



April 23, 2013

Adam Schultz
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

RE: CPUC Rulemaking 11-05-005

Mr. Schultz,

This letter is intended to provide comments on the draft consultant report titled "*Small-Scale Bioenergy: Resource Potential, Costs, and Feed-in Tariff Implementation Assessment*" prepared for the California Public Utilities Commission's Energy Division by consulting firm Black & Veatch.

The Woody Biomass Utilization group based at the UC Berkeley Center for Forestry conducts research and outreach focused on understanding the resource potential, technology, and markets for wood bioenergy in California.

First and foremost, the CPUC should make publicly available all datasets used in this analysis. This ensures transparency and verifiability of the results presented in the report.

The following comment relates to section 3.2 (Transmission Availability). To "Determine the counties where interconnection may present a challenge" B&V relate the availability of forest biomass to IOU low-cost interconnection potential. This relationship, while informative of areas where there is a great divergence between technically available resource and available grid capacity, is not sufficiently indicative of likely interconnection issues in a given county to be useful in this regard. The problematic assumption in the use of this ratio is that the technically available resource has a direct impact on interconnection. Interconnection issues would indeed arise in the event that projects using the full resource potential were developed. However, since the total technical resource availability will often far exceed the demand of near term projects, a false negative signal can be generated. In such cases there may be significant available capacity at substations but because of the magnitude of technically available resource, the interconnection metric would erroneously indicate likely interconnection issues. The use of this metric can thus easily lead to a misconception of regions within the state with significant forest bioenergy potential.

An alternate method would more precisely address interconnection capacity by aggregating existing substation capacity within a county and matching potentially available resources. This calculation would result in a metric reflecting forest bioenergy potential (J) for a given county based on existing grid capacity and resource availability as in the following.

If:

$$C_{resource} > C_{grid}$$

then:

$$J = C_{grid}$$

else:

$$J = C_{resource}$$

where:

$$S = \text{Capacity at substation (MW)}$$



$R = \text{Forest supply at grid cell (MW)}$

$$C_{\text{resource}} = \sum R_{i,n}$$

$$C_{\text{grid}} = \sum S_{i,n}$$

This metric would reveal the 'low hanging fruit' for forest bioenergy development, that is, counties with resource potential that can be accommodated by existing grid capacity.

An additional analysis assessing costs associated with expanding grid capacity (G) to accommodate the full technical resource potential would more accurately predict interconnection issues (i.e. costs) in a county as in the following:

If:

$$C_{\text{resource}} > C_{\text{grid}}$$

then:

$$G = F \times T$$

where:

$$F = C_{\text{resource}} - C_{\text{grid}}$$

$$T = \text{Grid capacity costs (\$/MW)}^1$$

The results of this analysis would facilitate a more accurate understanding of interconnection costs associated with future potential forest bioenergy projects.

Thank you for the opportunity to provide comment on this important proceeding.

Regards,

A handwritten signature in black ink, appearing to read 'Peter Tittmann'.

Digitally signed
by Peter Tittmann
Date: 2013.04.24
15:11:17 -08'00'

Peter Tittmann, Ph.D.
University of California, Berkeley
Center for Forestry

¹ The California Independent System Operator provides detailed information on per-unit costs for interconnection from each of the Investor Owned Utilities: <http://www.caiso.com/informed/Pages/StakeholderProcesses/ParticipatingTransmissionOwnerPerUnitCosts.aspx>