

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of the Application of Kentucky Power :
Company for: (1) the Approval of the Terms and :
Conditions of the Sixth Amendment to the Renewable :
Energy Purchase Agreement for Biomass Energy Resources :
Between the Company and ecoPower Generation-Hazard, : **Case No. 2015-00190**
LLC; (2) Authorization to Enter into the Sixth Amendment :
to the Agreement; (3) the Grant of Certain Declaratory :
Relief; and (4) the Grant of All Other Required Approvals :
and Relief. :

**RESPONSE OF
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.**

Pursuant to 807 KAR 5:001, Section 19, Kentucky Industrial Utility Customers, Inc. (“KIUC”) submits this Response to the Application filed by Kentucky Power Company (“Kentucky Power” or “Company”) at the Public Service Commission of Kentucky (“Commission”) on June 18, 2015. In its Application, Kentucky Power requests a Declaratory Order stating that none of the Second through Seventh Amendments to the Renewable Energy Purchase Agreement for Biomass Energy Resources (“REPA”) have altered or changed the Commission’s October 10, 2013 Order in Case No. 2013-00144 (“REPA Order”), including the conclusion in the REPA Order that concurrent recovery of costs associated with the REPA through Kentucky retail rates via a monthly rider is appropriate. As discussed below, the Commission should either: 1) deny outright Kentucky Power’s request with respect to the proposed Sixth Amendment because extension of the Commercial Operation Milestone currently set forth in the REPA would fundamentally alter the Commission’s REPA Order; or 2) reserve judgment on Kentucky Power’s request for a Declaratory Order until the Commission issues an order addressing the Company’s other requests in this proceeding.

RESPONSE

While most of the amendments to the REPA proposed by Kentucky Power would not substantially alter the Commission’s REPA Order, the proposed Sixth Amendment would. In that amendment, Kentucky Power

proposes to extend the deadline for commercial operations (the “Commercial Operation Milestone”) of the ecoPower Generation-Hazard LLC (“ecoPower”) facility from January 31, 2017 to December 31, 2018, delaying the required operations start date by 23 months.¹ This change, if approved, would fundamentally alter material terms of the REPA as approved by the Commission, including its cost, term, and the level of liquidated damages that may ultimately be assessed on ecoPower and flowed-through to customers.

Extending the Commercial Operation Milestone to December 31, 2018 would alter the costs of the REPA by: 1) increasing the highest Contract Rate that could be paid to ecoPower; and 2) requiring customers to pay the highest Contract Rates 23 months longer than initially approved. Currently, the REPA approved by the Commission provides that if commercial operations at the ecoPower facility commence prior to January 1, 2017, then the starting Contract Rate will be \$110.11/MWh.² If commercial operations at the ecoPower facility commence sometime between January 1, 2017 and January 31, 2017 (the commercial operations deadline), then the starting Contract Rate will be \$112.58/MWh and will increase by 2.25% each January 1 thereafter for the remainder of the twenty-year REPA term.³ Hence, the highest Contract Rate approved by the Commission in the REPA Order is \$175.68/MWh, which is the rate that customers will pay ecoPower during the January 1, 2037 through January 29, 2037 period if commercial operations do not commence until the current Commercial Operation Milestone.

If the proposed Sixth Amendment is approved, however, and if commercial operations did not commence at the ecoPower facility until December 31, 2018 (the revised Commercial Operation Milestone), then the Contract Rate as of January 1, 2019 (the first full year of commercial operations) would be \$117.70/MWh due to the 2.25% annual increase provision. Consequently, the Contract Rate in the new final year of the amended twenty-year REPA (2038) would be \$179.63/MWh.⁴ Approving the Sixth Amendment would thus significantly alter the REPA Order by increasing the highest potential Contract Rate paid to ecoPower by customers. Moreover, allowing the twenty-year REPA to extend as long as December 29, 2038 would force Kentucky

¹ Direct Testimony of Ranie K. Wohnhas on Behalf of Kentucky Power Company (June 18, 2015)(“Wohnhas Testimony”), Ex. RKW-1 (proposed Sixth Amendment to the REPA) at 2, 15, and 17.

² Direct Testimony of Jay F. Godfrey on Behalf of Kentucky Power Company, Case No. 2013-00144 (April 10, 2013) at Ex. JFG-1 (“Initial REPA”) at 77 (Exhibit C).

³ Initial REPA at 24 (Article 2 – Term and Termination)(“*This REPA shall become effective as of the date of its execution, and shall remain in full force and effect until the date that is twenty (20) years after the day before the first day of the Delivery Period...*”) and 77 (Exhibit C).

⁴ See attached Affidavit of Lane Kollen.

Power's customers to pay the highest Contract Rates for 23 months longer than approved in the Commission's REPA Order. Together, these changes would increase the costs of the REPA by \$57 million, resulting in a total cost of approximately \$1.319 billion rather than \$1.262 billion.⁵

Extending the Commercial Operation Milestone to December 31, 2018 would also alter the REPA term. As approved by the Commission, the REPA would extend "*twenty (20) years after the day before the first day of the Delivery Period....*"⁶ The Delivery Period could begin no later than January 31, 2017 - the deadline for commercial operations. Hence, the REPA term approved by the Commission could extend no longer than January 29, 2037. But the proposed Sixth Amendment would alter the potential term of the REPA, extending the possible term end date to December 29, 2038.

Additionally, extending the Commercial Operation Milestone would excuse ecoPower from its obligation to pay liquidated damages to Kentucky Power in the event that commercial operations do not begin by January 31, 2017. Under the REPA approved by the Commission, if Commercial Operation at the ecoPower facility did not commence by January 31, 2017, and if ecoPower failed to cure that issue within the time allotted by the REPA, then ecoPower would be in default and Kentucky Power would have the right to terminate the REPA.⁷ Failure to meet the Commercial Operation Milestone would also require ecoPower to pay liquidated damages of \$15,000 each day up to a liquidated damages cap of \$2.7 million in the aggregate.⁸ If the Commercial Operation Milestone is extended as proposed in the Sixth Amendment, however, then the Commission would effectively be taking away Kentucky Power's right to terminate the REPA and excusing ecoPower from paying the liquidated damages required by the REPA. Liquidated damages would have flowed through the customers.

KRS 278.271 provides with respect to utility applications to recover costs for the purchase of electricity from certified biomass facilities, that "*[n]o recovery shall be allowed unless the full costs of the purchase power agreement over the full term of the agreement, which shall be included as part of the application, have been found by the commission to be fair, just, and reasonable.*" That statute also states that "*[t]he commission's approval of cost recovery under this section shall be valid for the entire initial term of the agreement.*"

⁵ See attached Affidavit of Lane Kollen.

⁶ Initial REPA at 24.

⁷ Initial REPA at 12 (defining "Commercial Operation Milestone"), 73 (Exhibit A), and 51 (Events of Default of Seller) and 52-53 (Termination).

⁸ Initial REPA at 28-29 (Section 4.10).

Because the proposed Sixth Amendment would fundamentally alter both the full costs and the full term of the REPA, that amendment cannot merely be “*rubber stamped*” by a Declaratory Order as Kentucky Power requests. Instead, before it could approve the proposed Sixth Amendment, the Commission has to make the findings required by KRS 278.271 taking into account the additional costs and extended term of the amended REPA. But Kentucky Power has failed to meet its burden of proof to demonstrate to the Commission that the amended REPA would satisfy the requirements of KRS 278.271. The Company’s Application simply glosses over the proposed delay of the Commercial Operation Milestone, stating generally that the Sixth Amendment “*extends key facility developmental milestones.*”⁹ Kentucky Power fails to explain or address that those milestones include the critical Commercial Operation Milestone. Kentucky Power also fails to explain how extension of the Commercial Operation Milestone would impact the REPA and the Company’s customers. However, a comprehensive analysis regarding the impacts of extending the Commercial Operation Milestone as proposed in the Sixth Amendment is fundamental before the Commission could endorse such an amendment.

Moreover, Kentucky Power’s decision to amend the REPA rather than exercise its right to terminate the contract if ecoPower fails to begin commercial operations by January 31, 2017 is imprudent. When the Commission initially approved the REPA, the U.S. Environmental Protection Agency (“EPA”) had not yet issued its proposed version of the Clean Power Plan. Yet in approving the REPA, the Commission acknowledged pending EPA rules on coal-fired facilities and anticipated that the ecoPower facility could help Kentucky Power comply with those rules.¹⁰ Now, the initial version of the Clean Power Plan is available for review. While the preamble to the Clean Power Plan indicates that biomass generation may be one compliance option, such an option may not exist in the final version of the Clean Power Plan.¹¹ A consensus is growing among environmental groups that biomass-based power generation should not count for purposes of Clean Power Plan compliance since burning trees produces 50 percent more CO₂ than burning coal.¹² If the EPA ultimately changes its perspective on biomass in response to environmentalist concerns, then the ecoPower facility may do little to help Kentucky comply with the Clean Power Plan. And even if the EPA issues a version of the Clean Power Plan similar to what has been proposed, the compliance obligation would be statewide. In that event, it would be

⁹ Application at 7.

¹⁰ REPA Order at 16.

¹¹ See attached Affidavit of Dr. Mary S. Booth.

¹² Id; See also Environmental Group Letter to the White House, Available at <http://www.pfpi.net/wp-content/uploads/2015/06/Groups-bioenergy-letter-to-OMB-6-23-15.pdf>.

unreasonable to rely on customers in the most economically impoverished portion of Kentucky to shoulder a large portion of the entire Commonwealth's Clean Power Plan compliance cost by funding the ecoPower facility.¹³

CONCLUSION

WHEREFORE, for the reasons discussed above, the Commission should either: 1) deny outright Kentucky Power's request with respect to the proposed Sixth Amendment because extension of the Commercial Operation Milestone in the REPA would fundamentally alter the Commission's REPA Order; or 2) reserve judgment on Kentucky Power's request for Declaratory Order until the Commission issues an order address the Company's other requests in this proceeding.

Respectfully submitted,



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CUSTOMERS, INC.**

July 8, 2015

¹³ "The State of Working Kentucky," Kentucky Center for Economic Policy, August 2014 at 11, *available at* <http://kypolicy.org/dash/wp-content/uploads/2014/08/State-of-Working-KY-2014-final.pdf>

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Generation-Hazard, LLC; (2) Authorization to Enter :
into the Sixth Amendment to the Agreement; (3) the
Grant of Certain Declaratory Relief; and (4) the Grant
of All Other Required Approvals and Relief.

AFFIDAVIT OF LANE KOLLEN

I, Lane Kollen, being first duly sworn, state:

1. My name is Lane Kollen. I am a Vice President and Principal with J. Kennedy and Associates, Inc. My business address is 570 Colonial Park Drive, Suite 305, Roswell, GA 30075.
2. I earned a Bachelor of Business Administration in Accounting degree and a Master of Business Administration degree, both from the University of Toledo. I also earned a Master of Arts in Theology degree from Luther Rice University. I am a Certified Public Accountant, with a practice license, a Certified Management Accountant, and a Chartered Global Management Accountant. I am a member of several professional organizations.
3. I have been an active participant in the utility industry for nearly forty years, initially as an employee of The Toledo Edison Company from 1976 to 1983 and thereafter as a consultant in the industry since 1983. I have testified as an expert witness on planning, ratemaking, affiliate transactions, accounting, finance, tax, and economic issues in proceedings before regulatory commissions and courts at the federal and state levels on more than two hundred occasions, including the Kentucky Public Service Commission ("Commission") on numerous occasions. I testified in Case No. 2013-00144, the first ecoPower Generation-Hazard LLC ("ecoPower") proceeding before the Commission.
4. I am filing this Affidavit on behalf of the Kentucky Industrial Utility Customers, Inc. ("KIUC"), a group a large industrial customers taking electric service from Kentucky Power Company (Kentucky Power" or "Company") whose rates and cost of service will be adversely affected by the Declaratory Order requested in

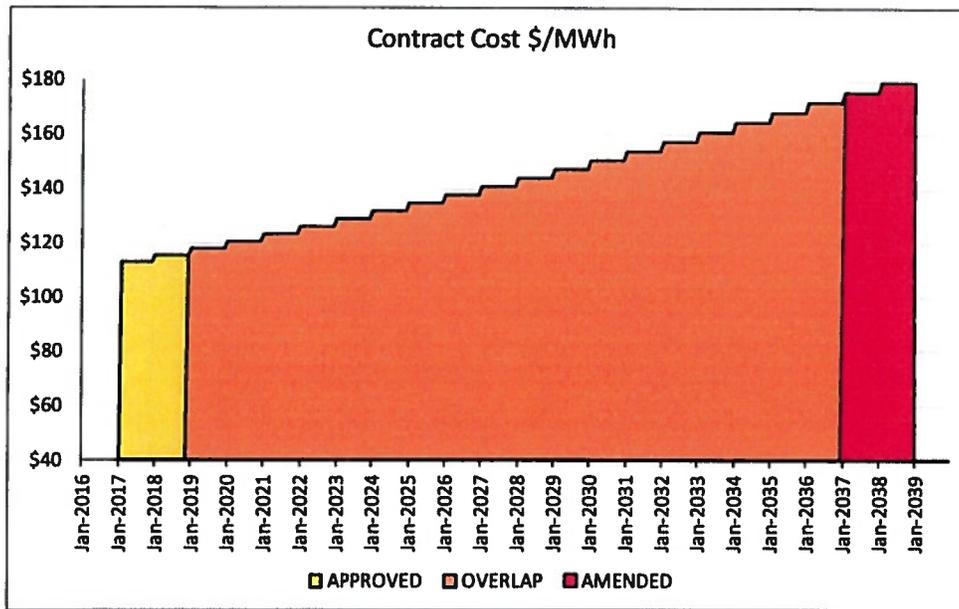
this proceeding. As discussed below, granting the Declaratory Order will increase the costs and extend the term of the Renewable Energy Purchase Agreement (“REPA” or “Agreement”) between Kentucky Power and ecoPower, compared to the Agreement that was originally approved by the Commission.

5. In its Application in this proceeding, Kentucky Power Company seeks a Declaratory Order that “none of the Second through the Seventh Amendments to the REPA have altered or changed the Commission’s October 10, 2013 Order in Case No. 2013-00144 (“REPA Approval Order”), including the conclusion in the REPA Approval Order that concurrent recovery of costs associated with the REPA through Kentucky retail rates via a monthly rider is appropriate.”
6. In its Application, the Company also seeks an Order “(i) approving the terms and conditions of the Sixth Amendment to the REPA; (ii) approving and authorizing Kentucky Power to enter into the Sixth Amendment to the REPA; and (iii) granting all other required relief and approvals.”
7. KIUC opposes the Company’s request for the Declaratory Order because the Sixth Amendment materially changes the “full costs” and the “full term” compared to the REPA as it was originally approved by the Commission.
8. Among other changes, the Sixth Amendment excuses ecoPower from meeting key milestone dates set forth in the Agreement as originally approved by the Commission. Most importantly, the “Commercial Operation Milestone.” The Commercial Operation Milestone is the commercial operation date on which the facility is capable of generating energy for purchase by the Company. The Sixth Amendment extends the Commercial Operation Milestone from January 31, 2017 to December 31, 2018, a 23 month delay.
9. The Commercial Operation Milestone is a critical date because it sets the starting date for the 20 year term of the purchase obligation pursuant to the REPA. The Sixth Amendment modifies the start and end dates of the entire *initial term* of the Agreement. The *initial term* of the Agreement as originally approved by the Commission ran from January 31, 2017 through January 29, 2037. The Sixth Amendment eliminates 23 months from the beginning and adds 23 months to the end of the entire *initial term* of the Agreement.
10. The Commercial Operation Milestone is also a critical date because it affects the “full costs” of the REPA. Any delay in the Commercial Operation Milestone results in an increase in the “full costs” of the Agreement. The “full costs” of the Agreement are based on a starting rate per kWh that is escalated by 2.25% on January 1 each year using a starting date of January 1, 2017, pursuant to the pricing terms set forth in Exhibit C to the contract. Thus, the 23 month delay in the Commercial Operation Milestone set forth in the Sixth Amendment results in an increase of approximately 4.5%, or \$57 million, in the full costs of the Agreement, that the Commission could not have considered in Case No. 2013-

00144.

11. The “full costs” of the REPA originally approved by the Commission in Case No. 2013-00144 was \$1.262 billion (before any offsets for avoided fuel costs and avoided capacity costs).
12. If the Sixth Amendment is approved and ecoPower is excused from meeting the originally approved Commercial Operations Milestone, then the “full costs” of the Agreement will increase by \$57 million to approximately \$1.319 billion (before any offsets for avoided fuel costs and avoided capacity costs).
13. If the Sixth Amendment is approved, then the cost will start at \$117.70/MWh (on January 1, 2019, except for December 31, 2018, which will be at \$115.11/MWh for that single day) and will increase each year to \$179.83/MWh in 2038, the last year of the Agreement. The following table and chart illustrate the annual cost per MWh under the Agreement as originally approved by the Commission and the annual cost per MWh under the Sixth Amendment.

<u>YEAR</u>	<u>APPROVED</u>	<u>AMENDED</u>
Feb 2017	112.58	
2018	115.11	
2019	117.70	117.70
2020	120.35	120.35
2021	123.06	123.06
2022	125.83	125.83
2023	128.66	128.66
2024	131.55	131.55
2025	134.51	134.51
2026	137.54	137.54
2027	140.64	140.64
2028	143.80	143.80
2029	147.04	147.04
2030	150.34	150.34
2031	153.73	153.73
2032	157.18	157.18
2033	160.72	160.72
2034	164.34	164.34
2035	168.04	168.04
2036	171.82	171.82
Jan 2037	175.68	175.68
Feb-Dec 2037		175.68
2038		179.63



14. The Sixth Amendment also excuses ecoPower from paying as much as \$2.7 million in liquidated damages if it fails to meet the Commercial Operation Milestone set forth in Exhibit A to the Agreement originally approved by the Commission. These liquidated damages would have inured to the Company's ratepayers.
15. The Company has provided no evidence that the newly proposed full costs over the newly proposed full term are fair, just, and reasonable.
16. Kentucky Power has a financial incentive to not terminate the REPA because it will retain 25% of the margins from the sale of the additional energy resulting from the Agreement. This will occur through the provisions of the System Sales Clause ("SSC") tariff, which provides for a sharing of all off-system sales margins 75% to ratepayers and 25% to the Company. The higher cost energy from the REPA will be directly assigned to retail ratepayers and will displace lower cost energy that otherwise would have been assigned to retail ratepayers, but instead will be used to supply off-system sales.
17. At an 85% capacity factor for the 58.5 MW facility and an off-system sales margin of \$10 per MWh, the Company will retain \$21.8 million through the SSC over the modified term of the Agreement. Even at a margin of \$5 per MWh, the Company will retain \$10.9 million through the SSC over the modified term of the Agreement.

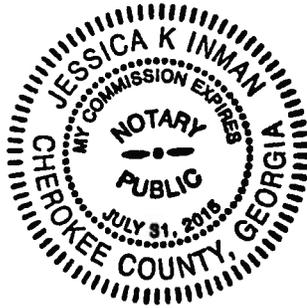
18. Further the Affiant sayeth naught.

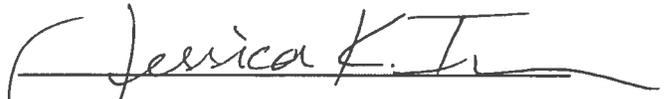


Lane Kollen

STATE OF GEORGIA)
) SS:
COUNTY OF FULTON)

Sworn to and subscribed before me, a Notary Public, this 2nd day of July 2015.





Notary Public

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AFFIDAVIT OF DR. MARY S. BOOTH

I, Dr. Mary S. Booth, being first duly sworn, state:

1. I received my Bachelor's and Master's degrees at the University of Massachusetts, and a PhD in Ecology at Utah State University, focusing on biogeochemistry and plant ecophysiology. I completed postdoctoral fellowships in ecology at the Ecosystems Center at the Woods Hole Biological Laboratory and the Earth Institute at Columbia University.
2. My work in ecology incorporates approaches at several scales, from GIS-based watershed modeling to soil microbial nutrient cycling. Since 2008, I have authored a number of reports, analyses, and comment letters on state and federal rulemakings relevant to bioenergy. I founded the Partnership for Policy Integrity ("PFPI") in 2010, becoming a standalone non-profit organization in 2014, in order to research biomass power greenhouse gas, air pollutant, and forest impacts. My organization has worked with several other environmental groups to provide input on Environmental Protection Agency ("EPA") regulation of greenhouse gas and conventional

pollutant emissions from bioenergy. We also regularly assist citizen groups with analysis of biomass plant air permits.

3. I have testified as an expert witness in an air permit appeal case for the Gainesville Renewable Energy facility, a 100 MW wood-burning power plant in Gainesville, Florida; in a case before the Vermont Public Service Board, in which I recommended that the Board deny a certificate of public good for a wood-burning power plant in Vermont on the basis of its carbon emissions;¹ and in a case brought by environmental groups against the EPA, challenging the agency's exemption of biogenic CO₂ from regulation under the Clean Air Act.
4. The purpose of my Affidavit is to address political and environmental developments that have occurred since the Commission approved the Renewable Energy Purchase Agreement for Biomass Energy Resources ("REPA") between Kentucky Power and ecoPower Generation-Hazard LLC ("ecoPower") in Case No. 2013-00144. It is important for the Commission to be aware of these developments when considering whether to excuse ecoPower's non-compliance with the original provisions of the REPA by approving the proposed Sixth Amendment which extends the Commercial Operations Milestone date by 23 months.
5. KIUC counsel has advised me concerning the Commission's October 10, 2013 Order in Case No. 2013-00144 approving the REPA between Kentucky Power and ecoPower. My understanding is that the approval of the REPA was based partly on the Commission's understanding that the REPA would help Kentucky meet federal environmental standards. The Commission states on page 16 of its Order:

"More significantly, the REPA will satisfy Kentucky Power's need to diversify its generation portfolio in light of pending environmental regulations that would place additional economic constraints on the continued reliance on coal-fired electric generation facilities. The Commission takes note of President Obama's June 25, 2013 Climate Action Plan and Presidential Memorandum directing the Environmental Protection Agency to "...issue proposed carbon pollution standards, regulations, or guidelines, as appropriate, for modified, reconstructed, and

¹ <http://www.pfpi.net/wp-content/uploads/2014/02/7833-VT-PSB-on-NSSEP.pdf>

existing power plants by no later than June 1, 2014. Carbon standards for existing power plants, in whatever form they take, are expected to increase the constraints on utilities, such as Kentucky Power, that rely heavily on coal-fired generation.

Moreover, with the recent release of the EPA's Proposed Carbon Pollution Standard for New Power Plants on September 20, 2013, it is necessary to investigate new sources for electricity generation in the Commonwealth of Kentucky. "

6. From the above quoted language, it appears that there was an assumption at the time of the Commission's Order approving the REPA that the ecoPower facility would be treated as a renewable resource that could be implemented to help Kentucky meet anticipated federal environmental guidelines. For example, the Commission's Order (page 17) cites the "Final Report from the Executive Task Force on Biomass and Biofuels Development in Kentucky" findings that:

- 1. As carbon dioxide becomes a regulated greenhouse gas, Kentucky's cost of electricity is at high risk unless supplemented by renewable energy.*

- 2. Kentucky's geography and climate give it an advantage for meeting a portion of base load generation with biomass.*

- 3. By 2025 Kentucky can produce 2,000 megawatts of renewable electricity capacity using 15 million tons of biomass. This is a feasible means of reducing electricity cost risks associated with carbon management.*

The proposed REPA would allow Kentucky Power to address its need to diversify its generating portfolio, and at the same time, it would promote biomass energy development in Kentucky, consistent with the policy directives set forth by Governor Beshear's 2008 Energy Plan and the Final Report on Biomass and Biofuels Development in Kentucky.

7. However, the Executive Task Force report cited by the Commission, which was published in 2009, does not question or discuss the carbon emission impacts of harvesting forests for fuel, and assumes that biomass energy is carbon neutral, stating, "[s]ince renewable fuels do not emit carbon or are considered carbon neutral, they can offset carbon-intensive fuels," and "Kentucky

therefore does have the potential to meet a portion of its generation demand with biomass, a carbon-neutral fuel.”²

8. Similarly, in an August 27, 2013 letter from Kentucky Energy and Environmental Cabinet Secretary, Leonard K. Peters to the Commissioners of the Kentucky Public Service Commission, Mr. Peters wrote in support of the ecoPower facility:

“In the renewable arena, biomass power represents our state’s best opportunity to generate electricity. Analyses conducted through the Governor’s Biomass and Biofuels task force and through the Climate Action Plan Council demonstrate that Kentucky’s biomass potential for energy production is significant, and that these resources can be utilized sustainably. These analyses also confirmed that there are important job creation and economic development benefits of using the state’s biomass resources. More importantly, utilizing biomass for energy production creates jobs in rural areas that are most in need. As eastern Kentucky communities continue to experience the greatest burden as a result of our nations shift away from coal, the ability to create jobs in the region takes on even more importance.”

9. In fact, as of 2013, when the REPA was approved by the Commission, the environmental and scientific community had for several years been expressing significant concerns that high emissions of greenhouse gasses and other air pollutants, and potential impacts on forests, mean that wood-burning biomass facilities should not be considered renewable generation resources.
10. Once CO₂ became a regulated pollutant under the Clean Air Act, EPA convened a panel of its Science Advisory Board to study how biogenic carbon emissions should be treated in its air permitting programs. This panel produced a report in 2012 which stated that carbon neutrality cannot be assumed for all biomass *a priori*, and recognized that harvest of forest wood for fuel can result in large net carbon emissions and a long-lived carbon debt.³

² Final Report from the Executive Task Force on Biomass and Biofuels Development in Kentucky. December 10, 2009. Available at <http://energy.ky.gov/Documents/BTF/Final%20Report.pdf>

³ United States Environmental Protection Agency. SAB review of EPA’s Accounting Framework for Biogenic CO₂ Emissions From Stationary Sources. EPA-SAB-12-011. September 28, 2012. Washington, DC. Available at [http://yosemite.epa.gov/sab/SABPRODUCT.NSF/57B7A4F1987D7F7385257A87007977F6/\\$File/EPA-SAB-12-011-unsigned.pdf](http://yosemite.epa.gov/sab/SABPRODUCT.NSF/57B7A4F1987D7F7385257A87007977F6/$File/EPA-SAB-12-011-unsigned.pdf)

11. Concerns about bioenergy carbon emissions have led to withdrawal of support for this technology by policymakers. For example, in 2012, the State of Massachusetts concluded a period of study of carbon emissions from large-scale biomass, ultimately eliminating renewable energy subsidies for low-efficiency biomass power plants that are similar to the ecoPower plant, due to net CO₂ emissions.⁴ In 2014, after lengthy hearings, the Vermont Public Service Board denied a wood-burning power plant a Certificate of Public Good, stating that the project would interfere with the State's ability to meet statutory goals for reducing greenhouse gases "*as a result of the large annual releases of greenhouse gases that would result from combustion of the wood fuel.*"⁵ In 2015, the Washington DC City Council voted to eliminate renewable energy subsidies from large-scale, low-efficiency biomass power, due to excessive carbon emissions.⁶
12. In 2013, environmental groups won a case in federal court that was brought against EPA for its treatment of bioenergy under the Clean Air Act's permitting program. The decision, by a panel of the U.S. Court of Appeals for the D.C. Circuit in *Center for Biological Diversity v. EPA* (D.C. Cir. No. 11-1101), found that the EPA had improperly exempted biogenic CO₂ from regulatory programs intended to reduce emissions of air pollution.
13. Environmental groups and policymakers are concerned about climate impacts of wood-burning power plants because these plants emit more CO₂ at the stack than a coal plant, and also reduce forest carbon stocks and forest carbon uptake. A new wood-burning power plant emits more CO₂ per megawatt-hour than a modern coal or gas-fired plant, in part because wood contains more

⁴ A summary of Massachusetts' rules is at <http://www.mass.gov/eea/docs/doer/renewables/biomass/summary-of-rps-proposed-final-regulation.pdf>

⁵ The Public Service Board decision is available at <http://www.pfpi.net/wp-content/uploads/2014/02/7833-VT-PSB-on-NSSEP.pdf>

⁶ D.C. Act 20-595. To amend the Renewable Energy Portfolio Standard Act of 2004 to eliminate the use of black liquor and the use of biomass from old and inefficient facilities as eligible renewable energy sources for Tier I credits. Available at <http://www.pfpi.net/wp-content/uploads/2015/03/DCBiomassLaw2015B20-0418-SignedAct.pdf>

carbon per unit energy than natural gas, meaning it emits more CO₂ per unit energy (pounds of CO₂ released per million Btu energy content, lb/MMBtu) when that carbon is oxidized. Additionally, biomass power plants are much less efficient than both gas and coal-fueled plants, in part because biomass fuels tend to have relatively high moisture content,⁷ and it takes significant energy to boil off excess water before “useful” energy can be generated. Lower efficiency means that more fuel is required to generate a given amount of electrical energy from a biomass power plant, and burning more fuel releases more pollution.

14. Table 1 below shows CO₂ emissions from biomass power plants versus fossil-fuel power plants. The relatively low inherent energy density of biomass fuels, combined with the low efficiency of bioenergy plants, mean that per megawatt-hour (MWh), a biomass power plant emits about 145% the CO₂ of a coal plant, and 340% the CO₂ of a combined cycle natural gas plant.

Table 1. Biomass power plants emit more CO₂ than coal or gas plants

Technology	Fuel CO₂ emissions (lb/MMBtu heat input)	Facility efficiency	MMBtu required to produce one MWh	Lb CO₂ emitted per MWh
Gas combined cycle	117.1	45%	7.54	883
Gas steam turbine	117.1	33%	10.40	1,218
Coal steam turbine	206	34%	10.15	2,086
Biomass steam turbine	213	24%	14.22	3,029

15. Further, harvesting trees for fuel diminishes the carbon-uptake capacity of the forest for decades to more than a century. A number of studies modeling the lifecycle carbon emissions from power plants burning trees agree that because such power plants both increase stack emissions and decrease forest carbon uptake relative to coal or gas plants, their net effect is to increase

⁷ Typical moisture content for green wood chips, a very common fuel for bioenergy facilities, is around 45%, meaning by weight, the fuel is almost one-half water

atmospheric CO₂ concentrations for decades to more than a century, relative to continuing to burn fossil fuels.⁸

16. A wood-burning power plant can also emit more conventional air pollution than a modern coal or gas plants. As explained in greater detail in PFPI's April 2, 2014 report: *Trees, Trash and Toxics, How Biomass Energy Has Become the New Coal*,⁹ comparison of permits from modern coal, biomass, and gas plants shows that a even the "cleanest" biomass plants can emit > 150% the nitrogen oxides, > 600% the volatile organic compounds, > 190% the particulate matter, and > 125% the carbon monoxide of a coal plant per megawatt-hour, although coal produces more sulfur dioxide (SO₂). Emissions from a biomass plant exceed those from a natural gas plant by more than 800% for every major pollutant.
17. The dispute about whether biomass power should be treated as renewable energy largely turns on disagreements about net greenhouse gas emissions from wood-burning power plants. Developers of wood-burning facilities and other supporters of the technology claim that wood-burning biomass energy is renewable and "carbon neutral" and can reduce carbon emissions, thus mitigating climate global warming. For instance, in its response to public comments on its air permit, ecoPower stated:

"Burning biomass is fundamentally different from burning fossil fuels. Wood harvested from well-managed forest is divided between merchantable wood and residual wood. The merchantable wood is milled into wood products, leaving behind some additional residual wood. The carbon stored in this wood comes from recent photosynthesis. In Kentucky, most of our forests are less than 120 years old, so nearly all the carbon in the stems is less than 120 years old. When this wood is burned to produce power, carbon dioxide is emitted. However as long as equivalent amount of forest grow after the harvest, the CO₂ emitted by the combustion of residual wood is balanced by photosynthesis. Also, the CO₂ emitted from burning wood would be released

⁸ See for example the cover letter to a report that was recently sent by the Southern Environmental Law Center to European Union policymakers on the net CO₂ impact of burning wood pellets sourced from Southeastern forests in the United States, at

https://www.southernenvironment.org/uploads/audio/2015_06_02_Cover_letter_to_UK_EU_Re_SIG_report.pdf

⁹ PFPI's full Report can be found at the following web address:

<http://www.pfpi.net/wp-content/uploads/2014/04/PFPI-Biomass-is-the-New-Coal-April-2-2014.pdf>

eventually when the wood decays. The carbon contained within wood is part of the natural carbon cycle. This makes wood a carbon-neutral fuel source.”¹⁰

18. This argument is misleading, first because the fact that carbon was taken up by trees over the last 120 years is immaterial to the effect that burning the wood and releasing that CO₂ has on the atmosphere. Second, regrowing forest “after the harvest” will take decades, particularly since ecoPower has stated that the plant’s fuel will be sourced in part from trees specifically cut to fuel the facility – trees that would otherwise remain growing and pulling CO₂ out of the atmosphere. The facility will burn between 500,000 and 650,000 tons of wood a year, much of which will be sourced from “roundwood” (trees) as stated in the application. The Company has stated that the facility will burn “*mill residues, regionally over-abundant, low quality roundwood and ‘opportunity wood.’*”¹¹ Elsewhere they state, “[t]he plant will purchase wood industry byproducts, low quality logs and other woody biomass for fuel from an approximate 75-mile radius of the Project... ecoPower will be able to utilize all commercial hardwood timber species present in the same procurement area.”¹²
19. EPA is in the process of developing new rules, or standards, that seek to reduce carbon emissions from power plants. These standards, known as the Clean Power Plan, are being developed under the Clean Air Act, an act of Congress that requires the EPA to take steps to reduce air pollution that harms the public's health.

¹⁰ Response to public comments on Draft Permit V-10-0013, submitted by Gary Crawford, Chief Executive Officer, ecoPower, April 10, 2010, page 10.

¹¹ ecoPower Generation, Hazard LLC. Proposal to Kentucky Power Company for 58.5 MW Renewable Energy Purchase Agreement. November 2, 2012. Page 9.

¹² ecoPower Generation, LLC. Application to the Kentucky State Board on Electric Generation and Transmission Siting. Case No. 2009-000530. February 12, 2010. Page 24.

20. The EPA released a first draft of the Clean Power Plan on June 2, 2014 in order for interested parties to review and submit comments and recommend revisions to the EPA's first draft. A final Clean Power Plan is expected to be issued in August of 2015.
21. The first draft of the Clean Power Plan contemplates that compliance measures be taken on a statewide level. This means that each state is required to meet the standards of the Clean Power Plant through a State Implementation Plan ("SIP") which takes into account all of the emissions produced by all of the utilities across the state. When drafting their SIPs, states will have to balance the interests of the ratepayers of each utility in order to ensure that the ratepayers of one utility do not shoulder an unreasonable burden in incurring the costs of Clean Power Plan compliance relative to the ratepayers of other utilities within the state. This is a significant change from previous environmental rules, such as the Cross-State Air Pollution Rule ("CSAPR") or the Mercury and Air Toxics Standards ("MATS") which limit emissions at the utility or power plant level.
22. In the first draft of the EPA's Clean Power Plan, the Agency states that it expects that *"states likely will consider biomass-derived fuels in energy production as a way to mitigate the CO2 emissions attributed to the energy sector and include them as part of their plans to meet the emission reduction requirements of this rule."*¹³ However, the EPA also notes that *"the contribution of biomass-derived fuels to atmospheric CO2 is sensitive to the type of biomass feedstock used, and the way in which the feedstock is grown, processed, and ultimately combusted as a fuel for energy production."*¹⁴

¹³ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. at 34,924.

¹⁴ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. at 34,924.

23. It is unclear how biomass-burning generating facilities will be treated in the final version of the Clean Power Plan, but it appears that the message about the carbon impacts of bioenergy has reached the highest level. In June 2015, in response to a House appropriations bill that includes a rider forcing EPA to consider biomass power plants to be carbon neutral as long as forest stocks are increasing nationally, the Administration issued a veto threat, stating:

“The Administration objects to the bill’s representation of forest biomass as categorically ‘carbon-neutral.’ This language conflicts with existing EPA policies on biogenic CO₂ and interferes with the position of States that do not apply the same policies to forest biomass as other renewable fuels like solar or wind. This language stands in contradiction to a wide-ranging consensus on policies and best available science from EPA’s own independent Science Advisory Board, numerous technical studies, many States, and various other stakeholders.”¹⁵

24. On June 23, 2015, fourteen environmental groups urged the White House’s Office of Management and Budget to eliminate biomass energy as a means of compliance under the Environmental Protection Agency’s “Clean Power Plan,” which will regulate carbon pollution from power plants. The letter states that as biomass combustion does not produce contemporaneous reductions in CO₂ emissions, with any reductions in net lifecycle emissions depending on carbon offsetting that occurs offsite and decades in the future, it cannot be considered part of the “best system of emission reduction” (“BSER”) as required under the Clean Air Act. The environmental groups that signed this letter are:

- Center for Biological Diversity
- Chesapeake Climate Action Network
- Clean Air Task Force
- Dogwood Alliance
- Earthjustice
- Environmental Working Group
- Friends of the Earth
- Global Alliance for Incinerator Alternatives

¹⁵ Statement of Administration Policy: H.R.2822 – Department of the Interior, Environment, and Related Agencies Appropriations Act, 2016. June 23, 2015. Available at https://www.whitehouse.gov/sites/default/files/omb/legislative/sap/114/saphr2822r_20150623.pdf

- Greenpeace
- Partnership for Policy Integrity
- Rainforest Action Network
- Sierra Club
- Southern Environmental Law Center
- 350 .org

25. Other key environmental advocacy groups, such as the National Resource Defense Counsel (“NRDC”), have filed comments opposing the treatment of biomass as a carbon neutral resource under the Clean Power Plan with the EPA.¹⁶ The NRDC states in their Comments on the proposed Clean Power Plan:

“EPA’s proposed treatment of biomass with respect to CPP compliance is unclear and problematic.

EPA’s plan to effectively exempt from [Clean Power Plan] scrutiny those emissions that occur when [electric generating units] combust “sustainably-derived feedstocks” could result in a net increase of CO2 emissions for decades”¹⁷

26. The NRDC’s Comments are consistent with its 2011 paper¹⁸ which concludes that harvesting live trees in order to generate electricity is will increase CO2 levels in the air. That paper states:

“Power companies, facing pressure to find alternatives to fossil fuels like coal, are increasingly proposing to burn whole trees for energy instead. They are doing so under the mistaken assumption that, because trees can grow back, they are a ‘carbon neutral’ fuel source, one that completely balances the production and use of carbon, resulting in zero net emissions. But just like coal, when trees are burned in power plants, the carbon they have accumulated over long periods of time is released into the atmosphere. Unlike coal, however, trees will continue to absorb carbon if left alone. So burning forests for energy not only emits a lot of carbon, but also degrades our carbon sinks.”

¹⁶ The NRDC’s Comments can be found at the below link. See pages 9-2 through 9-6 for a discussion of biomass. http://docs.nrdc.org/air/files/air_14120101b.pdf

¹⁷ NRDC’s Comments on the EPA’s proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (June 2, 2014). See 9-2 and 9-4.

¹⁸ National Resource Defense Counsel; Forests Not Fuel: Burning Trees for Energy Increases Carbon Pollution and Destroys Our Forests (August 2011).

27. Some lawmakers share the view that biomass power should not serve as a compliance measure in the Clean Power Plan. In a letter to EPA dated May 8, 2015, Senators Ed Markey (D-Mass.) and Elizabeth Warren (D-Mass) said that treating bioenergy as having zero emissions under the Clean Power Plan would undermine its purpose, which is to slash U.S. power sector carbon emissions by 30% from 2005 levels by 2030. Sens. Markey and Warren stated:

“As the EPA knows, wood-burning power plants emit around 3,000 pounds of carbon dioxide per megawatt-hour. A growing body of scientific evidence, including a study commissioned by the State of Massachusetts, has found that it takes decades of forest regeneration to offset these emissions.”

28. The lawmakers recommended that the EPA impose a moratorium extending to 2020 on the use of biomass combustion as a compliance method until the agency could develop a “*robust method*” in place “*to account for facility-level emissions and a means of ensuring that emissions offsetting actually occurs in an appropriate timeframe.*” Similar letters were sent to EPA by Representatives Connolly (D-VA)¹⁹ and Beyers (D-VA).²⁰

29. It is not clear how the EPA’s final Clean Power Plan will respond to the concerns raised by the environmental community and lawmakers. A final draft of the Clean Power Plan is expected to be released in August of 2015. If the Clean Power Plan does not include bioenergy as a compliance option, this will undermine the premise that the REPA will help Kentucky meet federal environmental standards, which was at the heart of the Commission’s decision to approve the REPA.

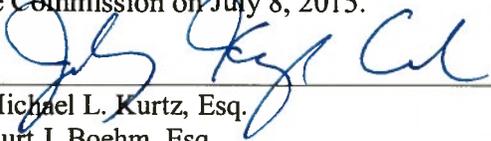
30. It is also important to understand that if the Clean Power Plan does not treat emissions from biomass facilities the same as emissions from other generating resources such as coal and gas, an appeal of the Clean Power Plan is likely given prior precedent. In *Center for Biological Diversity*

¹⁹ <http://www.pfpi.net/wp-content/uploads/2015/05/Connolly-EPA-Biomass-5.20.15.pdf>

²⁰ <http://www.pfpi.net/wp-content/uploads/2015/06/Beyer-biomass-letter-061815.pdf>

CERTIFICATE OF SERVICE

This is to certify that the foregoing copy of RESPONSE OF THE KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC. a true and accurate copy of the document being filed in paper medium; that the electronic filing was transmitted to the Commission on July 8, 2015; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that a copy of the filing in paper medium is being overnighted to the Commission on July 8, 2015.



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