

**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](https://lpdd.org)**

## **Model Biogas Zoning Ordinance<sup>1</sup>**

### Introductory Memorandum

To reduce the United States' greenhouse gas emissions by at least 80% from 1990 levels by 2050 will require replacing natural gas (a fossil fuel) with renewable gases such as biogas. Biogas is typically produced through the conversion of organic materials (cow manure, agricultural waste, energy crops, forest residues) into a mixture containing methane using either hydrolysis or acidogenesis. *See Legal Pathways to Deep Decarbonization in the United States* 671 (Michael Gerrard & John Dernbach eds., ELI 2019) (“Legal Pathways”). One of the challenges to biogas production is that production facilities are not readily classified under most existing zoning laws, which can slow project development and increase transaction costs for creating new biogas production facilities. *Id.* at 681.

Most zoning laws permit certain established uses in a zone with minimal regulatory requirements, but require conditional use permits, variances, exemptions, special use permits, and other more onerous regulatory requirements for novel land uses not specifically contemplated by zoning regulations. These special regulatory devices usually require a hearing or specific zoning authority approval, so that the zoning authority can evaluate the individual facts of the land use and determine whether it is appropriate within the proposed zone. Because biogas production facilities are relatively uncommon, they usually do not fit within existing zoning regulations and must go through a more difficult special approval process. Additionally, biogas production facilities are cross-cutting in some ways, which further makes it difficult to simply slot them into one of the approved uses for a certain zone. For example, biogas production facilities are often placed on agricultural lands where they can take advantage of close proximity to manure and agricultural waste products, but lands zoned as “agricultural” may not normally accommodate energy production facilities without some sort of special zoning procedures. To remove these potential zoning barriers to the development of biogas production facilities and other renewable gas facilities, the *Legal Pathways* book recommends:

Local zoning boards ... should amend their rules to specifically address the development of renewable gas facilities unless their definitions of industrial or manufacturing uses are already sufficiently broad.

Legal Pathways at 682.

The model regulations proposed here address only biogas production facilities and not other renewable gas facilities. They seek to provide a template for local governments to amend their zoning regulations to make biogas production facilities a contemplated and accepted use, which would make development of such facilities quicker and less costly.

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<sup>1</sup> This document was drafted by Chase Raines of Arnold & Porter, LLP, and received peer review from Romany Webb at the Sabin center for Climate Change Law.

These proposed regulations are closely based on California, Kentucky, and Hawaii statutes and proposed ordinances, and represent two alternative statutory approaches for accommodating biogas production facilities.<sup>2</sup> The first approach is slightly broader and more adaptable. The definition of “biogas production facility” is added at the beginning of the zoning regulations, and the term “biogas production facility” is simply added to each zone in which it would be an approved use. Local governments might consider adding similar provisions to their codes to simplify the process for creating biogas production facilities. The second approach is more specific, contemplating that the common biogas production facility will be one associated with agricultural lands.<sup>3</sup> Thus, this regulatory language amends the definition of approved uses on agricultural lands to describe biogas production facilities and associated buildings and land uses.

## 1. Broader Zoning Regulations

### I. Purpose.

- A. The purpose and intent of these regulations is to provide a uniform and comprehensive set of standards for the entitlement and operation of biogas energy systems. The regulations contained herein are designed to promote the development of both accessory and commercial biogas production systems, advance goals to reduce greenhouse gas emissions, and promote the economic and environmental health of [LOCATION]. These regulations are intended to conserve energy, increase the efficiency of energy use, and produce renewable energy locally, while protecting public health, safety, and community welfare, including by assuring that systems are sited, designed and operated to avoid significant impacts on environmental resources and preserve the visual quality of the natural and built environment.

*Description: This section provides a fairly generic description of the purpose of this legislation that should be suitable for most localities.*

### II. Definitions.

“Accessory biogas production facility” means an on-site biogas production facility where the biogas generated offsets energy demands on the property, or on contiguous properties under common ownership, and provides no more than one hundred twenty-five percent (125%) of the estimated energy demand for all legally established uses.

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<sup>2</sup> See Proposed Ordinance replacing Napa County Code § 18.117 (<https://www.countyofnapa.org/DocumentCenter/View/14809/Renewable-Energy-Ordinance-Draft-10-25-2019>); H.R.S. §205-2 ([https://www.capitol.hawaii.gov/hrscurrent/Vol04\\_Ch0201-0257/HRS0205/HRS\\_0205-0002.htm](https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0205/HRS_0205-0002.htm)); H.R.S. § 205-4.5) ([https://www.capitol.hawaii.gov/hrscurrent/Vol04\\_Ch0201-0257/HRS0205/HRS\\_0205-0004\\_0005.htm](https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0205/HRS_0205-0004_0005.htm)); Louisville Development Code, Chapter 1 Part 2 and Chapter 5 Part 2 ([https://louisvilleky.gov/sites/default/files/planning\\_design/ldc\\_louisvillemetro\\_06-2020.pdf](https://louisvilleky.gov/sites/default/files/planning_design/ldc_louisvillemetro_06-2020.pdf)).

<sup>3</sup> Note that this option is inherently more limited because it would facilitate the development of biogas facilities on agricultural land only. It is included to provide an alternative approach for municipalities where existing zoning ordinances are not easily adapted to resemble the first option. Local governments that pursue this more limited, alternative approach should consider other measures to support facility development on non-agricultural land where necessary and appropriate.

“Biogas” means gas or liquid fuels produced from any biomass material derived from plants, animals and organic waste streams.

“Commercial biogas production facility” means a facility producing biogas where the biogas generated is used to supply off-site energy needs, including both facilities where biogas produced onsite is supplied off-site, and where energy derived from biogas produced onsite (such as electricity and heat) is supplied off-site.

*Description: The definitions required are simple, and can be adapted as necessary. The basic goal is to make defined terms of both commercial and accessory biogas production facilities so that their zoning requirements can be defined later on in different parts of the legislation.*

### III. Accessory biogas production facility development standards.

The following siting criteria and development standards shall apply to accessory renewable energy systems:

- A. Accessory biogas production facility development standards.
  - 1. Accessory biogas production facilities shall comply with all setbacks of the applicable zoning district.
  - 2. The facility shall not be located over a septic system or leach field area or established reserve area.
  - 3. The facility shall not be located in a floodway and shall comply with all floodplain management requirements.
  - 4. The facility shall not exceed applicable noise standards.
  - 5. Facilities shall not cover greater than 10% of the parcel or two (2) acres, whichever is less.
  - 6. Facilities shall be sited to avoid or minimize impacts to sensitive biotic habitats including woodlands, wetlands, streams, and habitat connectivity corridors. Projects located within or adjacent to these areas will require all necessary environmental studies at the time of use permit application to demonstrate that the facility avoids sensitive species to the maximum extent feasible and provides adequate mitigation of potential impacts.
  - 7. Facilities shall be sited to avoid or minimize impacts to significant cultural and historic resources, and may require a cultural resources survey at the time of use permit application.

*Description: These standards provide criteria for approval of accessory systems. This section helps ensure that biogas production facilities will meet some minimum standards, even though they may be broadly permitted across zones. This list of criteria and standards can be viewed as a “menu” of requirements that could be added to or adapted to suit a given locality.*

IV. Commercial biogas production facilities development standards.

The following siting criteria and development standards shall apply to all commercial biogas production facilities:

- A. Commercial biogas production facilities general development standards.
1. Facilities shall comply with required yard setbacks and lot coverage limitations of the applicable zoning district and be sited to minimize view impacts from public roads and adjacent residential areas. Any lighting shall be fully shielded, downward casting, and not wash out onto structures, other properties, or the night sky. The permittee shall maintain the facility, including all required landscaping, in compliance with the approved use permit.
  2. Commercial biogas production facilities shall be sited to avoid or minimize impacts to sensitive biotic habitats including woodlands, wetlands, streams, and habitat connectivity corridors. Projects located within or adjacent to these areas will require all necessary environmental studies at the time of use permit application to demonstrate that the facility avoids sensitive species to the maximum extent feasible and provides adequate mitigation of potential impacts.
  3. Commercial biogas production facilities shall be sited to avoid or minimize impacts to significant cultural and historic resources, and may require a cultural resources survey at the time of use permit application.
  4. For commercial biogas production facilities interconnected to transmission lines greater than 6kV, the location of new transmission lines, poles, and utility substations shall be identified on the site plans. If high voltage (100kV) or private transmission lines are proposed, they shall be considered as part of the use permit process.
  5. Commercial biogas production facilities shall be sited to maintain natural grades and use existing legally established roads for access to the extent feasible. Construction of new roads shall be avoided to the extent feasible. Areas used for temporary access roads, construction staging areas, or field office sites during construction shall be restored and revegetated to preconstruction conditions. The permittee shall maintain an all-weather access road for maintenance and emergency vehicles.
  6. Commercial biogas production facilities shall comply with the stormwater management standards, including but not limited to, implementation of best management practices to minimize dust and wind erosion during site construction.
  7. Commercial biogas production facilities shall comply with all requirements of the applicable fire safety authority including, but not limited to, emergency vehicle access and turn-around at the facility site(s), addressing, vegetation management, and firebreak zones and maintenance around all structures.
  8. Commercial biogas production facilities shall be designed and operated in compliance with all applicable noise standards.

9. The project site for a commercial biogas production facility shall be fenced to prevent unauthorized access, including provision of signage addressing site security. Wildlife compatible fencing shall be utilized when warranted based on analysis of biotic resources.
10. Facilities shall be located so as not to conflict with a septic system or leach field area or established reserve area.
11. Facilities shall not be located within a floodway and shall comply with applicable floodplain management requirements.
12. A decommissioning plan shall be required as part of any use permit application.
13. All storage and process tanks shall be bermed with a concrete barrier to prevent spills and shall have a total capacity of at least 110 percent of the largest tank. Each individual tank shall have a capacity of 25 percent of the total tankage volume.

*Description: As with the prior section, these standards provide criteria for construction of biogas facilities, but are tailored for commercial systems. This section helps ensure that biogas production facilities will meet some minimum standards, even though they will be broadly permitted across zones.*

V. Allowed Uses

- A. The following uses may be permitted in all [agricultural zone type] zones upon grant of a use permit:
  1. [All other existing permitted uses]
  2. Accessory biogas production facility
- B. The following uses may be permitted in all [industrial zone type] zones upon grant of a use permit:
  1. [All other existing permitted uses]
  2. Commercial biogas production facility

*Description: This section is very short, and is mainly a placeholder because zoning regulations will vary so much by locality. The purpose of this section is to ensure that once a biogas production facility is defined, applicable zoning regulations are amended to add that defined term as an accepted use in a given zone. Additionally, this section contemplates that accessory and commercial biogas production facilities might be zoned differently. For example, a large-scale production facility might make sense in an industrial zone, while a smaller accessory system might make more sense as part of an agricultural cattle-raising operation.*

## 2. More Specific Agricultural Zoning Regulations

VI. Agricultural zones shall include:

- A. [All existing descriptions of agricultural zones];

- B. Activities or uses as characterized by the cultivation of crops, crops for bioenergy, orchards, forage, and forestry;
- C. Biogas production, for public, private, and commercial use; and
- D. Bona fide agricultural services and uses that support the agricultural activities of the fee or leasehold owner of the property and accessory to any of the above activities, regardless of whether conducted on the same premises as the agricultural activities to which they are accessory, including farm dwellings, employee housing, farm buildings, mills, storage facilities, processing facilities, photovoltaic, biogas, and other small-scale biogas systems producing energy solely for use in the agricultural activities of the fee or leasehold owner of the property, agricultural-energy facilities, vehicle and equipment storage areas, and plantation community subdivisions.

*Description: One of the common locations for a biogas production facility is on agricultural lands, for example on a dairy farm that processes manure from the cattle. Generally, this section serves as a template for defining agricultural-zoned lands to include biogas production. For localities where the primary production of biogases will be on agricultural lands, it may be simpler and cause less debate to just zone the facilities onto those lands. Additionally, this alternative may be better in instances where cow manure is the primary organic feed matter, as most localities probably would want to keep any smell isolated on agricultural lands where it already exists.*

- VII. Permissible uses within the agricultural districts. (a) Within the agricultural district, all lands shall be restricted to the following permitted uses:
  - A. [All existing descriptions of permitted uses within agricultural zones];
  - B. Cultivation of crops, including crops for bioenergy, flowers, vegetables, foliage, fruits, forage, and timber;
  - C. Buildings and uses, including mills, storage, and processing facilities, maintenance facilities, photovoltaic, biogas, and other small-scale renewable energy systems producing energy solely for use in the agricultural activities of the fee or leasehold owner of the property, and vehicle and equipment storage areas that are normally considered directly accessory to the above-mentioned uses; and
  - D. Biogas processing facilities, including the appurtenances associated with the production and refining of biogases that is normally considered directly accessory and secondary to the growing of the energy feedstock; provided that biogas processing facilities and appurtenances do not adversely impact agricultural land and other agricultural uses in the vicinity. For the purposes of this paragraph:
    - 1. "Appurtenances" means operational infrastructure of the appropriate type and scale for economic commercial storage and distribution, and other similar handling of feedstock, fuels, and other products of biogas processing facilities.
    - 2. "Biogas processing facility" means a facility that produces liquid or gaseous fuels from organic sources such as biomass crops, agricultural residues, and oil crops, including palm, canola, soybean, and waste cooking oils; grease; food wastes; and animal residues and wastes that can be used to generate energy.

*Description: The prior section defines agricultural lands to include biogas production, and this section adds some more specificity on what biogas uses are permitted.*