time improve the Participant Test benefit/cost ratio. This rebate is based upon EKPC's assessment of the rebate level required to achieve market penetration expectations. EKPC will match the rebate provided to each Participant from Member Systems in an amount up to \$500. Therefore, if the Member System provides a maximum rebate of \$500, EKPC will match the rebate with \$500, resulting in the Participant experiencing a rebate of \$1,000.
- (8) The number of new participants is estimated to be 325 per year for five years. These estimates are based on EKPC's estimate of customer growth and the likelihood of Touchstone Energy Home purchases.

(9) EKPC has used a reduction of 30% in kWh consumption, or about 5,100 kWh per participant per year based on DOE/EPA assessment of energy consumption for *Energy Star Homes*.

(10) The participant's average incremental investment for the Touchstone Energy Home is estimated to be around \$2,125. This investment is based on (a) the difference between a SEER 12 air source heat pump and a SEER 10 air source heat pump; (b) the incremental cost of the insulation and air sealing associated with bringing the home from Standard to Touchstone levels; and (c) the incremental cost of a highly efficient water heater.

(11) For purposes of determining the present value of future benefits and costs of the program, a discount rate of 6.5% was used for both the Rate Impact Tests and Total Resource Test and 13% for the Participant Test.

(12) The program assesses the addition of new participants over five years. No additional participants are evaluated after year five. Demand and energy savings are evaluated an additional fifteen years, for a total time horizon of twenty years. This approach is standard in DSM program analysis.

**Touchstone Energy Home Program:
 Standard California Tests
 Summary of Benefits and Costs**

Ratepayer Impact Test

| <u>Line</u> | <u>Total</u> <u>Benefits</u> | <u>Total</u> <u>Costs</u> | <u>Net</u> <u>Benefits</u> | <u>B / C</u> <u>Ratio</u> |
|-----------------------|---------------------------------|------------------------------|-------------------------------|------------------------------|
| 1 Distribution System | \$ 4,176,209 | \$ 4,961,347 | \$ (785,138) | 0.84 |
| 2 EKPC | \$ 6,681,233 | \$ 4,696,708 | \$ 1,984,525 | 1.42 |

Participant Test

| <u>Line</u> | <u>Total</u> <u>Benefits</u> | <u>Total</u> <u>Costs</u> | <u>Net</u> <u>Benefits</u> | <u>B / C</u> <u>Ratio</u> |
|---------------|---------------------------------|------------------------------|-------------------------------|------------------------------|
| 3 Participant | \$ 2,772,569 | \$ 2,429,088 | \$ 343,481 | 1.14 |

Total Resource Cost Test

| <u>Line</u> | <u>Total</u> <u>Benefits</u> | <u>Total</u> <u>Costs</u> | <u>Net</u> <u>Benefits</u> | <u>B / C</u> <u>Ratio</u> |
|----------------------------|---------------------------------|------------------------------|-------------------------------|------------------------------|
| 4 Total Resource Cost Test | \$ 6,681,233 | \$ 3,636,323 | \$ 3,044,909 | 1.84 |

Distribution System Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> | |
|-------------|--------------------------------------|--------------|---|---|
| 1 | | 1 | Avoided supply costs (e.g.production, transmission, and/or distribution) based on energy and load reductions. | |
| 2 | D. S. Electric Acquisition Decrease | \$ 4,176,209 | 2 | Decrease in Distribution Systems' wholesale power expense paid to EKPC. Based on EKPC's Wholesale Tariff Schedule E-2. |
| 3 | Rebates Received from EKPC | \$ - | 3 | PV of \$0 per participant rebate paid by EKPC to DS evaluated over 5 years. |
| 4 | Total Benefits | \$ 4,176,209 | 4 | Line 2 plus Line 3 |
| 5 | <u>Costs</u> | | 5 | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 6 | D. S. Base Electric Revenue Decrease | \$ 4,439,536 | 6 | D.S. reduction in electric revenues from decrease in kWh sales. Based on average residential retail rates of EKPC Distribution Systems. |
| 7 | Adjusted Revenue Decrease | \$ 276,003 | 7 | PV of Fuel Adjustment Clause evaluated over 20 years. |
| 8 | Distribution System Variable Cost | \$ 245,808 | 8 | PV of \$182 per new Participant evaluated over 5 years. |
| 9 | Total Costs | \$ 4,961,347 | 9 | Line 6 plus Line 7 plus Line 8. |
| 10 | <u>Net Benefits</u> | \$ (785,138) | 10 | Line 4 minus Line 9 |
| 11 | Benefit / Cost Ratio | 0.84 | 11 | Line 4 divided by Line 9 |

East Kentucky Power Cooperative Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> | |
|-------------|-----------------------------------|-------------------|--|---|
| 1 | | 1 | Avoided supply costs (production, transmission, and distribution) based on energy and load reductions. | |
| 2 | Distribution Capacity Credit | \$ 320,051 | 2 | Avoided distribution capacity. |
| 3 | Electric Production Cost Decrease | \$ 2,514,149 | 3 | PV of EKPC's electric production cost decrease over 20 years. Includes fuel and variable operating and maintenance expense. |
| 4 | Generation Capacity Credit | \$ 3,767,811 | 4 | PV of EKPC's avoided capacity costs due to reduction in generation over evaluated over 20 years. |
| 5 | Transmission Capacity Credit | \$ <u>79,222</u> | 5 | Avoided transmission capacity. |
| 6 | Total Benefits | \$ 6,681,233 | 6 | Line 2 + Line 3 + Line 4 + Line 5 |
| 7 | <u>Costs</u> | | 7 | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 8 | Base Revenue Decrease | \$ 3,884,451 | 8 | PV of EKPC's reduction in base revenues; based on EKPC's Wholesale Tariff Schedule E-2. |
| 9 | Adjusted Revenue Decrease | \$ 291,758 | 9 | PV of EKPC's Fuel Adjustment Clause evaluated over 20 years. |
| 10 | Fixed Administrative Cost | \$ 182,850 | 10 | PV of the EKPC's incremental administrative costs of \$44,000 per year evaluated over 5 years |
| 11 | Variable Costs | \$ <u>337,649</u> | 11 | PV of \$250 for blower door test per new Participant evaluated over 5 years. |
| 12 | Total Costs | \$ 4,696,708 | 12 | Line 8 + Line 9 + Line 10 + Line 11. |
| 13 | <u>Net Benefits</u> | \$ 1,984,525 | 13 | Line 6 minus Line 12. |
| 14 | Benefit / Cost Ratio | 1.42 | 14 | Line 6 divided by Line 12. |

Combined Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|--------------------------------------|---------------|---|
| 1 | | 1 | Avoided supply costs (production, transmission, and distribution) based on energy and load reductions. |
| 2 | Distribution System Electric Acq Dec | \$ 4,176,209 | 2 Decrease in Distribution Systems' wholesale power expense paid to EKPC. |
| 3 | Distribution Capacity Credit | \$ 320,051 | 3 Avoided distribution capacity. |
| 4 | EKPC Electric Prod Cost Decrease | \$ 2,514,149 | 4 PV of EKPC's electric production cost decrease over 20 years. Includes fuel and variable operating and maintenance expense. |
| 5 | EKPC Generation Capacity Credit | \$ 3,767,811 | 5 PV of EKPC's avoided capacity costs due to reduction in generation. |
| 6 | Transmission Capacity Credit | \$ 79,222 | 6 Avoided transmission capacity. |
| 7 | Total Benefits | \$ 10,857,441 | 7 Line 2 + Line 3 + Line 4 + Line 5 + Line 6 |
| 8 | <u>Costs</u> | | 8 Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 9 | D. S. Base Revenue Decrease | \$ 4,439,536 | 9 D.S. reduction in electric revenues from decrease in kWh sales. Based on average residential retail rates of EKPC Distribution Systems. |
| 10 | D. S. Adjusted Revenue Decrease | \$ 276,003 | 10 PV of Fuel Adjustment Clause over 5 years. |
| 11 | D. S. Part Based admin cost inc | \$ 245,808 | 11 PV of the Distribution Systems' program variable costs of \$182 per new Participant over 5 years. |
| 12 | EKPC Base Revenue Decrease | \$ 3,884,451 | 12 PV of EKPC's reduction in base revenues; based on EKPC's Wholesale Tariff Schedule E-2. |
| 13 | EKPC Adj Rev Decrease | \$ 291,758 | 13 PV of Fuel Adjustment Clause over 5 years. |
| 14 | EKPC Fixed Admin Cost | \$ 182,850 | 14 PV of the EKPC's incremental administrative costs over 5 years. |
| 15 | EKPC Variable Costs | \$ 337,649 | 15 PV of \$250 per new participant blower door test over 5 years. |
| 16 | Total Costs | \$ 9,658,055 | 16 Line 9 + Line 10 + Line 11 + Line 12 + Line 13 + Line 14 + Line 15 |
| 17 | <u>Net Benefits</u> | \$ 1,199,387 | 17 Line 7 minus Line 16 |
| 18 | Benefit / Cost Ratio | 1.12 | 18 Line 7 divided by Line 16 |

Participant Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|---------------------------------|-------------|---|
| 1 | | 1 | Incentive from Distribution System, plus a reduction in electric bill. |
| 2 | Customer Electric Bill Decrease | 2 | PV of reduction in Participants' retail electric bill due to decrease in energy consumption. Based on typical residential retail rate of 16 D. Systems. |
| | | | |
| 3 | Total Benefits | 3 | Line 2 |
| | | | |
| 4 | <u>Costs</u> | 4 | Participants' direct cost of participation. |
| | | | |
| 5 | Customer Investment | 5 | PV of Participants' incremental \$2,125 investment in the T.E. home evaluated over 5 years. |
| 6 | Total Costs | 6 | Line 5. |
| | | | |
| 7 | <u>Net Benefits</u> | 7 | Line 3 minus Line 5. |
| | | | |
| 8 | Benefits / Cost Ratio | 8 | Line 3 divided by Line 5. |

\$ 2,772,569

\$ 2,772,569

\$ 2,429,088

\$ 2,429,088

\$ 343,481

1.14

Total Resource Cost Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|-----------------------------------|-------------|---|
| 1 | | 1 | Avoided supply costs (e.g.production, transmission, and/or distribution) based on energy and load reductions. |
| 2 | Distribution Capacity Credit | 2 | Avoided distribution capacity. |
| | | | |
| 3 | EKPC Electric Prod Cost Decrease | 3 | PV of EKPC's electric production cost decrease evaluated over 20 years. Includes fuel and variable operating and maintenance expense. |
| 4 | EKPC Generation Capacity Credit | 4 | PV of EKPC's avoided capacity costs due to reduction in generation. |
| 5 | Transmission Capacity Credit | 5 | Avoided transmission capacity. |
| 6 | Total Benefits | 6 | Line 2 + Line 3 + Line 4 + Line 5 |
| 7 | <u>Costs</u> | 7 | Total program costs to participants, the Distribution Systems, and EKPC (excluding incentives). |
| 8 | Participants' Investment | 8 | PV of Customers' incremental investment in Touchstone Energy Home of \$2,125 per new Participant, evaluated over 5 years. |
| 9 | Distribution System Variable Cost | 9 | PV of \$182 per new participant evaluated over 5 years. |
| 10 | EKPC Fixed Admin Cost | 10 | PV of the EKPC's incremental administrative costs of \$44,000 per year, evaluated over 5 years. |
| 11 | EKPC Variable Cost | 11 | PV of \$250 per new Participant blower door test, evaluated over 5 years. |
| 12 | Total Costs | 12 | Line 8 + Line 9 + Line 10 + Line 11 |
| 13 | <u>Net Benefits</u> | 13 | Line 6 minus Line 12 |
| 14 | Benefit / Cost Ratio | 14 | Line 6 divided by Line 12 |

Distribution System Utility Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|-------------------------------------|-------------|--|
| 1 | | 1 | Avoided supply costs (production, transmission, and distribution) based on energy and load reductions. |
| 2 | D. S. Electric Acq Dec | 2 | Decrease in Distribution Systems' wholesale power expense paid to EKPC. Based on EKPC's Wholesale Tariff Schedule E-2. |
| 3 | EKPC Rebates Received | 3 | PV of \$250 per participant rebate paid by EKPC to DS over 5 years. |
| 4 | Total Benefits | 4 | Line 2 plus Line 3 |
| 5 | <u>Costs</u> | 5 | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 6 | D. S. Non-part based admin cost inc | 6 | PV of fixed administrative cost of \$5,000 per year for 20 years. |
| 7 | D. S. Part based admin cost inc | 7 | PV of \$30 variable cost per participant per year for 20 years. |
| 8 | D. S. Rebates Paid | 8 | PV of \$250 per participant rebate paid by DS to participants over 5 years. |
| 9 | Total Costs | 9 | Line 6 + Line 7 + Line 8 |
| 10 | <u>Net Benefits</u> | 10 | Line 4 minus Line 9 |
| 11 | Benefit / Cost Ratio | 11 | Line 4 divided by Line 9 |

Key differences between the 2003 analysis (original filing) and the 2006 IRP analysis:

1. The kWh and kW savings are lower in 2006 than in 2003. This is a result of the new Federal efficiency standards for heat pumps, whereby the baseline is now SEER 13 versus SEER 10.
2. Administrative costs are lower in 2006 than in 2003. We have the benefit of 3 years of actual experience. EKPC and Member Cooperatives have found ways to be more efficient in administering the program.
3. Rebate levels in 2006 are \$500 to customer versus the assumption of \$1,000 in 2003. This matches actual program experience to date.
4. Avoided production and capacity costs have been updated to reflect costs prevailing in 2006.
5. Retail and wholesale rates have been updated to 2006 values.
6. The number of participants has changed from 2003 and 10 years of new participants are being modeled instead of 5 years.

SECTION III

KEY ASSUMPTIONS From TE Home 2006 IRP

- (1) The benefits and costs for this program are expressed in terms of the Standard California cost effectiveness tests. EKPC utilized the software package *DSManager* that was developed by the Electric Power Research Institute (EPRI). These tests are: (1) Ratepayer Impact Test; (2) Participant Test; and (3) Total Resource Cost Test.
- (2) EKPC's generation capacity credit is based on the difference in the heating/cooling load shape for a "Standard Home" versus a new home constructed to "Touchstone Energy Home" standards. EKPC has estimated that the expected peak winter reduction is 1.29 kW per participant and the peak summer reduction is 0.59 kW per participant. Avoided capacity costs were determined using EKPC's forecasted base load capacity capital cost.
- (3) EKPC's production cost savings are based on the estimated reduction in fuel and variable operating and maintenance expenses due to the decrease in kWh generated as a result of the program.
- (4) EKPC estimates that incremental fixed administrative costs will average \$13,535 per year for the next ten years of the program. In addition, EKPC will pay an average of \$99 per new participant for variable administrative costs. The Member Systems' variable costs are \$182 per new participant.
- (5) Wholesale demand and energy rates are based on EKPC wholesale tariff Schedule E-2.
- (6) Retail rates are based on South Kentucky's RECC's residential rate. This rate serves as a proxy for EKPC's sixteen Member Systems' residential rates.
- (7) Rebates are modeled with the customer receiving a \$500 rebate, of which \$250 is provided by EKPC as its match, with the Member System also providing \$250. These values closely match the average rebates paid in the program to date.
- (8) The number of new air source heat pump home participants is estimated to be 100 per year for the next ten years. This estimate is based on actual participation in 2005.
- (9) EKPC has used a reduction of 2,182 kWh per participant per year for new participants in the program. This estimate is based on the difference in electricity consumption between (a) a home with a SEER 13 air source heat pump and a standard efficiency water heater built to Standard construction standards, and (b) a home with a SEER 15 air source heat pump and a high efficiency water heater built to Touchstone Energy Home standards.

(10) The participant's average incremental investment for the Touchstone Energy Home is estimated to be \$2,125. This investment is based on (a) the difference between a SEER 15 air source heat pump and a SEER 13 air source heat pump, due to changes in Federal efficiency standards; (b) the incremental cost of the insulation and air sealing associated with bringing the home from Standard to Touchstone levels; and (c) the incremental cost of a highly efficient water heater.

(11) For purposes of determining the present value of future benefits and costs of the program, a discount rate of 6.5% was used for both the Rate Impact Tests and Total Resource Test and 13% for the Participant Test.

(12) The program assesses the addition of new participants over ten years. No additional participants are evaluated after year ten. Demand and energy savings are evaluated an additional ten years, for a total time horizon of twenty years. This approach is standard in DSM program analysis.

**Touchstone Energy Home Program:
 Standard California Tests
 2006 Summary of Benefits and Costs**

Ratepayer Impact Test

| Line | | Total Benefits | Total Costs | Net Benefits | B / C Ratio |
|------|---------------------|-------------------|----------------|-----------------|----------------|
| 1 | Distribution System | \$ 1,418,351 | \$ 1,905,347 | \$ (486,996) | 0.74 |
| 2 | EKPC | \$ 3,207,651 | \$ 1,597,771 | \$ 1,609,880 | 2.01 |

Participant Test

| | Total Benefits | Total Costs | Net Benefits | B / C Ratio |
|---------------|-------------------|----------------|-----------------|----------------|
| 3 Participant | \$ 1,096,288 | \$ 1,302,977 | \$ (206,689) | 0.84 |

Total Resource Cost Test

| | Total Benefits | Total Costs | Net Benefits | B / C Ratio |
|----------------------------|-------------------|----------------|-----------------|----------------|
| 4 Total Resource Cost Test | \$ 3,207,651 | \$ 1,945,683 | \$ 1,261,968 | 1.65 |

Distribution System Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|--------------------------------------|-------------------|---|
| 1 | | 1 | Rebates received plus reduced wholesale bill. |
| 2 | D. S. Electric Acquisition Decrease | \$ 1,226,948 | Decrease in Distribution Systems' wholesale power expense paid to EKPC. Based on EKPC's Wholesale Tariff Schedule E-2. |
| 3 | Rebates Received from EKPC | <u>\$ 191,403</u> | PV of \$250 per participant rebate paid by EKPC to D.S. evaluated over 10 years. |
| 4 | Total Benefits | \$ 1,418,351 | Line 2 plus Line 3 |
| 5 | <u>Costs</u> | | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 6 | D. S. Base Electric Revenue Decrease | \$ 1,368,169 | D.S. reduction in electric revenues from decrease in kWh sales. Based on average residential retail rates of EKPC Distribution Systems. |
| 7 | Adjusted Revenue Decrease | \$ 15,032 | PV of Fuel Adjustment Clause evaluated over 20 years. |
| 8 | Distribution System Variable Cost | \$ 139,341 | PV of \$182 per new Participant evaluated over 10 years. |
| 9 | Rebates Paid to Consumers | <u>\$ 382,805</u> | PV of \$500 per participant paid by D. S. evaluated over 10 years. |
| 10 | Total Costs | \$ 1,905,347 | Line 6 plus Line 7 plus Line 8 plus Line 9. |
| 11 | <u>Net Benefits</u> | \$ (486,996) | Line 4 minus Line 10 |
| 12 | Benefit / Cost Ratio | 0.74 | Line 4 divided by Line 10 |

East Kentucky Power Cooperative Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|-----------------------------------|-------------|---|
| 1 | | 1 | Avoided supply costs (production, transmission, and distribution) based on energy and load reductions. |
| 2 | Distribution Capacity Credit | 2 | Avoided distribution capacity. |
| | | | |
| 3 | Electric Production Cost Decrease | 3 | PV of EKPC's electric production cost decrease over 20 years. Includes fuel and variable operating and maintenance expense. |
| 4 | Generation Capacity Credit | 4 | PV of EKPC's avoided capacity costs due to reduction in generation requirements evaluated over 20 years. |
| 5 | Transmission Capacity Credit | 5 | Avoided transmission capacity. |
| 6 | Total Benefits | 6 | Line 2 + Line 3 + Line 4 + Line 5 |
| 7 | <u>Costs</u> | 7 | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 8 | Base Revenue Decrease | 8 | PV of EKPC's reduction in base revenues; based on EKPC's Wholesale Tariff Schedule E-2. |
| 9 | Adjusted Revenue Decrease | 9 | PV of EKPC's Fuel Adjustment Clause evaluated over 20 years. |
| 10 | Fixed Administrative Cost | 10 | PV of the EKPC's incremental administrative costs of \$13,535 per year evaluated over 10 years. |
| 11 | Variable Costs | 11 | PV of \$99 per new Participant evaluated over 10 years. |
| 12 | Rebates Paid | 12 | PV of \$250 to D.S. evaluated over 10 years. |
| 13 | Total Costs | 13 | Line 8 + Line 9 + Line 10 + Line 11 + Line 12. |
| 14 | <u>Net Benefits</u> | 14 | Line 6 minus Line 13. |
| 15 | Benefit / Cost Ratio | 2.01 | Line 6 divided by Line 13. |

Combined Ratepayer Impact Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|--------------------------------------|-------------|---|
| 1 | | 1 | Avoided supply costs (production, transmission, and distribution) based on energy and load reductions. |
| 2 | Distribution System Electric Acq Dec | 2 | Decrease in Distribution Systems' wholesale power expense paid to EKPC. |
| 3 | Distribution Capacity Credit | 3 | Avoided distribution capacity. |
| 4 | EKPC Electric Prod Cost Decrease | 4 | PV of EKPC's electric production cost decrease over 20 years. Includes fuel and variable operating and maintenance expense. |
| 5 | EKPC Generation Capacity Credit | 5 | PV of EKPC's avoided capacity costs due to reduction in generation requirements |
| 6 | Transmission Capacity Credit | 6 | Avoided transmission capacity. |
| 7 | Total Benefits | 7 | Line 2 + Line 3 + Line 4 + Line 5 + Line 6 |
| 8 | <u>Costs</u> | 8 | Utility program costs (including incentives) plus net lost revenues caused by reduced sales. |
| 9 | D. S. Base Revenue Decrease | 9 | D.S. reduction in electric revenues from decrease in kWh sales. Based on average residential retail rates of EKPC Distribution Systems. |
| 10 | D. S. Adjusted Revenue Decrease | 10 | PV of Fuel Adjustment Clause over 20 years. |
| 11 | D. S. Part Based admin cost inc | 11 | PV of the Distribution Systems' program variable costs of \$182 per new Participant over 10 years. |
| 12 | EKPC Base Revenue Decrease | 12 | PV of EKPC's reduction in base revenues; based on EKPC's Wholesale Tariff Schedule E-2. |
| 13 | EKPC Adj Rev Decrease | 13 | PV of Fuel Adjustment Clause over 20 years. |
| 14 | EKPC Fixed Admin Cost | 14 | PV of the EKPC's incremental administrative costs over 10 years. |
| 15 | EKPC Variable Costs | 15 | PV of \$99 per new participant over 10 years. |
| 16 | D. S. Rebates Paid | 16 | PV of \$500 per new participant over 10 years. |
| 17 | Total Costs | 17 | Line 9 + Line 10 + Line 11 + Line 12 + Line 13 + Line 14 + Line 15 + Line 16 |
| 18 | <u>Net Benefits</u> | 18 | Line 7 minus Line 17 |
| 19 | Benefit / Cost Ratio | 19 | Line 7 divided by Line 17 |

Participant Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|---------------------------------|-------------|---|
| 1 | | 1 | Incentive from Distribution System, plus a reduction in electric bill. |
| 2 | Customer Electric Bill Decrease | 2 | PV of reduction in Participants' retail electric bill due to decrease in energy consumption. Based on typical residential retail rate of 16 D. Systems. |
| 3 | Rebates from D. S. | 3 | PV of rebate received from D. S. |
| 4 | Total Benefits | 4 | Line 2 + Line 3. |
| 5 | | 5 | Participants' direct cost of participation. |
| 6 | Customer Investment | 6 | PV of Participants' incremental \$2,125 investment in the T.E. home evaluated over 10 years. |
| 7 | Total Costs | 7 | Line 6. |
| 8 | <u>Net Benefits</u> | 8 | Line 4 minus Line 7. |
| 9 | Benefits / Cost Ratio | 9 | Line 4 divided by Line 7. |

| | |
|----|------------------|
| \$ | 789,706 |
| \$ | <u>306,583</u> |
| \$ | 1,096,289 |
| \$ | <u>1,302,977</u> |
| \$ | 1,302,977 |
| \$ | (206,688) |
| | 0.84 |

Total Resource Cost Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|-----------------------------------|-------------|---|
| 1 | | 1 | Avoided supply costs (e.g.production, transmission, and/or distribution) based on energy and load reductions. |
| 2 | Distribution Capacity Credit | 2 | \$ 385,534 |
| 3 | EKPC Electric Prod Cost Decrease | 3 | \$ 1,002,702 |
| 4 | EKPC Generation Capacity Credit | 4 | \$ 1,642,618 |
| 5 | Transmission Capacity Credit | 5 | \$ 176,797 |
| 6 | Total Benefits | 6 | \$ 3,207,651 |
| 7 | <u>Costs</u> | 7 | Total program costs to participants, the Distribution Systems, and EKPC (excluding incentives). |
| 8 | Participants' Investment | 8 | \$ 1,626,922 |
| 9 | Distribution System Variable Cost | 9 | \$ 139,341 |
| 10 | EKPC Fixed Admin Cost | 10 | \$ 103,625 |
| 11 | EKPC Variable Cost | 11 | \$ 75,795 |
| 12 | Total Costs | 12 | \$ 1,945,683 |
| 13 | <u>Net Benefits</u> | 13 | \$ 1,261,968 |
| 14 | Benefit / Cost Ratio | 14 | 1.65 |

AVOIDED TRANSMISSION CAPACITY
 PV of EKPC's electric production cost decrease evaluated over 20 years. Includes fuel and variable operating and maintenance expense.
 PV of EKPC's avoided capacity costs due to reduction in generation requirement
 Avoided transmission capacity.
 Line 2 + Line 3 + Line 4 + Line 5
 Total program costs to participants, the Distribution Systems, and EKPC (excluding incentives).
 PV of Customers' incremental investment in Touchstone Energy Home of \$2,125 per new Participant, evaluated over 10 years.
 PV of \$182 per new participant evaluated over 10 years.
 PV of the EKPC's incremental fixed administrative costs of \$13,535 per year, evaluated over 10 years.
 PV of \$99 per new Participant, evaluated over 10 years.
 Line 8 + Line 9 + Line 10 + Line 11
 Line 6 minus Line 12
 Line 6 divided by Line 12

EAST KENTUCKY POWER COOPERATIVE, INC.

PSC CASE NO. 2006-00547

CONTINUATION OF TOUCHSTONE ENERGY HOME REBATE PROGRAM

RESPONSE TO SECOND DATA REQUEST

COMMISSION STAFF'S FIRST DATA REQUEST DATED 5/09/07

REQUEST 2

RESPONSIBLE PERSON: William Bosta

COMPANY: East Kentucky Power Cooperative, Inc.

REQUEST 2. Refer to EKPC's response to Item 7 of Commission Staff's First Data Request dated February 14, 2007.

- a. Calculate the associated dollar value of estimated savings to date.
- b. Calculate the dollar value of expected future savings associated with the program for 2007-2025.
- c. Using the expected savings in the future calculate the net present value of the Touchstone Program, showing all calculations and assumptions.

RESPONSE 2. In order to respond to this request, EKPC prepared a new DSManager run using the historic (2004-2006) actual values for 1) number of participants, 2) rebates, 3) administrative costs, 4) Estimated MWH savings shown in response to Item 7 of the First Staff Request, and 5) Estimated avoided energy and capacity cost taken from the Company's 2003 IRP. That IRP was in effect during the 2004-2006 timeframe.

RESPONSE 2a. The present value of the estimated savings to date is \$196,774. Please see the information contained in PSC – 2, Attachment 1, Page 1 for that computation and Page 2 for the number of participants

RESPONSE 2b. The estimated future savings under the Total Resource Cost test for 2007 through 2021 (the last year for which avoided capacity and avoided production cost were available in the 2003 IRP) on a present value basis equals \$1,422,115. PSC – 2, Attachment 1 provides the computation.

RESPONSE 2c. The present value of all savings, both for the 2004 through 2006 time period and for the estimated future savings of 2007 through 2021, equals \$1,618,893. This present value savings amount is based on the production cost savings and avoided generation, transmission and distribution capacity costs for the 2004 through 2006 period and the savings for those same components for the 2007-2021 projected time period. The net present value, including both benefits and costs, under the Total Resource Cost Test, equals \$778,549. PSC-2, Attachment 2, includes the results and explanations for the Total Resource Cost Test, the Power Supplier Utility Test and the Participant Test.

Value of Savings associated with Touchstone Energy Home Program

| Discount rate: | | 6.50% | | | | | | | |
|----------------|------|-------------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|--------------|--|--------------|
| (\$ thousands) | | | | | | | | | |
| Present Value: | | | | | | | | | |
| 2004-2006 | | | | | | | | | |
| 2007-2021 | | | | | | | | | |
| | | Production Cost Savings | Generation Capacity Savings | Distribution Capacity Savings | Transmission Capacity Savings | Production & Capacity Savings | Total | | |
| | | \$ thousands | \$ thousands | \$ thousands | \$ thousands | \$ thousands | \$ thousands | | \$ thousands |
| 2a. | 2004 | 6.92 | 9.35 | 0.77 | 0.19 | 17.23 | | | \$1,618.89 |
| | 2005 | 24.63 | 38.20 | 3.15 | 0.78 | 66.76 | | | \$196.77 |
| | 2006 | 60.85 | 92.14 | 7.62 | 1.88 | 162.50 | | | \$1,422.11 |
| | | | | | | | | | |
| 2b. | 2007 | 63.91 | 94.64 | 7.86 | 1.94 | 168.35 | | | |
| | 2008 | 62.88 | 97.20 | 8.09 | 2.01 | 170.17 | | | |
| | 2009 | 68.09 | 99.82 | 8.33 | 2.07 | 178.31 | | | |
| | 2010 | 68.22 | 100.75 | 8.58 | 2.13 | 179.68 | | | |
| | 2011 | 75.16 | 103.48 | 8.84 | 2.19 | 189.67 | | | |
| | 2012 | 70.86 | 106.28 | 9.11 | 2.26 | 188.51 | | | |
| | 2013 | 75.12 | 109.15 | 9.38 | 2.33 | 195.97 | | | |
| | 2014 | 78.59 | 112.10 | 9.66 | 2.39 | 202.75 | | | |
| | 2015 | 78.59 | 115.14 | 9.95 | 2.46 | 206.14 | | | |
| | 2016 | 78.59 | 118.99 | 10.25 | 2.53 | 210.36 | | | |
| | 2017 | 78.59 | 122.20 | 10.55 | 2.61 | 213.95 | | | |
| | 2018 | 78.59 | 125.51 | 10.87 | 2.69 | 217.66 | | | |
| | 2019 | 78.59 | 128.91 | 11.20 | 2.77 | 221.47 | | | |
| | 2020 | 78.59 | 132.40 | 11.54 | 2.85 | 225.38 | | | |
| | 2021 | 78.59 | 134.81 | 11.60 | 2.87 | 227.87 | | | |
| | | | | | | | | | \$1,422,115 |

Note: All present value calculations use 2004

Historic Cost information for Touchstone Energy Home program

| | 2004 | 2005 | 2006 |
|--|------------------|------------------|------------------|
| Participants (Used to calculate values in response 2) | 44 | 131 | 236 |
| Rebates paid by EKPC | \$ 12,000 | \$ 29,700 | \$ 56,225 |
| Rebates paid by Coop | \$ 12,000 | \$ 29,700 | \$ 56,225 |
| Administrative/Labor Costs | \$ 12,736 | \$ 11,406 | \$ 8,656 |
| Subcontractors/Consultants/Vendor Expenses | \$ 10,746 | \$ 6,967 | \$ 10,527 |
| Blower Door Tests | \$ 5,625 | \$ 12,500 | \$ 12,750 |
| Other Performance Tests | \$ 1,590 | \$ - | \$ - |
| Total Annual Costs incurred by EKPC | \$ 42,697 | \$ 60,573 | \$ 88,158 |
| Admin per customer | \$ 289.45 | \$ 87.07 | \$ 36.68 |
| Subcontractor per customer | \$ 244.23 | \$ 53.18 | \$ 44.61 |
| Blower door per customer | \$ 127.84 | \$ 95.42 | \$ 54.03 |
| Total Rebate per customer | \$ 545.45 | \$ 453.44 | \$ 476.48 |
| Fixed EK Admin | \$ 12,736 | \$ 11,406 | \$ 8,656 |
| Variable EK Admin per customer | \$ 408.20 | \$ 148.60 | \$ 98.63 |
| EK Rebate per customer | \$ 272.73 | \$ 226.72 | \$ 238.24 |
| Coop Rebate per customer | \$ 272.73 | \$ 226.72 | \$ 238.24 |
| Total EK Costs | \$ 42,697 | \$ 60,573 | \$ 88,158 |

Touchstone Energy Program Standard California Tests - NPV
Total Resource Cost Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> | |
|-------------|-----------------------------------|------------------|--|---|
| 1 | | 1 | Avoided supply costs (e.g. production, transmission, and/or distribution) based on energy and load reductions. | |
| 2 | Distribution Capacity Credit | \$ 77,897 | 2 | Avoided distribution capacity. |
| 3 | EKPC Electric Prod Cost Decrease | \$ 605,895 | 3 | PV of EKPC's electric production cost decrease evaluated over 20 years. Includes fuel and variable operating and maintenance expense. |
| 4 | EKPC Generation Capacity Credit | \$ 915,820 | 4 | PV of EKPC's avoided capacity costs due to reduction in generation requirements. |
| 5 | Transmission Capacity Credit | <u>\$ 19,281</u> | 5 | Avoided transmission capacity. |
| 6 | Total Benefits | \$ 1,618,893 | 6 | Line 2 + Line 3 + Line 4 + Line 5 |
| 7 | <u>Costs</u> | | 7 | Total program costs to participants, the Distribution Systems, and EKPC (excluding incentives). |
| 8 | Participants' Investment | \$ 702,715 | 8 | PV of Customers' incremental investment in Touchstone Energy Home of \$2,125 per new Participant, evaluated over 3 years. |
| 9 | Distribution System Variable Cost | \$ 60,185 | 9 | PV of \$182 per new participant evaluated over 3 years. |
| 10 | EKPC Fixed Admin Cost | \$ 27,400 | 10 | PV of EKPC's incremental fixed administrative costs for 3 program years: 2004-2006. |
| 11 | EKPC Variable Cost | <u>\$ 50,044</u> | 11 | PV of EKPC's variable administrative costs for 3 program years: 2004-2006. |
| 12 | Total Costs | \$ 840,344 | 12 | Line 8 + Line 9 + Line 10 + Line 11 |
| 13 | <u>Net Benefits</u> | \$ 778,549 | 13 | Line 6 minus Line 12 |
| 14 | Benefit / Cost Ratio | 1.93 | 14 | Line 6 divided by Line 12 |

Power Supplier Utility Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|----------------------------------|--------------|---|
| 1 | | 1 | Avoided supply costs (e.g.production, transmission, and/or distribution) based on energy and load reductions. |
| 2 | Distribution Capacity Credit | 2 | Avoided distribution capacity. |
| | | \$ 77,897 | |
| 3 | EKPC Electric Prod Cost Decrease | 3 | PV of EKPC's electric production cost decrease evaluated over 20 years. Includes fuel and variable operating and maintenance expense. |
| | | \$ 605,895 | |
| 4 | EKPC Generation Capacity Credit | 4 | PV of EKPC's avoided capacity costs due to reduction in generation requirements. |
| | | \$ 915,820 | |
| 5 | Transmission Capacity Credit | 5 | Avoided transmission capacity. |
| | | \$ 19,281 | |
| 6 | Total Benefits | 6 | Line 2 + Line 3 + Line 4 + Line 5 |
| | | \$ 1,618,893 | |
| 7 | <u>Costs</u> | 7 | Total program costs to EKPC including incentives. |
| 8 | Rebates EKPC to D. S. | 8 | Actual rebates paid by EKPC for 3 program years: 2004-2006. |
| | | \$ 78,872 | |
| 9 | EKPC Fixed Admin Cost | 9 | PV of EKPC's incremental fixed administrative costs for 3 program years: 2004-2006. |
| | | \$ 27,400 | |
| 10 | EKPC Variable Cost | 10 | PV of EKPC's variable administrative costs for 3 program years: 2004-2006. |
| | | \$ 50,044 | |
| 11 | Total Costs | 11 | Line 8 + Line 9 + Line 10 |
| | | \$ 156,316 | |
| 12 | <u>Net Benefits</u> | 12 | Line 6 minus Line 12 |
| | | \$ 1,462,577 | |
| 13 | Benefit / Cost Ratio | 13 | Line 6 divided by Line 12 |
| | | 10.36 | |

Participant Test

| <u>LINE</u> | <u>Benefits</u> | <u>LINE</u> | <u>EXPLANATION</u> |
|-------------|---------------------------------|-------------|---|
| 1 | | 1 | Incentives from Distribution System, plus reduction in electric bills. |
| 2 | Customer Electric Bill Decrease | 2 | PV of reduction in Participants' retail electric bill due to decrease in energy consumption. Based on typical residential retail rate for the D. Systems. |
| 3 | Rebates from D. S. | 3 | PV of rebates received from D. S. |
| 4 | Total Benefits | 4 | Line 2 + Line 3. |
| 5 | <u>Costs</u> | 5 | Participants' direct cost of participation. |
| 6 | Customer Investment | 6 | PV of Participants' incremental \$2,125 investment per customer in the T.E. home evaluated over 3 years. |
| 7 | Total Costs | 7 | Line 6. |
| 8 | <u>Net Benefits</u> | 8 | Line 4 minus Line 7. |
| 9 | Benefit / Cost Ratio | 9 | Line 4 divided by Line 7. |

| | |
|------------|------------|
| \$ 652,488 | \$ 781,418 |
| \$ 128,930 | \$ 573,731 |
| \$ 207,687 | \$ 573,731 |
| 1.36 | |