

COMMONWEALTH OF KENTUCKY  
PUBLIC SERVICE COMMISSION

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COMMISSION

In the Matter of:

AN INVESTIGATION OF THE ENERGY AND  
REGULATORY ISSUES IN SECTION 50 OF  
KENTUCKY'S 2007 ENERGY ACT

Administrative Case No. 2007-00477

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RESPONSE OF SIERRA CLUB TO DUKE ENERGY KENTUCKY, INC.'S  
REQUEST FOR INFORMATION

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1. Referring to Witness Wallace McMullen's Prefiled Testimony, on Page 3, Line 15, Mr. McMullen recommends that the Commission should consider, among other things, "the costs to the public of increased health care needs and early mortality" in reaching its decisions whether to issue Certificates of Public Convenience and Necessity ("CPCN") for new coal fired generation, please specify how the Commission should evaluate such costs during a CPCN proceeding.

RESPONSE:

Mr. McMullen would recommend that the Commission not evaluate such costs during a CPCN proceeding. It would be better to have costs per pollutant determined during an administrative docket, and then referenced during a CPCN proceeding.

2. Referring to page 20, lines 8-11, of Mr McMullen's Testimony:
  - (a) Please explain how the Commission should quantify costs and/or prices for deaths, injuries and mental anguish resulting from inadequate enforcement of laws regulating the weight, speed, and aggressiveness of coal trucks? Please provide all supporting documentation.
  - (b) Please provide support for the claim that there is inadequate enforcement of laws regulating the weight, speed, and aggressiveness of coal trucks in the Commonwealth of Kentucky.
  - (c) Please provide any documentation supporting the claim that coal trucks are aggressive.

RESPONSE:

(a) Mr. McMullen would recommend that the Commission pursue an answer to this question in an administrative docket. It is not presently established that quantifying prices for deaths and injuries attributable to weight, speed, and aggressiveness of coal trucks would be the best way to quantify all the human costs which are pointed out in the referenced lines. The methodology for quantifying human costs and what other issues should be included would presumably be among the first questions such a docket would undertake to answer.

(b) See the newspaper article in Addendum 1 of this response: **W.VA. TRUCKERS LOVE KENTUCKY, TOO-HEAVY HAULERS, LOW FINES, HIGH WEIGHT LIMITS ATTRACT TRAFFIC**, which was printed in the Lexington Herald-Leader December 23, 2001.

See the newspaper article in Addendum 2 of this response: **TOO-HEAVY HAULERS: ILLEGAL LOADS CRUSH KY. ROADS, BUT LAWS REMAIN LIGHTLY ENFORCED**, which was printed in the Lexington Herald-Leader December 23, 2001.

“Hundreds of trucks are still running dangerously overweight on the short runs from the coal mines to the processing plants. These are often narrow, rural roads and bridges used by local residents and school buses that were not built for such heavy loads. The Department of Vehicle Enforcement does not have the personnel to consistently monitor these roads.” This quote is from

<http://www.kftc.org/our-work/canary-project/campaigns/coal-trucks/coal-trucks>

(c) On May 18 2007, a coal truck crashed through a home near Pikeville, KY. Please note the picture from the Appalachian News Express.



Accompanying story is at

[http://www.news-expressky.com/articles/2007/05/18/top\\_story/01truck.txt](http://www.news-expressky.com/articles/2007/05/18/top_story/01truck.txt)

3. On page 26, lines 1 and 2, Mr. McMullen states that every \$10 of CO2 cost will add \$11 to electric generation cost per MWh. Please provide all documentation supporting that claim, including but not limited to, all supporting calculation.

RESPONSE:

The full quote is “It seems clear [from this study] that every \$10 of CO2 cost will add about \$11 to electric generation cost per MWh,” and this sentence is part of the description of the information provided in the Synapse Economics study which is described in that paragraph. We submit that the words in brackets are clearly implied in the context. The documentation is the Synapse study Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning, which contains supporting calculations. That study was furnished to all intervenors December 29, 2007, on the CD of documentation we provided for this case.

4. On pages 28 through 30 of his Testimony, Mr. McMullen advocates that all the environmental costs of using coal should be included in full cost accounting for coal based electric generation. Does Mr. McMullen agree that all benefits of using coal should be included in full cost accounting as well (e.g., jobs, standard of living, supporting Kentucky’s economic dependence upon the coal industry, etc.)? Please explain.

RESPONSE:

Incorporating permanent job creation impacts from investments in generation is an interesting idea, as we believe that clean renewable generation investments generally create more jobs per dollars invested than dirty coal generation does. However, incorporating that factor into decisions about generation resource planning and development would add complexity to the process, and that should be weighed before such a decision is promulgated in a rule.

We regard Kentucky’s economic dependence upon the coal industry, and particularly its heavy dependence on coal fired electricity as a looming severe disadvantage for Kentucky. The United States is moving into a carbon-constrained economy very soon – note all the bills which have been introduced in Congress to begin capping or taxing CO2 emissions. If Kentucky cannot diversify its sources of electric generation, we fear rapid increases in the cost of electricity be the order of the day, which will severely handicap the economy of the state.

5. Please state whether all environmental costs of renewables should also be considered before the Commission approves a CPCN for a renewable project (e.g., bird mortalities from windmills, fish mortalities from hydro, mercury vapor included in compact fluorescent light bulbs etc.)? Please Explain.

RESPONSE:

One can make a reasoned argument that the environmental cost of any type of generation should be considered when considering whether to issue a certificate for the proposed facility. We suggest that the examples offered are not situations which have a high probability of substantial environmental impact. Birds sometimes fly into every type of tall structure, sometimes killing themselves. Certainly it is desirable for wind farms to be located outside of bird migration paths, and we suggest that Kentucky electric utilities can build wind installations which would minimize bird kills. Then the environmental cost of that concern would be minimal, certainly miniscule compared to the vast damage of mountaintop removal coal mining.

Regarding fish kills from hydroelectric generation, we believe that is not a significant concern when the dam has been in place for many years. That is the only type of situation for which hydroelectric generation has been proposed in Kentucky. The scientists who study the Ohio River have not been raising alarms about fish kill from the existing hydroelectric installations. We understand that building a new hydroelectric dam would have enormous regulatory barriers, and would be unfeasible economically, as well as being environmentally dubious. However, we do not believe that the environmental cost that might be attributed to additional fish kills from new hydroelectric generation on any river will prove to be significant

6. On page 30 of his testimony, Mr. McMullen concluded that the Commission should “set standard values for external costs to be included in electric utility IRP development, and to be used in Certificate of Convenience and Necessity proceedings.
  - (a) Please state how the Commission should set the values.
  - (b) Please state what values the Commission should use.
  - (c) Please provide all supporting documents, including but not limited to calculations used to determine the standard values for external costs

RESPONSE:

- (a) As we have indicated in our answers to Q1 and Q2, we believe the values should be determined by the Commission in an administrative docket proceeding.

(b) That would be determined by the aforementioned administrative docket.

(c) We provided some excellent documentation with our December 29, 2007 submission. Additional documentation would undoubtedly be found and submitted in an administrative docket.

7. Referring to the table contained on page 14 of Witness McDonald's Testimony, has Witness McDonald performed any similar analysis regarding any potential savings solar water heating may provide to the percentage of Kentucky's residential and/or commercial consumers who use natural gas for water heating? If the response is in the affirmative, please provided the following:
- (a) the percentage of natural gas residential water heating in Kentucky.
  - (b) the percentage of natural gas commercial water heating in Kentucky.
  - © all supporting documentation, including calculations used in reaching the conclusions.

RESPONSE:

Table 1 summarizes an analysis of solar water heating's potential to save natural gas in Kentucky's residential sector. According to the Midwest Energy Efficiency Alliance (*Midwest Residential Market Assessment and DSM Potential Study*, March 2006, p. 42), 36% of all water heaters in residential use in Kentucky are natural gas water heaters, and 63% of those are minimum efficiency units. According to the Energy Information Administration (US Department of Energy), there are 1,765,011 residential electricity customers in Kentucky. Therefore, there are about 635,000 residences with gas water heaters. Using an estimate from the National Renewable Energy Laboratory that about 40% of residential buildings in the South East are suitable for using solar water heaters, there may be about 254,000 residences suitable for supplementing gas water heating with solar energy.

I have used RETScreen Clean Energy Project Analysis Software to analyze the potential natural gas savings offered by solar water heaters. RETScreen was developed by the Minister of Natural Resources Canada and is used by energy professionals worldwide to analyze solar energy projects. Please note that this is a preliminary analysis based on my own rough estimate for average hot water use in a "typical" Kentucky residence with gas water heating. I do not have any more reliable data or estimates to base this analysis on. According to my analysis, a solar water heater on a three person residence that uses, on average, 55 gallons of hot water per day would save about 75 therms of natural gas per year (with the solar water heater providing 63% of the water heating energy). If solar water heaters were installed on 50,000 such residences in Kentucky, the result would be 3,750,000 therms of natural gas saved per year, and 93,750,000 therms saved over the 25 year life of the units.

The RETScreen spreadsheet used for this analysis is included as Exhibit D-1.

<b>Table 1. Solar Water Heating's Potential to Save Natural Gas in the Kentucky Residential Sector</b>	
Number of Residential Electricity Customers in KY <sup>1</sup>	1,765,011
Percent of all residential water heaters using N Gas <sup>2</sup>	36%
Number of Residences using N Gas water heaters	635,000
NREL Estimate for percent of homes suitable for mounting Solar Water Heaters <sup>3</sup>	40%
Number of homes using N Gas water heaters suitable for solar water heating	254,000
N Gas savings per residence, per year, using Solar Water Heating	75 therms
Annual Statewide N Gas Savings if Solar Water Heaters installed on 50,000 homes	3,750,000 therms
Total N Gas savings over 25 year lifetime of 50,000 solar water heating units	93,750,000 therms
Notes:	
1. Energy Information Administration, US Department of Energy	
2. <i>Midwest Residential Market Assessment and DSM Potential Study</i> , Midwest Energy Efficiency Alliance, March 2006, p. 42. This report notes that 63% of natural gas water heaters in Kentucky are minimum efficiency units.	
3. Denholm, P., <i>The Technical Potential for Solar Water Heating to Reduce Fossil Fuel Use and Greenhouse Gas Emissions in the United States</i> , National Renewable Energy Laboratory, Technical Report NREL/TP-640-41157, March 2007	

I have not produced an analysis for the statewide potential natural gas savings from applying solar water heating in the commercial sector. Exhibit 2 offers a sample analysis of the energy and financial savings available to a 50 bedroom hotel. In this example, a 50 bedroom hotel with an average daily hot water demand of 388 gallons would save 595 therms per year using a solar water heater with 320 square feet of solar collectors. Water heating demands in the commercial sector are more variable than the residential sector, however, and I have not researched the overall potential of this market.

In 2007 the Environment California Research and Policy Center published a report entitled, "Solar Water Heating: How California Can Reduce its Dependence on Natural Gas" (Bernadette Del Chiaro and Timothy Telleen-Lawton, April 2007). The report noted that in a review of potential energy efficiency measures, solar water heating has the greatest potential to reduce natural gas use in California (p. 15). This report was influential in California's decision to implement a major program to support solar water heater installations. The program allocated \$250 million over ten years and hopes to achieve 200,000 solar water heater installations by 2017. (Source: Baker, David, "Rebates for Solar Water Heaters Signed by Governor," San Francisco Chronicle, October 13, 2007).

8. Referring to pages 17, lines 22 through page 18, line 2 of Witness Andrew McDonald's Prefiled Testimony, is Mr. McDonald suggesting that Hurricane Katrina was the direct result of carbon emissions from coal fired generation? If yes, please provide documentation and analysis supporting this claim.

RESPONSE:

My purpose in this paragraph was to highlight the forces influencing the future costs of electricity from coal generation. There is a global effort underway to limit greenhouse gas emissions and coal fired power plants are a primary source of these emissions. There are several bills in the US Congress today which propose mechanisms for regulating carbon emissions in the United States and each of the three leading presidential candidates (Hillary Clinton, John McCain, and Barack Obama) have endorsed the need to regulate and limit carbon emissions. If and when such regulations are imposed, they will likely lead to increased costs for electricity from coal fired power plants. An essential component of any plan to reduce greenhouse gas emissions is to make the use of fossil fuels more costly to discourage their use and encourage the use of alternatives with lesser or no carbon emissions. It follows that more stringent regulations will lead to higher prices for fossil fuels.

It is my observation that the level of concern about climate change and carbon emissions has increased dramatically over the past two years, among the media, political leaders, corporations, and the general public. I believe Hurricane Katrina was an event that contributed to this elevated concern. I am not arguing here that Hurricane Katrina was caused by climate change; I am saying that I believe it contributed to the increased concern about climate change that I have observed. Events such as Katrina (and the very active hurricane season in 2005), the melting of Arctic sea ice, and the endangerment of the polar bear have all contributed to rising concern over climate change and carbon emissions. This is creating pressure for action to reduce those emissions, which is likely to lead to higher prices for coal generated electricity and higher costs for building new coal fired power plants.

Should other extreme events occur which appear linked to climate change (such as another hurricane as destructive as Katrina), it is possible that the political pressure to reduce carbon emissions would grow even stronger, and that more stringent limits and more rapid reductions would be called for and imposed. This could have the result of further driving up the cost of coal-generated electricity.

I believe these risks which affect the price of energy from coal are real and must be considered when planning how to meet our future energy needs. Renewable energy sources are much more insulated from these risks because their use does not add to global carbon emissions.

9. Referring to page 21, lines 1 through 6, on what basis do you believe Kentucky is able to achieve 1% of Kentucky electricity needs from solar PV and solar hot water?

RESPONSE:

I base my assertion that Kentucky could meet 1% of its electricity needs with solar PV and solar water heating in the near term (over the next decade) on an analysis of the technical potential for solar generation in Kentucky and the activities underway in other states which serve as useful precedents.

Table 2 on page 14 of my original testimony (reproduced below<sup>1</sup>) presents the annual energy generation that could be provided from a large scale deployment of solar PV and solar water heating technology in the residential and commercial sectors. If these technologies were deployed at the levels indicated in this table, solar PV would meet 0.60 % of Kentucky's total annual electricity generation and solar water heating would meet 0.43%, for a total contribution of 1.03%. Are there enough suitable locations in Kentucky with adequate solar access to install PV at this scale? Are there enough residential and commercial buildings with a demand for hot water which are suitable for solar water heating?

I proposed 100,000 residential PV systems averaging 2.5 kW apiece, which is a common size for a grid-intertied PV system. Kentucky has 1,765,011 residential electric customers. The NREL study cited previously (Denholm, 2007) refers to estimates for the suitability of residential rooftops for solar PV. These estimates place the range of total roof area suitable for PV at 22 to 45%. Using the low end of this range suggests that 388,302 residential roofs are suitable for PV. This suggests that installing PV units on 100,000 residences would reach about 25% of residential rooftops with solar access.

In regards to the availability of commercial structures for PV installations, NREL reports one estimate claiming that 65% of total roof area on commercial structures is available for solar PV installations (ibid). There are 232,298 commercial electric customers in Kentucky. My scenario proposed 5,000 commercial PV systems averaging 50 kW each, which would generate an annual total of 300 million kWh, or 0.30 % of Kentucky's total annual generation. A 50 kW PV system requires about 5,000 square feet of PV panels, an area smaller than many commercial rooftops. If 5,000 commercial electric customers installed 50 kW PV systems, that would only amount to 2% of all commercial customers in the state. Upon considering that grid-intertied PV systems do not even have to be installed on buildings, but can be located in many locations where grid access is available (such as above parking lots and along railways and roads), we see that the potential sites for grid-intertied PV systems is not limited by the availability of rooftops. The availability of sunshine is not a limiting factor, either. The electricity production estimated for the PV systems in this analysis is based upon Kentucky's average annual solar radiation of 4.5 kWh/m<sup>2</sup>/day and includes a derate factor of 0.77 to account for efficiency losses. The average expected electricity production for PV systems in Kentucky is 1,198 kWh/kW (that is, a PV system rated at 1 kW (DC current) and located



at a site with full sun and mounted at a fixed tilt of 38°, will generate 1,198 kWh in a normal year.)

Table 2 – Potential Markets for Solar PV and Solar Water Heating in Kentucky (modified from the Table 2 in my original testimony as explained in footnote 1)		
Technology/sector	# of installations / individual unit size	Total Generating Capacity/Total Annual Generation for PV (kWh) or kWh Savings (SWH)% of Ky Total Annual Generation*
PV- Residential	100,000 / 2.5kW each	250 MW300 million kWh0.3%
PV – Commercial	5,000 / 50 kW each	250 MW300 million kWh0.3%
SWH – Residential	100,000 / 40 square feet	112 MW245 million kWh0.25%
SWH – Commercial	10,000 / 320 square feet	70 MW <sup>a</sup> 175 million kWh 0.18%
Totals	682 MW	1,020 million kWh1.03%
*Kentucky annual net generation in 2006 = 98.8 billion kWh		
a. Commercial solar water heater electric demand savings could be substantially less than this amount if a large portion of the commercial water heating displaced uses natural gas. The associated gas savings would have societal benefits, but this analysis doesn't go into that detail. The actual energy savings would be unchanged, although the savings would be in terms of therms or Btus rather than kWh. A deeper analysis could break out the number of SWH that would be replacing gas water heaters vs. electric water heaters.		

In regards to solar water heating, Table 2 proposes the installation of 100,000 residential units (5.7% of Kentucky's residential electric customers) and 10,000 commercial units (4.3% of all commercial electric customers). Referring to Denholm once again, if 40% of residential buildings are suitable for solar water heaters, that would mean there are 706,000 suitable residences in Kentucky. Achieving 100,000 installations would meet 14% of the potential market. If 60% of commercial buildings are suitable for solar water heating, then there are 139,000 potential commercial sites, and my target of 10,000 units would represent 7.1% of this potential market. Achieving these targets for solar water heating would amount to 0.43% of Kentucky's total annual generation. In terms of the availability of sites and our solar energy resources, these numbers are feasible. The fact that numerous other states have made commitments to meeting a percentage of their total electricity needs from solar energy establishes an important precedent. States with a "Solar Set-Aside" greater than 1.0% within their Renewable Energy Portfolio Standard include Maryland (2%), Delaware (2.005%) and New Jersey (2.12%). There are no factors that I am aware of which make these states intrinsically more capable than Kentucky of meeting 1% of their energy needs from solar PV and solar water heating. California provides another precedent. The state has the goal of creating 3,000 MW of new solar electricity by 2017 and has invested \$3.3 billion in their Million Solar Roofs

Program (Source: <http://www.gosolarcalifornia.ca.gov/csi/index.html> ). California also has the goal of installing 200,000 solar water heaters over the next decade, and has committed \$250 million to that goal. (Source: Baker, David, “Rebates for Solar Water Heaters Signed by Governor,” San Francisco Chronicle, October 13, 2007). While California has a more-developed solar energy industry than Kentucky, there is no reason why Kentucky could not develop a comparable industry if we were to make the proper investments. Even though California has a well-established solar energy industry, these initiatives are requiring major efforts to train solar installers, which has the associated benefit of creating good employment.

*Footnote 1 – I have revised the figures in the fourth column of Table 2 for “Total Annual Generation for PV (kWh).” I had originally used a factor of 1,264 kWh/kW to calculate the total annual generation from a PV system (based on my own calculations). In preparing this response, I referred to the software provided by NREL (US DOE) known as PV Watts (available online at [http://rredc.nrel.gov/solar/codes\\_algs/PVWATTS/](http://rredc.nrel.gov/solar/codes_algs/PVWATTS/)) and found that they used a lower factor for calculating generation from a PV system, 1,198 kWh/kW (which reflects 5% less production than my original analysis). I have modified Table 2 to use this lower factor, in order to provide a more conservative estimate.*

10. Referring to page 7, lines 8 and 9 of Witness Richard Clewett’s Testimony, please explain how utilities and the Commission should value potential global warming regulation in its IRP process?

RESPONSE:

Properly valuing the cost of global warming regulation in calculations of future costs requires a team of experts synthesizing and analyzing the best available data, including the best projections of likely carbon costs—e.g., the Synapse Energy Economics 2007 report entitled *Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning*.<sup>1</sup>

As Geoff Young testified in PSC Case No. 2006-00472 last summer, California requires utilities to consider the cost of future carbon reduction regulations in their long-term planning by requiring a “cost adder” for supplies from fossil fuel plants. This means that for resource comparison purposes, utilities increase the cost of fossil fuel-based supplies to reflect the financial risk associated with the potential for future environmental regulation.<sup>2</sup>

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<sup>1</sup> Prepared by: Lucy Johnston, Ezra Hausman, Anna Sommer, Bruce Biewald, Tim Woolf, David Schlissel, Amy Roschelle, and David White: <http://www.synapse-energy.com/Downloads/SynapsePaper.2007-03.0.Climate-Change-and-Power.A0009.pdf>

<sup>2</sup> p. 15, ll 8-15.

11. Referring to page 7, lines 12 through 14 of Witness Clewett's Testimony, please explain how utilities and the Commission should value "costs" of future members of the community in the IRP process?

RESPONSE:

The response to Question 10 provides an outline of a process whereby utilities and the PSC could internalize some external costs during the resource planning process. But it is only a beginning.

Environmental degradation and the health problems and loss of quality of life to which it gives rise are difficult to measure and they are clearly difficult to monetize.

Including carbon constraint and other Green House Gas reducing/avoiding costs in full cost accounting calculations for the cost of coal (and gas) in the IRP calculations is a first step toward valuing the lives and quality of life of future citizens and consumers more adequately. It would increase the impetus for companies to develop adequately renewable energy sources and efficiency systems.

Even the above is only a beginning. Requiring utilities to reduce their mercury and other toxic emissions to levels that authoritative health bodies consider safe for humans currently—in other words, adequately protecting the present population—is an important means of protecting the next generation, etc.

It is possible to include dollar figures for health damages and environmental degradation into the accounting formulas used in the IRP process, but that is merely a fall-back mechanism. More fundamental is the need for the PSC and all levels of government to require utilities to produce electricity in ways that do not threaten the health and well-being of present and future generations.

Obviously, it is impossible to produce energy in a way that poses absolutely no health risk to anyone and does no damage to the environment. This is not reason to leave these damages or costs out of consideration when valuing energy sources. Even more, it is no reason to allow more health and environmental damage than is absolutely necessary. At the core, many of the decisions to be made here are political in the sense of being public policy decisions and not simply matters of accounting convention.

12. Referring to page 8, lines 9 through 11 of Witness Clewett's Testimony, what changes to the IRP process does the witness recommend to "safeguard the well being of customers or citizens of the commonwealth"?

## RESPONSE:

A revaluation of the IRP process could start with the conclusions drawn by the Governor's state energy study in 2003.<sup>1</sup> This study raised the question of whether simply having individual utilities do isolated IRPs was an adequate way to plan for the commonwealth's energy. This study noted that:

The Kentucky Public Service Commission (PSC) collects some information related to the projected needs for new generation going forward. However, there is no comprehensive assessment of statewide needs that could serve as a blueprint for strategic investment.<sup>2</sup>

Kentucky's Low Cost Electricity: Strategic Investment recommendations 13-16 read as follows:

Recommendation 13:

The Commonwealth of Kentucky should develop a comprehensive statewide assessment of Kentucky's electricity infrastructure—generation, transmission and distribution—which includes reasonable projections of future electricity requirements.

Recommendation 14:

The Commonwealth of Kentucky should periodically update the comprehensive statewide assessment to reflect changes in both electric infrastructure and future electricity requirements.

Recommendation 15:

The Commonwealth of Kentucky assessment should serve as a "strategic blueprint" for policymakers to determine future investment requirements in Kentucky's electricity generation, transmission and distribution infrastructure.

Recommendation 16:

The Commonwealth of Kentucky should utilize the "strategic blueprint" to develop policies that promote sufficient investment in electricity infrastructure—generation, transmission and distribution—to sustain Kentucky's low cost electricity into the future.

An adequate reconsideration of the IRP process would take a full-scale investigation involving numerous parties. Some type of timely, mandatory reply to staff (and possible Attorney General) comments on each IRP should be developed. This process might need to involve the commissioners deciding if the utility's second response is adequate. There may need to be some system of penalties if, when the next IRP is submitted, the company has ignored the suggestions or instructions of the PSC commissioners.

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<sup>1</sup> KENTUCKY'S ENERGY • OPPORTUNITIES FOR OUR FUTURE  
<http://www.energy.ky.gov/NR/rdonlyres/8E6F3FFE-5DC6-4FC6-9B5A-EA9D2AC89E7A/0/KentuckyEnergyPlan.pdf>

<sup>2</sup> Ibid. p. 3.

13. Please identify whether there are any state utility Commissions that use the “full cost accounting” methodology in either the IRP or CPCN processes, as described on page 9, line 3, through page 10, line 5, of Witness Clewett’s Testimony.

RESPONSE:

I mentioned at the end of my testimony that the Minnesota Public Utilities Commission has established cost for some externalities.<sup>1</sup>

Addendum 1

Lexington Herald-Leader (KY)  
2001-12-23  
Section: Main News  
Edition: Final  
Page: A14

**W.VA. TRUCKERS LOVE KENTUCKY  
TOO-HEAVY HAULERS**

LOW FINES, HIGH WEIGHT LIMITS ATTRACT TRAFFIC

Lee Mueller  
Eastern Kentucky Bureau

KERMIT, W.Va. -- A crackdown on overweight coal trucks has some West Virginia haulers crossing the Tug Fork of Big Sandy River into Kentucky to avoid hostile weight patrols. For coal truckers, Kentucky makes an ideal refuge: It's a land of low fines and high weight limits. Kentucky's legal weight for 18-wheel, six-axle rigs is 126,000 pounds, 46,000 pounds higher than any other state in the Appalachian coalfields. Most states impose no-limit, per-pound fines that often run into thousands of dollars -- and can include jail time.

In Eastern Kentucky, on the other hand, coal haulers can repeatedly violate the state's weight limits without losing their licenses, if they pay their fines. And the maximum fine, which has been meted out only in Boyd County, is \$500, whether the truck is 10,000 pounds or 100,000 pounds overweight.

West Virginia's maximum overweight fine of \$1,600 begins at 123,000 pounds -- 3,000 pounds less than Kentucky's legal limit.

So when West Virginia trucker K.R. Davis hears on his CB radio that one of the state's 16 enforcement officers is camped out on U.S. 52 between Kermit and Fort Gay, Davis crosses the Tug Fork into Kentucky and heads for U.S. 23.

At Louisa in Lawrence County, he cuts back into West Virginia and heads for the barge docks near Ceredo-Kenova.

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<sup>1</sup> *Minnesota Public Utilities Commission Docket 4727328 (externality costs updated in 2006):*  
<https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=4727328>

Davis, who hauls in several states, describes himself as a "coal-bucket outlaw" because, in order to work, he often must haul overweight in other states.

Kentucky is not usually a problem if a truck has a valid extended-weight sticker, he said, "but if you've got to go into Pennsylvania or Virginia, you know the risks," he said. "You run at night, you run illegal and you stay the hell away from them. It must be in your blood, because it sure doesn't pay very much, but you can't quit."

#### Light penalties

Let's say a trucker is hauling a load of coal that weighs 158,000 pounds -- illegal in every state, and the average weight of some 19,000 coal trucks that were counted as part of a 1999 study in Kentucky.

In Kentucky, it's up to a district judge to determine what the fine would be. The limit is \$500 plus court costs.

In West Virginia, the fine would be \$1,600.

In Tennessee, overweight truckers receive a citation, plus an overweight tax assessment of 3 cents a pound for the first 2,400 pounds above 80,000 pounds, and 5 cents a pound after that.

On the 158,000-pound load, that's \$3,852 in taxes alone.

In Virginia, where the legal limit is also 80,000 pounds, fines start at 15 cents a pound for overweight loads and increase to 45 cents a pound above 100,000 pounds.

The fine would be \$29,100 on the 158,000-pound load.

It's also worth noting that in Tennessee and Virginia, overweight trucks are not released until they have unloaded their extra cargo. In Kentucky, overweight trucks are cited and sent on their way.

#### Addendum 2

Lexington Herald-Leader (KY)

2001-12-23

Section: Main News

Edition: Final

Page: A1

#### **TOO-HEAVY HAULERS**

**ILLEGAL LOADS CRUSH KY. ROADS, BUT LAWS REMAIN LIGHTLY ENFORCED**

Lee Mueller

Eastern Kentucky Bureau

PIKEVILLE -- In Kentucky, they're called "graveyard humps" -- loads of coal piled so high that they rise above the sides of coal trucks' trailers like mounds of freshly turned earth.

The humps are a sign that a coal truck is too heavy, creating risk for motorists and doing extensive -- and expensive -- damage to roads. On Kentucky's U.S. 23, the busiest coal-haul road in America, research suggests that nearly 90 percent of the loaded coal trucks are illegally overweight.

But nobody seems to be doing much about it.

For example, Pike County produced about 35 million tons of coal last year -- enough to fill more than half a million 18-wheelers.

How many were cited for hauling overweight in Pike County? One. In neighboring Letcher County, it was also one. Six were cited in Floyd County; none in Johnson County.

Studies show that 1,880 coal trucks a day travel the 115-mile, four-lane corridor of U.S. 23 between the Virginia state line and the Big Sandy docks in Boyd County. Truckers along the route talk of routinely violating the weight limit, but officers of the state Division of Vehicle Enforcement wrote only 111 overweight citations last year.

Maj. Steve Maffett, Vehicle Enforcement's operations commander, said he was surprised by those numbers.

He said his agency is not ignoring scofflaw coal trucks, but he noted: "A lot of these states take it a lot more serious, obviously, than the state of Kentucky."

Consider West Virginia, where the maximum weight is about 25 tons lower than Kentucky's and the maximum fine for overweights is three times higher.

There, they have a different name for the mounds of coal that peak above the sides of trucks: "Kentucky humps."

Many duties

The Vehicle Enforcement division, whose tan patrol cars cruise Kentucky's highways, has "an enormous array of duties," said Lt. Martin Slone, who oversees the patrols of most of U.S. 23. Vehicle Enforcement officers inspect all private buses and vans; conduct safety inspections on all commercial vehicles; and write speeding tickets to motorists.

Officers conduct safety seminars for truckers and visit high schools to promote safe coexistence between heavy trucks and passenger vehicles.

For a while after Sept. 11, Vehicle Enforcement officers spent time checking reports that terrorists might be driving tanker trucks full of hazardous materials.

But there's one thing that Slone's 12 officers, whose territory includes U.S. 23 in Letcher, Pike, Floyd and Johnson counties, haven't done much of. In the last fiscal year, which ended July 1, they wrote only seven overweight tickets on U.S. 23. (The agency's Morehead district office, which covers Lawrence and Boyd counties, wrote 103 overweight citations on U.S. 23 in those two counties.)

U.S. 23 is not alone in being left alone. On other highways in Bell, Clay and Perry counties, Vehicle Enforcement officers wrote only one ticket each last year to 18-wheelers. No tickets were issued in Harlan or Martin counties.

It has been four years, in fact, since anyone wrote an overweight ticket of any type in Martin County, the state's second-largest coal producer.

"My theory is that they've stopped writing them to keep the coal moving," Martin County Attorney Drewie Muncy said.

Critics such as Roy Crawford of Whitesburg, whose son was killed in a collision with a coal truck in 1994, claim Kentucky enforcers ignore weight laws to benefit coal companies at the expense of public safety and taxpayers.

Safety studies are somewhat inconclusive. Federal highway statistics show 21 deaths on U.S. 23 from 1994 through 2000 -- but a 1999 study by the University of Kentucky Transportation Center

found that truck drivers were to blame in less than a third of coal-truck accidents. However, there's little doubt that overweight coal trucks cost taxpayers money. State highway records show the state has paid at least \$75 million since 1996 to repair damage to U.S. 23. Studies show the road requires repaving every five years -- about three times more often than other Kentucky roadways.

C.K. Belhasen, a Paintsville lawyer whose clients include bankrupt coal truckers, said that if normal maintenance on a highway is \$25 million "and they're spending \$75 million on U.S. 23, that's a \$50 million subsidy for somebody -- and it's not for you and me."

State officials know they have a problem. "These trucks are destroying the roads," said Maffett, of Vehicle Enforcement. "There's no doubt about it."

Why don't Vehicle Enforcement officers write more overweight tickets?

First, everyone involved in enforcement -- from Maffett and his officers to state Transportation Secretary James Codell, who oversees Vehicle Enforcement -- say the relative lack of tickets has nothing to do with favoritism toward the coal industry.

"There's nobody telling us not to weigh them," Maffett said. Instead, he said, a key problem involves the lack of good portable scales, which Vehicle Enforcement officers use to determine whether a truck is overweight.

Maffett said Transportation Cabinet officials have said there is no money available to buy new scales, which cost about \$5,000 a set. He said new scales for his entire division would probably cost about \$500,000.

"You can take that and put whatever twist you want to put on that, but there's nobody that has come up with any money for us to purchase portable scales," Maffett said.

### **Heavier limits**

The federal government says that the heaviest a truck can be on its interstate system is 80,000 pounds. That's also the absolute limit on state roads in every Appalachian state -- except one. Since 1986, Kentucky has allowed coal truckers to buy "extended-weight" permits that allow them to carry far heavier loads on 4,200 miles of state roads that have been classified as coal-haul routes.

For the price of a permit, which was \$360 in 1986 and has never been increased, truckers can carry up to 126,000 pounds -- 63 tons -- per load. The men who work with the big rigs along U.S. 23 say that's not nearly enough.

"There's guys going down through here packing 100 tons," said James W. Howard, 46, of Salyersville, who works at a truck-bed repair shop at Lowmansville in Johnson County.

"Some of them are being paid \$4.50 a ton to haul from Pikeville, so if they don't haul a big load, they're wasting their time," Howard said.

Most Kentucky drivers work as contract haulers for coal companies, and truckers along U.S. 23 said in interviews that they were being paid \$5 to \$6 a ton to haul coal from Pikeville and Hazard to the coal docks in Catlettsburg.

Drivers say they'd gladly haul lighter loads -- if the price were right.

"I'd be tickled to death, myself, to haul less -- if they'd pay me \$2 more a ton," said Dewayne Howard, 31, of Richmond.

His father, Lewis Howard, 51, of Oil Springs, said new coal trucks now cost as much as



\$170,000. Fuel costs for U.S. 23 hauls average \$129 a day for three trips that take up to 16 hours a day. Insurance costs \$900 a month, he said.

"After truck payments, permit fees and other costs, I'll gross about \$70,000 a year, but when I get through, I've got about \$13,000 to live on with three kids at home," the elder Howard said.

Kentucky Coal Association President Bill Caylor said it would be difficult for coal companies to pay any more to coal haulers without raising their prices.

Though the spot market for coal saw big price increases in the past year, Caylor noted that the spot market accounts for only about 10 to 15 percent of the state's production. Most coal operators are locked into long-term contracts with utilities, so the operators cannot afford to increase haul rates, he said.

If utilities agreed to pay higher prices -- perhaps as much as \$10 extra a ton, Caylor estimated -- the haulers' pay could be increased, but the costs undoubtedly would be passed on to rate-payers, he said.

### **Drivers must pay fines**

One other cost for which drivers are liable: the penalties for hauling overweight. Kentucky's maximum penalty is \$500 -- about enough to wipe out all of a driver's revenue from a truckload of coal.

Unlike Virginia, which in 1987 made coal shippers responsible for overweight tickets, Kentucky law forces truck owners to pay the fines and court costs.

### **If anybody pays.**

With rare exceptions, records show that most mountain-district judges and prosecutors either dismiss tickets or mete out minimum fines, regardless of how many violations are detected or how overweight a truck might be.

"That's been a problem for many years," said Slone, the head of the Pikeville Vehicle Enforcement office.

"No matter how many tickets you write, until you've got a uniform system of penalties, the problem is going to exist," he said.

In Pike County, two tickets were issued to 18-wheel trucks for hauling 82,000 pounds overweight in early 2000. Both were dismissed; one by District Judge Darrell Mullins, one by a trial commissioner. Mullins could not be reached for comment.

Pike County Attorney Keith Hall, a former district judge, said his office was not involved in the decisions to dismiss.

"I never point fingers at judges, but they're braver now than I was," said Hall, who served as a district judge from 1992 to 1996. "The judges and the trial commissioners here amend and dismiss on their own. And we trust the judges here to do what's right on cases."

Still, Hall said his office probably would not have been any tougher on overweight tickets.

"I love coal truck drivers," he said. "Kentucky tends not to take overweight trucks as seriously as other states, and I support the coal truckers."

Maffett, of Vehicle Enforcement, and others contend that penalties are too light -- and are applied too unevenly -- to serve as a deterrent.

### **'It'll never happen'**

One thing that might serve as a deterrent is a permanent weigh station on U.S. 23.

The Division of Vehicle Enforcement has 17 permanent weigh stations on major highways across the state, but none is located on U.S. 23.

Gov. Paul Patton, a former coal operator, said in a statement that he proposed legislation "concerning this" in 1998, "but the General Assembly killed it."

Patton did float the idea of new truck-weight legislation in 1998; his bill would have held coal shippers, not truckers, responsible for overweight fines. But it would also have increased the maximum weight limit from 126,000 pounds to 162,000 pounds.

Descriptions of Patton's proposal, which was never introduced, did not include any mention of a permanent weigh station on U.S. 23.

"It'll never happen," Maffett said. "You'll never see a scale on U.S. 23 in Eastern Kentucky anywhere.

"They're not going to let that happen up there. ... Call over there and ask the governor when they're going to put it in up there, because I don't think I'll ever see it -- not in my professional lifetime."

### Addendum 3

Lexington Herald-Leader (KY)

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### **AN EX-MINER, BUT STILL KILLED BY COAL MINISTER'S DEATH IN CRASH ILLUSTRATES DANGERS OF OVERLOADED TRUCKS**

Lee Mueller

Eastern Kentucky Bureau

INEZ -- The new sign outside the Rev. Lonnie Preece's small white church on Coldwater Fork contains one of his favorite admonitions: "How Far Away is Heaven? One Breath Away!"

On the last day of his life, Preece climbed into his new 2005 GMC Sierra truck and made his usual Monday morning rounds. He picked up garbage from nearby relatives and hauled it to Martin County's collection center, about four miles away on Ky. 40, just west of Inez. At the transfer station, as locals call it, Preece chatted amiably with other residents waiting to fling bags of weekend waste into a large steel bin.

"Lonnie always was a good person," said Troy Mollett, the station's manager.

Then Preece, 55, pastor of the Bethel United Baptist Church, headed back home on Ky. 40. Less than a mile from his house, he passed a BP station where cashier Dennis Stacy was cleaning out a stall in the car wash.

Stacy, who said Preece had baptized his brother-in-law, never saw the preacher's eastbound pickup, but heard the impact, about 100 yards up the road. Charles Wiley Jr., 27, driving an overloaded, westbound coal truck, had swerved suddenly into Preece's lane and collided head-on with his pickup.

Stacy didn't even look up.

It was a solid, familiar sound, not unlike the metal bang of an empty aluminum truck bed when a coal **hauler** hits a pothole. The bed bounces up and falls down -- "Like, 'ker-thump!" he said -- and the 18-wheel tractor-trailer rolls on down the road.

This time it didn't.

Because the March 7 tragedy involved an overweight truck, however, the crash echoed loudly in Frankfort, 165 miles away.

On that very day, lawmakers were to vote on a controversial House bill that would have unleashed new fleets of **heavy** trucks hauling taxable "natural resources" on Kentucky's highways. Opponents of the bill deplored the wreck, which might have helped defeat the proposal -- at least temporarily.

The 2005 legislative session resumes Monday, when a House member could try to revive the bill. "I don't know if it did (help defeat House Bill 8) or not," said state Rep. Howard Cornett, R-Whitesburg, the legislation's sponsor. "There were some people who stood on the floor and talked about it. It may have."

If Preece's death influenced some legislators to change their votes on HB 8 and maybe help save lives, family members say he would be pleased.

"Tickled to death," said Ronnie Caldwell, a son-in-law who works for a Prestonsburg bank. "You had to have known Lonnie," said Diane Smith of Inez, a niece. "He was a very good preacher, but he was a great man."

Two families in pain

One of 12 children, Preece was the son of former Martin County school board member Howard Preece, who also had been pastor of the Bethel United Baptist Church, which a sign says was established in 1856.

"Somebody in his family has always been part of this church," said Bill Slone, a deacon at the church who retired as county school superintendent this year. "The pew we sit in was made by his great-grandfather."

Slone and Preece both graduated from Inez High School in 1967. Preece married Doris Proctor of Man, W. Va., about 35 years ago, and they had three grown children, he said, including a Martin County grade-school teacher, Michelle Caldwell. Another daughter, Shannon Maynard, is married to Inez optometrist Todd Maynard and is expecting their first child. A son, Devin, married last summer and is living in Georgetown.

Preece retired from Excel Mining last year after more than 20 years with the company, Caldwell said. Family members said Preece "accepted Jesus" in 1988 and became an ordained minister in 1992. His twin brother, Donnie, also a retired miner, lives across the road. He made news locally last year when a bear raided his beehives, Smith said.

"It's a fine family," Slone said. "Lonnie was one of those people whose good opinion I valued. This is a terrible loss to the community."

Both Preece's widow and his brother, grief-stricken, declined to be interviewed.

The family is still in shock, said Caldwell, the son-in-law. "Working in the mines all those years, you would have thought once he got out, all of his danger was over with," he said. "We just hate to think, with the weight of these trucks going unnoticed, of another family having to go through something like this."

Court documents show that Charles Wiley Jr. was driving for Hall Trucking of Inez, which was contracted to haul coal for Appalachian Fuels of Ashland from Hardy in Pike County to the river barge docks near Catlettsburg on the Big Sandy River.

Wiley, who has been making the trip twice a day for two years, lives in a small trailer in Inez with a friend.

Barefoot and shirtless, he paced the room, past a large-screen TV, and leaned heavily on a kitchen table, exhaling deeply.

"Buddy, I ain't slept for a week," he said. "I mean, I never even bent the bumper on a truck before. I know it wasn't my fault, but you can't help feeling guilty."

Wiley's father died four months ago of a heart attack and his mother died of cancer a year ago.

"And now this. It's a nightmare for everybody," said his aunt, Tina Wiley.

"That poor man's family, I know they're going through hard times," she said of the Preeces. "But they just don't realize what Junior's going through, **too**."

Wiley was cited after the accident for hauling 150,150 pounds of coal on a highway with a 62,000 pound limit. Even though he was 88,150 pounds overweight on Ky. 40, the coal was still a foot below the top of the bed, he said.

The coal company had loaded his truck and he did not know how much weight he was hauling, he added.

Appalachian Fuels official Carl Simmons in Ashland did not return a phone call seeking comment.

When he started around a small curve and came up behind two vehicles that were stopped in the road, Wiley said he was doing 32 miles an hour and was alert. The car in front, a Martin County water district truck, was making a left turn, left-turn signal blinking, witnesses said.

Wiley said he could not see the truck's turn signal, and the car behind it did not have its signal on. (In Kentucky, drivers behind turning vehicles no longer are required to give the same signal, said Cornett, the legislator. )

"By the time I seen it, it was **too** late," Wiley said.

No skid marks were reported at the scene, but Wiley said air brakes and anti-lock brakes often do not leave skid marks.

"I hit my brakes. I sure did," he said. "I had that pedal to the floor. I swerved to miss the car and hit the pickup. It just happened so quick, you didn't have any time to think about it."

No more truck driving

Martin County Deputy Sheriff Kirby Preece, the first law-enforcement officer to reach the wreck, said witnesses told him Wiley was driving at a "reasonable" speed in the 45 mph zone.

"He took evasive action," said Preece, a distant cousin of the victim. "Your natural tendency would be to go to the left," he said, holding out his hands and turning an imaginary steering wheel to the left.

The deputy said there was not enough room between the hillside and vehicles in front for the coal truck to get past them on the right.

"If he'd done that, that coal truck probably would have toppled on both vehicles," he said.

Wiley said he didn't see the pickup coming when he swerved, but conceded the extra weight might have prevented him from stopping more quickly.

No additional charges have been made against Wiley, although Crum, the state police detective,

said he will turn the results of his investigation over to the local commonwealth's attorney, Anna Melvin.

Melvin's office could not be reached for comment.

Driving a gravel truck for a road contractor is not an alternative, Wiley said, especially if the legislature winds up raising the weight limits for gravel trucks from 80,000 to 126,500 pounds -- the same as it is now for 18-wheel coal trucks on four-lane highways.

"Weight's weight," Wiley said. "They'll still be just as hard to stop."

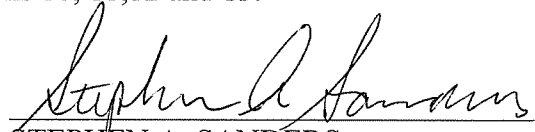
Meanwhile, Wiley said he plans to give up truck driving and hopes to land a job at a Wal-Mart in Paintsville.

Working at Wal-Mart, he said, "would sure be safer than driving a truck, buddy."

Reach Lee Mueller at (606) 789-4800 or [lmueller1@herald-leader.com](mailto:lmueller1@herald-leader.com)

### **CERTIFICATION OF ACCURACY**

I hereby certify that I supervised the preparation of the above Responses and that the information contained in the Responses is true and accurate to the best of the answerer's knowledge, information and belief after reasonable inquiry. I further state that Wallace McMullen answered questions 1, 2, 3, 4, 5, and 6; that Andrew McDonald answered questions 7, 8, and 9; and that Richard Clewett answered questions 10, 11, 12 and 13.

  
STEPHEN A. SANDERS

CERTIFICATE OF SERVICE

I hereby certify that an original and ten copies of the foregoing Response of Sierra Club to Duke Energy Kentucky, Inc.'s Request for Information were mailed to the office of Beth A. O'Donnell, Executive Director of the Kentucky Public Service Commission, 211 Sower Boulevard, Frankfort, KY 40601, for filing in the above-styled proceeding and that copies were mailed to the following Parties of Record on this, the 20<sup>th</sup> day of March, 2008:

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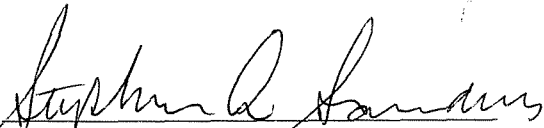
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