

This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>

Carbon-Neutral Bioenergy Acquisition – Introductory Memorandum

Bioenergy or energy from biomass has fast become a leading source of carbon emission cuts in the electricity sector. A great deal of debate has ensued over the actual carbon reductions achieved and surrounding the accounting methods by which carbon reductions are counted. A number of peer reviewed studies have maintained that some bioenergy sources are not actually “carbon neutral” and may even contribute to excess carbon emissions, depending on how they are managed and how any energy is recovered.¹ This memo explains the major choices legislators face in adopting a carbon-neutral bioenergy acquisition policy.²

Any **statewide carbon neutrality goal** will be unique to the enacting state. Carbon neutrality as a goal can differ from state-to-state in its scope, urgency, and expression. Thus, it is important that a bioenergy acquisition policy be fully consonant with the specifics of the state’s larger carbon neutrality declarations and trajectory. For states without adequate wind and/or or solar opportunities, biomass/bioenergy will be a vital part of achieving carbon neutrality. How the state’s goal is expressed, when it is adopted, and under what conditions or terms will do much to determine how any bioenergy acquisition constraints should be adopted and enforced. The International Energy Agency maintains that the term “carbon neutral” is an “unhelpful term” in the context of biomass because it is so ambiguous and susceptible to so many different connotations.³ While the combustion of the biomass itself may simply “return” the carbon in the biomass to the atmosphere from whence it originated, the timescales of biomass growth will dictate when removals by other organisms have equaled the carbon in question. This, in turn, should inform mass-balancing calculations used to support bioenergy’s carbon neutrality. Finally, with fossil fuel-powered transportation delivering so much biomass globally, there may be added challenges upstream from the eventual electricity production to consider in constraints on bioenergy acquisition.

¹ See Chelsea Harvey *et al.*, *Congress Says Biomass is Carbon-Neutral, but Scientists Disagree*, SCIENTIFIC AMERICAN, Mar. 2018, available at <https://www.scientificamerican.com/article/congress-says-biomass-is-carbon-neutral-but-scientists-disagree/>.

² For a brief discussion and definition of bioenergy, biomass, and bioenergy feedstocks, see Blake Hudson & Uma Outka, *Bioenergy Feedstocks* in Legal Pathways to Deep Decarbonization in the United States 648, 649-50 (Michael B. Gerrard & John C. Dernbach eds., 2019).

³ See International Energy Agency, *Carbon Neutrality*, at <https://www.ieabioenergy.com/iea-publications/faq/woodybiomass/carbon-neutrality/>.

Obviously the acquisition of low-carbon bioenergy is but one aspect of any statewide carbon neutrality strategy. It is important to consider the breadth and timing of each and how they may intersect other statewide goals. The broader in scope any bioenergy acquisition policy, the more analysis, monitoring, and enforcement it will demand as to electricity acquisition. Whatever the point(s) of acquisition, the more suited they are to such monitoring, analysis, and enforcement, the simpler will be the administration of the policy. The fungibility of electricity sources once purchased or added to a distribution system may be a key consideration when choosing the breadth or focus of an acquisitions-based scheme. A policy that actually incentivizes the adoption of best practices in sourcing of bioenergy, however, should be of the broadest scope feasible. This is, after all, the state's "purchasing power" at work.

Nevertheless and depending on the size of the state, more immediate demand for certain forms of bioenergy can create concentrated demand pull, leading to market overreactions in turn. Indeed, increasing demand for woody biomass from the European Union following its renewable energy directive has already caused noticeable impacts in the global forest sector.⁴ These impacts have already and will continue to shift prices and, thus, supplies and demands of biomass sources. As these dynamics continue, market actors will adapt and will, therefore, necessitate fresh consideration of sourcing options.⁵ The scope of any state acquisition policy should be tailored conscious of these potential impacts.

Other considerations may also factor into such a calculus, such as land cover changes, forest conversions, localized ecosystem services that may diminish as a result. A graduated implementation schedule may be warranted if these considerations are expected to be significant. Finally, because the overarching goal in the use of biomass is the displacement of fossil fuels, electricity acquisition policies must remain sensitive to the particulars of any potential generator's economic and bioregional context.

Most states will **delegate** authority to adopt and maintain guidelines specifying the conditions under which the state will credit biomass as a carbon-reducing energy source. This delegation of authority to some agency or agencies presents significant choices. In evaluating different sources of bioenergy, such as woody biomass, crop wastes, etc., different forms of domain expertise may be needed. Locating or gathering that expertise is one important factor for consideration. Many state agencies with jurisdiction over electricity generation, marketing, or consumption, will lack expertise as

⁴ See Directive 2018/2001 of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources, 2018 O.J. (L 328), 82-83,

⁵ See Alice Favero *et al.*, *Forests: Carbon Sequestration, Biomass Energy, or Both?*, SCIENCE ADVANCES 6 (2020), available at <https://advances.sciencemag.org/content/advances/6/13/eaay6792.full.pdf>.

to bioenergy production or its collateral impacts. It is important to pair the jurisdiction to prescribe with appropriate personnel and other capabilities.

One final consideration is the means of integrating the inputs of multiple domain experts as will be necessary if the guidelines include consideration of agronomic, economic, cultural, and other factors in the appropriate sourcing of bioenergy supplies. An agency that possesses sufficient expertise in all of the above may nevertheless find that the use of **guidelines**—which generally can be updated more readily than can formal regulations—is more advantageous, depending on the subject matter. Given the volatility of bioenergy as a field, administrative forms that can be adapted quickly may be preferred.

The Model Law that follows implements the following recommendation from the *Bioenergy Feedstocks* chapter of *Legal Pathways to Deep Decarbonization*: State governments should modify their acquisition rules to specifically control energy procurement, “requiring that any contracts related to procurements of electricity generated from bioenergy utilize feedstocks that meet decarbonization criteria.”⁶ Load-serving entities and power companies that propose to contract with the state government to sell electricity generated from bioenergy must acquire such energy according to decarbonization criteria.

Model Carbon-Neutral Bioenergy Acquisition Law

1. Short title

Carbon-Neutral Bioenergy Acquisition

2. General Authority

The requirements of this Chapter are enacted by the authority vested in the Legislature by the Constitution of the State to create laws.

3. Purpose Statement

The purpose of this chapter is to implement the Sustainable Bioenergy Acquisition Policy set forth in Section 5 and to pursue the State’s goal of carbon neutrality by the year [xxxx].⁷

4. Definitions

⁶ Blake Hudson & Uma Outka, *Bioenergy Feedstocks* in *Legal Pathways to Deep Decarbonization in the United States* 668 (Michael B. Gerrard & John C. Dernbach eds., 2019).

The relationship of any statewide carbon neutrality declaration or plan to this statute’s controls of bioenergy should be made explicit. The accompanying explanatory memo includes additional information.

- a. “Load-serving entity” is any person including but not limited to investor-owned utilities, public utilities, and public or private intermediaries, authorized or required by law to provide electricity.
- b. “Bioenergy” is any form of renewable energy derived from biomass.
- c. “Biomass” is plant, animal, or other biotic matter.
- d. “Decarbonization” is the socioeconomic process of reducing carbon released into the atmosphere.
- e. “New contract” is any contract for services completed after the effective date of this chapter. Contracts for renewals of services including but not limited to [xxxx] are/not⁸ subject to the requirements of this chapter.
- f. “State agencies” include any authority of the state or actor for or agent of the state.
- g. “Carbon off-setting project” as used in this chapter is any legally enforceable commitment to sequester carbon or for its removal from the atmosphere including but not limited to planting and growing trees, shrubs, or other plants, soil management, or other proven means of carbon emissions reduction or atmospheric carbon concentration reduction.

5. Sustainable Bioenergy Acquisition Policy

- a. All state agencies shall pursue the acquisition of sustainable electricity generated from bioenergy by ensuring that all new contracts for the supply of electricity generated from bioenergy require that the biomass used to produce that energy meet the decarbonization requirements of Section 6.
- b. The state agency/department of xxxx [the same agency/department identified in Section 6b] is hereby authorized and directed to promulgate and adopt within [6] months from the effective date of this Chapter guidelines necessary and appropriate to implement Section 6b. The [same state agency/department] shall maintain, amend and update such guidelines, as appropriate, thereafter.

6. Requirements

- a. Load-serving entities proposing to sell electricity generated from bioenergy to the state shall ensure that the embodied carbon emissions caused by the development and production of its biomass are (1) disclosed to the state agency with which they are dealing; and (2) offset in their entirety by either on-site or off-site carbon offsetting projects.
- b. Carbon off-setting projects shall only be approved by the contracting state agency where such project(s) satisfy guidelines promulgated and maintained by the state agency/department of [xxxx].⁹
- c. The head of any state agency which enters into an acquisition contract for the procurement of electricity generated from bioenergy shall adopt rules

⁶. The reasons for/against a broad coverage of state-purchased electricity services are explored in the accompanying explanatory memo.

⁷. There may be state-specific reasons to name one department, agency, bureau, or another entity as the designated authority for the publication of rules or guidance on off-setting carbon accounting. The accompanying explanatory memo includes additional information.

for the periodic review of compliance with the Sustainable Bioenergy Acquisition Policy and the carbon off-setting project guidelines.

7. Enforcement

All state agencies shall comply with the provisions of this Chapter and with orders, rules, or regulations made pursuant to this Chapter, so long as the provisions remain in force.

8. Severability

If any provision of this Chapter is determined to be invalid, illegal, or incapable of being enforced, such provision shall be excluded to the extent of its invalidity, illegality, or unenforceability. All other provisions of this Chapter shall remain in full force and effect.

If any provision of this Chapter is determined to be preempted by federal law or otherwise, that provision shall be excluded to the extent of its invalidity, illegality, or unenforceability. All other provisions of this Chapter shall remain in full force and effect.

9. Effective date

TBD

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