



DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

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NOTICE OF PREPARATION

To: Interested Agencies and Individuals and the Office of Planning and Research

Subject: **Notice of Preparation of a Draft Statewide Program Environmental Impact Report for Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste**

The California Department of Resources Recycling and Recovery (CalRecycle) will be the lead agency for preparation of a Statewide Program Environmental Impact Report (Program EIR) for anaerobic digester facilities for the treatment of the organic fraction of Municipal Solid Waste (AD facilities) in accordance with the California Environmental Quality Act (CEQA). This Notice of Preparation (NOP) provides responsible and trustee agencies and the public with information describing the project and its potential environmental effects. Pursuant to CEQA Section 21080.4(a) and Section 15082 of the State CEQA Guidelines, responsible and trustee agencies and members of the public are asked to provide written comments regarding the scope and content of the Program EIR.

Public and Agency Comment: Public agencies may use the Program EIR prepared by CalRecycle when considering approval of individual projects for AD facilities within their jurisdictions. If you are a Responsible Agency or Trustee Agency, CalRecycle needs to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. CalRecycle is also interested in the views of members of the public as to the desired scope and content of the environmental information in the Program EIR.

The preliminary project description and a list of environmental issues to be addressed in the Program EIR are contained in the attached materials. The NOP and attached materials will also be available on the CalRecycle web site (www.CalRecycle.ca.gov/SWFacilities) after the documents are published by the State Clearinghouse.

Due to the time limits mandated by State law, the response of Responsible Agencies and Trustee Agencies must be sent to CalRecycle at the earliest possible date **but not later than 30 days after receipt of this notice**. Responses should include a contact name at your agency and be sent to:

CalRecycle
Attn: Ken Decio
P.O. Box 4025
1001 I Street
Sacramento, CA 95812-4025

If you have any questions regarding this matter, please contact Ken Decio at (916) 341-6313.

Ken Decio, Senior Integrated Waste Management Specialist April 30, 2010



STATEWIDE PROGRAM EIR FOR ANAEROBIC DIGESTER FACILITIES

FOR THE TREATMENT OF MUNICIPAL ORGANIC SOLID WASTE

Introduction

Compostable organic materials comprise approximately 25 percent of the solid waste stream disposed in California landfills.¹ CalRecycle Strategic Directive 6.1 calls for a 50 percent reduction in the amount of organics being disposed in landfills by 2020. An additional 10-15 million tons of organics will need to be composted or recycled annually to achieve this goal, requiring the siting of new and expansion of existing organic diversion facilities.

Currently there are no commercial-scale anaerobic digester (AD) facilities processing organics in California; however, interest in developing AD facilities for organic processing is growing, and CalRecycle anticipates that AD facilities will be developed across the state to meet the increasing need to divert organic waste from landfills. CalRecycle is preparing this Statewide Program Environmental Impact Report (EIR) to assess the potential environmental effects that may result from the development of AD facilities in California. The results of the Program EIR will inform future policy considerations related to AD facilities and provide background information on AD technologies, potential impacts and mitigation measures. This information will also assist state and local agencies in preparing site-specific environmental documentation that may be required for AD facility applications and/or permits submitted to CalRecycle, regulatory agencies and local jurisdictions. In the event CalRecycle or other public agencies adopt regulations or ordinances relating to regulating or permitting AD facilities, the EIR will also provide useful information and can serve as the basis for analyzing the environmental effects of those projects.

The project has several objectives including the following:

¹ CalRecycle, 2009. Organics Policy Roadmap and Schedule. Available online at: <http://www.ciwmb.ca.gov/Organics/RoadMap08/default.htm>. Accessed 04/07/10.

- Assist in meeting CalRecycle Strategic Directive 6.1: Reduce the amount of organics in the waste stream by 50 percent by 2020.
- Support Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006, greenhouse gas reduction measures related to anaerobic digestion:

Measures E-3. Achieve a 33 percent renewable energy mix by 2020. (AD facilities produce biogas which is a renewable energy source.)

RW-3. High Recycling/Zero Waste. (Anaerobic digestion is one of five subcategories listed under this measure.)

- Assist local governments and state agencies (both lead and responsible agencies) by providing program-level analyses that will identify potential environmental effects of AD facilities and discuss mitigation measures or best management practices that can reduce or eliminate the environmental effects.

Background

Anaerobic digestion is the biological decomposition of organic matter with little or no oxygen. The anaerobic digestion process occurs naturally in marshes and wetlands. There are a variety of controlled systems where anaerobic technology is currently utilized in the United States including wastewater treatment facilities and dairy manure digesters. In other countries (primarily Europe), anaerobic technology is utilized in municipal solid waste digesters to produce energy and to reduce the volume of solid waste that must be landfilled.

Anaerobic digester facilities that process solid waste produce biogas and digestate (liquids and solids). The biogas consists primarily of methane (CH₄), which can be used for energy, and carbon dioxide (CO₂), with small amounts of hydrogen sulfide (H₂S), and ammonia (NH₃). Typically, biogas is saturated with water vapor and may have trace amounts of hydrogen (H₂), nitrogen (N₂), oxygen (O₂), dust and siloxanes.² Residual products from anaerobic digestion are liquid and solid residuals (digestate).

Project Description

CalRecycle formed a Technical Advisory Group (TAG) to discuss the project description and environmental issues to be considered in the Program EIR. The TAG includes state and regional regulatory agencies, solid waste industry representatives, AD facility developer representatives, and local jurisdictions. The following project description incorporates input from the TAG regarding facilities and feedstocks which should be considered in the Program EIR.

² Greer, Diane, 2010. *Fundamentals of Biogas Conditioning and Upgrading*. Biocycle Journal. February 2010.

Facilities and Feedstocks to be Analyzed in the Program EIR

The scope of the project description has been focused on the objective of reducing the organic content of the solid wastes that are disposed in municipal solid waste landfills.

AD Facilities included: In-vessel digester facilities which are located at permitted solid waste facilities and within industrial areas.

AD Facilities not included: Dairy digesters and wastewater treatment plant digesters and co-digesters. In-ground digester cell technology, though not included in the project, will be discussed and evaluated as an alternative to in-vessel digestion. An example of the in-ground digester cell is the landfill-based anaerobic digester-compost pilot project developed at the Yolo County Central Landfill.

Feedstock materials included: Food waste, green material, and mixed solid waste. The food and green material categories are intended to be inclusive and not limited by current regulatory definitions or collection methods – so “food” includes cannery waste, meat, poultry, fish, cheese waste, food processing waste, etc., and “green material” includes urban, agricultural, crop residues, contaminated green materials, etc. Use of manure will be considered as a seed material for the purpose of increasing digester efficiency, but not as a primary waste stream to be evaluated.

Feedstock materials not included: Biosolids, food waste co-digested at wastewater treatment plants or dairy digesters, and hazardous waste.

Technologies

There are several technology choices for commercial AD facilities. The EIR will allow for flexibility in technology choices at the local level. The project will analyze the environmental effects of different digestion technologies, including one-stage continuous, two-stage continuous and batch systems. The project will evaluate both wet (low solids) and dry (high solids) processes. Although there is no set standard, generally wet processes have less than 15% total solids concentration and dry processes have 15 to 40% total solids concentration. A good description of the range of these technologies that the Program EIR will evaluate is included in a March 2008 CIWMB report, *Current Anaerobic Digestion Technologies Used for Treatment of Municipal Organic Solid Waste*.

Processes

The technologies listed above share the following main processes which the Program EIR will evaluate: pre-processing, digestion and post-processing.

Pre-Processing. Pre-processing includes feedstock receiving, storage of feedstocks, all processing steps required to prepare the feedstock for the digester, and the process of feedstock delivery into the digester.

Digestion. Within the digester, decomposition occurs in four phases: hydrolysis, acidogenesis, acetogenesis, and methanogenesis.

Post Processing. The byproducts of the anaerobic digestion process are digestate and biogas. The digestate is a liquid which is further processed or dewatered resulting in separate liquid and solid byproducts. Options for handling the liquid byproduct depend on its quality and can include reuse in the digestion process, discharge to surface waters, percolation ponds, evaporation ponds, sanitary sewers, or beneficial use as irrigation water. The solid byproduct can be aerobically composted, used as feedstock for energy production facilities or disposed of in landfills. Biogas generated from the anaerobic digestion process can be used as a fuel for a cogeneration system, compressed or liquefied for use as a fuel commodity, or injected into a gas grid or combusted in a flare. For each gas use alternative, specific gas conditioning measures would be required.

Environmental Issues

This section discusses the environmental issue areas which will be evaluated at a program level within the Program EIR. The following lists incorporate input from the TAG which reviewed a preliminary summary of potential environmental impacts. The lists also incorporate a review of the analysis completed for the Notice of Preparation and Initial Study for the Central Valley Dairy Digester and Co-digester Facilities Program EIR, which was released March 2010 by the Central Valley Regional Water Quality Control Board.

The EIR will analyze the following environmental issues areas for which the project may have potentially significant impacts at the program level (specific areas of concern include, but are not limited to, the issues identified in parenthesis):

- Aesthetics (litter, light, glare)
- Air Quality (criteria pollutants, odors, fugitive emissions)
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials (fuels, lubricants, spillage, contaminated feedstocks, equipment, explosions/fire, vector control, airport consistency)
- Hydrology and Water Quality (washwater, stormwater runoff, condensate, effluent disposal)
- Noise (traffic noise and equipment noise)
- Public Services and Utilities (water, wastewater, solid waste, energy use/creation, gas)
- Transportation and Traffic (level of service and roadway impacts from trucks)
- Cumulative Impacts

The following environmental issue areas will be discussed in much less detail as they are not anticipated to have potentially significant impacts at the program level, although they could require evaluation for individual projects due to the potential for local effects:

- Agricultural and Forest Resources
- Biological Resources
- Cultural Resources
- Geology, Soils and Seismicity
- Land Use and Land Use Planning
- Mineral Resources
- Population and Housing
- Recreation