STITES & HARBISON PLLC
ATTORNEYS

421 West Main Street
Post Office Box 634
Frankfort, KY 40602-0634
(502) 223-3477
(502) 223-4124 Fax
www.stites.com

October 23, 2008

Mark R. Overstreet
(502) 209-1219
(502) 223-4387 FAX
moverstreet@stites.com

HAND DELIVERED

Stephanie Stumbo
Executive Director
Public Service Commission of Kentucky
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602-0615

RE: P.S.C. Case 2008-00349

Dear Ms. Stumbo:

Enclosed please find and accept for filing an original and seven copies of Kentucky Power Company's Responses to the Data Requests propounded by the Commission's October 13, 2008 Order.

By a copy of this letter, I am serving a copy of the Response on the Attorney General's Office of Rate Intervention. Please do not hesitate to contact me if you have any questions.

Very truly yours,

Mark R. Overstreet

cc: Dennis G. Howard, II

KE057:00KE4:16706:3:FRANKFORT

COMMONWEALTH OF KENTUCKY

BEFORE THE

PUBLIC SERVICE COMMISSION OF KENTUCKY

IN THE MATTER OF

THE JOINT APPLICATION PURSUANT TO 1994 HOUSE BILL NO 501 FOR THE APPROVAL OF KENTUCKY POWER COMPANY COLLABORATIVE DEMAND-SIDE MANAGEMENT PROGRAMS, AND FOR AUTHORITY TO IMPLEMENT A TARIFF TO RECOVER COSTS, NET LOST REVENUES AND RECEIVE INCENTIVES ASSOCIATED WITH THE IMPLEMENTATION OF THE KENTUCKY POWER COMPANY COLLABORATIVE DEMAND-SIDE MANAGEMENT PROGRAMS BEGINNING JANUARY 1, 2009	)	Case No. 2008-00349

KENTUCKY POWER COMPANY

RESPONSES TO COMMISSION STAFF FIRST SET OF DATA REQUESTS

October 23, 2008

Kentucky Power Company

REQUEST

Refer to Kentucky Power's response to Item 4(b) of the Commission Staff's March 11, 2008 data request in Case No. 2007-00477. The response indicates that, at that time, Kentucky Power had been considering load control programs for six to nine months as part of a rollout of advance metering infrastructure. It also stated that direct load control could be implemented sooner without advanced metering but that Kentucky Power believed the rollout of the two programs together was a more comprehensive solution and would provide greater benefits to both the company and its customers over the long run.

a. Seven months have passed since that response was filed with the Commission. Describe the current status of Kentucky Power's plans for the rollout of direct load control and advanced metering infrastructure.

b. Provide a detailed explanation for why Kentucky Power believes that the joint rollout of the two programs is a more comprehensive solution that will provide greater benefits to the company and its customers in the long run.

RESPONSE

(a&b)Kentucky Power continues to monitor technology advances in advanced metering infrastructure (AMI) and direct load control. Currently, the tentative plans are to roll out advanced metering infrastructure, including direct load control, within Kentucky Power Company's service territory during 2012.

Direct load control programs can be introduced without AMI. However, it would be inefficient to introduce the non-AMI direct load control program while AMI is being considered. For example, if Kentucky Power were to introduce direct load control programs in advance of the AMI infrastructure (which includes a communication system), it would require the Company and its ratepayers to install and maintain two communication systems. If the Company waits until the AMI infrastructure (including the AMI meters, thermostats and a communication system) are installed, the Company will only need to install and maintain one communication system, thus being less costly to the Company and its ratepayers.

Vendors are working on smart thermostats that can use multiple communication technologies, which could accommodate the changing of the "processor card" and not the entire unit. These thermostats are in the early stages of production. When this technology is perfected it would be more feasible to deploy direct load control separate from AMI.

The AEP System in 2009 is deploying an AMI infrastructure in another AEP System's jurisdiction. This AMI deployment is open to approximately 10,000 customers and includes a voluntary direct load control program to those customers. Kentucky Power will closely monitor the results of this pilot program so we can benefit from any lessons learned.

WITNESS: Errol K Wagner

Kentucky Power Company

REQUEST

Provide the date of Kentucky Power's first billing cycle for the revenue months of December 2008 and January, February, and March of 2009.

RESPONSE

The first billing cycle for the revenue months are as follows:

Revenue Month and Year	Cycle 1 Billing Date
December 2008	November 25, 2008
January 2009	December 30, 2008
February 2009	January 29, 2009
March 2009	February 27, 2009

WITNESS: Errol K Wagner

Kentucky Power Company

REQUEST

The application does not include a proposed revision to Kentucky Power's demand-side management ("DSM") tariff and makes no mention of cost recovery.

a. When does Kentucky Power plan to initiate recovery of costs associated with the three proposed DSM programs?

b. If not planning to initiate recovery upon the proposed implementation of the programs in January 2009, when does Kentucky Power plan to do so?

RESPONSE

(a) Dependent upon the Commission's approval of the three new proposed DSM programs, the Collaborative anticipates to begin incurring costs associated with the three new programs on or about January 1, 2009. Cost recovery is anticipated to begin on or about April 1, 2009. The cost recovery time table coincides with the required semi-annual status report of the DSM Collaborative which will be filed with the Commission on or about February 15, 2009. The February 15, 2009 filing will contain a proposed revision to Kentucky Power Company's DSM Tariff which will reflect the calculation of costs associated with the three new DSM programs being requested in this Application, as well as the other DSM programs previously approved by the Commission.

(b) On or about April 1, 2009, the anticipated effective date of the February 15, 2009 filing.

WITNESS: Errol K Wagner

Kentucky Power Company

REQUEST

Provide the calculations, spreadsheets, or other work papers used to derive the expected savings and benefits and benefit/costs ratios associated with each of the three proposed programs.

RESPONSE

Upon reviewing the calculations, we discovered some errors. The errors have been corrected and revised spreadsheets have been attached.

An explanation of the corrections are as follows:

Community Outreach Compact Fluorescent Lighting Program

The total program costs for year 2011 in the original spreadsheet for Community Outreach Compact Fluorescent Lighting Program were $53,000 and it should have been $54,000. The revised spreadsheet now reflects the correct amount, which matches the program description filed in Case No. 2008-00349. The change in the yearly amount and the change in spreadsheet assumptions changed the TRC test results from 13.08 to 13.05, the RIM test results changed from 3.06 to 3.05, the Utility Cost test results changed from 30.28 to 30.08 and the Participant Cost test results remained the same. The Projected Program MW Savings assuming participation changed the system summer peak demand from 0.42 MW to 0.042 MW. This revision did not change the fact that this program is still cost effective.

The revised calculations and spreadsheets used to derive the expected savings are attached.

Energy Education for Student Program

The total program costs in the original spreadsheet for the Energy Education for Student Program for year 2009 were $40,200 and the costs should have been $22,000. Additionally, for year 2010, the total program costs were $53,900 and the costs should have been $31,000. And for Year 2011, the total program costs were $53,000 and the costs should have been $34,000. The revised spreadsheet now reflects the correct amounts, which matches the program description filed in Case No. 2008-00349.The change in the yearly amount and the change in spreadsheet assumptions changed the TRC test results from 8.09 to 11.21, the RIM test results changed from 2.39 to 2.84, the Participant test results changed from 28.73 to 29.31 and finally the Utility Cost test results changed from 12.55 to 21.64.

On page 8 of 12, the Annual Expected Program Savings/Benefits @ 4,800 CFLs in one year have been revised. The Summer Peak Demand (kW) Reduction changed from 14 to 4. The Winter Peak Demand (kW) Reduction changed from 359 to 110. This Projected Program MWh Savings and kW Reduction reflects the assumed participation change. This participation change resulted in the Energy Savings changing from 717.6 MWh to 901.6 MWh. The Demand Reduction @ system winter peak changed from 110 kW to 451 kW. The Demand Reduction @ system summer peak changed from 4 kW to 18 kW. These revisions did not change the fact that this program is still cost effective.

The revised calculations and spreadsheets used to derive the expected savings are attached.

High Efficiency Heat Pump Program

The calculations and spreadsheets used to derive the expected savings are attached.

WITNESS: Errol K Wagner

Kentucky Power Company
Community Outreach Compact Fluorescent Lighting (CFL) Program
Expected Savings / Benefits

	As Filed	Revised
Projected Program MWh Savings and MW Reduction Assuming Participation Goal of 46,000 CFLs is achieved (all customers in three years)		
Demand Reduction - @ System Summer Peak (MW)	0.420	0.042
COST / BENEFIT ANALYSIS		
Total Resource Cost	13.08	13.05
Ratepayer Impact Measure	3.06	3.05
Utility Cost	30.28	30.08

Kentucky Power Company
Community Outreach Compact Fluorescent Lighting Program

Total Program for 3 Years
Summer *Peaking KPC*
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	c5-c6
Watt Hour Savings	46,000	c9*c7
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	=C9*C11
Number of Lamps Distributed	46,000	
Program Annual kWh Savings	2,116,000	=C14*c10/C8
Program Coincident Peak kW Savings	42	=C12*C14/C8

*Diversified Demand Given Operating Conditions

Total Program for 3 Years
Winter Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	g5-g6
Watt Hour Savings	46,000	g9*g7
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per Lamp*	23	=g9*g11
Number of Lamps Distributed	46,000	
Program Annual kWh Savings	2,116,000	=g14*g10/g8
Program Coincident Peak kW Savings	1,058	=g12*g14/g8

*Diversified Demand Given Operating Conditions

Unit Wattage Derivation

Original Bulb	*Savings per Replacement*
60	37
75	52
100	77
40	17
69	46

Average Wattage and Energy Savings

First Year
Summer Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	
Number of Lamps Distributed	14,000	
Program Annual kWh Savings	644,000	
Program Coincident Peak kW Savings	13	

*Diversified Demand Given Operating Conditions

First Year
Winter Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per Lamp*	23	
Number of Lamps Distributed	14,000	
Program Annual kWh Savings	644,000	
Program Coincident Peak kW Savings	322	

*Diversified Demand Given Operating Conditions

Kentucky Power Company
Community Outreach Compact Fluorescent Lighting Program

Total Program for 3 Years

Summer Peaking KPC

Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	
Operating Life	7,000	Hours
Number of Lamps Distributed	46,000	
Program Annual kWh Savings	**2,116,000**	
Program Coincident Peak kW Savings	**42**	

*Diversified Demand Given Operating Conditions

Winter Peaking KPC

Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per La	23	
Number of Lamps Distributed	46,000	
Program Annual kWh Savings	**2,116,000**	
Program Coincident Peak kW Savings	**1,058**	

*Diversified Demand Given Operating Conditions

ANNUAL BUDGET

	Year 1	Year 2	Year 3
CFLs	$35,000	$40,000	$40,000
Promotion	$3,200	$3,900	$4,000
Administration	$2,000	$2,000	$2,000
Evaluation	$ 0,000	$8,000	$8,000
TOTAL COSTS	$40,200	$53,900	$54,000

Kentucky Power Company
Community Outreach Compact Fluorescent Lighting Program

Community Outreach Program 2009

Year	Program Benefits: MWH Program Energy Savings	Program Capacity Saving (Summer) kW	Participant Benefits: Energy ($)	Capacity ($)	Avoided Energy Charges	Program Costs: Program Costs	Participant Costs: Replacement CFL's (N)	Participant Costs: Participant Costs	Lost Revenues: Participant energy Rate	Lost Revenues: Lost Margin	Lost Revenues: Lost Marginal Revenues	Avoided Costs	KPC ($/MWh) All Hours	CT ($ kW-year)
2009	644	0.01	28,654.74	1.03	$41,699.00	($40,200)			$0.06	$0.02	($53,244.26)	2009	44.4949325	79.9488638
2010	1,288	0.03	57,252.54	2.10	$83,398.00	($53,900)			$0.06	$0.02	($60,045.46)	2010	44.4507273	81.5478411
2011	2,116	0.04	97,376.65	3.52	$136,981.22	($54,000)			$0.06	$0.02	($93,604.56)	2011	46.0292176	83.1787979
2012	2,116	0.04	103,013.16	3.59	$137,011.00				$0.06	$0.02	($33,997.84)	2012	48.6829657	84.8423739
2013	2,116	0.04	103,955.97	3.66	$137,011.00				$0.06	$0.02	($33,055.03)	2013	49.1285295	86.5392214
2014	2,116	0.04	105,114.30	3.74	$137,011.00				$0.06	$0.02	($31,896.70)	2014	49.6759437	88.2700058
2015	2,116	0.04	125,244.06	3.81	$137,011.00				$0.06	$0.01	($11,766.94)	2015	59.1890647	90.0354059
2016	2,116	0.04	126,998.33	3.89	$164,413.20		14,000	($28,000.00)	$0.06	$0.02	($35,414.87)	2016	60.0632936	91.836114
2017	2,116	0.04	130,826.13	3.79	$164,413.20		16,000	($32,000.00)	$0.06	$0.02	($33,587.07)	2017	61.8270927	89.4528239
2018	2,116	0.04	135,710.39	3.83	$164,413.20		16,000	($32,000.00)	$0.06	$0.01	($28,702.81)	2018	64.1353456	90.5385449
2019	2,116	0.04	140,826.88	3.84	$164,413.20				$0.06	$0.01	($23,586.32)	2019	66.553344	90.8254224
2020	2,116	0.04	146,012.34	3.81	$164,413.20				$0.06	$0.01	($18,400.86)	2020	69.0039401	90.0434973
2021	2,116	0.04	150,489.85	3.83	$197,295.84				$0.09	$0.02	($46,805.99)	2021	71.1199857	90.5516628
2022	2,116	0.04	154,781.47	3.83	$197,295.84				$0.09	$0.02	($42,514.37)	2022	73.1461418	90.5191541
2023	2,116	0.04	149,674.62	3.82	$197,295.84		14,000	($28,000.00)	$0.09	$0.02	($47,621.22)	2023	70.7346994	90.292162
2024	2,116	0.04	156,030.60	3.83	$197,295.84		16,000	($32,000.00)	$0.09	$0.02	($41,265.24)	2024	73.7364679	90.4975765
2025	2,116	0.04	162,539.99	3.83	$197,295.84		16,000	($32,000.00)	$0.09	$0.02	($34,755.85)	2025	76.8147405	90.4398938
2026	2,116	0.04	168,520.74	3.83	$197,295.84				$0.09	$0.01	($28,775.10)	2026	79.6411834	90.3852554
2027	2,116	0.04	175,119.83	3.83	$197,295.84				$0.09	$0.01	($22,176.01)	2027	82.7598437	90.4596287
2028	2,116	0.04	181,339.69	3.83	$236,755.01				$0.11	$0.03	($55,415.32)	2028	85.699286	90.4249702
2029	2,116	0.04	188,627.67	3.83	$236,755.01				$0.11	$0.02	($48,127.34)	2029	89.1435105	90.4166657
2030	2,116	0.04	195,859.01	3.83	$236,755.01		14,000	($28,000.00)	$0.11	$0.02	($40,896.00)	2030	92.5609684	90.4409154
2031	2,116	0.04	199,227.78	3.83	$236,755.01		16,000	($32,000.00)	$0.11	$0.02	($37,527.22)	2031	94.1530171	90.4248595
2032	2,116	0.04	202,654.50	3.83	$236,755.01		16,000	($32,000.00)	$0.11	$0.02	($34,100.51)	2032	95.7724489	90.4261145
2033	2,116	0.04	206,140.16	3.83	$284,106.01				$0.13	$0.04	($77,965.85)	2033	97.4197351	90.4330966
2034	2,116	0.04	209,685.77	3.83	$284,106.01				$0.13	$0.04	($74,420.24)	2034	99.0953545	90.4266507
2035	2,116	0.04	213,292.37	3.83	$284,106.01				$0.13	$0.03	($70,813.64)	2035	100.799795	90.4265313
2036	2,116	0.04	216,960.99	3.83	$284,106.01				$0.13	$0.03	($67,145.02)	2036	102.533551	90.4301871
2037	2,116	0.04	220,692.72	3.83	$284,106.01		14,000	($28,000.00)	$0.13	$0.03	($63,413.29)	2037	104.297128	90.427867
Total	59,064	1.16	$ 4,454,623.23	$ 105.67	$5,617,564.16	($148,100)		($304,000.00)			($1,311,040.95)			
PV			$1,657,062.19	$39.31	$2,089,681.17	($55,091.26)	$0.00	($71,924.62)			($487,690.27)			
PV(Soc)			$2,989,581.72	$70.92	$3,770,053.34	($99,392.71)	$0.00	($204,020.14)			($879,864.32)			

Community Outreach Program 2009

Test	NPV	Benefit/Cost Ratio
Total Resource	$1,530,085.40	13.05
Participant	$2,161,585.99	29.05
RIM	$1,114,319.95	3.05
Utility	$1,602,010.22	30.08
Societal	$2,686,239.60	9.65

Kentucky Power Company
Energy Education for Students Program
Expected Savings / Benefits

	As Filed	Revised
Annual Expected Program Savings/Benefits @ 4,800 CFLs in One Year		
Summer Peak Demand (kW) - Reduction	14	4
Winter Peak Demand (kW) - Reduction	359	110
Projected Program MWh Savings and kW Reduction Assuming Participation Goal of 19,600 CFLs is achieved (all students in three years)		
Energy Savings - MWh	717.6	901.6
Demand Reduction -		
@ System Winter Peak (kW)	110	451
@ System Summer Peak (kW)	4	18
COST / BENEFIT ANALYSIS		
Total Resource Cost	8.09	11.21
Ratepayer Impact Measure	2.39	2.84
Participant	28.73	29.31
Utility Cost	12.55	21.64

Kentucky Power Company
Energy Education for Student Program

Total Program for 3 Years
Summer Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	c5-c6
Watt Hour Savings	46,000	c9*c7
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	=C9*C11
Number of Lamps Distributed	19,600	
Program Annual kWh Savings	901,600	=C14*c10/C8
Program Coincident Peak kW Savings	18	=C12*C14/C8

*Diversified Demand Given Operating Conditions

Total Program for 3 Years
Winter Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	g5-g6
Watt Hour Savings	46,000	g9*g7
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per Lamp*	23	=g9*g11
Number of Lamps Distributed	19,600	
Program Annual kWh Savings	901,600	=g14*g10/g8
Program Coincident Peak kW Savings	451	=g12*g14/g8

*Diversified Demand Given Operating Conditions

Unit Wattage Derivation

	Original Bulb	*Savings per Replacement*
	60	37
	75	52
	100	77
	40	17
Average Wattage and Energy Savings	69	46

First Year
Summer Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	
Number of Lamps Distributed	4,800	
Program Annual kWh Savings	220,800	
Program Coincident Peak kW Savings	4	

*Diversified Demand Given Operating Conditions

Winter Peaking KPC
Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per Lamp*	23	
Number of Lamps Distributed	4,800	
Program Annual kWh Savings	220,800	
Program Coincident Peak kW Savings	110	

*Diversified Demand Given Operating Conditions

Kentucky Power Company
Energy Education for Student Program

Total Program for 3 Years

Summer Peaking KPC

Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.02	Estimate
Coincident Peak Watt Hour Savings per Lamp*	0.92	
Operating Life	7,000	Hours
Number of Lamps Distributed	19,600	
Program Annual kWh Savings	**901,600**	
Program Coincident Peak kW Savings	**18**	

*Diversified Demand Given Operating Conditions

Winter Peaking KPC

Example of Compact Fluorescent Lamp Savings over an Incandescent Bulb

Incandescent	69	watts
CFL	23	watts
Annual Hours of Operation	1,000	hours
Number of watts to a kilowatt hour	1,000	Conversion Factor
Watt Savings	46	
Watt Hour Savings	46,000	
% operating at time of peak	0.5	Estimate
Coincident Peak Watt Hour Savings per La	23	
Number of Lamps Distributed	19,600	
Program Annual kWh Savings	**901,600**	
Program Coincident Peak kW Savings	**451**	

*Diversified Demand Given Operating Conditions

ANNUAL BUDGET

	Year 1	Year 2	Year 3
CFLs	$12,000	$17,000	$20,000
Promotion	$1,000	$1,000	$1,000
Educational Workshop / Food	$5,000	$5,000	$5,000
Administration/Development	$4,000	$3,000	$3,000
Evaluation	$ 0,000	$5,000	$5,000
TOTAL COSTS	$22,000	$31,000	$34,000

Kentucky Power Company
Energy Education for Student Program

Needs Program 2009

	Program Benefits				Participant Benefits	Program Costs	Participant Costs			Lost Revenues		Avoided Costs		
Year	MWH Program Energy Savings	Program Capacity Saving (Summer) kW	Energy ($)	Capacity ($)	Avoided Energy Charges	Program Costs	Replace-ment CFL's (N)	Participant Costs	Participant energy Rate	Lost Margin	Lost Marginal Revenues		KPC ($/MWh) All Hours	CT ($ kW-year)
2009	221	0.00	9,824.46	0.35	$14,296.80	($22,000)			$0.06	$0.02	($26,472.38)	2009	44.4949325	79.9488638
2010	442	0.01	19,629.44	0.72	$28,593.60	($31,000)			$0.06	$0.02	($39,964.22)	2010	44.4507273	81.5478411
2011	718	0.02	33,071.22	1.50	$46,521.79	($34,000)			$0.06	$0.02	($47,450.63)	2011	46.0282176	83.1787979
2012	902	0.02	43,892.56	1.53	$58,378.60				$0.06	$0.02	($14,486.04)	2012	46.6826657	84.8423739
2013	902	0.02	44,294.28	1.56	$58,378.60				$0.06	$0.02	($14,084.32)	2013	49.1285295	86.5392214
2014	902	0.02	44,787.63	1.59	$58,378.60				$0.06	$0.02	($13,590.77)	2014	49.6759437	88.2700058
2015	902	0.02	53,364.86	1.62	$58,378.60				$0.06	$0.01	($5,013.74)	2015	59.1690647	90.0354059
2016	902	0.02	54,964.51	1.66	$70,054.32		4,800	($9,600.00)	$0.06	$0.02	($15,089.81)	2016	60.9632936	91.836114
2017	902	0.02	55,743.31	1.61	$70,054.32		6,800	($13,600.00)	$0.06	$0.02	($14,311.01)	2017	61.8270927	89.4526239
2018	902	0.02	57,824.43	1.63	$70,054.32		8,000	($16,000.00)	$0.06	$0.01	($12,229.89)	2018	64.1353456	90.5385449
2019	902	0.02	60,004.49	1.64	$70,054.32				$0.06	$0.01	($10,049.83)	2019	66.553344	90.8254224
2020	902	0.02	62,213.95	1.62	$70,054.32				$0.06	$0.01	($7,840.37)	2020	69.0039401	90.0434973
2021	902	0.02	64,121.76	1.63	$84,065.18				$0.09	$0.02	($19,943.42)	2021	71.1199657	90.5516628
2022	902	0.02	65,950.36	1.63	$84,065.18				$0.09	$0.02	($18,114.82)	2022	73.1481418	90.5191541
2023	902	0.02	63,774.40	1.63	$84,065.18		4,800	($9,600.00)	$0.09	$0.02	($20,290.78)	2023	70.7346994	90.292162
2024	902	0.02	66,482.60	1.63	$84,065.18		6,800	($13,600.00)	$0.09	$0.02	($17,582.58)	2024	73.7384879	90.4975765
2025	902	0.02	69,256.17	1.63	$84,065.18		8,000	($16,000.00)	$0.09	$0.02	($14,809.01)	2025	76.8147405	90.4398936
2026	902	0.02	71,804.49	1.63	$84,065.18				$0.09	$0.01	($12,260.69)	2026	79.6411834	90.3852554
2027	902	0.02	74,616.28	1.63	$84,065.18				$0.09	$0.01	($9,448.91)	2027	82.7598437	90.4596267
2028	902	0.02	77,266.48	1.63	$100,878.22				$0.11	$0.03	($23,611.74)	2028	85.699286	90.4249702
2029	902	0.02	80,371.79	1.63	$100,878.22				$0.11	$0.02	($20,506.43)	2029	89.1435105	90.4166657
2030	902	0.02	83,452.97	1.63	$100,878.22		4,800	($9,600.00)	$0.11	$0.02	($17,425.25)	2030	92.5609684	90.4408154
2031	902	0.02	84,688.36	1.63	$100,878.22		6,800	($13,600.00)	$0.11	$0.02	($15,989.86)	2031	94.1530171	90.4248595
2032	902	0.02	86,348.44	1.63	$100,878.22		8,000	($16,000.00)	$0.11	$0.02	($14,529.78)	2032	95.7724489	90.4261145
2033	902	0.02	87,833.63	1.63	$121,053.86				$0.13	$0.04	($33,220.23)	2033	97.4197351	90.4330966
2034	902	0.02	89,344.37	1.63	$121,053.86				$0.13	$0.04	($31,709.49)	2034	99.0953545	90.4266507
2035	902	0.02	90,881.09	1.63	$121,053.86				$0.13	$0.03	($30,172.77)	2035	100.799795	90.4265313
2036	902	0.02	92,444.25	1.63	$121,053.86				$0.13	$0.03	($28,609.62)	2036	102.533551	90.4301871
2037	902	0.02	94,034.29	1.63	$121,053.86		4,800	($9,600.00)	$0.13	$0.03	($27,019.57)	2037	104.297126	90.427867
Total	24,822	0.50	$ 1,882,487.11	$ 44.76	$2,371,314.90	($87,000)		($127,200.00)			($575,827.99)			
PV			$700,260.84	$16.65	$882,098.45	($32,362.95)	$0.00	($30,094.66)			($214,200.56)			
PV(5oc)			$1,263,372.63	$30.04	$1,591,434.16	($58,387.47)	$0.00	($85,366.32)			($385,449.03)			

Needs Program 2009

Test	NPV	Benefit/Cost Ratio
Total Resource	$637,819.69	11.21
Participant	$912,193.31	29.31
RIM	$453,713.99	2.84
Utility	$667,914.55	21.64
Societal	$1,119,648.66	8.79

Kentucky Power Company
High Efficiency Heat Pump Program

Year	1	2	3	Combined
Equipment Cost ($)	100,000	200,000	200,000	500,000
Annual Energy Savings (kWh)	251,700	503,400	503,400	1,258,500
Peak Reduction (summer) kW	11.75	11.75	11.75	35
Peak Reduction (winter) kW	167.2	167.2	167.2	502
Incentive ($)	45,000	90,000	90,000	225,000
Admin ($)	8,000	15,000	15,000	38,000
PV Avoided costs	263,596	560,666	596,167	1,420,429
PV Lost Revenues	126,033	252,066	252,066	630,164
PV Bill Savings	148,244	296,489	296,489	741,222
TRC	2.44	2.61	2.77	2.64
RIM	1.47	1.57	1.67	1.59
Utility	4.97	5.34	5.68	5.40
Participant	1.93	1.93	1.93	1.93
Payback (yrs)	3.4	3.4	3.4	3.4

Kentucky Power Company
High Efficiency Heat Pump Program

High Efficiency Heat Pump Calculation Spreadsheet

Program Energy Savings & Demand Reduction Per Participant				
Upgraded Electric Resistance Heating System to High Efficiency Heat Pump				
Energy Savings Per Year (kWh)	4,176			
Demand Reduction @ System Winter Peak (kW)	2.900			
Demand Reduction @ System Summer Peak (kW)	0.000			
Upgrade Heat Pump System to Ultra-High Efficiency Heat Pump				
Energy Savings Per Year (kWh)	858			
Demand Reduction @ System Winter Peak (kW)	0.444			
Demand Reduction @ System Summer Peak (kW)	0.235			
Annual Expected Program Energy Savings & Demand Reduction Per Year/Projected Total	**Year 1**	**Year 2**	**Year 3**	**Projected Total**
Number of Participants Replacement of Resistance Heating System	50	100	100	250
Energy Savings (kWh) = No. Participants x 4,176 kWh/Participant x 1.06 (T&D Losses) x .90 (10% Free Riders)	199 MWh	398 MWh	398 MWh	995 MWh
Winter Demand Reduction (kW) = No. Participants x 2.90 kW/Participant x 1.12 (T&D Losses) x .90 (10% Free Riders)	146 kW	292 kW	292 kW	730 kW
Number of Participants Replacement Heat Pump System	50	100	100	250
Energy Savings (kWh) = No. Participants x 858 kWh/Participant x 1.06 (T&D Losses) x .70 (30% Free Riders)	32 MWh	64 MWh	64 MWh	160 MWh
Winter Demand Reduction (kW) = No. Participants x 0.444 kW/Participant x 1.12 (T&D Losses) x .70 (30% Free Riders)	17 kW	35 kW	35 kW	87 kW
Summer Demand Reduction (kW) = No. Participants x 0.235 kW/Participant x 1.12 (T&D Losses) x .70 (30% Free Riders)	9 kW	18 kW	18 kW	45 kW
Total Number of Participants	100	200	200	500
Energy Savings (kWh) for No. Participants of Replacement Resistance Heating System + Replacement Heat Pump System	231 MWh	462 MWh	462 MWh	1,155 MWh*
Winter Demand Reduction (kW) for No. Participants of Replacement Resistance Heating System + Replacement Heat Pump System	163 kW	327 kW	327 kW	818 kW*
Summer Demand Reduction (kW) for No. Participants of Replacement Resistance Heating System + Replacement Heat Pump System	9 kW	18 kW	18 kW	45 kW*
* Round Off for Projected Total Energy Savings and Demand Reduction				

Total Program Costs:	**Promotion**	**Evaluation**	**Program Incentives**	**Total Costs**
Year 1	$8,000		$45,000	$53,000
Year 2	*$8,000*	*$7,000*	*$90,000*	*$105,000*
Year 3	$8,000	$7,000	$90,000	$105,000

Assumptions:

1) Upgraded Electric Resistance Heating System to High Efficiency Heat Pump Receives only Heating Energy Savings & Winter Demand Reduction
2) Energy T&D Losses @ 1 06 and Peak Demand T&D Losses @ 1.12
3) Free Riders estimated at 10% for Upgraded Electric Resistance Heating System to HP and 30% for Upgraded HP System to Ultra-High HP
4) HSPF 7 7 and SEER 13 for High Efficiency Heat Pump; HSFP 8 2 and SEER 14 for Ultra-High Efficiency Heat Pump
5) Winter Indoor Temperature @ 70°F and Outdoor Temperature 10°F; Summer Indoor Temperature @ 75°F and Outdoor Temperature
6) Heating Degree Days (°F-days) @ HDD = 4,555 and Cooling Degree Days (°F-days) @ CDD = 1 033 for Ashland Weather Station
7) *Design Heat Loss (HL) @ 44,256 Btu/h; Design Heat Gain (HG) @ 25,769 Btu/h*
8) Cd empirical factor @ .62 for solar and internal gains
9.) Winter Season October - April (5,088 hours); Summer Season May - September (3 672 hours)
10) Winter Load Factor = .282; Summer Load Factor = .254

Calculation Formulas:

Electric Central Furnace Heating Energy: Eh = (24 hrs /da. x HL Btu/h x HDD °F-days x Cd)/((Ti - To) °F x 3 413 Btu/kWh)
Heat Pump System Heating Energy: Eh = (24 hrs./da. x HL Btu/h x HDD °F-days)/((Ti - To) °F x 1000 watts/kWh x HSPF)
Heat Pump System Cooling Energy: Ec = (24 hrs./da. x HG Btu/h x CDD °F-days)/((To - Ti) °F x 1000 watts/kWh x SEER)
Winter Demand Reduction: Dw = (Heating Energy Savings)/(Winter Load Factor x Hours of Winter Season)
Summer Demand Reduction: Dc = (Cooling Energy Savings)/(Summer Load Factor x Hours of Summer Season)

Example: Annual Energy Heating Savings to Replace Electric Central Furnace with High Efficiency Heat Pump
Annual Heating Energy for Electric Central Furnace: Eh = (24 hrs./da. X 44,256 Btu/h x 4,555 °F-days x 0.62)/((70 - 10) °F x 3,413 Btu/kWh) = 14,648 kWh
Annual Heating Energy for High Efficiency Heat Pump: Eh = (24 hrs./da. X 44,256 Btu/h x 4,555 °F-days)/((70 - 10) °F x 1,000 Watts/kWh x 7 7 HSPF) = 10,472 kWh
Annual Heating Savings: Eh (Electric Central Furnace) - Eh (High Efficiency Heat Pump) = 14,648 kWh - 10,472 kWh = 4,176 kWh
Winter Demand Reduction: Dw = 4,176 kWh/(.283 x 5,088 hrs) = 2 90 kW

Sources:

1.) Heat Pump Manual, Electric Power Research Institute, TR-109222 November 1997
2) Manual J Seventh Edition, Residential Load Calculation Air Conditioning Contractors of America Copyright 1986
3) KPCo Mobile Home New Construction Program, August 2005
4) KPCo High Efficiency Heat Pump Program August 1997

Kentucky Power Company

REQUEST

Previously, Kentucky Power offered a High Efficiency Heat Pump program which was discontinued December 31, 2001. Explain fully the difference between the currently proposed High Efficiency Heat Pump program and the program that was discontinued. Explain Kentucky Power's rationale for reintroducing a program that was previously in place and subsequently discontinued.

RESPONSE

The efficiency guidelines for customers replacing their existing heating system (resistant or heat pump) with a high efficiency heating system have been upgraded to a 13.0 S.E.E.R. and 7.7 H.S.P.F. and a 14.0 S.E.E.R. and 8.2 H.S.P.F., respectively. The previous efficiency guidelines were 11.0 S.E.E.R. and 7.2 H.S.P.F. for a split system and 10.0 S.E.E.R. and 6.8 H.S.P.F. for a package system heat pump. The proposed customer incentive has been increased from $200 to $400.

The DSM Collaborative's decision to reintroduce the High Efficiency Heat Pump program at site built-homes was based on the increased number of customer inquires concerning incentives for high efficiency heat pump installations at site built-homes and HVAC dealer support for the reintroduction of this program along with the spiraling upward cost of the high efficiency HVAC equipment.

WITNESS: Errol K. Wagner

Kentucky Power Company

REQUEST

Provide the assumptions, calculations, schedules or other work papers used to derive the annual budgets for each of the three proposed programs.

RESPONSE

High Efficiency Heat Pump Program

Page 3 of this response shows the proposed budget for the program incentives, promotion costs and evaluation costs. The customer incentive for installing a high efficiency heat pump is $400 and the HVAC dealer incentive is $50 for each heat pump installed. The budgeted amount for the program incentives is obtained by multiplying the projected annual participants (100 for Year 1 and 200 for Years 2 and 3) by $450. The annual promotion cost is $8,000 for co-op advertising and the projected $7,000 evaluation cost for the 2nd and 3rd year of the program is based on the cost of similar type evaluations.

Energy Education for Students Program

Pages 4 is a spreadsheet showing the proposed budget for program development and administration, promotion cost, educational workshops, compact fluorescent lamps (CFL's) and evaluation costs. Pages 5 and 6 support the development and administration cost obtained from the NEED Project quote. The projected promotion cost is $1,000 annually. This cost is for sending program introduction letters to the superintendent, principal and 7th grade teacher at middle schools within our service territory. During the 2nd and 3rd year reminder letters will be sent to participating schools and program introduction letters will be sent to middle schools who elected not to participate in the previous year. Pages 5 and 6 support the cost of the educational workshops composed of the $3,000 NEED In-service cost. The cost for the meeting location and food costs will be the responsibility of Kentucky Power Company. Page 7 shows the cost of the 4-pack of 23 watt CFL's as shown on the attached quote from AM Conservation (rounded to the nearest dollar). The evaluation cost is based on similar type program evaluations.

Community Outreach Compact Fluorescent Lighting (CFL) Program

Page 8 of this response is the proposed budget consisting of CFL costs, promotion costs, administration costs and evaluation costs. The cost of the CFL's is obtained by multiplying the number of projected annual participants by $10 (projected cost of the 4-pack of 23 watt CFL's per quote). The projected promotion cost is for local newspaper advertising for the CFL giveaways. The administration cost is for maintaining the program participant database. The evaluation cost for the 2nd and 3rd year is based on similar type evaluations.

WITNESS: Errol K. Wagner

Kentucky Power Company
High Efficiency Heat Pump Program
Projected Budget 2009 - 2011

Annual Budget	**2009**	**2010**	**2011**
Number of Participants	100	200	200
Amount of Each Incentives	$450	$450	$450
Total Projected Program Incentives ($400 customer Incentive, $50 HVAC Dealer Incentive for each H/P Sold)	$45,000	$90,000	$90,000
Projected Promotional Costs (Co-op Advertising)	$8,000	$8,000	$8,000
Projected Evaluation Costs per Load Research based on similar type program evaluations.	$0	$7,000	$7,000
Total	**$53,000**	**$105,000**	**$105,000**

Kentucky Power Company
Energy Education for Students Program
Projected Budget 2009 - 2011

Annual Budget	**2009**	**2010**	**2011**
Program Development & Administration per *Quote NEED Project dated 4/18/08*	$4,000	$3,000	$3,000
Projected Promotional Costs (*Program Introduction Letters to Superintendants* and Middle School Principals)	$1,000	$1,000	$1,000
NEED In-Service Workshops per Quote NEED Project dated 4/18/08	$3,000	$3,000	$3,000
Projected Meeting Location / Food Costs For In-Service Workshops	$2,000	$2,000	$2,000
Projected Costs Compact Fluorescent Lamps per Quote AM Conservation including shipping rounded to nearest dollar. ($10.00) (Year one 1,200 students and years two and three 1,700 students)	$12,000	$17,000	$20,000
Projected Evaluation Costs per Load Research based on similar type programs evaluations	$0	$5,000	$5,000
Total	**$22,000**	**$31,000**	**$34,000**

Kentucky Power DSM Proposal
Submitted by The NEED Project – April 18, 2008

TERMS

Year one of the program will launch in January 2009 and be completed by December 31, 2009. Subsequent years will follow the same schedule. NEED will facilitate the design and delivery for the program, working with Kentucky Power to contact school administrators and teachers in the Kentucky Power service territory to promote and implement the CFL project. The target audience will be seventh grade students across the KP/AEP service territory, with an estimated first year distribution of 1200 CFL's. This number may be adjusted after completion of the year one project evaluation. Three, three hour in-services will be scheduled for Ashland, Pikeville and Hazard. Kentucky NEED currently facilitates 6-hour workshops in Eastern KY and will leverage sponsor funds to strengthen the program for K-12 teachers and students.

PAYMENT TERMS

NEED and Kentucky Power will create a payment schedule acceptable to each entity.

BUDGET

Budget – Year One*

Program Development and Administration **$4,000.00**
Includes staff time, staff travel, and program expansion activities, meetings with school administrators, data collection and evaluation

NEED In-services **$3,000.00**
Three Professional Development at $1,000/each
Includes NEED energy education materials

TOTAL **$7,000.00**

NOTE: Kentucky Power is purchasing the CFL's and covering the cost of shipping. They are also covering the cost of the meeting space and food for the professional development workshops.

Budget – Year Two

Program Development and Administration **$3,000.00**
Includes staff time, staff travel, and program expansion activities, meetings with school administrators, data collection and evaluation

NEED In-services **$3,000.00**
Three Professional Development at $1,000/each
Includes NEED energy education materials

TOTAL **$6,000.00**

Budget – Year Three

Program Development and Administration **$3,000.00**

Includes staff time, staff travel, and program expansion activities, meetings with school administrators, data collection and evaluation

NEED In-services **$3,000.00**

Three Professional Development at $1,000/each
Includes NEED energy education materials

TOTAL **$6,000.00**

TIMETABLE

January – February 2009

Meetings with superintendents in districts in Kentucky Power service territory.

February - March 2009

Schedule and Facilitate Professional Development Workshops

March – May 2009

Implement project – deliver CFL's

June 2009

Evaluate current status of delivery of CFL's. Determine what, if any actions need to be taken for the fall.

December 2009

Final report due.

Timetable for years 2 & 3

Annual timetable would remain the same unless both parties agree on any recommended changes.

AM CONSERVATION GROUP, INC.

SALES DEPARTMENT QUOTATION

2301 CHARLESTON REGIONAL PARKWAY
CHARLESTON, SC 29492
Phone: 1-843-971-1414 Fax: 1-843-971-1472
E-Mail: amcg@nac.net

				DATE	10/13/2008
COMPANY NAME	Kentucky Power			CUSTNO	
ATTENTION	Don Music				
ADDRESS					
TELEPHONE	606-929-1540	FAX	606-929-1441	E-MAIL	

ITEM #	DESCRIPTION		PRICE PER UNIT
ECK-400	4 Pack 23 Watt Spirals (AM234) Individually packed in a 4 pack.		$9.29/per pack

TERMS	NET-30		
AVAILABILITY	10 To 14 Days		
F.O.B.	Delivered		
CONTACT	Phil Di Betta	EXT	
TELEPHONE	800-GOOD-BUY or 800-777-5655 xt. 19	FAX	843-971-1472

Thank you for calling AM Conservation Group, Inc. for pricing.
We welcome the opportunity to provide you with quality material and superior service.

PRICING QUOTED IS VALID FOR 60 DAYS UNLESS OTHERWISE STATED

Kentucky Power Company
Community Outreach Compact Fluorescent Lighting (CFL) Program
Projected Budget 2009 - 2011

Annual Budget	**2009**	**2010**	**2011**
Projected Costs CFL's per Quote AM Conservation including shipping rounded to nearest dollar. ($10 per participant) (Year one 3,500 participants and years two and three 4,000 participants)	$35,000	$40,000	$40,000
Projected Promotional Costs for Newspaper Advertising	$3,200	$3,900	$4,000
Projected Administrative Costs For Maintaining Participant Database	$2,000	$2,000	$2,000
Projected Evaluation Costs per Load Research based on similar type program evaluations.	$0	$8,000	$8,000
Total	**$40,200**	**$53,900**	**$54,000**

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

COMMONWEALTH OF KENTUCKY

CASE NO. 2008-00349

COUNTY OF FRANKLIN

AFFIDAVIT

Errol K. Wagner, upon first being duly sworn, hereby makes oath that if the foregoing questions were propounded to him at a hearing before the Public Service Commission of Kentucky, he would give the answers recorded following each of said questions and that said answers are true.

Errol K. Wagner

Subscribed and sworn before me by Errol K. Wagner this 23rd day of October, 2008.

Judy K. (Mack) Ragsdale
Notary Public

My Commission Expires January 14, 2009