Green-e Energy

Terms of Reference

Green-e Renewable Energy Standard for Singapore

Version 1.0

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CRS center for resource solutions

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Table of Contents

Introduction

As part of the standard setting process, Center for Resource Solutions ("CRS"), which administers the Green-e™ Energy certification program, has developed this Terms of Reference ("TOR") document for the Green-e Renewable Energy Standard for Singapore ("Standard for Singapore"). This TOR lays out the key issues that the Standard for Singapore would address, including market need, sustainability, comparison to and compatibility with other existing relevant standards, implementation risk and how to address such risk.

Comments on the TOR may be emailed to comments@resource-solutions.org, with the subject header "Singapore TOR Comments."

Scope of Work

The Scope of Work section provides an overview of how the Standard for Singapore is meant to operate.

Objective

To help develop and standardize the ability to purchase renewable electricity and provide market demand for environmentally preferable generators, and to make the voluntary market for renewable electricity purchasing more trustworthy and stable for future investment.

End Use

Users of the Standard for Singapore will be sellers of renewable electricity or energy attribute certificates (EACs), and electricity consumers that choose to obtain renewables directly from a generator. Sellers will use the Standard for Singapore to guide the creation of renewable energy product offerings and to support marketing claims related to renewable electricity use.

The Standard for Singapore tracks the chain of custody of renewable electricity and EACs to ensure ownership, use, eligibility under the Standard, and that what was promised to the customer is what was delivered. It also requires that marketing materials meet clarity and quality rules.

Market and Geographic Scope

The Standard for Singapore will apply to the retail electricity market in Singapore, specifically to renewable electricity sellers and to electricity users in Singapore that have electric load in Singapore. All electricity generators must be located in Singapore as well. There is the potential for a larger regional renewable electricity market and corresponding certification criteria, based on stakeholder feedback and further assessment.

Summary of Criteria and Indicators

Criteria that apply to electricity generators include that generators:

A. May only use certain resource types, and certain of those types require extra sustainability screening (e.g. biomass if it is included in a future version of the Standard for Singapore).

B. Must be built relatively recently, to incentivize new renewables.

C. Cannot have been built in order to meet a binding requirement / law, nor can their generation be used toward such a requirement.

D. Must be located within Singapore.

E. Must provide electricity / EACs generated within a certain timeframe related to when the renewable energy was sold / used.

Certified renewable electricity programs / renewable energy products use the output of eligible generators (see above), and also must meet separate criteria, which include:

F. Programs must be marketed and disclosed accurately and clearly.

G. Sales must be audited annually.

H. Marketing materials are reviewed at least once per year.

Implementation Risk Assessment

The following factors could have a negative impact on the ability of the Standard for Singapore to achieve one or more of its outcomes:

A. Lack of interest / willingness among consumers beyond the first group of multi-nationals that use Green-e certified renewables in the U.S. and Canada already.

B. Development of a similar program by the Singapore government or another body already in Singapore.

C. Consumers not valuing the role that Green-e would uniquely play, such as providing extra market support, preservation of purchase impact through scrutiny of Singapore policy, disclosure and consumer protection, claims review, and consumer education.

D. Development of specific policies or laws by the Singapore government that would conflict with a user's ability to purchase or claim the use of renewable electricity.

E. Difficulty in enforcing the ownership of environmental attributes if the legal and regulatory system does not recognize EACs as the legal right to those attributes.

The following unintended consequences could arise from implementation of the Standard for Singapore and Green-e Energy certification in Singapore:

F. Residents of buildings that have solar installed may not want the solar electricity generated to be sold to others.

G. Alternatively, if the concept of environmental attributes is not well understood, residents of buildings that have solar installed but who have chosen to sell their attributes might not understand what they are giving up, resulting in double claims and risk to the market.

H. Demand could outstrip supply, given Singapore's small geographic area relative to its electricity consumption.

The following possible corrective actions could be taken to address these potential risks:

I. Extra requirements around disclosure, verification and/or rules for generators located on buildings.

J. Education around environmental attributes and renewable energy claims, as well on the roles of different market players.

K. Discussion with government and other stakeholders, regarding EACs and ownership, encouraging new build-out of capacity and the potential for imports from other countries in the region. (Including the potential for future regional certification criteria and regional market for EACs)

Desired Outcomes

Social

Consumers have the option to choose to use renewable electricity in place of their standard electricity service, and can make an informed choice. Consumers feel empowered, gain trust in green purchasing and ecolabels, and seek green products in other aspects of their lives as well.

Environmental

Renewable electricity capacity is added in Singapore more quickly than without voluntary purchase of renewable electricity, leading to fewer overall power plant emissions from the electricity sector.

Economic

Demand for renewable generators increases more than it would without voluntary purchasing, leading to faster development and better economic outcomes. The sector is seen as more stable and attracts more investment.

Standard-Setting Process

Green-e Energy's general standard-setting process is available online at www.green-e.org/about/standard-setting. Development of the Standard for Singapore will follow this process.

During stakeholder comment periods, details on how to comment will be posted at www.green-e.org.

Timeline and Opportunities to Comment

- First 60-Day Stakeholder Comment Period: November 29, 2016 – January 27, 2017 (all stakeholders are welcome to comment)
- Internal review of comments and follow-up with stakeholders as needed: February 2017
- Discussion with advisors and Green-e Governance Board: March-May 2017
- Updated draft of Standard for Singapore created based on stakeholder and Board feedback: June 2017
- Second 60-Day Stakeholder Comment Period: June 29 – August 29, 2017
- All stakeholders are welcome to comment Review of comments and follow-up with stakeholders as needed: September 2017
- Discussion with advisors and vote by Green-e Governance Board: September-October 2017
- Final Standard for Singapore created and published: November 2017

Needs Justification Study

Assessment of Sustainability Issues

The most important sustainability issues falling within the scope of the Standard for Singapore are:

A. Avoiding power plant emissions.

   a. Avoiding carbon emissions in particular, where legally possible.

B. Using renewable resources that have no / lower impact.

C. Meeting new electricity capacity growth needs with renewables.

D. Consumer protection and education for informed choice-making, to encourage use of renewables and achieve the above sustainability impacts.

E. Continual assessment of relevant policy issues in Singapore, to maintain the above sustainability impacts as part of the program.

Determination of the Need for a Green-e Standard for Singapore

Deregulation of the electricity market is underway in Singapore, from a market with a single default provider to one with full retail supplier competition. Currently, only non-residential customers that use over 2,000 kWh per month may choose their electricity provider and choose renewable electricity. Other customers may only purchase electricity from Singapore Power Services. In 2018 residential customers will also be able to choose their electricity supplier and product type. Green-e Energy's consumer protection and product disclosure rules, in addition to its environmental criteria, will help consumers understand their options and make informed choices, increasing trust and stability in the market, leading to more ongoing market demand assurances for generators and more investor confidence.

An active and dependable voluntary market will direct more voluntary investments toward renewables to make them more competitive with traditional resources, which is especially important since Singapore doesn't subsidize

renewables. This also helps drive more renewable capacity to be built sooner, and a quicker start to avoiding long-lived greenhouse gas emissions.

Companies that have made commitments to using renewables will be able to meaningfully meet those goals sooner, allowing them to serve as role models and move forward with addressing other sustainability issues sooner. Many large companies, both local and international, have server farms, manufacturing facilities and headquarters in Singapore.

There are currently no programs that address all of these needs in Singapore. Those that address some of them can be used to make the Green-e Standard for Singapore function more efficiently and without duplication (tracking systems in particular). Other programs (e.g. Green Mark, Green Label) will be able to use the voluntary market to further incentivize green power purchasing and the sustainability of the products that they certify.

Other Relevant Standards and Programs in Singapore

This section evaluates current relevant standards in existence in a similar market or space in Singapore, and compares them to the Green-e Standard for Singapore.

There are no standards or programs that exist or are known to be in development in Singapore that already offer the same collected benefits as Green-e. However, there are existing standards and programs that could either be used to accelerate the implementation of Green-e or would benefit from the presence of Green-e in Singapore.

Renewable Energy Tracking Systems

Tracking systems use electricity generation meter data to issue a tradable certificate as proof of generation of 1 MWh of electricity from a variety of renewable resources. Examples of tracking systems that are accessible in Singapore or might be in the future are IREC, TIGRS, and GECCO. The certificates can be traded to an end-user of electricity as proof that the end-user is consuming the renewable electricity put onto the grid, and that no other user on the system is consuming that same renewable electricity.

Green-e Energy certification includes a verification component that can make use of certain tracking systems for a part of the process. Only a subset of certificates tracked by a tracking system would meet the Green-e Standard for Singapore, as it contains rules on environmental quality, consumer disclosure/protection and market development impact that tracking systems do not capture. By tracking only certificates, tracking systems do not validate transactions for electricity and certificates from the same generator, when either bought from the generators directly or from a third party, while Green-e does have this ability. Therefore, tracking systems assist Green-e with its mission and function, but do not serve as a substitute for certification of renewable electricity programs and certificates.

Carbon Offset Standards

Examples include the Verified Carbon Standard and the Gold Standard. Renewable electricity generators may register with a carbon offset standard in order to create and sell offsets from their generation rather than generating tradable certificates. It is generally accepted practice that a renewable electricity generator cannot create and sell both a carbon offset and a certificate from the same MWh of electricity generation.

Carbon offset standards denominate and track offsets from renewable electricity generation using only the carbon value of the generation, and do not also track the other attributes of generation (such as the avoidance of other types of emissions). Because of this, purchasing an offset from a renewable electricity generator does not allow a customer to claim that they are consuming renewable electricity. Therefore, carbon offset standards do not serve the same function as renewable electricity certification, and do not take the place of a renewable electricity tracking system.

Environmental Pledges, Such as Kyoto and Paris

Such pledges seek to reduce total carbon emissions across all sectors of a country's economy. All carbon emissions are typically captured, and the effects of all programs and emissions reductions are counted toward the overall goal.

Counting emissions from generation of renewable electricity toward such a goal does not inherently result in any one electricity user being able to say that their electricity use is cleaner / lower-carbon. Claims and emissions per MWh are still related to laws and rules specific to the Singapore electricity market, including disclosures by the Singapore Energy Market Authority ("EMA"), which does not currently publish data that is meant to be used for making claims related to the resource mix of a Singapore consumer's electricity use.

Green-e would be able to provide aggregated data on voluntary renewable energy usage to relevant Singapore agencies, such as the EMA, in order to support the calculation and publication of data that could and should be used by electricity users to understand and disclose the actual resources used to generate their electricity. In this way, certification helps to further clarify the allocation of emissions under the overall Paris goal, and helps to avoid consumer confusion and double counting.

Singapore Building & Construction Authority's Green Mark Certification

This green building standard offers points toward certification for buildings that install renewable electricity capacity that replaces some amount of grid electricity use.

Green-e could help ensure that the building is actually using its solar power and is not selling off the solar power or generation attributes to another party (which would result in a double claim on the solar power and undermine the presumed intent of Green Mark). Likewise, if only a portion of the installed capacity is earning points for the building, Green-e could help certify the sale of the excess generation, to avoid confusion.

Singapore Green Label

Green Label certifies manufactured products such as dish detergent, items with solar cells and cement. It does not certify green power programs. Green-e Energy certified electricity could eventually be used by Green Label certified products to demonstrate another dimension of environmental leadership.

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