

SMUD

Renewable Energy

Resources Eligibility Guidebook

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SACRAMENTO MUNICIPAL UTILITY DISTRICT

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Abstract

SMUD's Renewable Energy Resources Eligibility Guidebook (*Guidebook*) derives from the California Energy Commission's (Energy Commission's) *Renewables Portfolio Standard Eligibility Guidebook and Green-E Standards*. The Energy Commission's Guidebook describes the eligibility requirements and process for certifying renewable resources as eligible for California's Renewables Portfolio Standard (RPS). The Green-E Standards provide national guidelines for green pricing programs. This *Guidebook* specifically outlines eligibility requirements for renewable energy projects that are contracted to meet SMUD renewable energy needs.

Summary

SMUD began a green pricing program for customers called Greenergy in 1997. In 2001, SMUD's Board of Directors adopted a Renewables Portfolio Standard (RPS). The combined renewable supply goal for these two programs is 12% by 2006 and 23% by 2011. In addition, SMUD also established informal incremental annual targets.

The Greenergy program follows the Green-E National Standards with no deviations. The Green-E Program is maintained by the Center for Resource Solution.

In 2001, SMUD established its RPS goals. In 2002, the State of California established an RPS for retail sellers of 20% of retail sales served with electricity from an eligible renewable energy resource by December 31, 2010. The RPS statutes do not obligate local publicly owned electric utilities (POUs) such as SMUD with percentage goals and deadlines, nor does state law require POUs to satisfy state eligibility rules for renewable energy resources to count toward their RPS goals. Nonetheless, SMUD has chosen to procure 20% of its retail electricity sales from eligible renewable energy resources by 2011 (SMUD's RPS goal), and 3% Greenergy goals by 2011. SMUD's RPS eligibility requirements are largely based on the California Energy Commission's (CEC) Renewables Portfolio Standard Eligibility Guidebook, January 2008 and *Overall Program Guidebooks*. SMUD's eligibility requirements essentially follow the CEC requirements with some exceptions that will be discussed below.

SMUD's eligibility requirements differ from the CEC's mainly in the areas of baseline renewable resources and renewable distributed generation. Also, SMUD accounts for renewable generation differently from the processes provided by CEC and CPUC.

If a generating facility is certified or pre-certified by the Energy Commission as eligible for the State's RPS, then it is also eligible for SMUD's RPS. A list of state RPS eligible facilities is available at the Energy Commission website below:

<http://www.energy.ca.gov/portfolio/index.html>

Further, SMUD follows the State's policy regarding procuring only bundled renewable energy i.e. renewable energy that includes all renewable and environmental attributes associated with the production of electricity from an eligible renewable energy resource, to count toward its RPS goals. Consequently, SMUD does not procure renewable energy credits (RECs) independently or traded separately from its energy (i.e. TRECs) and SMUD does not currently count TRECs toward its RPS goals. SMUD will reconsider its position should the current proceeding at the California Public Utilities Commission (CPUC), R.06-02-012, change the eligibility of TRECs for the California RPS Program.

RPS Eligibility

In its renewable generation procurement process, SMUD separates Renewable Technologies and Resources that may be eligible for SMUD's RPS into two categories, conventional and emerging. Note that emerging renewable technologies and resources may require additional due diligence activities to insure reliable supply. Please contact AR&DGT staff if you have any questions or concerns.

These renewable technologies and resources are listed in Table 1 and summarized below.

Conventional Renewables

Conventional renewable technologies and resources include the following:

1. Biodiesel
2. Biomass
3. Geothermal
4. Hydroelectric
 - o Conduit
 - o Incremental generation from efficiency improvements
 - o Small hydroelectric (30 megawatts or less)
5. Landfill gas
6. Wind

Additional restrictions apply to biodiesel and hydroelectric. Specifically, biodiesel has restrictions regarding what fuel source it is derived from. Generation from hydroelectric facilities has size and other restrictions.

Biomass, Geothermal, Landfill Gas, and Wind: In general, a renewable energy generation facility that utilizes solely geothermal, landfill gas or wind resources using conventional conversion technologies is eligible for SMUD's RPS. Generation from a facility that uses biomass fuel (e.g. agricultural wastes and residues, landscape and tree trimmings, wood and wood waste) as defined in the CEC Overall Program Guidebook is also eligible.

Biodiesel: Generation from combustion of biodiesel is eligible for SMUD's RPS portfolio. Biodiesel must be derived from biomass or municipal solid waste conversion. What constitutes biomass or MSW feedstock is defined by the CEC and is covered in Section II-A1 of this guidebook.

New Small Hydro (On or Post January 1, 2006): Generation from hydroelectric facilities with a capacity of 30 MW or less is eligible for SMUD's RPS if the facility commenced commercial operations or was repowered on or after January 1, 2006. The new facility must also be located in-state or satisfy the out-of-state requirements. The facility can not cause an adverse impact on in-stream beneficial uses or cause a change in the volume or timing of the stream flow. (See Section II-A3a)

Existing Small Hydro (Pre-January 1, 2006): Generation from existing hydroelectric facilities with a capacity of 30 MW or less that commenced commercial operation before January 1, 2006 is eligible for SMUD's RPS if the facility is owned by or under contract to a retail seller or publicly owned utility as of December 31, 2005. (See Section II-A3a below)

New Conduit Hydro (On or Post January 1, 2006): Generation from conduit hydroelectric facilities with a capacity of 30 MW or less is eligible for SMUD's RPS if the facility commences commercial operations or is repowered on or after January 1, 2006. The new facility must also be located in-state or satisfies the out-of-state requirements. The facility can not cause an adverse

impact on in-stream beneficial uses or cause a change in the volume or timing of the stream flow. (See Section II-A3b)

Existing Conduit Hydro (Pre-January 1, 2006): Generation from conduit hydroelectric facilities with a capacity of 30 MW or less is eligible for SMUD's RPS if the facility commences operations or is repowered before January 1, 2006 if the facility is located in the state or satisfies the out-of state requirements. See section II-B for more details. (See Section II-A3b)

Hydro Eligible Efficiency Improvements: The incremental increase in generation that results from efficiency improvements to a hydroelectric facility, regardless of the electrical output of the facility, is eligible for SMUD's RPS provided that:

1. The facility was operational before January 1, 2007;
2. The efficiency improvements are initiated on or after January 1, 2008, and are not the result of routine maintenance activities;
3. The efficiency improvements do not result in adverse impact on instream beneficial use or cause a change in the volume or timing of stream flow; and
4. The facility has, within the immediately preceding 15 years from the date of the efficiency improvements are initiated, received certification from the State Water Resources Control Board (SWRCB) pursuant to Section 401 of the Clean Water Act (33 USC Sec. 1341), or has received certification from a regional board to which the SWRCB as delegated authority to issue certification, unless the facility is exempt from certification because there is not potential discharge into waters of the United States. See section IIA3c for more details.

Emerging Renewables

Emerging renewable technologies and resources are those that are not considered conventional, including but not limited to the following:

- Digester Gas
- Biogas Injected into a Natural Gas Pipeline
- Thermochemical Biomass Gasification
- Fuel cells using renewable fuels
- Municipal Solid Waste (MSW)
- Ocean wave, ocean thermal, and tidal current
- Photovoltaic
- Solar thermal electric

Restrictions apply to some of these emerging renewable resources, technologies or fuels.

Digester Gas, Ocean Wave, Ocean Thermal, Tidal Current, PV and Solar Thermal Electric and Fuel Cells: A generation facility that utilizes solely digester gas, ocean wave, ocean thermal or tidal current resources is eligible for SMUD's RPS. Generation from central station solar facilities (i.e. solar thermal concentrating solar power (CSP) and PV) is eligible for the RPS. Generation from fuel cells using renewable fuels is also eligible for SMUD's RPS.

Municipal Solid Wastes: Generation from **direct combustion** of MSW is not eligible for SMUD's RPS unless from a facility in operation before September 26, 1996 and located in Stanislaus County.

Generation from a solid waste **conversion** facility is eligible for SMUD's RPS if the facility:

- uses a two-step process with the first step being gasification conversion
- is located in the state or satisfies the out-of-state requirements; and
- meets the criteria in accordance with Public Resources Code Section 25741(b)(3). See section II-A4 for details.

An MSW facility must be pre-certified by the Energy Commission to be eligible for SMUD's RPS program.

Distributed Generation

SMUD RPS eligibility deviates from the CEC's distributed generation (DG) guidelines. Eligibility is allowed for DG facilities using conventional and emerging renewable technologies provided that the following conditions are met and all other applicable eligibility requirements are followed.

1. The DG facility/installation is metered by a meter approved by SMUD, and all electricity generation is measured and reported to SMUD;
2. The RECs associated with the electricity generated by the DG facility remain bundled with the associated energy; and
3. An agreement is in place with SMUD whereby the owner of the DG facility grants to SMUD ownership of the RECs associated with the generation from the facility/installation.

Renewable Facilities Using Multiple Fuels

Generation from renewable facilities using multiple fuels (e.g. solar or biomass generation that is supplemented with fossil fuel) may be eligible for SMUD's RPS. If the annual fossil fuel use at the facility does not exceed 2 percent (the *de minimus* amount), then 100% of the electricity produced may count as eligible. If annual use of fossil fuels is greater than 2% then only the renewable portion of their generation will count as eligible for SMUD's RPS. See Section II-A6 for more details.

Special Case-Biogas Injected into a Natural Gas Pipeline: Biogas injected into a natural gas transportation pipeline system and delivered into California for use in an RPS-certified multi-fuel facility may result in the generation of RPS-eligible electricity. For eligibility, the biogas must be derived from RPS-eligible fuel such as biomass or digester gas. The biogas must also meet the qualifications of pipeline-grade gas. See Section II-A6 for more details.

Out-of-State Facilities

Generation facilities are considered out of state if their first point of interconnection to the WECC transmission system is outside of the state. Only those out-of-state facilities which

connect to the transmission network within the geographic area serviced by the WECC and which are scheduled for consumption by California end-use retail customers are eligible for SMUD's RPS. To be eligible, the renewable energy facility must have commenced **initial commercial operation on or after January 1, 2005**. Also, the facility cannot cause or contribute to any violation of a California environmental quality standard or requirement within California. Further, the generation facility must participate in WREGIS. See Section II-B for more details.

If the generating facility commenced initial commercial operation before January 1, 2005 and meets all other criteria in the preceding paragraph, then it is RPS-eligible if it meets one of the following two criteria: (1) the electricity is from incremental generation resulting from project expansion or repowering of the facility on or after January 1, 2005; or (2) it is part of the existing baseline portfolio of SMUD or a retail seller.

Delivery Requirements

SMUD chooses to follow the CEC's delivery requirements for RPS compliance. Generally, the CEC specifies that electricity is considered to be delivered to California if it is either generated at a location within the state or is scheduled for consumption by California end-use retail customers.

In-State: The electricity is generated by a renewable energy facility located in the state or having its first point of interconnection to the WECC transmission system in the state satisfies SMUD's delivery requirements.

Out-of-State: SMUD considers generation from eligible facilities located outside of California to be delivered to California if the electricity is scheduled for consumption by California end-use customers. In addition, the electricity generated by the facility will still be considered "delivered" even if it is generated at a different time and at a different location than that of the RPS eligible facility. Flexibility in the time and location of energy deliveries permit out-of-state electricity to be "firmed" or "shaped". Firming or shaping refers to the process by which resources with variable delivery schedules (e.g., wind power) may be delivered when generated to an out-of-state location and supplemental power generated at a different time and location (including a non-renewable resource) is subsequently scheduled for consumption by California end-use customers. SMUD follows the CEC's rule of permitting the renewable energy to be firmed or shaped within a calendar year.

SMUD further requires that for the generation to count the eligible out-of state facility must enter into a power purchase agreement with SMUD or a third party and a matching quantity of electricity must be delivered to an in-state market hub or in-state point of delivery. This process must be made consistent with the North American Electric Reliability Corporation (NERC) rules and documented with a NERC E-tag. Please see Section II-C for specific details.

Renewable Energy Accounting

In collaboration with other departments in SMUD, the Advanced, Renewable & Distributed Generation Technologies program (AR&DGT) accounts, tracks and maintains the renewable generation data for the RPS and Greenergy's portfolio of renewable energy supply. SMUD will permit eligible renewable energy procured in excess of annual renewable energy targets to be banked for future years or sold as excess RECs. The method SMUD follows to determine annual renewable targets is a straight line drawn between 2006 and 2011 RPS (GWh) goals plus Greenergy requirements, adjusted by SMUD's forecast of annual retail sales. AR&DGT staff updates forecasted goals versus actual and projected renewable supply at least quarterly during the year. A table of the generation sources for SMUD's RPS and Greenergy Programs is available upon request to AR&DGT. SMUD will also follow flexible procurement rules afforded to retail sellers by the RPS statutes, as implemented by the California Public Utilities Commission (CPUC).

SMUD considers renewable generation delivered on or before December 31, 2006 to SMUD as part of its existing baseline portfolio. All non-baseline generation facilities that contribute to SMUD's RPS must be certified or pre-certified by the Energy Commission, with the exception of renewable DG.

SMUD is required to report the status of their RPS to the Energy Commission annually, typically on May 1st.

Greenergy Renewable Eligibility

As stated previously, the Greenergy program follows the Green-E National Standards with no deviations. The Green-E Program is maintained by the Center for Resource Solutions. The following types of renewable energy are eligible to supply Green-e/Greenergy certified products:

- 1) Solar Electric;
- 2) Wind;
- 3) Geothermal;
- 4) Hydropower from new generation capacity on a non-impoundment or new generation capacity on an existing impoundment that meets one or more of the following conditions:
 - a. Certification by the Low Impact Hydropower Institute;
 - b. A run-of-the-river hydropower facility less than 5 MW total nameplate capacity;
 - c. In-conduit hydropower in a pipeline or canal.
- 5) Solid, liquid and gaseous forms of Biomass from the following fuels:
 - a. Woody waste;
 - b. Agricultural crops or waste;
 - c. Animal and other organic waste;
 - d. Energy crops;
 - e. Landfill gas and wastewater methane;
 - f. Municipal Solid Waste if first converted to a clean burning fuel that is used to generate electricity. Please see Appendix A, section for more details.

Biomass excluded from eligibility includes wood that has been coated with paints, plastics, or Formica. Treated wood containing halogens, chlorine or halide compounds are also not eligible.

Co-firing of Biomass with non-renewables is permitted under certain conditions. Please see Appendix A for more details. Only the amount of electricity generated from the eligible biomass may count toward Green-e/Greenergy.

In addition, all facilities utilizing biomass must be in compliance with all state and/or federal laws/rules regarding emissions. Further, facilities that are subject to New Source Review (NSR) must be compliant with all applicable regional and state standards.

- Biodiesel is eligible. Blended biodiesel and petroleum diesel is permitted if the biodiesel is separately measured and verified and verification that the biodiesel was converted to electricity is in place. In the blended case, only the amount of electricity generated from the biodiesel is eligible.
- Fuels cells are eligible if powered by hydrogen derived from the eligible renewable resources indicated above.

Only new renewable generation is eligible to meet Green-e/Greenergy standards. These are defined to be renewable facilities that began operation or repowered after January 1, 1997. Other conditions are also applicable; please see Appendix A for more details.

Energy storage systems including hydroelectric storage, battery storage, compressed air energy storage, superconducting magnetic energy storage, flywheels, and super capacitors are not qualifying sources of renewable generation. Also renewable energy consumed as parasitic load of an eligible facility is not eligible for use in a Green-e/Greenergy certified product.

Green-e/Greenergy has product specifications and additional criteria for competitive electricity and utility green pricing products. Please see Appendix A for more details.

I. Introduction

SMUD has created two separate programs to grow renewable energy supplies for its customers: Greenergy, a Green Pricing Program, and a Renewables Portfolio Standard (RPS) Program. The SMUD's Board of Directors (SMUD Board) established Greenergy in 1997. In 2001, the SMUD Board established its RPS Program. SMUD's combined renewable energy supply goal for both programs was 12% by 2006 and 23% by 2011.

In 2002, the State of California enacted Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002), which required publicly owned utilities (POUs) and retail sellers to implement an RPS program to encourage renewable resource development. In addition to being authorized under Municipal Utility District Act (Chapter 764, Statutes of 1951), section 387 of the Public Utilities Code authorizes SMUD to organize its own RPS program, independently of the California RPS Program overseen by the CPUC, while taking into consideration the effect of the RPS on customer rates, reliability, financial resources, and the goal of environmental improvement SB 1078 and related RPS statutes codified in the Public Resources and Public Utility Codes do not obligate POUs, such as SMUD, to the same RPS rules as "retail sellers." Nonetheless, SMUD's RPS Program policy aims at being as consistent as possible with California's RPS Program, which requires retail sellers of electricity to increase the amount of renewable energy they procure each year by at least 1 percent until 20 percent of their retail sales are served with renewable energy by December 31, 2010. SMUD has set a goal of procuring 20% of its retail electricity sales from eligible renewable resources by 2011 and interim annual targets in a linear fashion from a baseline in 2006 to 2011.

SB 1078 also assigned to the California Energy Commission (CEC) responsibility for establishing eligibility rules for renewable energy resources procured by retail sellers. This *Guidebook* describes SMUD's RPS Program renewable energy eligibility rules. It is based on the most current version of the Energy Commission's RPS Eligibility *Guidebook* (CEC-300-2007-006-ED3-CMF, January 2008) but also identifies where SMUD has chosen to deviate from the state's requirements. It also accepts the Green-E Energy National Standards for the Greenergy Program.

This *Guidebook* is a dynamic document subject to change, as SMUD continues to adapt its renewable energy policies to address developments in the renewable energy industry. In addition, the CEC periodically revises its program guidelines and modifies its RPS Eligibility *Guidebook* accordingly to reflect market, regulatory, and legislative developments as well as to incorporate lessons learned from experience in implementing the RPS.

A. Related Documents

As indicated previously, the RPS portion of this *Guidebook* is based on the most current version of the following documents:

- CEC's [RPS Eligibility Guidebook](#) (CEC-300-2007-006-ED3-CMF, January 2008).

- [Overall Program Guidebook](#) (CEC-300-2007-003-CMF, March 2007).
- Green-e Energy [National](#) Standard (Version 1.5)

B. Outstanding Issues

Tradable Renewable Energy Credits (TREC)s

SMUD chooses to follow the State's policy of only allowing bundled energy, i.e. energy including all renewable and environmental attributes, to be eligible for its RPS Program. Consequently, renewable energy credits (RECs) that are traded separately from its energy (i.e. TREC)s do not currently qualify for SMUD's RPS Program. A proceeding is ongoing at the CPUC during 2008 that may allow RPS eligibility of unbundled TREC)s. SMUD's purchase of TREC)s to meet its RPS goals is contingent on the CPUC's pending decision in docket R. 06-02-012 to allow utilities in California to meet their RPS obligations with California RPS eligible TREC)s. Once the CPUC authorizes IOUs to use TREC)s, SMUD will evaluate those requirements and will determine how TREC)s will fit into its own RPS Program.

II. Eligibility Requirements for SMUD's RPS Program

A. Resource or Fuel Eligibility

SMUD has chosen to closely follow the Energy Commission's guidelines on renewable resources eligibility with the exception of renewable distributed generation (DG). The deviations in eligibility for the renewable DG are discussed in section 5. Otherwise, to be eligible for SMUD's RPS Program generation facilities are required to obtain certification or pre-certification from the Energy Commission pursuant to the requirements specified in the *RPS Eligibility Guidebook*.

The Energy Commission has determined that it is appropriate to define eligible renewable energy resources by renewable resource or fuel, rather than by the specific technology used. For certain eligible renewable energy resources, however, the RPS statutes contain specific requirements, and the Energy Commission and SMUD consider both the resource or fuel and the technology to determine RPS eligibility.

To qualify as eligible for SMUD's RPS, a generation facility must use one or more of the following renewable resources or fuels (see the Energy Commission's *Overall Program Guidebook* for full definitions):

- Biodiesel
- Biomass
- Conduit hydroelectric
- Digester gas
- Fuel cells using renewable fuels
- Geothermal
- Hydroelectric incremental generation from efficiency improvements
- Landfill gas
- Municipal solid waste
- Ocean wave, ocean thermal, and tidal current
- Photovoltaic
- Small hydroelectric (30 megawatts or less)
- Solar thermal electric
- Wind

Table 1 summarizes the requirements for a facility to qualify for the RPS.

Facilities using hydroelectric or municipal solid waste (MSW) resources are subject to the additional resource or fuel-specific requirements described below. Also addressed below are requirements for photovoltaic facilities, as well as those for multi-fuel and other facilities that use a combination of fuels, including those that operate in part by using fossil fuels.

Please note that, in some cases, the criteria for RPS eligibility depend on the date that a facility begins commercial operations. If a facility shuts down and later recommences operations, it is subject to the eligibility requirements that apply to the original commercial operation date. If a facility is repowered as provided in this *Guidebook*, however, its commercial operation date may be considered its repowering date.

Table 1: Summary of Renewables Portfolio Standard Eligibility

Resource	RPS Eligibility	Category
Biodiesel (Derived from biomass or MSW Conversion)	Yes, with fuel restrictions	Conventional
Biogas Injected into Natural Gas Pipeline	Yes, with fuel restrictions	Emerging
Biomass	Yes, with fuel restrictions	Conventional
Conduit Hydroelectric	Yes, with restrictions	Conventional
Digester Gas	Yes	Emerging
Fuel Cell	Yes, only if renewable fuel is used	Emerging
Geothermal	Yes	Conventional
Incremental Hydroelectric	Yes, with restrictions	Conventional
Landfill Gas	Yes	Conventional
MSW Combustion	Yes, with restrictions	Conventional
MSW Conversion	Yes, with fuel restrictions	Emerging
Ocean Thermal	Yes	Emerging
Ocean Wave	Yes	Emerging
Photovoltaic	Yes	Conventional
Small Hydroelectric	Yes, with restrictions	Conventional
Solar Thermal	Yes	Emerging
Tidal Current	Yes	Emerging
Wind	Yes	Conventional
Characterization		
Out-Of-State	Yes, with restrictions	Either
Repowered	Yes, with restrictions	Either, but typically conventional

In its renewable generation procurement process, SMUD separates renewable technologies and resources that may be eligible for SMUD’s RPS into two categories, conventional and emerging as shown in Table 1. Conventional renewable technologies are those that are generally more mature commercially in both technical performance and cost than renewable technologies

emerging from the research, development, and demonstration phases. SMUD prefers to acquire renewable power from projects that use conventional technologies in order to reduce the risk and cost of project failure to its customer-owners.

Emerging technologies are generally the RPS eligible technologies that are either less cost effective or have not had sufficient successful commercial operational history to be considered conventional. In most cases SMUD believes that emerging technologies will continue to become more cost effective in the future, and therefore, SMUD has and expects to continue limited purchases of energy and capacity from emerging RPS projects.

SMUD recognizes that certain new developments may occur for both conventional and emerging technologies. These new developments may allow the facility to better use the available resource, make the technology more cost effective, reduce a negative impact from the use of the technology, etc. Since time is required to demonstrate commercial viability, SMUD also requires all RPS technologies to have successfully demonstrated commercial operation for a minimum of one year. This demonstration should use essentially the same technology in the same configuration as the project offered to SMUD and show that the technology has safe, reliable, durable, and predictable performance. If a developer proposes a project that is different than the demonstration technology or application, the applicant must explain the differences of the new project and explain why these differences will not adversely affect the new project's successful operation.

In addition, there may be cases when a specific project is undergoing demonstration when the proposal review and PPA negotiations are expected to occur. In this case the bidder must list and explain in the proposal when the demonstration will be completed and what issues, if any, may jeopardize the successful demonstration.

1. Biodiesel

The electricity produced from combusting biodiesel is eligible for SMUD's RPS Program if the biodiesel is derived from the following fuel sources and complies with the requirements for these fuel sources and multi-fuel technologies:

- a) A biomass feedstock such as "agricultural crops and agricultural wastes and residues," including but not limited to animal waste, remains and tallow, food waste, recycled cooking oil, and pure vegetable oil, and consistent with the applicable requirements for multi-fuel technologies (refer to the guidelines for biomass eligibility and for multi-fuel technologies below), or
- b) An eligible "solid waste conversion" process using MSW and consistent with applicable requirements for multi-fuel technologies (refer to the guidelines for MSW eligibility and for multi-fuel technologies below).

The facility must also be located in California or satisfy the out-of-state eligibility requirements discussed elsewhere in this *Guidebook*.

2. Biomass

The generation from a biomass facility is eligible for SMUD's RPS Program provided the facility uses a "biomass" fuel as defined in the Energy Commission's *Overall Program Guidebook*.

3. Hydroelectric Facilities

The eligibility of small hydroelectric facilities, conduit hydroelectric facilities, and incremental generation from eligible efficiency improvements of hydroelectric facilities regardless of their overall generating capacity for SMUD's RPS Program are addressed separately in Subsections (a), (b) and (c), respectively.

With exceptions for eligible efficiency improvements, an RPS-eligible small hydroelectric facility or conduit hydroelectric facility must not exceed 30 megawatts (MW). However, the California RPS allows such a facility to retain its RPS eligibility if efficiency improvements cause the facility to exceed 30 MW. The Energy Commission interprets the 30 MW size limit such that if a 30 MW small hydroelectric or conduit hydroelectric facility had an eligible 5 MW energy efficiency increase, energy from the 35 MW capacity would be RPS-eligible. SMUD follows this interpretation.

Similarly, the incremental generation from eligible efficiency improvements to a hydroelectric facility of any generating capacity may qualify for the RPS, although the generation net of the incremental increase does not qualify.¹ For example, if a 50 MW hydro facility increased its capacity to 55 MW due to eligible energy efficiency measures, the incremental increase of 5 MW would qualify for the RPS, but the initial 50 MW would not qualify for the RPS because the original size of the facility exceeded 30 MW. Eligibility requirements for efficiency improvements are discussed at the end of this section.

a. Small Hydroelectric (not conduit)

The RPS eligibility of small hydroelectric facilities depends in part on whether the facility was operational before or after January 1, 2006, and whether energy efficiency improvements were made after January 1, 2008.

¹ Assembly Bill 809 (Chapter 684, Statutes of 2007) amended Section 399.12 of the Public Utilities Code and changed the definition of conduit hydroelectric facility, revised the RPS-eligibility requirements for small hydroelectric and conduit hydroelectric facilities, and added as RPS-eligible the incremental increase in electricity generation due to efficiency improvements, regardless of the electrical output of the facility.

- Pre-January 1, 2006 (Existing Facility): Generation from a small hydroelectric facility that commenced commercial operations before January 1, 2006, is eligible for the SMUD RPS Program if the facility meets all of the following criteria:
 1. The facility is 30 MW or less, with an exception for eligible efficiency improvements made after January 1, 2008, as discussed below.
 2. The facility is located in-state or satisfies the out-of-state requirements.
 3. The facility was under contract to, or owned by, a retail seller or SMUD prior to January 1, 2006.
- Post-January 1, 2006 (New Facility): Generation from a small hydroelectric facility that commences commercial operations or is repowered on or after January 1, 2006, is eligible for the SMUD's RPS Program if the facility meets all of the following criteria:
 1. The facility is 30 MW or less, with an exception for eligible efficiency improvements made after January 1, 2008, as discussed below.
 2. The facility is located in-state or satisfies the out-of-state requirements.
 3. The facility does not "cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow."²

Eligible Efficiency Improvements: A small hydroelectric facility shall not lose its RPS eligibility if efficiency improvements undertaken after January 1, 2008, cause it to exceed 30 MW of capacity and "the efficiency improvements do not result in an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow."³ The entire generating capacity of the facility shall be RPS-eligible.

b. Conduit Hydroelectric

To be eligible for SMUD's RPS Program, a conduit hydroelectric facility must use for its generation only the hydroelectric potential of an existing pipe, ditch, flume, siphon, tunnel, canal, or other manmade conduit that is operated to distribute water for a beneficial use.⁴ A conduit hydroelectric facility may be considered a separate project even though the facility itself is part of a larger hydroelectric facility. The RPS eligibility requirements for conduit hydroelectric facilities depend in part on whether the facility was operational before or after

² Public Utilities Code Section 399.12(c)(1)(A).

³ Public Utilities Code Section 399.12.5(a)

⁴ "Beneficial use" shall be defined consistent with the California Code of Regulations, Title 23, Sections 659 through 672, to include the following uses of water: domestic use, irrigation use, power use, municipal use, mining use, industrial use, fish and wildlife preservation and enhancement use, aquaculture use, recreational use, and heat control use.

January 1, 2006, and whether eligible energy efficiency improvements were made after January 1, 2008. A discussion of eligible efficiency improvements can be found at the end of this section.

- Pre-January 1, 2006 (Existing Facility): Generation from a conduit hydroelectric facility that commenced commercial operations before January 1, 2006, is eligible for SMUD's RPS Program if the facility meets all of the following criteria:
 1. The facility is 30 MW or less, with the exception of eligible efficiency improvements made after January 1, 2008, as discussed below.
 2. The facility is located in-state or satisfies the out-of-state requirements.
- Post-January 1, 2006 (New Facility): Generation from a conduit hydroelectric facility that commences commercial operations or is repowered on or after January 1, 2006, is eligible for SMUD's RPS Program if the facility meets all of the following criteria:
 1. The facility is 30 MW or less, with the exception of eligible efficiency improvements made after January 1, 2008, as discussed below.
 2. The facility is located in-state or satisfies the out-of-state requirements.
 3. The facility does not cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow.

Eligible Efficiency Improvements: A conduit hydroelectric facility shall not lose its SMUD RPS eligibility if efficiency improvements undertaken after January 1, 2008, cause it to exceed 30 MW and do not result in an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow. The entire generating capacity of the facility shall be RPS-eligible.

A conduit hydroelectric facility may be associated with or part of a larger existing hydroelectric facility and separately certified as SMUD RPS eligible if the facility meets the following criteria:

1. The existing hydroelectric facility commenced commercial operations before January 1, 2006.
2. The conduit hydroelectric facility commenced commercial operations on or after January 1, 2006.
3. The existing hydroelectric facility and conduit hydroelectric facility are separately metered to identify their respective generation.

c. Incremental Hydroelectric - Generation from Efficiency Improvements Regardless of Facility Output

The incremental increase in generation that results from efficiency improvements to a hydroelectric facility, regardless of the electrical output of the facility, is eligible for the SMUD RPS Program if ALL of the following conditions are met:

1. The facility was operational before January 1, 2007.
2. The efficiency improvements are initiated on or after January 1, 2008, are not the result of routine maintenance activities, and were not included in any resource plan sponsored by the facility owner before January 1, 2008, as determined by SMUD.
3. The facility has, within the immediately preceding 15 years from the date the efficiency improvements are initiated, received certification from the State Water Resources Control Board (SWRCB) pursuant to Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341), or has received certification from a regional board to which the SWRCB has delegated authority to issue certification, unless the facility is exempt from certification because there is no potential discharge into waters of the United States.
4. The incremental increase is the result of efficiency improvements from a retrofit, and the efficiency improvements do not result in an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow.
5. All of the incremental increase in electricity generation resulting from the efficiency improvements must be demonstrated to result from a long-term financial commitment by a retail seller, publicly-owned utility or the facility owner.⁵

Hydroelectric Facilities Located Within California

A new or repowered small hydroelectric facility, conduit hydroelectric facility or incremental generation from eligible efficiency improvements located within California, is NOT eligible for SMUD's RPS Program if it results in an adverse impact on instream beneficial uses or causes a change in the volume or timing of streamflow. A facility may have an adverse impact on the instream beneficial uses if it causes an adverse change in the chemical, physical, or biological characteristics of water, including a change in the volume, rate, timing, temperature, turbidity, or dissolved oxygen content of the stream water.

If a new or repowered small hydroelectric facility, conduit hydroelectric facility, or incremental generation from eligible efficiency improvements to a hydroelectric facility, can demonstrate that

⁵ "Long-term financial commitment" means either new ownership investment in the facility by the retail seller or a new or renewed contract with a term of more than 10 years, which includes procurement of the incremental generation. [Public Utilities Code Section 399.12.5(b)(4).]

it can operate without adversely impacting the instream beneficial uses or causing a change in the volume or timing of streamflow, it may be eligible for SMUD's RPS Program.

Hydroelectric Facilities Located Outside California

A new or repowered small hydroelectric facility, conduit hydroelectric facility, or incremental generation from eligible efficiency improvements to a hydroelectric facility located outside California may be eligible for SMUD's RPS Program if it can demonstrate that it may operate without adversely impacting the instream beneficial uses or causing a change in the volume or timing of streamflow. A facility may have an adverse impact on the instream beneficial uses if it causes an adverse change in the chemical, physical, or biological characteristics of water, including a change in the volume, rate, timing, temperature, turbidity, or dissolved oxygen content of the stream water.

Eligible Efficiency Improvements

Eligible efficiency improvements to hydroelectric facilities are limited to those improvements that make more efficient use of the existing water resource and equipment, rather than increase the storage capacity or head of an existing water reservoir. Efficiency improvements do NOT include regular or routine maintenance activities. Eligible efficiency improvements may include the following measures:

- Rewinding or replacing the existing turbine generator.
- Replacing turbines.
- Computerizing control of turbines and generators to optimize regulation of flows for generation.

Pumped storage

A pumped storage hydroelectric facility may qualify for the SMUD RPS Program if: 1) the facility meets the eligibility requirements for small hydroelectric facilities, and 2) the electricity used to pump the water into the storage reservoir qualifies as RPS eligible. The amount of energy that may qualify for the RPS is the amount of electricity dispatched from the pumped storage facility.

Pumped storage facilities qualify for the RPS on the basis of the renewable electricity used for pumping water into the storage reservoir, but the storage facilities will not be certified for the RPS as separate or distinct renewable facilities. A facility certified as RPS-eligible may include an electricity storage device if it does not conflict with other RPS eligibility criteria.

4. Municipal Solid Waste

Applicants representing facilities using municipal solid waste (MSW) fall into two categories:

- a) **Solid Waste Combustion Facilities:** A facility that directly combusts MSW to produce electricity is only eligible for the RPS if it is located in Stanislaus County and was operational before September 26, 1996. Applicants for combustion facilities must submit documentation to the Energy Commission demonstrating that the facilities meet these requirements.
- b) **Solid Waste Conversion Facilities:** A facility is eligible for the SMUD RPS Program if:
 - it uses a two-step process to create energy whereby in the first step (gasification conversion) a non-combustion thermal process that consumes no excess oxygen to convert MSW into a clean burning fuel, and then in the second step this clean burning fuel is used to generate electricity,
 - it is located in-state or satisfies the out-of-state requirements, and
 - it meets all of the following criteria:
 1. The technology does not use air or oxygen in the conversion process, except ambient air to maintain temperature control.
 2. The technology produces no discharges of air contaminants or emissions, including greenhouse gases as defined in Section 42801.1 of the Health and Safety Code.
 3. The technology produces no discharges to surface or groundwaters of the state.
 4. The technology produces no hazardous wastes.
 5. As much as possible, the technology removes all recyclable materials and marketable green waste compostable materials from the solid waste stream before the conversion process, and the owner or operator of the facility certifies that those materials will be recycled or composted.
 6. The facility at which the technology is used complies with all applicable laws, regulations, and ordinances.
 7. The technology meets any other conditions established by the Energy Commission.
 8. The facility certifies that any local agency sending solid waste to the facility diverted at least 30 percent of all solid waste it collects through solid waste reduction, recycling, and composting.

5. Solar Energy and Distributed Generation

Generation from facilities using solar energy is technically eligible for the SMUD RPS Program. Solar thermal electric central station facilities delivering electricity to the grid are relatively straightforward to integrate into RPS implementation because the generation can be readily measured and procured toward meeting RPS requirements. A photovoltaic (PV) central station facility could also produce electricity that is eligible for the RPS with standard metering employed for central station facilities.

Distributed generation PV facilities and other distributed renewable energy technologies, however, have qualities that make them more difficult than central station facilities to integrate into RPS implementation. For example, distributed PV facilities are typically small-scale applications designed to meet a consumer's on-site energy demands.

SMUD has chosen to allow eligibility for certain distributed generation (DG) renewable energy, particularly with respect to solar energy. SMUD has provided leadership in solar energy for over 25 years. Consequently, within its service territory, SMUD has solar DG facilities/installations that are metered to measure the electricity generated. Moreover, SMUD has contractual agreements with the majority of the PV DG facilities/installations within its territory that include as a standard term and condition that all renewable and environmental attributes associated with the generation of electricity from these facilities/installations belong to SMUD.

Therefore, SMUD has chosen to extend RPS eligibility to PV DG facilities located in SMUD's service territory that meets the following criteria:

- a) The DG facility/installation is metered and the electricity generation is measured and reported to SMUD.
- b) All renewable and environmental attributes associated with the electricity generated by the DG facility remain bundled; and
- c) An agreement is in place where SMUD has ownership of the renewable and environmental attributes associated with the generation from the facility/installation.

6. Renewable Facilities Using Multiple Fuels

SMUD will allow options for RPS eligibility of renewable facilities that use multiple fuels or resources to generate electricity, such as co-fired fuels or a mix of fuels that includes fossil fuels. If the annual fossil fuel use at the multi-fuel facility does NOT exceed a *de minimus* amount, then 100 percent of the electricity production from the facility may count as RPS-eligible. *De minimus* for facilities seeking RPS eligibility is 2 percent of all fuels used and measured on an annual total energy input basis.

For multi-fuel facilities that use more than a *de minimus* amount of fossil fuels, only the measured, qualified renewable fuel portion of the generation from that facility will count as renewable generation. In addition, to participate in SMUD's RPS, the multi-fuel facility must be registered with the WREGIS accounting system and comply with all WREGIS requirements, including those for metering, and for reporting and updating the renewable portion of the fuel mix.

SMUD's requirements are different from the California RPS requirements because under the following two conditions multi-fuel facilities are allowed by the state to count all of their generation as renewable:

- a) The Energy Commission will count multi-fuel renewable facilities' generation using fossil fuels as 100 percent RPS eligible as long as the percentage of fossil fuel used did not exceed 25 percent of the total energy input of the facility during a given calendar year; commercial operations commenced before January 1, 2002; the facility was certified and operational as a renewable qualifying small power production facility (QF) pursuant to the federal Public Utility Regulatory Policies Act before January 1, 2002; and it is currently certified as a renewable QF facility.
- b) Any facility that is developed and awarded a power purchase contract as a result of a 2002/2003 Interim RPS procurement solicitation approved by the CPUC under Decision 02-08-071 and Decision 02-10-062 may use up to 25 percent fossil fuel, measured on an annual total energy input basis, and count 100 percent of the electricity generated as California RPS-eligible.

The two conditions above are inapplicable to SMUD's RPS Program.

Biogas Injected into a Natural Gas Pipeline

California RPS-eligible biogas (gas derived from RPS-eligible fuel such as biomass or digester gas) injected into a natural gas transportation pipeline system and delivered into California for use in an Energy Commission RPS-certified multi-fuel facility may result in the generation of California and SMUD RPS-eligible electricity. SMUD chooses to follow the CEC's requirements regarding biogas injected into a natural gas pipeline. The biogas must meet strict heat content and quality requirements within a narrow band of tolerance to qualify as pipeline-grade gas.

Quantifying RPS-eligible energy production requires accurate metering of the volume of biogas injected into the transportation pipeline system and the measured heat content of the injected gas. Although blending the biogas into the transportation pipeline system mixes the biogas with other pipeline gas, natural gas regulations require gas entering the system to be "nominated" for use at a specific power plant or to a pipeline system owned by a publicly owned utility or other load-serving entity (LSE). Consequently, the amount and energy content of the biogas or other RPS-eligible gas produced can be measured and either nominated for use at a specific power plant or

nominated to a pipeline system owned by an LSE. If the biogas is nominated to a pipeline system, the owner of the system must designate the facility in which the biogas will be used.

The operator of a facility to which biogas is nominated (or designated) must certify its facility with the Energy Commission as RPS-eligible, recognizing that the facility will use a blend of RPS-eligible and ineligible fuel.

The amount of RPS-eligible electricity produced shall be calculated by multiplying the generation of the facility (MWh) by the ratio of the biogas used and the total gas (biogas and natural gas) used by the facility. The electricity generated and gas used must be measured over an equal period (such as MWh produced per month and gas used per month).

Any production or acquisition of gas that is directly supplied to the gas transportation pipeline system and used to produce electricity may generate RPS-eligible electricity as follows:

1. The gas must be produced from an RPS-eligible resource, such as biomass or digester gas.
2. The gas must be injected into a natural gas pipeline system that is either within the WECC region or interconnected to a natural gas pipeline system in the WECC region that delivers gas into California.
3. The energy content produced and supplied to the transportation pipeline system must be measured on a monthly basis and reported annually, illustrated by month. Reporting shall be in units of energy (for example, MMBtu) based on metering of gas volume and adjustment for measured heat content per volume of each gas). In addition, the total amount of gas used at the RPS-eligible facility must be reported in the same units measured over the same period, and the electricity production must be reported in MWh.
4. The gas must be used at a facility that has been certified by the Energy Commission as RPS-eligible. As part of the application for certification, the applicant must attest that the RPS-eligible gas will be nominated to that facility or nominated to the LSE-owned pipeline serving the designated facility.

Please refer to the CEC's *RPS Eligibility Guidebook* for more details.

B. Out-of-State Facilities

SMUD chooses to follow California's requirements regarding generation facilities located outside of California. This section applies to renewable facilities that are located out-of-state and have their first point of interconnection to the WECC transmission system outside the State, as defined in the Energy Commission's *Overall Program Guidebook*. Facilities that have their first point of interconnection to the WECC transmission system within the State are considered to be in-state facilities and are not subject to the requirements of this section for RPS eligibility. Out-of-state facilities that are not or will not be interconnected to the WECC transmission system are not eligible for SMUD's RPS Program.

Generation from renewable facilities located out-of-state is potentially eligible for SMUD's RPS. To qualify, generation from an out-of-state facility must meet the RPS eligibility requirements described above and must satisfy all of the following criteria.

1. Facility is located so that it is or will be connected to the WECC transmission system.
2. Facility commences initial commercial operations on or after January 1, 2005.
3. Retail seller, SMUD, POU or wholesaler of the procured generation demonstrates delivery of its generation to an in-state market hub or in-state location, as specified in the delivery requirements below.
4. Facility does not cause or contribute to any violation of a California environmental quality standard or requirement within California.
5. If located outside the United States, the facility is developed and operated in a manner that is as protective of the environment as would a similar facility be if it were located in California.
6. Facility, retail seller, SMUD, POU or wholesaler participates in an RPS tracking and verification system approved by the Energy Commission.

If the facility meets all of the above criteria except it commenced commercial operations before January 1, 2005 (criterion "b" above), then it may be SMUD-eligible if it meets one of the following two criteria:

1. The electricity is from incremental generation resulting from project expansion or repowering of the facility on or after January 1, 2005, or
2. The facility is part of a retail seller's (or POU's) existing baseline procurement portfolio as identified by the CPUC (or POU).

C. Delivery Requirements

SMUD chooses to follow the CEC's requirements to deliver renewable power into California. For SMUD RPS eligibility, electricity is deemed "delivered" into California if it is either generated at a location within the state or is scheduled for consumption by California end-use retail customers. Also, electricity generated by facilities having their first point of interconnection to the WECC transmission system in-state also satisfies California's and therefore SMUD's RPS delivery requirements.

In addition, the Energy Commission has provided important flexibility to RPS-obligated entities to manage transmission constraints that currently impede importation of significant sources of clean, RPS-eligible renewable power. Accordingly, electricity may be delivered into California at a different time than when the RPS-certified (or pre-certified) facility generated electricity.

Electricity delivered into California may also be generated at a different location than that of the RPS-certified (pre-certified) facility. In practical terms, this means that out-of-state energy may be “firmed” or “shaped” with substitute energy within the same calendar year in which the renewable energy is generated. FIRMING and SHAPING refers to the process by which resources with variable delivery schedules may be backed up or supplemented with delivery from another source to meet customer load.^{6 7}

To count generation from out-of-state facilities for SMUD RPS compliance, the RPS-certified (or pre-certified) facility must enter a power purchase agreement with a retail seller, SMUD, procurement entity or third party, and a matching quantity of electricity must be delivered to an in-state market hub (also referred to as “zone”) or in-state point of delivery (also referred to as “node”) located within California.⁸ The retail seller, SMUD or procurement entity or third party seller may negotiate which party is responsible for securing transmission, as necessary, at any point along the delivery path as long as the energy is delivered into California.

The retail seller, SMUD, procurement entity or third party may document delivery of electricity from any control area operator (also referred to as “balancing authority”) in the WECC transmission system outside California, and the delivered electricity may originate from a control area that is different from that in which the RPS-certified (or pre-certified) facility is located. The electricity delivery may occur through typical delivery arrangements, such as through wheeling across multiple control areas, and the delivery may occur at any delivery point into California.

The electricity generated and associated RECs from the RPS-certified (or pre-certified) facility must be procured through a power purchase agreement between SMUD and the retail seller, procurement entity or third party. The delivery of electricity to an in-state market hub or in-state

⁶ For further information refer to the CPUC staff white paper, *Renewable Energy Certificates and the California Renewables Portfolio Standard Program*, April 20, 2006, [www.cpuc.ca.gov/word_pdf/REPORT/55606.doc]

⁷ Below are examples of contracting structures that would meet the RPS-delivery requirements; these examples are not exhaustive, and other contracting structures could also qualify. These examples do not constitute tradable RECs or authorize tradable RECs for RPS compliance.

1. The facility could provide firming and shaping services. For example, the retail seller or SMUD could enter into a power purchase agreement (PPA) with an RPS-eligible facility and, as part of the PPA, the facility would provide firming and shaping to deliver a firm or non-firm product into California.
2. A third party could provide firming and shaping services. For example: a retail seller or SMUD could buy energy and RECs from an RPS-eligible facility and execute a second PPA to resell the energy from the RPS-eligible facility, but not the RECs, to a third party that provides firming and shaping services. Then, the third party could provide the retail seller or SMUD with a firm schedule for delivery into California.
3. The retail seller or SMUD could provide firming and shaping services. The retail seller or SMUD could buy energy and RECs from an RPS-eligible facility, sell the energy back to the facility, and “match” the RECs with energy delivery into California from a second PPA and/or with imports under a pre-existing PPA.

⁸ Beginning January 1, 2008, it will be acceptable for an RPS-certified facility to sell power to a retail seller, procurement entity, or third party, pursuant to a PPA, and all such parties must use and be registered as account holders with WREGIS. A third party’s participation in out-of-state transactions is contingent upon all parties to that transaction (third party, generator, load serving entity, and California ISO) participating in WREGIS to verify RPS compliance.

point of delivery located within California must be made consistent with North American Electric Reliability Corporation (NERC) rules and documented with a NERC E-tag as described below.

The following deliverability requirements were developed in consultation with the California ISO. These requirements must be satisfied for an out-of-state facility to qualify for the RPS. The delivery requirements do not apply to facilities located outside California whose first point of interconnection to the WECC transmission system is located inside California.

1. The retail seller, SMUD, procurement entity, facility representative or third party must either (a) arrange for an interchange transaction with the California ISO to deliver the out-of-state facility's energy (or a matching amount of energy from another out-of-state source located within the WECC) to a point of delivery in California, or (b) arrange for an interchange transaction with another balancing authority outside California to deliver energy to the point of delivery in California. Under the policies of the NERC, the interchange transaction must be scheduled with what is commonly referred to as a "NERC E-Tag."
2. The Source identified on the NERC E-Tag may be a specific RPS-certified (or pre-certified) facility registered as a unique source or may be any balancing authority located in the WECC outside California.
3. The RPS certification number of the facility or facilities (or RPS pre-certification number, in the case of publicly owned utilities) that is/are engaged in a power purchase agreement with a retail seller, SMUD, procurement entity or third party, must be shown on the Miscellaneous field of the NERC E-Tag.
4. The facility must provide the Energy Commission with its NERC identification (Source point name)⁹ if it registers as a unique source, or the Source point name of the balancing authority in which it is located when it applies for RPS certification. (Providing this information does not restrict the eligibility of using other balancing authorities outside California to deliver energy into California.)
5. The facility representative, retail seller, SMUD, procurement entity or third party (or local publicly owned electric utility implementing these delivery requirements as part of compliance with its RPS) must request and receive acceptance of a NERC E-Tag between a balancing authority in California and any balancing authority located in the WECC outside of California.
6. On May 1 of each year (or as soon thereafter as practicable), SMUD shall submit an annual report to the Energy Commission documenting compliance with this NERC E-Tag requirement for the previous calendar year. The annual report to verify delivery from out-of-state should include the following NERC E-Tag information:

⁹ The NERC identification is the Source point name, an alpha-numeric code the generator uses to identify itself when it registers with the Transmission Services Information Network (TSIN). Registration with TSIN is mandatory for participation in the NERC tagging system.

- a) The “Source” or “Point of Receipt” located outside California and within the WECC.
- b) The final “Point of Delivery” or load center in California known as the “sink.”
- c) The California RPS-certification number of the facility or facilities with which the delivered energy is being “matched.” The California RPS-certification number must be shown on the Miscellaneous field of the NERC E-Tag.
- d) The amount of electricity delivered per month.

Additionally, the applicable parties (the facility and SMUD) must agree to make available upon request documentation of the NERC E-Tags to the Energy Commission.

- 7. The facility must submit verification of its generation to the Energy Commission annually. Please refer to the section on the “Generation Tracking and Verification System” in the Energy Commission’s *RPS Eligibility Guidebook*.

D. Eligibility of Tradable Renewable Energy Certificates or Credits (TRECs)

As noted in the section on “Outstanding Issues,” RECs traded separately from energy (tradable RECs or TRECs) do not qualify for the California RPS at this time.¹⁰ The law, however, authorizes the use of TRECs for California RPS procurement requirements once (1) the CPUC establishes rules for TREC procurement and (2) the CPUC and Energy Commission conclude that the tracking system is operational, capable of independently verifying delivery of renewable energy to a retail seller or POU and can assure that TRECs are not double counted by any seller within the WECC. SMUD has chosen to follow this prohibition until these requirements are satisfied.

¹⁰ The CPUC is examining the issues surrounding authorizing tradable RECs for RPS compliance in its rulemaking R.06-02-012.

III. Greenery Resource Eligibility

Greenery renewable resources eligibility is determined by the Green-E Program's *Energy National Standard*. Please refer to Appendix A where that document is enclosed for detailed information on Eligibility. Green-E is maintained by the Center for Resource Solution.

IV. Renewable Energy Accounting

SMUD's Advanced, Renewables, & Distributed Generation Technologies (AR&DGT) group accounts, tracks and maintains the renewable generation data for SMUD's RPS Program and Greenery's portfolio of renewable energy supply. AR&DGT collaborates with Business Planning, Risk Management, Energy Trading & Contracts, Settlements, and Greenery, among other groups, to gather data as well as maintain accuracy and most updated information. A table of the generation sources for SMUD's RPS and Greenery Programs is available upon request to AR&DGT.

A. SMUD's RPS Goals

California law mandates that public owned electric utilities maintain a RPS program, but does not set specific targets.¹¹ The SMUD Board has voluntarily set an RPS goal of providing 20% of its retail electricity sales from RPS eligible renewable resources by 2011. SMUD has also adopted the additional target of providing another 3% of projected customer sales with Greenery resources by the same date. Accordingly, SMUD plans to meet 23% of its total retail electricity sales with renewable energy by 2011.

SMUD has also established informal, incremental annual targets that differ from the California RPS mandate. The annual RPS targets has been calculated by increasing renewable procurement linearly from the baseline of 12% in 2006 to the 23% 2011 goal, adjusted based on SMUD's Business Planning Department's projected retail sales. The annual electricity target (in MWh) is calculated using the annual renewable percentage and Business Planning's projected retail sales.

The annual renewables percentage is a ratio of the amount of total contracted and self-generated renewable energy and SMUD's annual retail sales¹². Estimated renewable energy quantities needed to meet annual targets are based on variable retail sales forecasts. The sales of RECs by SMUD reduce renewable energy supply. SMUD projections of renewable energy supply compared to goals are updated by AR&DGT at least quarterly and final annual numbers are reported annually to the Energy Commission by May 1st for the prior calendar year.

¹¹ Public Utilities Code section 387(a).

¹² Final, annual renewable energy percentage depends on the performance of generating facilities, especially wind and small hydro, and retail sales numbers, which is affected by the performance of SMUD's Energy Efficiency program.

B. SMUD's RPS Program and Greenergy

The SMUD's RPS is a State mandated program whereas Greenergy is a voluntary green pricing program. Resources for SMUD's RPS Program and Greenergy are accounted for separately, but the sum of these resources constitutes SMUD's total renewable energy resource procurement. Most of Greenergy resources are permanently allocated to that program. The principle difference between SMUD's RPS Program and SMUD's Greenergy Program is that only RPS eligible energy resources can be allocated to RPS compliance, whereas non-eligible resources (such as unbundled TRECs) can only be allocated to Greenergy. Some RPS eligible resources are allocated to the Greenergy Program on an as-needed basis.

C. Baseline

SMUD has established that all RPS eligible renewable energy resources that started delivery of energy on or before December 31, 2006 are part of SMUD's RPS baseline.¹³ This differs from California's RPS requirements for the Investor Owned Utilities. After SMUD's baseline, all generation facilities that contribute to SMUD's RPS must be certified or pre-certified by the Energy Commission with the exception of renewable DG.

D. Banking and Sale of Surplus RECs

When SMUD surpasses its incremental annual renewable energy targets, the District may choose to bank or sell surplus RECs. Surplus RECs that are banked in a given year may be used to fulfill deficits in any past or future years¹⁴. Surplus RECs may also be sold any time of the year. Decisions to sell surplus RECs are based on availability of REC attestations, market demand, and the intent to retain excess RECs to insure that the annual target is met. When RECs are sold, the electricity associated with those RECs and delivered to SMUD can no longer be counted as a renewable. RECs will be retired or sold according to vintage, with the oldest vintage being retired or sold first.

E. Flexible Procurement Rules

The RPS statutes require the CPUC to develop rules for flexible compliance with California RPS procurement goals, including the inability to procure eligible renewable energy resources due to

¹³ During mid-2006, SMUD was actively negotiating PPAs from out-of-state facilities (including Avista and SPI). Concurrently, legislation (SB-107) was developing that, among others, clarified eligibility guidelines of out-of-state renewable generation but put in question the eligibility of these PPAs. SMUD finalized and executed the Avista PPA, receiving power before 2006 ended. The changes to SB-107 became effective starting January 1, 2007. The Avista PPA became part of SMUD's baseline.

¹⁴ SMUD is consistent with the REC banking flexibility rule that the California RPS provides the IOUs.

insufficient transmission.¹⁵ The CPUC has approved rules permitting retail sellers to carry procurement deficits for up to three years, including up to 25% of an annual incremental procurement target (the difference between retail seller's current and prior year annual procurement targets). Deficits greater than 25% may be carried forward for reasons such as the following:

1. Insufficient response to the RPS solicitation.
2. Contracts already executed will provide future deliveries sufficient to satisfy current year deficits.
3. Inadequate public goods funds to cover above-market renewable contract costs.
4. Seller non-performance.
5. Inadequate transmission.
6. Lack of effective competition.
7. The deferral would promote ratepayer interests and the overall procurement objectives of the RPS program.
8. Other showing of good cause.

SMUD procures new sources of RPS eligible renewable energy in the same markets as California's retail sellers and thus is subject to many of these same constraints recognized by the CPUC. Upon the proper showing to the SMUD Board, SMUD may approve a deferral of any incremental annual target or its 2011 RPS and renewable energy goals for up to three years.

F. Tracking of RECs

The CEC was made responsible for developing a tracing system to verify compliance with the California RPS. The CEC with WECC developed WREGIS, an electronic tracking system to meet its tracking requirements, including the tracking of RECs. WREGIS launched in June 2007. SMUD is participating in WREGIS. After January 1, 2008, SMUD is committed to using WREGIS to track all RPS eligible generation. Generation contracted before January 1, 2008 will participate as indicated in their specific agreements or as required by law.

G. Reports to CEC

Public Utilities Code Section 387 requires POU's to report the status of their RPS program to the CEC and their customers. The CEC encourages POU's to submit the status report by May 1st. SMUD also files the following reports with the CEC:

1. Public Good Report¹⁶

¹⁵ See Pub. Util. Code § 399.14(a)(2)(C).

¹⁶ Public Good Report must contain the expenditures of public goods funds for eligible renewable energy resource development: program descriptions, expenditures, and expected or actual results)

2. Form CEC-RPS-POU
 - 2.1. Resource Mix (SB 1305 Annual Report, submitted by Risk Management on March 1st)
 - 2.2. Application for REC Certification (if selling surplus RECs to IOUs)
 - 2.2.1. List of renewable resource (facility) name, CEC Certification number, REC quantity

V. Conclusion

SMUD has long been a national leader in helping develop renewable energy technologies and projects for the benefit of our ratepayers and the citizens of California. SMUD voluntarily established its renewable energy program in 2001, before the State imposed the California RPS Program on the IOUs or required the implementation of an RPS program by POUs. SMUD believes that its RPS Program fully conforms to the legislation fostering the development of renewable resources, and intends to have its RPS rules closely follow the State's eligibility requirements.

SMUD has been successfully surpassing its renewable energy targets, established by its Board. However, we recognize that significant hurdles remain before we can achieve our RPS goal of 20 percent RPS-eligible renewable energy and 23 percent total renewables by 2011 and beyond. In addition, significant new challenges will need to be addressed if the 33% renewable energy target by 2020, currently being considered, is adopted by California and SMUD. This Guidebook is designed to assist SMUD in meeting these challenges.

Appendix A: Green-e Renewable Energy Certification Program
National Standard Version 1.5

National Standard Version 1.5

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I. INTRODUCTION

This is the Green-e Energy National Standard for Renewable Electricity Products in all regions of the United States. The following criteria apply to all Green-e certified products (Renewable Energy Certificates, utility green pricing programs, and competitive market electricity products). Additional details about the Green-e certification criteria, the application process, verification protocol, marketing compliance review, etc. can be found in the Green-e Code of Conduct and Customer Disclosure Requirements, available on our website www.green-e.org.

II. ELIGIBLE SOURCES OF SUPPLY

A. Definition of Eligible Renewables

The following types of renewable energy are eligible to supply Green-e certified products:

- 1) Solar Electric;
- 2) Wind;
- 3) Geothermal;
- 4) Hydropower from new generation capacity on a non-impoundment or new generation capacity on an existing impoundment that meets one or more of the following conditions:
 - a) The hydropower facility is certified by the Low Impact Hydropower Institute;
 - b) The facility is a run-of-the-river hydropower facility with a total rated nameplate capacity equal to or less than 5 MW. Multiple turbines will not be counted separately and cannot add up to more than a 5 MW nameplate capacity; or
 - c) The hydropower facility consists of a turbine in a pipeline or a turbine in an irrigation canal.

The Board will consider on a case-by-case basis new incremental capacity on an existing dam, where the “new” output is equal to or less than 5 megawatts.

Green-e will not certify renewables from new impoundments of water.

Green-e will consider adopting ocean-based resources and will review these technologies as they mature and as practical application reaches near term.

- 5) Solid, liquid, and gaseous forms of Biomass from the following fuels:
 - a) All woody waste¹⁷;
 - b) All agricultural crops or waste;
 - c) All animal and other organic waste;
 - d) All energy crops;
 - e) Landfill gas and wastewater methane; and
 - f) Municipal Solid Waste is eligible if it is first converted to a clean burning fuel that is then used to generate electricity. The solid waste conversion facility for converting the municipal solid waste to a clean burning fuel must meet the following criteria¹⁸:
 - i. The facility uses a non-combustion thermal process to convert the municipal solid waste to a clean burning fuel.

¹⁷ Includes “black liquor” from pulp and paper processing, mill residues, industrial waste wood, and waste wood from woodworking or wood processing, so long as the wood is not chemically treated or coated.

¹⁸ Criteria adapted from the California’s “Renewables Portfolio Standard Eligibility Guidebook, August 2004. This guidebook can be downloaded at: http://www.energy.ca.gov/portfolio/documents/guidebooks/2004-08-20_500-04-002F1.PDF.

- ii. The technology is designed to produce no discharges of air contaminants or emissions, including greenhouse gases.
- iii. The technology produces no discharges to surface or groundwaters.
- iv. The technology produces no hazardous wastes.
- v. To the maximum extent feasible, the technology removes all recyclable materials, including plastics, and marketable green waste compostable materials from the solid waste stream prior to the conversion process and the owner or operator of the facility certifies that those materials will be recycled or composted.
- vi. The facility complies with all applicable laws, regulations, and ordinances.

Third-party verification that an MSW facility has met these criteria is required in order for the electricity or RECs from a facility to be used in a Green-e certified product. The California Energy Commission can provide this verification in California and TerraChoice, an environmental consulting firm, which provides facility verification services (www.terrachoice.com), may be able to provide this service in other regions. Facilities may also petition Green-e to allow an alternative third-party to perform this verification if that party meets appropriate standards.

Biomass resources excluded from eligibility include:

- a) Wood that has been coated with paints, plastics, or Formica; and
- b) Wood that has been treated for preservation with materials containing halogens, chlorine or halide compounds like CCA-treated materials, or arsenic. (CCA = chromated copper arsenate)

Qualified wood fuels may contain de minimis quantities (less than 1% of total wood fuel) of the above excluded contaminates.

- 6) Biodiesel (B100) that is used to generate electricity is eligible for Green-e. Biodiesel blended with petroleum diesel is permitted if all of the following conditions are met:
- a) The biodiesel is separately measured (and verified) from the petroleum diesel; and
 - b) Contracts are in place to allow CRS to verify that the biodiesel was converted to electricity.

Only the amount of electricity generated from the biodiesel may be counted as part of a Green-e certified product.

- 7) Fuel cells are eligible only if powered by hydrogen derived from any of the above eligible renewable resources. (See section II.E.7)

B. Co-firing of Biomass with Non-Renewables

Co-firing of eligible forms of biomass with non-renewables is permitted if at least one of the following conditions is met:

- 1) The facility is located in an electric system control area that makes use of a generation tracking system (e.g., NEGIS, PJM-GATS, WREGIS) that is fully capable of accurately measuring and reporting the differentiated (biomass-fired and non-biomass-fired) electrical output from the facility; or,

- 2) The biomass is in a gaseous or liquid state, is separately metered and there are contracts in place to verify that the biomass portion was converted to electricity; or
- 3) Facilities that do not meet either of the criteria above may be eligible subject to a case-by case review by the Green-e Governance Board. The methodology presented to Green-e must demonstrate that the Btu value of the electrical output from the facility is attributed to the eligible biomass fuel. Some of the criteria that the Board will consider in making a decision are:
 - a) Whether the facility was modified to accept biomass fuel;
 - b) Whether there is an independent entity involved in verifying or determining the appropriate measurement; and
 - c) Whether there is a way to determine and ensure the net electricity increment being sold as "renewable" can be attributed to eligible biomass fuel.

The Board would prefer a verification methodology that is brought forth by the Power Marketers Advisory Committee (PMAC) and Utility Green Pricing Advisory Committee (UGPAC) that could be applied universally.

Only the amount of electricity generated from the eligible biomass may count towards the Green-e criteria.

C. Emissions Limits on Biomass

All facilities must be in compliance with all state and/or federal laws/rules regarding emissions. For facilities subject to New Source Review (NSR), the facility must be compliant with all applicable regional and state standards pertaining to NSR.

(Please note: For other facilities, the Green-e Board intends to adopt a comparable standard for biomass generators that are not subject to NSR. Stakeholders and generators are invited to provide CRS with emissions and sustainability criteria they feel are appropriate, which will be shared with the Green-e Board.)

D. Emissions Criteria for the Non-Renewable Portion of a Green-e Product

Some renewable electricity products do not meet 100% of a customer's electricity load and/or will contain non-renewable energy. The emission rates per kWh for SO₂, NO_x, and CO₂ from the non-renewable portion of the eligible product may not exceed customer's average utility, state or regional power emissions rates. Rates are calculated from the latest available EPA EGRID data, unless the regional system administrator, PUC or other authority makes more up-to-date information available. The product may not include any specific purchases of nuclear power in the non-renewable portion of the product other than what is contained in any system power purchase (i.e. the product may not include differentiated nuclear power). A utility's or power pool's system mix may be used to satisfy the non-renewable portion of a Green-e certified product.

E. New Renewables

Only new renewables are eligible to meet Green-e standards. The term "new" is defined to include any eligible renewable facility beginning operation or repowered after January 1, 1997. An eligible new renewable generation facility must meet at least one of the following conditions:

- 1) Placed in operation (generating electricity) on or after January 1, 1997;
- 2) Repowered on or after January 1, 1997 such that at 80% of the fair market value of the project derives from new generation equipment installed as part of the repowering. In order to be recognized as repowered for the purposes of Green-e Energy, the owner of the facility seeking “repowered” status must satisfactorily complete the Green-e Energy Repowering Worksheet available on www.green-e.org;
- 3) A separable improvement to or enhancement of an existing operating facility that was first placed in operation prior to January 1, 1997, such that the proposed incremental generation is contractually available for sale and metered separate from the existing generation at the facility;
- 4) A biomass co-firing facility that meets all requirements for biomass co-firing outlined in section II.B. above and began co-firing non-eligible fuels with eligible biomass as defined in II.A. above on or after January 1, 1997;
- 5) A 100 percent switch from a non-eligible fuel to an eligible fuel on or after January 1, 1997;
- 6) A separately metered landfill gas resource that was not being used to generate electricity prior to January 1, 1997; and/or
- 7) A fuel cell that began generating electricity on or after January 1, 1997. The hydrogen powering the fuel cell must be derived from a facility that meets the resource eligibility requirements described in section II.A. above. The renewable resource facility that produces the fuel from which the hydrogen is derived does not need to meet the new date criteria but does need to meet Green-e resource definitions (section II.A).

Any enhancement of fuel source that increases generation at an existing facility, without the construction of a new or repowered, separately metered generating unit, is not eligible to participate, with the exception of new landfill gas resources identified in (5) above. An eligible "new renewable" must qualify as an "eligible renewable resource" as described herein.

Please Note: Green-e Energy plans to consider adopting a policy articulating the number of years a facility will be treated as “new”. We will solicit stakeholder feedback on this issue.

F. Energy Storage

Energy storage systems or plants, including pumped hydroelectric storage, battery storage, compressed air energy storage, superconducting magnetic energy storage, flywheels, and super capacitors, are not energy resources. While each of these storage technologies may play an important future role in managing the delivery of non-dispatchable renewable energy, they are not in themselves a renewable energy resource. Therefore, these storage technologies themselves are not qualifying sources of renewable generation.

G. Parasitic Load

Renewable energy consumed as parasitic load of an eligible facility is not eligible for use in a Green-e certified product. Parasitic load is a load that contributes to the process of electricity generation.

III. PRODUCT SPECIFICATIONS

A. Minimum Purchase Quantity

Green-e certified products sold to residential customers must contain at least the minimum amounts of Green-e eligible renewable energy described below.

1) Percentage-of-Use Products: Retail electricity offerings must offset at least 25% of a residential customer's electricity usage with new renewables above and beyond any state mandated Renewable Portfolio Standard (RPS) renewable amount. If a marketer or utility offers the option to offset less than 50% of a residential customer's electricity use, they must also offer a 100% option to residential customers.

2) Block Products: Electricity products sold as block products must be 100% Green-e eligible renewables in a minimum size of 100 kWh/month.

Green-e certified products sold to non-residential customers have no minimum purchase quantity requirement. However, commercial purchasers interested in using the Green-e logo to promote their purchase must meet the requirements of the Green-e Marketplace Program:

http://www.green-e.org/getcert_bus_what.shtml .

B. Vintage of Eligible Renewables

A Green-e certified product may include only renewables that are generated in the calendar year in which the product is sold, the first three months of the following calendar year, or the last six months of the prior calendar year.

C. Fully Aggregated Renewables

Green-e only certifies renewable energy products that are fully aggregated to the extent possible under law.

Green-e certified MWhs (electricity or REC) must contain all the greenhouse gas (GHG) emission reduction benefits, including carbon dioxide (CO₂) reduction benefits, associated with the MWh of renewable electricity when it was generated.

Emission reductions of capped and traded pollutants where allowances are not routinely assigned to renewable electricity generators, which include sulfur dioxide (SO₂) nationally, mercury (Hg) nationally, and the oxides of nitrogen (NO_x) regionally, are not required to be included in Green-e Certified renewable electricity or RECs.

D. Renewable Portfolio Standard (RPS) Renewables, Other Mandated Renewables, and Financial Incentives

Green-e certified products must be comprised of eligible renewable generation over and above anything required by state or federal RPS requirements, legislation, or settlement agreements. If a utility or electricity marketer is subject to an RPS or other mandate or agreement, they must comply with it regardless of the existence of a voluntary market for renewable energy. If a participant in the Green-e program is determined to be out of compliance with these obligations, or is selling renewables from a mandated facility, that may be grounds for decertification from Green-e.

Renewable energy or RECs may NOT be used in a Green-e certified product under the following circumstances:

- 1) The REC or the electricity from which the RECs are derived is being used simultaneously to meet a local, state, or federal energy mandate or other legal requirement; or
- 2) The RECs are derived from a renewable facility that has been mandated by a local, state, or federal government agency or was required under any legal requirement.

The sole exception to (1) and (2) is a facility that is generating renewable energy in excess of the government mandate or other legal contract, in which case that excess (either renewable electricity or the RECs associated with the renewable electricity) may be used in a Green-e certified product.

If the product meets 100% of a customer's electricity use with eligible renewables, Green-e allows a percentage of a product's content to be satisfied by renewable portfolio standard (RPS) state-mandated renewables up to the percentage RPS requirement. For example, if the RPS is set at 5% (either company based or product based), up to 5% of the Green-e product can be satisfied with renewable power purchased to meet a mandated RPS requirement. This applies only to products that meet 100% of a customer's electricity use with Green-e eligible renewables.

RECs or renewable energy from renewable generating facilities that obtain tax or financial incentive payments are eligible under Green-e (to the extent allowed by law, regulation, and contract language governing the tax or financial incentives program).

E. Double Counting and Use of Utility Resources

Eligible RECs or renewable energy can be used once and only once; making a claim (e.g. stating "we buy wind power") is one example of a 'use' that results in retirement. Renewable energy or RECs (or the renewable or environmental attributes incorporated in that REC) that can be legitimately claimed by another party may NOT be used in Green-e REC products.¹⁹

Examples of prohibited double uses include, but are not limited to:

- 1) When the same REC is sold by one party to more than one party, or any case where another party has a conflicting contract for the RECs or the renewable electricity;
- 2) When the same REC is claimed by more than one party, including any expressed or implied environmental claims made pursuant to electricity coming from a renewable energy resource, environmental labeling or disclosure requirements. This includes representing the energy from which RECs are derived as renewable in calculating another entity's product or portfolio resource mix for the purposes of marketing or disclosure;

¹⁹If the owner of a renewable generation facility is reporting direct greenhouse gas emissions in a legally binding voluntary or regulated cap-and-trade program, this constitutes a claim of the environmental attributes of the renewable generation. Therefore, renewable energy facilities that are owned by entities participating in a legally binding greenhouse gas cap-and-trade program are ineligible for Green-e. Green-e may grant exceptions on a case by-case basis if the cap-and-trade program has an accounting mechanism that assures that the GHG emissions benefits of renewable electricity and/or RECs are not double counted or double claimed.

- 3) When the same REC is used by an electricity provider or utility to meet an environmental mandate, such as an RPS, and is also used to satisfy customer sales under Green-e; or
- 4) Use of one or more attributes of the renewable energy or REC by another party (See Section III.C. “Fully Aggregated Renewables” for details). This includes when a REC is simultaneously sold to represent ‘renewable electricity’ to one party, and one or more Attributes associated with the same MWh of generation (such as CO2 reduction) are also sold, to another party.

When a utility is involved in a REC transaction, either as a generator, a purchaser of RECs, or a purchaser of the commodity electricity from which the RECs have been derived, the local utility commissions in the states where the electricity was generated and where the electricity is sold must be notified of the transactions and, in some cases, of the money received by the utility.

F. Customer-Sited Facilities

On-grid customer sited (behind the meter) facilities that meet the eligible renewables definition are eligible sources for Green-e. Customer sited off-grid renewables are not eligible. Any generation unit less than or equal to 10 kW may use a conservative engineering estimate of output. CRS must pre-approve the estimation methodology. Systems over 10 kW must be metered.

Customer-sited generators (such as net-metered solar) cannot claim to be selling/supplying renewable electricity if they sell the RECs (in part or in whole) separately.

G. Canadian-Sited Facilities and RECs sold into Canada

RECs or electricity from Canadian-sited facilities that meet the eligible renewable definition are eligible if they are generated at facilities certified by the EcoLogo™ program, the Canadian government’s environmental certification program (<http://www.environmentalchoice.com/>).

Green-e will certify RECs or electricity generated at facilities located in the U.S. to be sold into Canada provided that they meet the eligible renewable definition and the facility is certified by the EcoLogo™ program. De minimis amounts of sales to Canadian customers from facilities that are not EcoLogo™ participants will be tolerated.

IV. ADDITIONAL CRITERIA FOR COMPETITIVE ELECTRICITY AND UTILITY GREEN PRICING PRODUCTS

A. Geographic Eligibility for Electricity Products²⁰

For electricity products (i.e. products used to meet a customer’s electricity needs), provider can source from one or more of the following geographic boundaries:

- a) The state where the customer is located; and/or

²⁰ 4 For Green-e certified products sold in Connecticut under the CT DPUC ATSO Program, renewable resources can be sourced from eligible renewable facilities located in New England, New York, New Jersey, Delaware, Pennsylvania and/or Maryland consistent with the CT DPUC ATSO rules. This change will remain in effect as long as the CT DPUC ATSO rules are in effect.

- b) The North American Electric Reliability Corporation (NERC) region, Independent System Operator (ISO), Regional Transmission Organization (RTO) or Balancing Authority Area of the customer being served; and/or
- c) An adjacent NERC, ISO, RTO or Balancing Authority Area region where the electricity, bundled with a REC, is wheeled into the respective region of the customer being served.

B. Use of Renewable Energy Certificates in an Electricity Product

Renewable Energy Certificates (RECs) can be combined with nonrenewable power to serve green electricity customers under the following conditions:

- a) The Renewable Energy Certificates must come from the defined geographic boundary of the customer being served as noted above if they are to be marketed as an “electricity” product;
- b) The emission rates per kWh for SO₂, NO_x, and CO₂ for the underlying electricity must be at or below the customer’s average utility, state or regional power emissions rates²¹; and,
- c) The underlying electricity cannot include any specific purchases of nuclear power in the non-renewable portion of the product other than what is contained in any system power purchase (i.e. the product may not include differentiated nuclear power).

If the RECs are sourced from outside the defined geographic boundary defined in Section IV.A. (Geographic Eligibility for Electricity Products), the product will need to be marketed as a REC product and contain the appropriate disclosure language (see Green-e Code of Conduct and Customer Disclosure Requirements).

V. ADDITIONAL CRITERIA FOR UTILITY GREEN PRICING PRODUCTS

A. Product Pricing

In no case should the above market costs of the energy used directly for a certified utility green pricing program be allocated to customers who are non-participants in the program. If such costs are related to public policy initiatives deemed acceptable by their regulators, a utility may appeal to the Green-e Board for approval.

B. Marketing and Performance Targets

If local stakeholders believe a certified program is not receiving sufficient marketing support, the stakeholders can petition CRS to require that the utility offering the program provide additional information, such as overall marketing expenditures for the certified program. All information provided by participating utilities to fulfill this criterion will be treated as confidential by the Center for Resource Solutions. The Board reserves the right to make case-by-case determinations on the adequacy of individual marketing efforts made by participating utilities.

C. Waitlists

In the event that a utility green pricing program becomes fully subscribed, consumers may have to be placed on a waiting list before they can officially subscribe to a green pricing program. If

²¹ 5 This only applies to specific purchases of electricity from a specific generation source(s) rather than purchases of system mix or local power pool electricity.

green pricing program providers have a waiting list, the waiting period must not last more than one year from when the customer seeks to join the green pricing program. Should the green pricing program provider accrue a waiting list of interested participants, the provider shall send a stand-alone letter to the waiting list on a semi-annual basis explaining why the list is not being served and what steps the provider plans to take to rectify the supply/demand imbalance. In the event that the program provider holds a waiting list, it shall notify CRS immediately stating the reasons for the insufficient supply and actions planned to remedy the situation. In the event of a semi-annual wait-list notification, the provider shall notify CRS of the event and provide the number of customers on the waiting list. Enrolling but not serving customers for more than one year may be grounds for removing certification.

D. Regulatory Approval

Certification is only available to programs that have been approved by the appropriate regulatory or oversight body with jurisdiction over the program prior to the program's nomination for certification.

E. Programs Serving Multiple Utilities (Hub and Spoke)

Some utilities are offering green pricing to customers in conjunction with other local utilities. In one such model, there is a central body (hub) that develops a renewable energy product that is marketed by more than one utility (spokes). For example, the output of a wind turbine, a landfill gas facility, and a solar array could be bundled into one product and sold by all of the members of a transmission and distribution cooperative. Since there is a single product and a single point of contact (the hub), Green-e is willing to treat this as one certification regardless of the number of vendors selling the product so long as they meet all of the conditions below.

1) In order to qualify for Green-e certification using the hub and spoke model, the product must:

- a) Contain exactly the same mix of resources for each participating vendor. The same facilities must be used and shared equally among customers. In other words, if the customers of one utility in the Midwest are purchasing 50% wind from Minnesota and 50% biomass from Wisconsin, then all participating vendors must sell the same mix of renewables from the same resources. That way Green-e can do a single verification audit. All of the renewable energy supply for the product must be sourced from the hub.
- b) Be sold within the same regional area. To receive hub-and-spoke treatment from Green-e the product resources must be sited in the same area of the country as the customer. The resources do not have to be located all in the same state, but must be in the same region (see section above; Geographic Boundaries for Sourcing Eligible Electricity) as the customers.
- c) Utilize the same marketing materials for each participating vendor. All participating vendors must use the same marketing materials. Individual utility vendors may brand the marketing materials. However, marketing materials must be consistent across the product service territory so Green-e can do a single marketing compliance review. Limited exceptions to this rule will be tolerated so long as Green-e is notified.
- d) Undergo a single verification process audit. Green-e program staff must have a single auditor as point of contact. The auditor must have access to customer records of all participating vendors.

- 2) Obligations of the Hub and Spoke Facilitator (the Hub):
 - a) Offer the exact same product to all participating vendors.
 - b) Provide a single point of contact for Green-e.
 - c) Undergo a single annual verification process audit.
 - d) Undergo single marketing compliance reviews.
 - e) Ensure that all requirements of Green-e certification are met.
 - f) Keep Green-e informed at all times regarding which distributors are marketing the product.
- 3) Obligations of the Hub and Spoke Distributors (the Spokes):
 - a) Offer the auditor access to billing records.
 - b) Abide by the Green-e Code of Conduct.
 - c) Meet the Green-e Customer Disclosure Requirements, which include sending a system mix disclosure to all customers, regardless of their participation in the green pricing program.

There is a single annual fee assessed per product regardless of the number of participating vendors.

VI. REVISIONS TO THIS STANDARD

This Green-e National Standard is considered a dynamic document and may change over time to accommodate changes in the renewable energy marketplace, policy changes that affect renewable energy, and/or innovations in renewable energy technology. For any substantial changes to the Green-e certification criteria document, the Green-e Program commits that:

1. Stakeholders will be solicited in advance of Green-e Governance Board meetings for input on substantive policy change issues; and
2. At least one year of notice (following the date of announcement of Board approval) will be granted to utilities, green power marketers and other stakeholders before the substantive changes go into effect, unless a more timely change is necessary to respond to a significant and imminent problem threatening the integrity of green power markets.

Marketers of Green-e certified products may petition Green-e for an exemption from specific changes in the criteria if they can document current contracts or other conditions that prevent them from meeting the change. Products that are granted criteria exemptions will be noted on the Green-e web site, and the exemption must be noted to customers in the Terms and Conditions in a clear manner (e.g. “25% of the renewable energy content of this product is supplied by facilities put online prior to 1997”).

Changes that are not limiting to marketers of Green-e certified products (i.e. will impose no burden on currently certified products) or need to be implemented in the short term to accommodate external policy changes may take effect immediately upon Board approval.