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Renewable Northwest Project

June 16, 2006

TO: Peter West, Energy Trust of Oregon

FROM: Troy Gagliano, Natalie McIntire

RE: Potential Energy Trust Funding of Black Liquor

Black liquor (i.e. spent pulping liquor) is a liquid byproduct of the industrial pulp and paper process that contains a combination of chemicals, resins and lignin. It has been used for many years in the paper production process but there is recent interest in using the steam that results from burning the liquid, to produce electricity and to count this as renewable energy. The Renewable Advisory Committee (RAC) of the Energy Trust of Oregon (ETO) is addressing the question of whether black liquor falls under the category of "renewable energy resources" under ORS 757.600(27) and if so, if it fits within the "biomass" or "waste" category. On January 9, 2006, the Energy Trust's General Counsel, John Volkman, presented a thorough legal interpretation of this issue. As a member of the RAC, the Renewable Northwest Project (RNP) respectfully disagrees with Mr. Volkman's interpretation and submits the following as our response to his memorandum.

RNP does not support the funding of black liquor under the renewables program at the ETO because the definition of "renewable energy resources" as defined in ORS 757.600(27) excludes it. In addition, from a policy perspective the Energy Trust was created to develop markets for new, clean renewable resources. Renewable energy receives only 17% of the ETO budget that derives from Oregon's Public Purpose Charge. We believe the ETO should prioritize these limited funds for technologies that use clean, inexhaustible resources such as solar, wind, geothermal, and new biomass crops. In contrast, black liquor is a chemical byproduct of an industrial process in a well-established industry.

We would like to make clear that we believe black liquor can play a useful role in energy policy and make the pulp and paper industry more self-sufficient by reducing the demand for fossil fuels at these facilities. We support tax incentives that exist for black liquor such as the Oregon Business Energy Tax Credit. However, we do not believe the ETO should use its limited renewable funds for black liquor at the expense of emerging clean technologies.

I. A Legal Perspective

The term "renewable energy resources" is defined in ORS 757.600(27), the statute enacted in 1999 as a part of SB 1149.

According to this statute:

"Renewable energy resources" means:

- (a) Electricity generation facilities fueled by wind, waste, solar or geothermal power or by low-emission, nontoxic biomass based on solid organic fuels from wood, forest and field residues.
- (b) Dedicated energy crops available on a renewable basis.
- (c) Landfill gas and digester gas.

- (d) Hydroelectric facilities located outside protected areas as defined by federal law in effect on July 23, 1999.

Under subsection (a) of this definition, “biomass” cannot be a renewable energy resource unless it meets three primary requirements, one of which includes three secondary requirements.

The “biomass” must be:

1. low-emission,
2. nontoxic,
3. based on
 - a) solid
 - b) organic fuels from:
 - i. wood
 - ii. forest, or
 - iii. field residues

We believe that black liquor does not qualify as a renewable resource under “biomass” because it is not “low-emission,” it is not “nontoxic,” nor is it “based on” solid organic fuels from wood, forest, or field residues.

A. Black liquor is not “low emission.”

Mr. Volkman points out that SB 1149 did not specify what standards apply to the term “low-emission.” On page 2 of his memo, he suggests that the legislature may have intended to rely on existing federal or state regulations to determine if black liquor is nontoxic or low emission. Alternatively, he suggests that, due to the legislature delegating its authority, the PUC or Energy Trust has the discretion to consider how other authorities view emissions from biomass. We believe that the ETO does have the discretion and we suggest looking to other standards to determine what might reasonably be considered “low-emission.”

For example, Green-e is a reputable national organization that, through a stakeholder process, has ratified standards to judge renewable power and Renewable Energy Credits. It has been pointed out at several RAC meetings that Green-e considers black liquor an eligible renewable resource (a decision, it is worth noting, that RNP did not support). At its December 7, 2005 meeting, the Green-e board agreed to develop emissions and sustainability criteria for biomass resources by which black liquor will be judged. RNP suggests that it is not possible to determine if black liquor is “low-emission” until Green-e has ratified such standards and until the emissions profile can be clearly documented. (The ETO may also wish to consider whether black liquor should be judged according to certain sustainable forest practice criteria.)

We ask the ETO to consider the following:

- Has the Energy trust seen a complete emissions profile regarding the burning of these and other chemicals found in black liquor? (RNP has asked for such information but has not received anything specific to black liquor.)
- Is the Energy Trust confident that it has enough information about the emissions profile from burning the chemicals contained in black liquor?

B. Black liquor is not “nontoxic.”

Black liquor is used in the Kraft process that cooks wood fibers with a solution of sodium hydroxide and sodium sulfide¹. According to the Centers for Disease Control, sodium sulfide gives off toxic fumes when burned². Therefore, we believe that the toxicity of its ingredients makes black liquor a toxic substance. We understand that it is legal to burn black liquor as long as it meets state and federal

¹ http://www.aet.org/science_of_ecf/eco_risk/sap97sec2.html (page 10)

² <http://www.cdc.gov/niosh/ipcsneng/neng1047.html>

air quality regulations. Again, we argue that the ETO has the discretion to consider more than just whether burning black liquor meets state and federal standards.

C. Black liquor is not “based on” solid fuel.

John Volkman’s memo states in the second paragraph of page 2:

*“It would be reasonable to treat a liquid or gas that is a **direct product** of solid organic fuels as “biomass” if it is nontoxic and has low emissions.”*

In the next paragraph he states:

*“**Spent pulping liquor is a byproduct** of the wood pulping process; it consists of lignin (an organic material that holds cellulose fibers together in trees), other wood components (e.g., resins), and processing chemicals.”*

Finally, on page 3 Volkman states:

*“I would interpret ‘**based on**’ to be synonymous with ‘**derived from.**’ Spent pulping liquor is derived from wood, forest and field residues...”*

We agree that is reasonable to treat liquid or gas that is a direct product of solid fuels as biomass, but we do not believe black liquor is a “direct product”. Bark, branches, or wood chips are a **direct product** of trees and forest residue. Black liquor, on the other hand, is not a direct product but a **byproduct** of the wood pulping process. Black liquor exists only after several chemicals have been added to the original biomass many steps down the chain of an industrial process. It exists only because wood is being used to produce paper. When forest residue, like trees, are harvested and processed into their basic natural components, the direct products are bark, branches and wood chips; not black liquor. It is a stretch of logic to say that black liquor is “based on” wood.

II. A Policy Perspective

In addition to the legal question of whether the Energy Trust should fund black liquor, we encourage the ETO to consider the following policy questions regarding this issue.

A. Equity in Funding

The majority of the ETO budget (83%) goes toward energy efficiency while renewable energy receives only 17% of the budget; approximately \$10 million per year. Industrial facilities, like pulp and paper mills, already have access to a large portion of the ETO budget both for efficiency and renewables. We ask the ETO to consider how much of it’s total funding (from both budgets) already goes to the industrial sector. Is it an equitable use of funds to spend even more public purpose dollars on an established industrial technology like black liquor instead of funding new, clean technologies?

B. Fuel Flexibility

The ETO’s “Draft Briefing Paper on Black Liquor” raises another issue of concern. The paper indicates, “Pulp-and-paper mills would likely require that such installations permit fuel flexibility – i.e. the option to switch among several fossil fuels and renewable fuels as market conditions permit.” RNP does not support the use of the Energy Trust’s renewable funds for facilities that might also use fossil fuels. It will not be possible for the ETO to know how a flexible-fuel facility will be used in the future or what percentage of the electricity produced will be from black liquor. Thus it would be particularly challenging to determine how much funding would be required to support the “renewable” megawatt-hours produced if black liquor were to be considered “renewable.”

C. Fuel Switching

Another aspect that the Energy Trust should consider is fuel switching. Black liquor is currently burned to produce steam for the pulp-and-paper process. If this steam were used instead to produce electricity, there would be less steam available for paper processing. There is the possibility that in diverting the steam to produce electricity, more fossil fuels would be needed to produce the steam for

the Kraft process. We believe that this subsequent increase of fossil fuel use negates any benefits that might exist from considering black liquor a renewable resource.

D. Public Perception

Numerous polls, whether taken by electric utilities³, the U.S. Department of Energy or environmental advocates, repeatedly show that Americans identify clean resources like solar and wind energy as “renewable” resources. Recent polling information compiled from focus groups for RNP yield these same results. We believe that based on this, customers would want their ETO public purpose dollars spent on these types of renewable technologies.

E. Intent of SB 1149

RNP was an active stakeholder and participant in the SB 1149 Work Group that crafted and passed this legislation. It was our intent in drafting the particular definition of “renewable energy resources” in ORS 757.600(27) to exclude black liquor with the specific qualifiers “nontoxic” and “solid”. Our intent was to guarantee that public purpose funds are used for emerging clean, renewable technologies.

Conclusion

RNP believes that the definition of renewable resources in SB 1149 excludes black liquor on the grounds that it is not “low-emission,” it is not “nontoxic,” and it is not “based on” solid fuels. We understand that black liquor has a role in helping certain industries reduce their fossil fuels usage and we encourage that. But if public policy is going to encourage black liquor, it should do so as cogeneration or as energy efficiency. The Energy Trust’s limited renewables budget should focus on emerging clean technologies like solar, wind, geothermal, and new biomass.

Finally, in these comments we have not addressed whether black liquor is “waste” as that term is used in ORS 757.600(27) because we understand that Energy Trust would address that question separately.

We thank the Energy Trust of Oregon for considering our comments.

Sincerely,

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³ Portland General Electric shared recent polling results at its May 8, 2006 Stakeholder Dialogue No. 2 as part of its 2006 Integrated Resource Planning process.