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February 16, 2011



**VIA NEXT DAY DELIVERY**

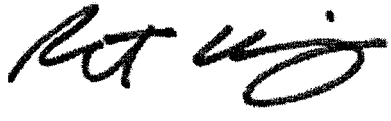
Mr. Jeff Derouen
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602

RE: Case No. 2010-00238

Dear Mr. Derouen:

Please find enclosed for filing with the Commission in the above-referenced case, an original and ten copies of the response for Wendell Berry, Fr. John S. Rausch, and Dr. John A. Patterson to the Public Service Commission Staff's Data Request from the Public Hearing held on February 8, 2011.

Sincerely,



Robert Ukeiley,
Counsel for Wendell Berry, Fr. John S. Rausch,
and Dr. John A. Patterson

Enclosures

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION



**In the Matter of:**

| | | |
|---|---|---|
| **AN INVESTIGATION OF EAST KENTUCKY** | ) | |
| **POWER COOPERATIVE, INC.'S NEED FOR** | ) | |
| **THE SMITH 1 GENERATING FACILITY** | ) | **CASE NO. 2010-00238** |

**RESPONSE OF WENDELL BERRY, FR. JOHN RAUSCH, AND DR. JOHN A. PATTERSON, M.D., MSPH TO COMMISSION STAFF'S DATA REQUEST #4 FROM HEARING HELD ON FEBRUARY 8, 2011**[1]

[1] The data requests were made orally during the hearing so the Commission Staff did not assign numbers to the data requests. However, we are using the numbering system used by East Kentucky Power Cooperative for consistency purposes.

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**IN THE MATTER OF:**

| | |
|---|---|
| **AN INVESTIGATION OF EAST KENTUCKY POWER COOPERATIVE, INC.'S NEED FOR SMITH 1 GENERATING FACILITY** | **) CASE NO. ) 2010-00238 )** |

**CERTIFICATE**

**STATE OF KENTUCKY )**
**)**
**COUNTY OF MADISON )**

Elizabeth Crowe, being duly sworn, states that she has supervised the preparation of the response for Wendell Berry, Fr. John S. Rausch, and Dr. John A. Patterson to the Public Service Commission Staff's Data Request from the Public Hearing held on February 8, 2011 in the above-referenced case, and that the matters and things set forth therein are true and accurate to the best of her knowledge, information and belief, formed after reasonable inquiry.

Elizabeth Crowe

Subscribed and sworn before me on this 16th day of February 2011.

Joan Engisch

Notary Public

**WENDELL BERRY, FR. JOHN RAUSCH, AND DR. JOHN A. PATTERSON, M.D., MSPH**

**PSC CASE NO. 2010-00238**

**RESPONSE TO DATA REQUESTS**

COMMISSION STAFF'S DATA REQUESTS FROM HEARING HELD ON 2/08/11

REQUEST 4

RESPONSIBLE PARTY: Elizabeth Crowe

Request 4: Provide an explanation as to why landfill gas was excluded from the items the Collaborative will examine.

Response 4: Wendell Berry, Fr. John Rausch and Dr. John A. Patterson, M.D., MSPH, excluded landfill gas from the items the Collaborative will examine because, as explained below, generating electricity from landfill gas is neither "green," renewable, nor physically able to provide electricity in a meaningful amount.

## LANDFILL GAS TO ENERGY IS NOT CAPABLE OF PROVIDING A MEANINGFUL AMOUNT OF ELECTRICITY

From an energy policy point of view, landfill gas to energy projects are, at best, irrelevant. At worst, they are a dangerous distraction from spending time and resources on technologies that can actually play a meaningful role in the transition to a clean energy economy.

For example, according to the United States Department of Energy Energy Information Agency (EIA), in 2010, there was a total of 80.3 megawatts (MW) of landfill gas to energy capacity installed versus 3,657.3 MW of wind power.[1]

More important is the potential capacity. No one can reasonable dispute that the United States has enough wind resources to generate enough electricity to power the whole country. For example, Ohio currently has 33 gigawatts (GW) of installed capacity.[2] Ohio, which is certainly not considered a "strong" wind state, has the technical potential of installing 66 GW of on-shore wind capacity at 100 meter hub height.[3] Add in off-shore wind power in Lake Erie and the total grows to over 100 GW.[4] Of course, there would be transmission and storage issues which would need to be resolved to get to 100% wind power and will not be discussed here. In comparison, it is extremely unlikely that if we tapped every landfill in the country to generate electricity, we could generate more than 1% of our total electricity requirement. Put simply, landfill gas to energy is a "side show."

## LANDFILL GAS TO ENERGY IS NOT RENEWABLE

Landfill gas to energy projects can utilize landfill gas at economically feasible volumes for between 10 to 20 years.[5] Thus, not only are landfill gas to energy projects incapable of generating meaningful amounts of electricity today, what electricity they do produce does not

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[1] *See* http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html Table ES 3. These absolute values may change as EIA does not yet have final figures for 2010 but the relative values will stay essentially the same.
[2] It is true that some of this existing 33 GW of capacity is nuclear or coal fired power plants that have a higher long term capacity factor than most wind farms. It is also true that some of 33 GW of capacity are peaking or seasonal peaking units that have a lower capacity factor than most wind farms.
[3] *See* Dennis Elliott, National Renewable Energy Laboratory, *Statement on Ohio's Wind Energy Resources*, 19 April 2007, available at www.environmentohio.org/energy/ohios-windenergy-future/statement-on-ohios-wind-energyresources.
[4] *See* David Bradley, Buffalo's Green Gold Development Corporation, *A Great Potential: The Great Lakes as a Regional Renewable Energy Source*, February 2004, available at www.greengold.org.
[5] *See* World Resources Institute, Green Power Market Development Group. *Landfill Gas Resources*. 2002. (http://www.thegreenpowergroup.org/landfillgas.html 7/25/02)

provide a long term solution. In contrasts, rivers will run, the sun will shine and the wind will blow indefinitely so that hydro, solar and wind power provide long term solutions.

**LANDFILL GAS TO ENERGY IS NOT "GREEN"**

There are a number of reasons why landfill gas is not a true source of green energy. Chief among them is that landfills and particularly disposing of organic materials in landfills is an environmentally misguided practice. Reduce, recycle and reuse are much more environmental responsible approaches to dealing with our solid "waste."

Landfill gas to energy project supporters often tout the benefits of their projects in terms of destroying methane that is generated in landfills. However, the most environmentally responsible approach to methane is to divert organic materials before they reach the landfill. Methane does not exist in our waste. It is produced when food scraps and paper are buried in the ground in landfills which results in oxygen depletion and methane generation as a byproduct of decomposition by anaerobic bacteria. Landfills will produce no methane emissions if no organic material is deposited in them. As one author has explained:

> In North America, where national waste policy has been wanting, 124 local governments with an aggregate population of approximately 10 million are now in the process of also diverting organic discards from landfills on their own initiative. Instead, they are composting those organics to produce humus to restore fertility to our depleted soils, which have lost half their foot thick layer of topsoil in the last century, and continue to lose 10,000 pounds per acre each year. This new and growing trend to composting is not only happening in "green", upscale cities such as San Francisco, but also in places such as Toronto, a big city with almost 5 million people, half of whom are new immigrants, and the continent's most successful organics recovery program.[6]

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[6] *See* Center for a Competitive Waste Industry, "Landfill Gas to Energy Compared to Flaring."

Landfill gas to energy project act as a financial as well as marketing/public perception subsidy to landfills to tilt the economic playing field in favor of landfilling organics and against diverting organics to composting or other beneficial uses.

> But what to do about the landfills that already have organic materials in them?
>
> With regard to existing landfills some believe that, since the garbage has already been buried and can no longer be processed separately, [] it is better to recovery the energy – assuming it were possible to demarcate what section of an open facility consists of existing vs. new wastes, which it is not.
>
> However, the facts described below show that, even when landfill-gas-to-energy (LFGTE) is compared to just flaring, the industry analyses, which focus on the avoided emissions of $CO_2$ at displaced power plants, provides a fatally incomplete picture. As explained below, the operational changes that are necessary to generate electricity create more uncontrolled methane, with 23 to 103 times that of $CO_2$, that override any benefits at existing landfills, too.
> ...
> In fact, landfills that are properly operated under the "dry-tomb" principles codified in 40 CFR Part 258 to minimize infiltration of liquids and that maximize gas capture, as intended by 40 CFR Part 60 Subpart WWW, produce gas with such low methane fractions that there is insufficient Btu content to economically generate electricity. Only by deliberating operating a landfill in a way dramatically increases moisture and significantly decreases gas collection efficiency can sufficiently high methane content be produced for making power.[7]

Finally, there are two technologies that are typically used in landfill gas to energy projects: internal combustion engines and micro-turbines. Internal combustion engines have much higher emission rates of "criteria pollutants" such as smog forming nitrogen oxides and carbon monoxide than micro-turbines. East Kentucky Power Cooperative uses the dirtier internal combustion engines, rather than micro-turbines, at its landfill gas to energy projects.

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[7] *See Id.*