Regulator's Handbook on Tradable Renewable Certificates

June 2003

Jan Hamrin, Ph.D
Center for Resource Solutions

Meredith Wingate
Center for Resource Solutions

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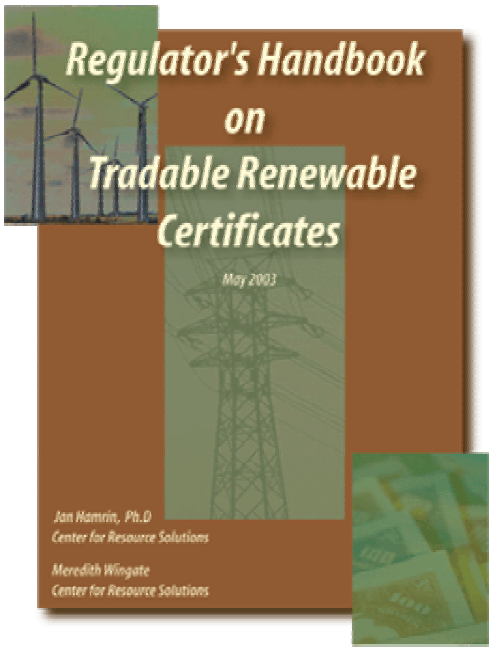

Regulator's Handbook on Tradable Renewable

"This Handbook is the first resource to provide a comprehensive discussion of the regulatory issues surrounding utility regulation and the renewable certificate market."

Jan Hamrin, Executive Director of CRS and one of the primary authors.

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Center for RESOURCE SOLUTIONS

REGULATOR'S HANDBOOK
ON
TRADABLE RENEWABLE CERTIFICATES

June 2003

Authors
Jan Hamrin, PH.D
Meredith Wingate

Cover Design: Këri Bolding

Center for Resource Solutions
Presidio Building 97 Arguello Blvd.
PO Box 29512
San Francisco, CA 94129
415-561-2100
415-561-2105 (fax)
www.resource-solutions.org

Printed on recycled paper

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Finally, we thank the project funder for its generous support that enabled us to produce this work.

DISCLAIMER

Throughout the development of this Handbook, various members of the NARUC Energy Resources and the Environment Subcommittee/Staff Subcommittee provided substantive and editorial comments and suggestions. The views and opinions expressed herein are strictly those of the authors and may not necessarily agree with positions of the NARUC.

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FOREWORD

Tradable Renewable Certificates (TRCs), the non-energy attributes of renewable energy, are an important vehicle for the development of renewable energy resources. As we continue to experience the detrimental effects of other types of generation, TRCs are providing a breath of fresh air.

As regulators and advocates for our citizens, we must continue to practice financial and environmental stewardship. The Center for Resource Solutions has worked diligently to bring forth an excellent tool, the Handbook on Tradable Renewable Certificates, for meeting these responsibilities.

The Handbook is an excellent reference and a useful tool for regulators, state energy offices, Attorneys General and consumer advocates. It provides, in an easy to understand way, the Basic Principles and Best Practices in the use of TRCs. As consumers continue to clamor for clean energy choices and as developers rely on cash flows from TRC sales, it will become increasingly important to understand and address these issues.

This Handbook provides valuable direction for issues we face, such as pricing green power, fostering renewable resource development, implementing renewable portfolio standards, and ensuring accurate environmental disclosure. In addition to addressing these issues, the Handbook identifies regulatory issues that would benefit from further discussion and recommendations from the regulatory community.

As markets for green power develop, regulators must ensure that these markets function in an effective manner. Consumers must have confidence in the integrity of the product claims. Developers and purchasers of renewable resources must have a platform for transparent and fluid transactions. This Handbook will facilitate the development of these markets.

This Handbook provides information to renewable energy decision-makers regarding the development of the rapidly growing TRC market in the US and worldwide. We must embrace and support this community of decision-makers.

This Handbook recognizes the value of your time. The electronic version of the handbook has hyperlinks from the Table of Contents allowing users to go directly to specific sections that are relevant to the reader's interest. There are also hyperlinks from the text to the Glossary that allow the user to access the definition of new terms found in the text and then jump right back to the text and continue reading. The hard copy version is in loose-leaf binder format with tabs for easy reference. As Chair of the Energy Resources and Environment Committee, I am pleased that NARUC is participating in the distribution of the Handbook.

TRCs are an exciting new tool that can provide a wonderful benefit for the further development of renewable generating facilities if applied in a responsible and thoughtful fashion. The Center for Resource Solutions has worked closely with the regulatory community to produce this tool

and I am sure that we will be able to look back at some point and see that it assisted us in our goal of protecting the environment in a fiscally responsible manner.

Roy Hemmingway
Chairman
Public Utility Commission of Oregon

HOW TO USE THIS HANDBOOK

This handbook is divided into sections[1] that can be read sequentially or referred to individually when particular issues arise. It is intended to be a dynamic document that will accommodate new material as the market evolves and circumstances change. This first edition of the TRC Handbook for Regulators contains the recommended Best Practices and the authors' best thinking given domestic and international experience to date with tradable renewable certificates (TRCs). The "Best Practices" contained in the Handbook came from a variety of sources: (1) the result of a national stakeholder decision-making process organized by the Center for Resource Solutions, (2) a national dialog facilitated by the National Wind Coordinating Committee, (3) case law, (4) practices commonly adhered to by market participants, (5) National Association of Attorneys General Green Marketing Guidelines, and (6) the author's opinions based on all of the above and generally held tenets regarding consumer protection and green power marketing. In some cases, there are topics where specific regulatory Best Practices or principles still need to be developed. Other issues are very sensitive to local conditions, so beyond Basic Principles, no specific recommendations can be made. In these cases, a series of questions are identified to help guide the decision-making process. We expect that Regulators will develop their own Best Practices for many specific regulatory issues that are just now emerging, and those can be added to the Handbook at regular intervals.

Section I offers general background information on renewable energy certificates: What they are, and how they are used.

Section II provides some illustrative examples of situations where TRCs intersect with utility regulatory decision-making and oversight responsibilities. Possible regulatory approaches to each of the illustrative examples are presented.

Section III discusses property rights of TRCs, including ownership at point of inception, transference of property rights, banking and retirement of TRCs. This Section also covers the regulatory applications of TRC property rights including ownership of TRCs with existing and new contracts, net-metering, leasing, and on-site generation. It also discusses regulatory jurisdiction over TRCs and laws governing TRC transactions.

Section IV offers guidance on ratesetting, ratepayer value, and tariff recovery related to TRCs.

Section V discusses consumer protection issues, including double counting, disaggregation of attributes, marketing practices, vintage of TRCs sold to consumers, sales of future TRCs, and environmental disclosure.

[1] The electronic version of the Handbook allows the reader to jump directly from the Table of Contents to any section individually listed, to jump from an italicized word in the text to the Glossary and back again, as well as to jump to italicized Handbook section references in the text simply by double clicking the curser.

Section VI discusses the use and double use of TRCs to satisfy federal or state mandated renewable energy programs or to be used as a compliance-tracking tool for such programs. It also discusses the nexus between public benefits funds, green pricing programs and TRCs.

Section VII provides guidelines for the development of certificate accounting systems and their use of fulfill audit and verification responsibilities. This section also addresses the importance of coordination with other regulators, greenhouse gas registries and state and regional certificate accounting systems.

Section VIII provides a summary of the Best Practices recommended throughout the Handbook.

Each of these Sections is complete as a reference guide for each topic. Each Section begins with a list of topics covered in the Section. A discussion of issues and recommendations follows. Terms are defined in the Glossary. Each Section concludes with a summary of the Best Practices and a list of references and other Sections to go to for more information. New subtopics may arise in the future and be added into the issue area as appropriate.

The Appendices include tools that offer additional TRC information:

Appendix A: Glossary of Terms

Appendix B: Useful References and Web Links

Appendix C: Sample Contract Language

It should also be noted that this Handbook takes no position implicit or implied with regards to regulation versus competition or the formation of Regional Transmission Organizations versus control areas.

BASIC PRINCIPLES

The following set of Basic Principles is used throughout the Handbook to guide thinking about the issues discussed. These Basic Principles have been thoroughly discussed and agreed upon by a wide variety of stakeholders in the consensus processes described above. They also represent the prevailing practice in the marketplace.

1. There is only one set of attributes associated with any increment of power and those attributes are represented by a TRC.[2]

2. The attributes associated with any increment of power may be unbundled from the associated electricity and bought, sold, transferred or traded separately from the associated electrical energy.

3. TRCs are created at the time power is generated whether a TRC is officially issued by an institution or not.

4. The attributes of a particular TRC are a function of the characteristics of the generating facility at the time the associated power was generated. The geographic location of a generation facility, time of generation, type of technology and fuel all affect the type and quantity of the environmental, economic and social impacts represented by the TRC in claims to the consumer.

5. The property rights to those attributes (TRC) belong to the owner of the generation facility and may be transferred by contract or sale, temporarily transferred through a loan, or retired permanently.

6. Retirement of attributes may be voluntary, through authorization of the owner of the attribute, or involuntary, though the use of the certificate in a regulatory or accounting program.

7. At any point in time, only one entity may claim the attributes (TRC) from a specific output of generation.

8. TRCs may be used for more than one purpose by the owner of the TRC (a single entity) if the laws or rules of particular programs and program administrators allow the double-use.

9. A TRC represents more than just the environmental benefits of renewables; it is the sum of all the benefits of renewable energy, known as attributes, even though there is not currently a market for most of these benefits. Individual attributes may be disaggregated from the bundle, or the TRC, and sold separately.

[2] / TRCs are generally issued in MWh blocks but the principle is the same regardless of the size of the TRC denomination – i.e. there is only one set of attributes associated with any increment of power generated.

10. Consumers, including utility ratepayers, should receive the right to claim all of the benefits associated with the renewable products they are purchasing.

11. Consumers of TRCs should be provided the information necessary to make an informed choice.

SECTION I. INTRODUCTION

1.1 Topics Discussed in this Section

- Definition of TRCs
- Uses of TRCs
- How TRCs differ from retail electricity products

1.2 Introduction

A Tradable Renewable Certificate (TRC)[3] represents the separable bundle of non-energy attributes (environmental, economic and social) associated with the generation of renewable power. TRCs are sometimes also referred to as green tags, green tickets, renewable certificates, RECs (renewable electricity certificates or credits), and T-RECs (tradable renewable energy certificates). For the purpose of this Handbook, and because some of these names are related to very specific programs or are trademarked, we will use the term TRC. The purpose of this Handbook is to help regulators become familiar with how TRCs interact with electric utility regulatory tasks, the benefits and limitations of TRCs, and the Best Practices to date for addressing common TRC issues.

TRCs are used in many different contexts for different purposes. This fact sometimes creates confusion for those unfamiliar with the full range of their use. TRCs are generally sold separately from their associated energy in wholesale markets. In retail markets they may be sold separately as an independent "product" or may be combined with electrical energy at the point of sale to create a renewable electricity offering. In several U.S. States, Europe and Australia, TRCs are used as an accounting tool to measure and track renewable generation.[4] In such an application, a TRC is created for every unit of renewable electricity output (usually denominated in MWh) and no more than one TRC can be created for any given MWh. TRCs are used in both retail and wholesale electricity markets, by environmental and utility regulators to demonstrate compliance with state mandates and other energy programs, and in pollution trading markets. New uses are being developed for TRCs as electricity markets evolve and as savvy businesses create new ways to sell and finance renewable projects. For this reason, TRCs represent an exciting and dynamic regulatory challenge.

It should be noted here that the concept of TRCs has been expanded in the Northeast to include all forms of electricity. In this context, market participants use the terms 'generation attributes' or simply 'certificates' to refer to the fact that the attribute or certificate can represent other forms of electric generation, other than renewable.

[3] An italicized term is one that is defined in the Handbook Glossary.
[4] Not all of these states and countries use the term TRC. Regardless of the name, the accounting systems perform similar functions.

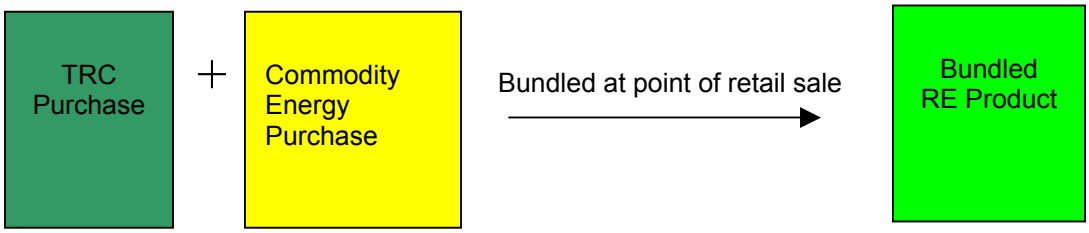
1.3 Uses of TRCs

Currently, there are five primary uses for TRCs in electricity markets. For all these uses, the TRC creates a unique and verifiable claim to renewable generation attributes.

Wholesale Market Trading Tool: As noted above, TRCs are commonly used in wholesale markets to facilitate renewable electricity trading. Instead of selling bundled renewable energy through bi-lateral contracts that require scheduling and transmission, TRCs are sold separately from the electricity on the wholesale level.[5] The renewable generator can schedule their electricity generation with the local system operator according to contracts that exclude the attributes, or sell into the spot market. In this case, the renewable generator has created contracts for the energy without the TRCs. From a renewable generator's point of view, the creation of a TRC helps to clearly establish their property rights and ownership of the TRCs, which they can cede or sell to another party.

Renewable Purchasing and Trading Tool for Retail Marketers: TRCs are commonly used by renewable marketers to meet the renewable obligation in their retail green electricity products. Renewable providers purchase TRCs and combine them at the point of sale with generic system electricity to create a renewable electricity product that is sold at the retail level. For many marketers who are unwilling or unable to enter into long-term energy contracts with renewable generators, this is a simpler and easier way to procure renewable electricity and it reduces the problems associated with scheduling and delivering power with intermittent resources and a small customer base.[6]

Figure 1. TRC Use in Renewable Electricity Products



- **Retail TRC-only Product:** TRCs are also sold separately from electricity as a stand-alone product. There are currently at least thirteen companies that are featuring TRCs as a stand-alone product. These types of products are frequently marketed on the Internet by independent companies not serving electricity load. TRC-only products may also be sold in conjunction with the utility in lieu of a green pricing program in both monopoly and competitive markets. The creation of a TRC establishes property rights and creates a currency that can be bought or sold

[5] TRCs are associated with energy, not capacity.
[6] This is particularly true if the product being marketed is 100% wind or solar.

individually from electricity by end-use customers. Please see Appendix B for a list of references where you can find a list of TRC products and marketers.

Used for Pollution Allowance or Compliance Purposes: For a TRC to be used in a pollution market, it must be converted from an energy tool measured in MWh to a pollution tool, denominated in pounds of pollution or avoided pollution.[7] Although there are few examples in the U.S. where a TRC has been converted into a pollution allowance or pollution credit for environmental compliance purposes, TRCs are regularly used by large companies and other organizations that want to voluntarily reduce their emissions profile, or boast of a climate neutral footprint. In addition, there are indications that TRCs may be used in the future in state or federal emissions trading programs.

One important point to note, however, is that a TRC may be used in energy markets OR converted to pollutions allowances but not both simultaneously unless explicitly allowed in the law or rules governing the programs. Under current market practices, only "whole" TRCs are being sold; therefore, to use a single TRC for both purposes would be double counting. In the future, it is conceivable that a TRC could be disaggregated, or subdivided such that a portion of the TRC could be used as a pollution allowance, and the remainder could be sold in energy markets. However, at present time, disaggregation of TRCs is not recommended. See Section 5.3 – 5.4 for a discussion of double counting and disaggregation of TRCs.

Accounting and Verification Tool: TRCs are also used as a generation attribute accounting mechanism for states implementing an RPS or calculating the system mix for consumer disclosure requirements. TRCs may also be used as an accounting tool to support retail claims for differentiated "green" products, i.e. to verify that a supplier purchased the renewable energy claimed to consumers. In these instances, the TRC is created as a tracking and accounting tool to show the environmental and other characteristics of the electricity that has been generated and sold. By issuing a unique certificate for every MWh or every renewable MWh and then tracking that certificate from source to sink, state regulators can easily determine whether a utility has met its renewable mandate and what types of generation should be reported on environmental disclosure labels. TRCs can perform this function whether or not they are transacted separately or bundled with electricity. As described above, TRCs exist outside of regulatory programs, though often times accounting systems that are used to monitor compliance with regulatory programs are the mechanism that validate the existence of a TRC, establish property rights, and in some people's view, make the TRC "real" by giving it a serial number or some other unique identifier. NARUC passed a resolution supporting the development of attribute-based tracking systems. A reference to this can be found in Section 1.7.

[7] Depending upon the pollution allowance or credit being calculated, there may be the need for information on the date and time of generation, geographic location of the generator, as well as the control area within which the energy was generated and sold.

1.4 How TRCs Differ from Other Renewable Energy Offerings

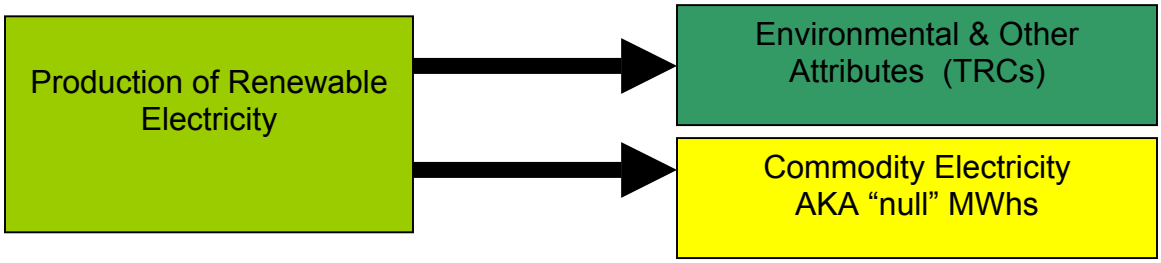
Electricity from renewable resources can be purchased from utilities or competitive electric service providers and charged as part of a customer's electricity bill. Usually, renewable electricity is not delivered to the customer's location. Instead it is generated and supplied to the grid that serves all customers in the region. In effect, the green power customer is paying for the benefit of displacing other non-renewable sources from the regional electric grid. TRCs carry all the non-electricity characteristics of renewable power and are produced in the same quantity as the production of electricity from the facility. In this sense, purchasing TRCs has the same general environmental benefit as purchasing renewable electricity.

TRC-based electricity products are different from standard renewable electricity products because with certificates, marketers are not restricted by the physical transmission of electricity. TRCs from outside the customer's control area may be combined at the point of sale with in-pool electricity to create a TRC-based renewable electricity product without having to wheel the energy from where the renewable energy facility is actually located. Some states or programs may restrict this practice. Generally speaking, TRCs make it feasible for consumers to support renewable power located at greater distances than with traditional electricity supplies because TRCs have no inherent geographic boundaries. In such circumstances, the renewable energy and the financial support for renewable energy are the same as regular renewable power sales, except that the renewable generating facility that is being supported may be located in a different control area, across the country, or even outside the country.

TRCs also may be sold alone, without electricity. As described above, TRC-only products are a recent development in renewable markets. There are currently about thirteen suppliers that are selling unbundled TRCs separate from retail electricity. This development has important implications for utility and environmental regulators.

The following diagram shows the relationship between TRCs and renewable electricity.

Figure 2. Relationship between Renewable Energy, TRCs, and Commodity Energy



1.5 How TRCs Relate to the Environmental Benefits of Renewable Generation

The specific local environmental impacts of an individual consumer's renewable energy purchase may vary depending on whether TRCs are used or not. Delivered electricity products typically result from renewable generation facilities located in the control area of the customer or result from renewable generation being wheeled into the control area of the customer. In either case, conventional electricity in the customer's control area is displaced thereby creating local[8] air pollution benefits. When TRCs are sourced from generation within the customer's control area they result in the same local air quality benefits as delivered energy products.[9] When TRCs are sourced from outside of the customer's control area however, they result in similar global benefits[10] as delivered energy but produce local environmental benefits in the control area where the generation occurs.

1.6 New Issues and Opportunities Created by TRCs

As with any new product or commodity, there are issues and problems that need to be resolved for a market to develop. Like currency, TRCs can be sold, banked, borrowed or loaned. This flexibility creates important market opportunities, but without careful tracking and verification, TRCs can lead to problems. Double counting can be a problem for both TRCs and renewable energy in general. However, because of the less tangible nature of TRCs, the risk of double counting may be greater than for regular power sales unless their sale and use is closely monitored. Because of a general lack of regulation and the fact that there is not a physical commodity being delivered, there is potential for misleading product claims. Furthermore, existing verification methodologies and accounting systems may not be adequate to handle all TRC transactions. As a result, the development of a consistent system for registering and verifying TRCs will serve both the electricity and TRC markets. See Section 5.3 for a discussion of double counting and Section 7 for a discussion of TRC Accounting Systems.

The next section includes some specific examples of why electric utility regulators should care about TRCs and some recommendations for approaching these issues.

[8] Local is defined as within the customer's control area.
[9] The term "local" has no universal definition, and it is incumbent upon regulators to define it. It should also be noted that TRCs have no inherent geographic boundary, but regulators may impose a geographic boundary on TRCs or TRC markets.
[10] By global benefits, we primarily mean global greenhouse gas reduction.

1.7 For More Information

For a more detailed discussion of what TRCs are, and how they are used:

Green-e website: http://www.green-e.org/

Green Power Network: http://www.eere.energy.gov/greenpower/certificates.shtml

For more information about how renewables may be used in emissions trading markets:

NWCC Credit Trading and Green Power Marketing Working Group, "Credit Trading and Wind Power: Issues and Opportunities." February 2002. Available at: http://www.nationalwind.org/workinggroups/credit/default.htm

Wooley, David. "The Clean Air Act Amendments of 1990: Opportunities for Promoting Renewable Energy" National Renewable Energy Laboratory, December 11, 2000, Technical Report NREL/SR-620-29448. Available at: http://www.nrel.gov/docs/fy01osti/29448.pdf

Wooley, David. "A Guide To The Clean Air Act For The Renewable Energy Community," published by the Renewable Energy Policy Project, Washington, DC, March 2000. Available at : www.repp.org

NARUC "Resolution to Support the Incorporation of Regional Energy Generation Tracking Systems in ISO/RTO Responsibilities and in FERC's Standard Market Design," http://www.naruc.org/Resolutions/2002/summer/ere/tracking_systems.shtml

For a list of TRC products and marketers:

Green-e website: http://www.green-e.org/your_e_choices/trcs.html

NREL Green power network: http://www.eere.energy.gov/greenpower/certif_summ.shtml

For information on the use of certificates as a verification accounting tool:

Hamrin, Jan and Meredith Wingate, " Developing a Framework for Tradable Renewable Certificates, Version 2.4." August 2002. Available at: http://www.resource-solutions.org/TRCAAIB.htm

SECTION II.WHY REGULATORS SHOULD CARE ABOUT TRADABLE RENEWABLE CERTIFICATES?

2.1 Topics Discussed in this Section

- Implications for utility regulators
- Hypothetical examples of situations where the TRC market intersects with utility regulatory functions

2.2 Implications for Utility Regulators

Though TRCs are not technically electricity, they are so closely associated with electricity and electricity sales that they intersect with electricity regulation in many different places. TRC purchases and sales by regulated utilities may:

- Influence rate-setting policies,
- Affect ratepayer value,
- Affect the success of renewable programs to meet their goals, such as RPS or incentive programs paid for through system benefits charges,
- Overlap with environmental regulation,
- Overlap with state or Federal renewable energy programs such as an RPS, green pricing programs, or competitive renewable electricity markets
- Create legal issues related to the property rights of renewables, both with new contracts held by utilities and existing PURPA contracts.

The following are some real examples where TRCs intersect with electric utility regulation. The examples are meant to demonstrate how TRC issues intersect with utility regulatory issues. This is an illustrative and not exhaustive list of examples.

2.3 Hypothetical Examples

2.3.1 Ownership of TRCs When a Utility Is Buying Commodity Energy From a Renewable Energy Facility

Utility X is buying wind energy to comply with a state renewable mandate or RPS policy. Although the wind generator is selling their energy to Utility X, the generator has also sold the associated TRCs to a marketer. The marketer is selling these TRCs to retail customers in

another state as part of a green power product. The generator's contract with Utility X is silent on the disposition of the attributes associated with the wind energy purchased.

a. *To whom do these certificates belong: the generator, the utility buying the power, the marketer or the out-of-state retail purchaser of the TRC?*

Discussion: Basic Principle #7 dictates that at any point in time, only one entity may own or claim the attributes (TRCs) from a specific output of generation. In this example, the issue of ownership may have arisen because neither party anticipated there would be a separate market for renewable energy attributes at the time the contract was signed or because each party assumed they held the property rights to the renewable energy attributes and did not include such language in the contract. If there is no specific contract language specifying that the property rights to the TRCs were sold with the power, the general contract language may imply that the attributes are included. Does the contract specify "Wind Energy" or is it simply a contract for non-resource-specific kilowatt-hours?

Best Practice: If the contract is not clear, ask the parties to renegotiate the contract to stipulate who owns the TRC property rights. This problem can be avoided by making sure all renewable energy contracts stipulate the exact disposition of the renewable attributes or TRCs. See Section 3.5 for a discussion of contracts and property right issues. See Appendix C for sample contract language.

b. Should the energy purchased by Utility X be allowed to count toward compliance with the state's renewable energy mandate if the TRCs are sold to a third party?

Discussion: If the state mandate rules require or assume that TRCs used to comply with the mandate (RPS) are retired, then either Utility X can use the TRCs to comply with the State's mandate OR the wind facility owner can sell the TRCs to someone else BUT NOT BOTH. Otherwise, multiple parties will be laying claim to the same property, and there is the potential that a single TRC could be used to meet multiple state mandates. Therefore, in this example, the utility has not fulfilled its RPS requirement because it has, in effect, purchased the equivalent of system power. If contract terms imply the purchase of 'wind energy,' then the marketer may not have rights to the TRCs.

Best Practice: RPS rulemaking language should specify that the RPS requirement could be discharged only if the TRCs are included in the renewable energy purchase.

2.3.2 Use of TRCs to Satisfy a State Renewable Mandate

Should regulators allow utilities or marketers to purchase TRCs without associated energy to meet their renewable energy mandate?

Discussion: The allowance of unbundled TRCs to meet a regulatory mandate has three important ramifications. One, the use of TRCs allows a utility or marketer to meet the mandate more easily with renewables sourced from outside of the state, region, or country.

Second, the use of TRCs requires a robust method to ensure that no double selling or double-use is occurring. Finally, using TRCs in regulatory programs can bring benefits, such as creating a more liquid market and helping to lower costs, creating compliance flexibility for utilities, and establishing an effective verification system.

On the first point, the question about whether or not TRCs should be allowed is very similar to whether or not out-of-state renewables should be allowed to meet the mandate. Is the goal of the mandate to create a local renewable industry, clean up local air, create a global warming benefit, hedge fuel price volatility, encourage fuel diversity, generate employment opportunities in-state, or some other reason? Regulatory intent should guide the extent to which TRCs from other states, regions or countries should be allowed to fulfill the mandate. To ensure that some local displacement occurs, state regulators may require some form of energy delivery from the source region to the state or local control area. It is important to note here that the wholesale exclusion of out-of-state, Mexican or Canadian TRCs could run afoul of the U.S. Commerce Clause and NAFTA and should be considered. See Section 3.9 for a discussion of Commerce Clause, NAFTA and GATT issues.

With regards to preventing double counting, there is a greater possibility with TRCs that they could be used by more than one company to meet a renewable mandate, or that they could be sold to more than one party. This concern can be easily managed by ensuring any TRCs used to meet an RPS are part of a robust certificate accounting system that prevents double-counting or double use from occurring. See Section 5.3 for a discussion of double counting and Section 7 for information on certificate accounting systems.

Best Practice: The decision to allow TRCs to meet a renewable mandate is largely dependent on the intent of the mandate, and the ability of regulatory agencies to prevent double counting, inappropriate double using or double selling. Using TRCs to meet a renewable mandate can, in many instances, meet the intent of the mandate and provide considerable administrative benefits. However, regulatory intent must be carefully considered.

2.3.3 TRCs from a Rate-Based Renewable Facility

Utility Y owns a landfill gas facility that is fully paid for by Utility Y's ratepayers. Utility Y is now selling TRCs from this same facility to a TRC marketer.

a. *Should the utility be allowed to sell TRCs from this facility?*
b. *If yes, should this utility's ratepayers be compensated from the revenue received from the TRC sales?*

Discussion: The question of whether or not a utility should be allowed to sell the TRCs from a facility that has been fully paid for through the general tariff is largely dependent on the ability of utility regulators to ensure that no double selling is occurring and ratepayers are compensated appropriately when necessary. If the utility sells the TRCs in this example, they are essentially getting paid twice for the same TRC: once from the ratepayers who are paying for the landfill contract, and once by the TRC marketer. If the regulatory body has a

mechanism to compensate or credit ratepayers for the additional revenue received due to the sale of the TRCs, then this action does not constitute a double-sale and should be allowed. In fact, it may benefit ratepayers if the utility can get a good price for the TRCs. However, if the regulatory body does not credit or otherwise compensate the ratepayers for the additional revenue, then the utility is getting paid twice for the same TRC and this practice should be avoided. Also, the utility should not be representing to its ratepayers that they are getting electricity from landfill gas (especially on a disclosure label) when the TRCs have been sold.

Best Practice: TRCs from facilities that are paid for through the general utility tariff become the property of the ratepayers, and accordingly, any revenue from the sale of such TRCs should be treated like an off-system sale and ratepayers compensated accordingly. In addition, it is necessary to subtract such attributes from any state disclosure or system mix calculation if applicable. See Section 4 for a discussion of ratesetting issues and Section 5.8 for environmental disclosure.

c. *Should the landfill gas facility still be allowed to count toward the utility meeting its renewable energy requirement?*

Discussion: Part of the answer to this question turns on the reason the renewables are included in the general utility tariff. Were they included as part of an RPS or other type of renewable mandate with an absolute or general target for renewables? Is there an air quality goal or a goal to increase the amount of renewable generation more generally? If so as with the example in Section 2.3.2, the TRCs may only be used for one purpose: Either they are used to comply with the requirement that caused them to be in the utility tariff OR they can be sold to someone else, BUT NOT BOTH. If the State requirement were a more general economic development motivated requirement, then the TRCs might be used for more than one purpose if allowed by the laws or rules of those particular programs and program administrators. Legislative or regulatory intent language may inform regulators as to the intent or goals of the regulation or legislation. This example also applies to publicly owned utilities (such as municipally-owned) that set overall renewables development targets or goals.

Best Practice: If the renewables are in the general utility tariff to meet an RPS or other specific state requirement placed on Utility Y, then the Utility either can use the TRCs to meet that requirement OR sell the TRCs and NOT use output from the landfill gas facility to count toward meeting that mandate. If the utility uses the output to meet their renewable energy requirement, they may NOT sell the TRCs to someone else.

If this state energy requirement is a more general economic development requirement, then the commission may allow the TRCs to be sold even though the renewable energy facility is credited toward meeting the state requirement. But, if the sale were allowed, the utility would no longer be able to claim to be purchasing renewable energy. See Section 6.3 for a discussion of TRC use in an RPS and Section 5.8 for environmental disclosure.

2.3.4 TRCs and Green Pricing

If Utility Y is selling the TRCs from a renewable energy facility that is being included in utility rates to its own green pricing customers:

a. Should that be allowed (is this double selling)?

Discussion: As with Section 2.3.3 above, this question is answered by asking who is paying for the renewable attributes? If the utility is recouping 100% of the costs of the facility from the rate-base and selling the TRCs, whether to their green pricing customers or to any other third party, then the utility is collecting twice for the same renewable energy attributes, once from ratepayers, and once from the green pricing customers. This constitutes a double-sale, as described in Section 5.3.1. If, however, the utility is only partially recouping their costs from the rate-base, then it is NOT double selling for them to recoup the remainder from their green pricing customers. An example of this is when a utility builds extra capacity on a speculative basis or for a green pricing program AND this extra capacity is not included in the general rate.

Best Practice: The authors' recommendation is to make sure that renewables used in a green pricing program are additional. Either the facility (or portion of the facility) being used for the green pricing customers should be taken out of the general utility tariff, or the general ratepayers should be reimbursed with the revenue received from selling the TRCs to green pricing customers. This is consistent with the Green Pricing Accreditation Criteria developed by the Center for Resource Solutions that suggests that the electricity for green pricing programs come from facilities that were not paid for through the general utility tariff.[11]

[11] The issue of whether new or existing renewables should be included in a green pricing product is not uniquely a TRC issue. However, it warrants mentioning here that generally accepted best practices, including the CRS Green Pricing Accreditation Criteria, include only new renewables in green pricing tariffs. The reason for this is that most existing renewables in a utility green pricing context are paid for through the utility's general rates, and therefore such renewables do not need additional support by green pricing customers. In addition, such renewables often do not provide a good value for the green pricing customer because the utility is not producing any additional renewable generation than what otherwise would have occurred.

However, there are instances where existing renewables may be appropriately included in a green pricing program. For example, in a product blended of new and existing resources the premium above the regular tariff would be used for the new renewable portion of the product and renewable resources that are not included in the utility's rates. where any premium above the regular tariff is used exclusively for the new portion of the product. Another example might be when the existing renewable generators in the state would close their doors stop operations were it not for the additional premium provided by the green pricing tariff. This is currently the case with some biomass generators who have lost their QF contracts, but require above-market rates to operate due to higher operating and fuel costs. The inclusion of existing renewables in a green pricing program should be evaluated on the basis of ensuring that green pricing customers are receiving a good value for any premium they may be paying and that their money is going to incrementally increase the supply of renewable resources.

2.3.5 Out-of-State TRCs Used to Satisfy an In-State RPS

Utility Z has purchased TRCs from a renewable energy generating facility in another state that it wants to use to satisfy a renewable energy mandate in its own state.

a. Should Utility Z be allowed to apply the certificates to fulfilling its mandate?

Discussion: A renewable mandate that strictly prohibits the use of all energy or TRCs from renewable energy facilities located outside the state (or in Canada or Mexico) would likely violate the Interstate Commerce Clause of the U.S. Constitution, as well as NAFTA and thus such language should be avoided.

Best Practice: Utility Z should be allowed to apply the purchase toward the mandate. When an RPS does not discriminate based on location, there is no vulnerability from the 'like product' analysis under the Commerce Clause, NAFTA or GATT. Careful definitions of 'eligible resources' can ensure that 'like resources' are treated the same. Another option is that state RPS rules could require that TRCs used for compliance include energy delivery into the state or power pool so energy and TRCs are bundled to the border. This would restrict TRC eligibility to nearby states, would ensure some in-state or in-system displacement, and would result in the same local air benefits as in-state generation. For more information on legal issues of the Commerce Clause, NAFTA or GATT, see Section 3.9.

To ensure against double counting, the utility commissions in both states should track the transaction to ensure that the state from which the TRCs originate is not treating the energy output from the facility as renewable (in terms of revenue, disclosure, mandate, etc.) since the TRCs have been sold off and are being claimed in another state. A well-designed certificate-based accounting system can assure no double counting has occurred and transactions are valid without the direct involvement of regulators. See Section 5.3 for a discussion of double counting and Section 7.8 for information on interstate coordination.

2.3.6 Verification of TRCs Used to Meet Retail Claims or RPS

Utility Z is buying TRCs that were generated out of state to meet its green pricing product claims or its renewable mandate.

a. How can the Commission verify that the TRCs are legitimate and are not being double sold, double counted, or otherwise claimed in some other state?

Discussion: There are a few ways to verify that the TRCs are legitimate and purchased in sufficient quantity to meet the demand or mandate they are claiming to meet: Either by (a) a careful review of the utility's contracts to ensure that the TRCs are transferred to the utility, and a corresponding audit to ensure that TRC purchases meet demand served; (b) a requirement that any outside purchases of TRCs or energy include independent certification by a third party such as Green-e; or (c) a combination of participation in a regional renewable energy registry and accounting system and some type of independent certification/audit of the demand served. The development of state and or regional TRC accounting systems is the

best way to ensure that TRCs are not double sold or double counted in any state. Since TRCs are moving between states and control areas and even regions, linking these regional systems into a national network creates a closed loop system. There are regional accounting systems operating in Texas, New England and Wisconsin and under development in PJM and in several western states.[12] A national accounting network is also being developed.

Best Practice: It is recommended the state utility commissions cooperate with other states in the region to support a regional (and national) TRC issuing and accounting system. In the absence of a national accounting network, utility commissions are encouraged to require contract audits and/or require certification of green pricing or green electricity products. See Section 7.3 for an overview of TRC verification methods and Section 7.8 for coordination with regional and national accounting systems.

2.3.7 TRCs and Environmental Disclosure

Utility Y is selling TRCs from a biomass facility that is fully paid for through the general utility tariff. The facility is located in your state and sold to a utility (or marketer) in another state. Your Commission has been charged with implementing and enforcing a new state disclosure label. Assuming that the issues of ratepayer compensation discussed in Section 2.3.3 are addressed,

a. Should this renewable energy output be claimed in Utility Y's disclosure label?
b. How should this sale be incorporated into the disclosure label in the other state?

Discussion: The way in which TRCs are handled on a utility disclosure label[13] is a state decision, but one that affects other states as well. In this example, Utility Y should not be allowed to report as renewable power the MWhs associated with the TRCs on any environmental disclosure or other utility system mix statement. The reason for this is that the renewable attributes belong to the marketer or utility in the other state, and therefore cannot be claimed by more than one party. As with Example 2.3.5 above, it is important that the two utility commissions communicate to ensure that the TRCs are counted only once, and this fact should be reflected in state disclosure labels. This presents another problem for the utility commission- how should the MWhs associated with the TRCs be represented on Utility Y's disclosure label, given the fact that there are no attributes associated with them. There are several ways that these MWhs can be accounted for. The method recommended here and the most common method is to ascribe the remaining system average to those MWhs for environmental disclosure purposes. Regulators should be cognizant of the fact that the method for calculating the state mix for environmental disclosure can severely limit the market for TRCs by effectively prohibiting their separation from the underlying

[12] There is an effort organized by the Westerns Governors Association to create a WECC-wide renewable certificate accounting system.
[13] We are referring here to the utility's resource portfolio claims that may be included on customer disclosure labels and in other official calculations of environmental impacts, diversity and so forth as a result of the combination of resources delivered into the system by the utility. A second type of disclosure label is the one used by the TRC marketer that describes the types of TRCs being purchased by a consumer.

electricity, whether used for state programs or not. For more information on this, please see Section 3.7.

Best Practices: In the opinion of the authors, the renewable energy output from Utility Y's renewable facility should be labeled as system power in Utility Y's resource disclosure label and labeled as renewable power (biomass) in the label of the entity to which the TRCs are sold. Again, utilities commissions in both states should be aware of the transaction so the proper information will be conveyed to consumers. In addition, state disclosure rules must be carefully drafted to accommodate TRC transactions and to avoid causing harm or problems for other states from whom TRCs may be bought or sold. See Section 5.8 for a discussion of disclosure issues and TRCs.

2.3.8 TRCs Used for a Green Pricing Program

Utility C has implemented a green pricing program.

a. *Should they be allowed to purchase TRCs and recombine them with generic system power to sell to their green pricing customers?*
b. *If they are allowed to use the TRCs, how can the Commission verify that the TRCs are legitimate and have been purchased in sufficient quantity to meet the demand they are claiming to serve?*

Discussion: The Center for Resource Solution Green-e/Green Pricing TRC Certification Standard suggests that as long as the TRCs come from renewable energy facilities located within the same geographic area (state or control area) as the energy, the combination should be treated the same as any other green pricing product. If the TRCs were purchased from a renewable facility located outside the region, they should be treated as a TRC-only product (unless an equivalent amount of electricity is imported to displace energy in the state or power pool) and their marketing materials should indicate the geographic location of the TRC generator. Whether TRC sales should be allowed as part of a utility's green pricing program is a state specific determination that is best made within the context of stakeholder discussions in that state.

Best Practice: TRCs purchased from renewable energy facilities located in the same geographic area as Utility C or delivered to the Utility C's territory when combined with generic electricity should be treated the same as any other green pricing product. Any of the verification systems outlined in Example 2.3.6 would provide the information needed to confirm the legitimacy of the transaction. Regulators will need to define the geographic extent to which TRCs may be used in green pricing programs. See Section 6.5 for a discussion of TRCs in green pricing programs.

2.3.9 TRCs and Issues of Competition in Regulated Utility Territories

Several TRC marketers have begun selling TRCs to electricity customers in your state. One of your regulated utilities with a green pricing program has complained to your Commission

that the TRCs are being sold for less than the premium being charged to green pricing customers and so are ruining their green pricing business.

a. *What, if anything, should you do?*
b. *Can you regulate these TRC marketers to ensure your states' electric customers are protected from fraud?*

Discussion: If there does not appear to be any fraud, then this situation may be a natural result of competition. Or, there could be differences due to the type of resource used in the TRC and green pricing product or because the renewable facilities are located in different regions that have different operational costs. If it looks as though others can sell similar renewables for a significantly lower price than your utility is charging, the commission might like to review the green pricing program and suggest appropriate adjustments.

To get some idea about the validity of the TRC marketer, you can check to see if the TRC products are certified by a national or state certification entity and/or whether the TRCs are being issued or tracked by a regional issuing and accounting system. Finally, you can also check with your State's Office of Consumer Affairs, or Attorney General to see if there have been any complaints against the company.

Best Practice: If there is no fraud involved, competition may help sharpen your utilities' green pricing product offerings. If there does appear to be fraud, use the enforcement mechanisms available to you. A state regulatory commission can be given the authority to register generation facilities from which 'eligible' power or certificates may be purchased for the purpose of participating in state programs under their jurisdiction. A commission may also be given authority to issue licenses to those entities selling power within the state, though licensing TRC marketers may be outside the jurisdiction of most state commissions. Ultimately, commissions may need to refer egregious TRC marketing to the state's attorneys general or office of consumer affairs. See Section 3.6 for a discussion of regulatory jurisdiction over TRC transactions.

2.3.10 TRCs and Public Benefits Funds

Your Commission is charged with overseeing the use of Public Benefit Fund (PBF) monies collected from electricity consumers in your state for the purpose of stimulating greater use of renewable energy. Wind farm A in your state has received a PBF allocation to reduce its cost of generation by half a cent per kWh for the next five years. Wind farm A is also selling TRCs from this facility to Utility X in your state.

a. *Should this TRC sale be allowed (is it a double sale)?*
b. *Does it matter how much subsidy the wind farm is receiving from the PBF?*
c. *Does it matter what the selling price is of the TRCs?*
d. *Does it matter if TRCs are sold in or out of the State?*

Discussion: In most states, PBF subsidies to a facility do not preclude the sale of TRCs from the same facility. In fact, PBF funds and green market sales together may be a legitimate way for renewable developers to finance and operate new renewable projects. The same is

true for federal production tax credits, low-interest loans and similar investment assistance. Individual state program rules should guide the determination of what is allowed and/or encouraged with regard to TRCs from projects that receive PBF support. For example, some state PBF rules dictate the location of TRC sales (e.g. TRCs that receive state PBF support must be sold in state – RI, MA have this clause for some funded projects). Other states' PBFs have no restrictions on the use of the TRCs from the projects. Language and intent of the state PBF and related statutes will determine how TRCs from PBF supported facilities are handled.

Best Practice: This is a decision for regulators based on legislative intent, the rules of the specific State PBF Program, fairness to similar facilities, and the specific circumstances involved. Commissioners should look at whether the PBF funds intended to retain ownership of the renewable output or TRCs in allocating the funds. If the state considers the PBF contribution as a purchase of TRCs or a legitimate claim to the TRCs, then clearly, the TRCs should be removed from circulation or this would constitute a double sale. If this is the case, then the PBF administrator should in their contract with the renewable generator clearly specify the ownership of the TRCs. If, on the other hand, the PBF was created to help overcome a barrier to renewable development, and then the renewable facility is expected to compete, then selling the TRCs is one way for the facility to be competitive. See Section 6.4 for a discussion of the intersection of TRCs and PBFs.

2.3.11 TRCs Associated with Net-Metering

Under your State's net metering laws the utilities must give the customer a credit for any electricity that was generated by small on-site generators (e.g. small wind and solar). The customer does not generate more power than they use on-site.

a. Are the utilities entitled to any of the TRCs associated with that power?

Discussion: Net metering laws vary dramatically across the country, with some states paying a credit at the retail rate or a premium rate and others at the wholesale rate or avoided cost rate. The best option is for the contract between the utility and the net-metered customer to clearly state the disposition of the TRCs. In general, the authors believe the TRCs from a net-metered system should belong to the generator, unless the utility is paying a renewable premium for the electricity. However, as with many of the issues discussed in this Handbook, regulators will need to evaluate this issue carefully.

In deciding whether the utility should be able to lay claim to the TRCs, the regulator might consider these questions.

a. Are the utilities paying the rate for generic power (either wholesale or retail rate) or are they paying a renewable premium?
b. Who owns the system?
c. Does the utility have a contract with the system owner transferring the rights to the TRCs to the utility?
d. Is the customer allowed to bank excess generation from one month and apply it to the next month?

e. Is the utility buying electricity generated in excess of demand after the end of the banking period at the generic power rate?

In keeping with Basic Principle # 5 that TRCs belong to the owner of a generation facility until they are sold or transferred, than if the customer owns the system, and they are using all of the energy on-site, they should receive the TRCs. If however, the utility owns the system, the utility should receive all of the TRCs.

If the example was changed so that the customer is selling excess power back to the grid, i.e. generating more power than they are using on-site, then the author's would look at the contract and price paid for the electricity generated in excess of the customer's usage. If the customer is getting paid an above market costs for such excess power, then the excess TRCs should flow to the buyer and the TRCs associated with the energy used on-site should stay with the generator. If however, the customer is getting paid a standard wholesale avoided cost, or is not getting paid at all, then the TRCs associated with the excess electricity should stay with the generator.

Best Practice: The TRCs from net-metered generation should flow to the owner of the generation unit, in this case the customer, for all electricity that is generated and used on-site. If however, the utility is paying the customer an above-market rate for electricity that is generated in excess of the customer's on-site usage, the TRCs should flow to the utility.

2.4 For More Information

The CRS Green-e/Green Pricing TRC Standard can be found at: http://www.green-e.org/pdf/trc_standard.pdf

SECTION III: PROPERTY RIGHTS AND OTHER LEGAL ISSUES

3.1 Summary of Topics

- Nature of TRCs
- When does a TRC come into existence
- Ownership of TRCs and transfer of ownership
- Mechanisms to record transfer and retirement of TRCs
- Banking, borrowing and loaning TRCs
- Utility power purchase agreements and PURPA contracts
- Property rights of on-site generation
- Regulatory jurisdiction over TRC transactions
- Laws governing the sale of disaggregated TRCs
- Interface of TRCs with GATT, NAFTA and the U.S. Interstate Commerce Clause

3.2 Introduction

Many of the ideas and recommendations in this section were taken from a national stakeholder process sponsored by the Center for Resource Solutions and the resulting white paper listed in the references. [14] The legal issues center on the creation, ownership, liquidity and transferability, disposition, and retirement of renewable energy certificates.

More and more, parties entering into power supply contracts have created specific contract provisions governing the disposition of related attributes. However, most power purchase contracts that were executed four or more years ago do not explicitly specify the ownership of the associated attributes. The fact that many legal issues relating to TRCs are undetermined creates opportunity, as well as uncertainty and risk. While markets are developing rapidly, they are based on assumptions about the legal status of the products, assumptions that are changing rapidly. Some observers therefore believe that risk may play an even more important role as the market matures.

What follows is a summary of the questions raised and the recommendations developed by the authors based on how property law, common law, intangible property rights, contracts, Uniform Commercial Code, and securities instruments precedents might support TRC development.

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[14] The legal section of the *CRS/TRC White Paper* was co-authored by Karl Rábago, Cargill-Dow, Ron Lehr, Attorney, and Rich Cowart, RAP.

3.3 The Nature, Ownership, Transfer, and Retirement of TRCs

3.3.1 Definition of a TRC

Tradable renewable certificates might be classified as distinct, severable attributes of renewable energy generation. TRCs represent the 'right to claim' the attributes or benefits that the purchaser helped to create through his/her purchase. At its core, a renewable certificate is a market-created instrument that can be bought and sold, and that conveys the value of a unit of renewable generation.[15] It could take the form of an authorized document or other representation (electronic, data base entry) or it can be established through contracts that specify the ownership of a bundle of attributes associated with the generation of electricity at a renewable energy facility. Depending on the facility, the renewable certificate will carry attributes with varying quantitative values such as avoided emissions, fuel type, age of generating unit, technology type, geographic location, etc. Once created, renewable certificates can be traded, hence the term tradable renewable certificates. TRCs are also commonly referred to as renewable certificates, RECs, green tags, and renewable credits, though the latter is usually used in the context of emissions trading, sometime synonymous with an emission offset or emission allowance.

3.3.2 When Does a TRC Come into Existence?

A TRC should be deemed to come into existence at the moment the electrical output of the renewable energy facility is measured, either by physical metering or at the moment the energy is delivered to the grid or other load without metering.[16] A TRC comes into existence regardless of whether a physical or electronic record of its creation is simultaneously documented. Metering is important to demonstrate the amount of renewable energy generated or the quantity of certificates that are created. Where the generation is offsetting total energy consumption at a location (e.g., a residential rooftop application), it is important to have a meter at the point of generation to document the total amount of generation, as well as at the point of interconnection with the grid. Acceptable non-metering estimation methodologies may be developed to allow small generation systems to participate in TRC programs for specific TRC uses.

3.3.3 Ownership of TRCs

Ownership and the right to transfer a TRC are determined according to specific legislative, regulatory, legal, or contract provisions. In the absence of such specific provisions, a TRC usually is deemed to be owned by the owner(s) of the renewable energy facility that generated the accompanying electrical energy.

[15] The value of the TRC is determined by the private marketplace, not by regulatory action.

[16] Though this handbook deals primarily with grid-connected bulk power, non-grid connected renewables and smaller systems such as residential PV may also be included in TRC programs.

3.3.4 Transfer of Ownership of TRCs

TRCs may be transferred by private, specific contractual agreement; by acts deemed to have accomplished a transfer under law or regulation; or, in the absence of such agreement or legal authority, according to general principles of commercial law. Under these principles, the purchase of a TRC assumes the transfer to the final consumer of all of the renewable attributes, unless otherwise noted by contract. Further research into the application of the Uniform Commercial Code and federal and state securities laws would be useful, if only to determine the extent to which TRC transfers are not covered by these sources of existing commercial and securities laws.

3.3.5 Mechanisms to Record Transfers of TRCs

Formal and legally recognized recording mechanisms should be designed for at least three purposes:

1. Creation of the TRC and documentation of its attributes.
2. Transfer of title of the TRC from inception through the commercial transaction chain, or third party custody (*bank*), and
3. Retirement and final disposition (*sink*)

If the three functions are not performed by the same entity, they must operate according to standardized protocols. The creation and maintenance of cradle-to-grave accounting systems is important to document and create a framework for the creation, transfer and retirement of TRCs. They are also necessary to maintain consumer confidence, avoid double counting and promote market liquidity when TRCs are traded.

Best Practice: A single certificate accounting system in a geographic area that is responsible for creating TRCs and tracking transfers of ownership until final retirement provides the most reliable method for ensuring that TRCs are not double counted or double sold.

3.3.6 Legal Mechanisms To Effectuate the Retirement of a TRC

Legislation or administrative rules for specific programs can state the circumstances under which a TRC may no longer be valid for use in that program and effectively permanently retire the TRC from use. Usually this occurs under three circumstances: (1) the certificate is counted on a state disclosure label and/or the certificate is used to meet the retail load of a load serving entity (2) the certificate is used to meet a regulatory requirement, such as an RPS or an emissions target, or (3) the certificate is sold as a part of a TRC-only product. Even if not explicitly used in one of these ways, a TRC may still be retired when it reaches the end of its regulatory defined life. As discussed in Section 5.8.4, programs and regulators may inadvertently retire TRCs by virtue of the fact that they have no method to remove TRCs that are sold separately from the calculations of a utility's system mix.

A second issue for regulators to consider is if retirement from a accounting system should also prevent the end-use customer who purchased the TRC from using it at some future time, for example for use as a pollution allowances outside the energy system. The authors feel that this area could benefit from further research including specific legal recommendations. The authors see benefits for retail customers to receive the opportunity to translate TRCs into pollution allowances if there have been no previous claims. On the other hand we do not want to encourage situations that would result in double counting. We have not done sufficient research to determine what legal precedents have been established in parallel areas that might be applicable to TRCs. For information on retirement of TRCs from accounting systems, see Section 7.5.3.

3.4 Banking TRCs

Banking is a tool that regulators may use to give utilities or marketers flexibility in compliance with specific renewable program mandates. It essentially allows the obligated party to purchase the renewables in advance of their obligation and hold or bank the TRCs to be applied at a later date. For example, if a state has an energy-based RPS, then a utility might be allowed to purchase MWhs in 2002 to be applied toward their obligation in 2003. Similarly, a utility might be allowed to purchase enough renewable MWhs and TRCs in one quarter to meet their green pricing demand for the entire year. The converse, borrowing, is also sometimes allowed to facilitate compliance, e.g. applying 2003 purchases toward the 2002 obligation.

When making regulatory decisions about the applicability of TRCs for specific programs, like a state RPS, green pricing programs or other renewable programs, three issues related to banking TRCs emerge: (1) Should some amount of banking TRCs be allowed within the regulatory program, and if so, how much and for how long, (2) Who should be allowed to bank TRCs, and (3) How do program "true-up" periods and program accounting mechanisms impact the potential market for TRCs outside of the regulatory program?

With regards to the first issue, some period of TRC banking is necessary to overcome problems created by the seasonality of renewable energy generation and the necessity of maintaining a competitive and liquid market. Some renewables, such as wind, solar and hydro, experience seasonal output fluctuations. Therefore, allowing some amount of banking between periods of high output and low output can help utilities and marketers meet their obligations with renewable resources by allowing TRCs to be banked in periods of high output and applied toward the obligation in periods of low output. The banking period will vary depending upon the rules of the program in which they are being used, the prevalence of certain renewable resources and the characteristics of the renewable market in general.[17] Short banking periods can defeat the purpose of banking by limiting compliance flexibility, or not allowing enough of a bridge between times of high and low seasonal renewable output. Short banking periods can also create

[17] For example, regulators might look into the availability of renewable contracts, whether or not intermittence is an issue, and the effect that mandates from neighboring states might have on the renewable market.

an artificial shortage within a compliance period, and drive up prices for renewables. On the other hand, extensive banking periods could create customer confusion and damage to customer and regulator confidence by significantly separating (over time) environmental or emissions benefits from TRC sales. Extensive banking periods might also allow some market players to exercise market power by hoarding TRCs. In addition, extended banking periods could complicate legal arrangements and enforcement against consumer deception. Banking periods of existing programs within the U.S. and Europe vary greatly, from one quarter (essentially no banking) to several years.

Most renewable programs, such as environmental disclosure, RPS, or green pricing, have a compliance period, at the end of which renewable purchases or TRC purchases must match the renewable obligation. The compliance period often dictates how much banking is allowed. But with the introduction of TRCs, it may be helpful for regulators to consider these concepts separately. The compliance period dictates when a utility needs to meet the obligation (e.g. by June 2003, an LSE must have purchased enough renewable energy to meet its 2002 demand). The banking period dictates from where you can draw renewable energy or TRCs to meet the obligation (e.g. TRCs must have been created within the last 18 months). It is not necessary that compliance periods be the same as banking periods.

Compliance period ideally should be equal to or greater than 18 months. This suggestion is based on recommendations from a stakeholder process conducted by Center for Resource Solutions for the Green-e Certification Program. If compliance periods are less than 18 months, or if there is a desire to have a longer banking period than the compliance period, the program could develop some mechanism to allow for this. One example is developing a mechanism to deposit the TRCs in a reserve account to be used at a later date (or compliance period). Whatever the banking policy for a specific program, all market participants should be treated equally with regards to banking. Otherwise, companies may exert market power.

On the question of how program banking periods impact the broader TRC market, a strong case can be made that the decisions made about banking and the life span of a TRC for a regulatory program, can have a significant impact of the renewable market overall. Therefore, it is important to ensure that decisions made regarding the banking or compliance period for a specific program do not unnecessarily limit the broader market potential for renewables. For example, a certificate accounting system that includes all renewable generation and "retires" all certificates at the end of a compliance period to "true-up," whether to calculate the system mix, a company product mix, or to verify RPS compliance, has the effect of retiring all TRCs, whether or not they were used in such programs. This may prevent a renewable generator from being able to sell unsold certificates at a future point in time.

Though the TRC may not be eligible for a particular program, it may still have a value to the generator outside of the state regulatory program. For example, a TRC that is not used for an RPS (or does not qualify for one state's RPS) could be sold as part of a TRC-only product in another state, or used in a green pricing program. Though it has never been challenged in a courtroom, there also may be a legal issue with program rules that have broader market impacts

because they may constitute a "taking" under U.S. Commerce Clause. See Section 3.7 for more information on this topic. It can be argued that the highest economic value for TRCs will be derived if owners have the option to hold and resell TRCs anytime during, for example, a three- to ten-year period following creation. One solution to this problem is to create a mechanism to allow TRC generators or owners to remove TRCs from the program accounting or tracking system or from the calculation of the state system mix. For example, if accounting systems establish a "reserve account" system where generators or others can deposit certificates of generation for later sale.[18] By depositing certificates in the reserve account, it ensures that they are not used to calculate the system mix, but can be still sold at a later time.

Best Practice: For specific programs, compliance periods should be consistent with banking periods for TRCs as best possible, but ideally should not be less than 18 months. Within certificate accounting systems, there should be a mechanism created to allow TRC generators or owners to bank their TRCs for use outside of specific regulatory programs. One solution is to establish a "reserve account" system where generators or others can deposit certificates of generation for later sale. All market participants should be treated the same with regards to banking. Regulators should take special care to ensure that the banking and compliance rules developed for renewable programs do not take away market opportunities for renewable generators or negatively impact the broader renewable market.

3.5 Regulatory Applications of Property Rights Issues[19]

3.5.1 Utility Power Purchase Agreements for Renewables

If a utility purchases renewable energy, it is important that the utility power purchase agreement (PPA) include specific contract provisions governing the disposition of related attributes. This is true even in jurisdictions that have not established renewable energy requirements, since contract language that anticipates future market opportunities will avoid conflicts and confusion later.

If an existing PPA was entered into to meet state or regulatory mandates and does not include attribute contract language, it may be necessary for the commission to ask the parties to renegotiate the contract to make explicit the property rights of the parties.

Best Practice: All renewable energy contracts should stipulate the exact disposition of the renewable attributes or TRCs. If the contract is not clear, Commissioners may ask parties to renegotiate the contracts to specify whether or not TRCs are included in the sale. See Appendix C for Sample Contract Language.

[18] This concept is adapted from the New England Generation Information System.
[19] With the exception of new contract language, most of the questions in this section have not yet been tested in the regulatory context. These are ripe for the development of a list of Regulatory Best Practice Recommendations. In lieu of that, the authors of this handbook have recommended approaches for your consideration.

3.5.2 Existing PURPA Contracts

For existing PURPA contracts (assuming that they do not contain provisions governing the disposition of renewable attributes), the ownership of the TRCs is highly contingent on the circumstances of the market and the regulatory intent at the time the contracts were executed (or renegotiated). In non-PURPA cases cited above, it is assumed that the TRCs belong to the facility owner unless transferred by contract or some other legal mechanism. For PURPA contracts, the purchase price paid for the renewable power, *"avoided cost,"* is generally based on the cost or price of system power making it appear that the utility bought generic power, which does not include payment for any attributes or benefits (added value) other than commodity electricity. Even if the price is above current market prices, it is presumably based on projected avoided cost, and does not constitute a premium for the TRCs or added value benefits.

However, since TRCs were never contemplated at the time the contracts were signed, this is likely to become an increasingly contentious issue. Indeed, this issue is the subject of some debate in the Northeast.[20] One concern is that by assigning the TRCs to either the generator or to the utility purchaser, one party will receive a windfall that was not originally contemplated. For this reason and because of the number of contracts that will be affected and the potential for litigation if either party is awarded the TRCs, the authors recommend that the TRCs from PURPA contracts be retired on behalf of the ratepayers that paid for the electricity. Although this deviates somewhat from the Basic Principles used to guide the thinking in this Handbook, the authors believe that there is some justification for this course of action and it provides the most elegant solution without benefiting one party over another.

Since the ratepayers are paying for the electricity from the PURPA contracts, and often it is included in a disclosure label, ratepayers may be considered the end use customer of the PURPA TRCs. Adopting this position -- that the TRCs are transferred to the ratepayers via the utility -- will cause the least amount of disruption with regards to state disclosure labels and various types of renewable energy mandates. If this position is adopted, then neither the utility nor the facility owner has the right to sell TRCs from energy purchased under PURPA contracts (barring contract language to the contrary). If a PURPA contract ends and the facility sells its power to someone other than the utility, the TRCs should remain the property of the generator until transferred to another purchaser.

Another option would be to give the utilities the TRCs but require the utility to credit the ratepayers for any proceeds derived from the sale of such TRCs. This way, the ratepayer gets a potential benefit but neither the generator nor the utility get any profit not originally contemplated when the contract was signed. The downside to this approach is that the sale of such TRCs could create a glut of existing TRCs, which might impact the development of

[20] In September 2002, the Maine PUC conducted an investigation into the ownership of renewable certificates from QF facilities. The PUC tentatively concluded that QF contracts include both the electricity and the NEPOOL GIS certificates. This issue is still be debated as of the writing of this document.

additional renewable facilities. It also could have a negative impact on air quality if those TRCs are generated in a pollution trading market where renewable generators are given pollution allowances. See Section 5.6 for more information on this topic.

Best Practice: It is recommended that the TRCs associated with renewable power purchased under PURPA contracts be retired on behalf of the utility ratepayers. If this position is adopted, then neither the utility nor the facility owner has the right to sell TRCs from energy purchased under PURPA contracts (barring contract language to the contrary).

3.5.2.1 Including PURPA Contracts in the Calculation of a Renewable Baseline for the Purposes of an RPS

In a related area, some RPS laws count utility purchases of renewable energy as the baseline against which the utilities are measured (e.g. the utility must add one percent per year to reach the RPS target percentage). What this seems to imply, whether intended or not, is that regulators and legislators have made an ex-post revision to the PURPA contracts granting the rights to the TRCs to the utility who signed the contract or its ratepayers. The courts generally frown upon ex-post contract revisions, not agreed to by the contracting parties. Since none of the stakeholder processes to date have dealt with this issue, regulators will need to evaluate this issue in light of their specific state circumstances.

The authors recommend that TRCs associated with the generation of renewable energy purchased under PURPA contracts may be used to establish the RPS baseline but should not be available for sale or trade into the TRC market. Following the recommendation made in 3.5.2, the TRCs from PURPA contracts are being purchased and retired on behalf of the utility ratepayers. Therefore, the renewable attributes should be counted toward the utility baseline, but they should not be available for resale. To the extent the PURPA contract ends, future TRCs from that facility belong to the generator or to whomever the generator transfers the rights by contract or sale. This is an area that would benefit from an explicit NARUC recommendation.

Best Practice: Renewables purchased under PURPA contract should be credited to the utility for the purposes of calculating a renewable baseline for an RPS.

3.5.3 Existing Contracts – Other

Other pre-existing contracts that do not explicitly specify rights to TRCs will need to be dealt with on a case-by-case basis. Two examples include a utility contract with an IPP, or an energy sale from a utility-owned renewable energy facility to another entity. In cases where the contract is unclear, but there is a reasonable indication that the buyer was buying from the facility because of its renewable attributes, for example if this is implied in the contract or if the buyer is a utility using the purchase to meet a renewable policy obligation, then the attributes should flow from generator to buyer. Contractual language may indicate the buyer or seller's expectation, for example if the contract specifies "wind" power instead of simply MWhs. More recent contracts (signed since 2001) that are silent with regard to the

disposition of TRCs can be assumed to leave the TRC rights with the generator since many renewable generators started to become aware of the use of renewable certificates around this time, unless the contract language or policy intent implies otherwise. If the contract language is unclear, renegotiation will prevent future conflicts. This is another area that would benefit from an explicit regulatory recommendation from NARUC.

3.5.4 Property Rights for On-site Generation Facilities [21]

Basic Principle #5 states that *"The property rights to TRCs belong to the owner of the generation facility unless transferred by contract or sale, temporarily transferred through a loan, or retired permanently."* This principle applies equally to large generating plants as to small on-site generation

3.5.4.1 Customer Owned, On-site Generation

Following Basic Principle #5, if the customer has title to the equipment they should also have title to the attributes (TRCs) unless transferred by contract to the utility. If the customer has paid (or is paying) for the costs of the system, they should receive all the benefits for which they are paying. Since in all cases of which we are aware the utility is crediting the customer's account using the average rate for generic electricity (either retail or wholesale tariff), and it is the intent of most net metering legislation to increase the construction and use of on-site generation, and given that the customer has generally invested a significant amount of money to purchase and install the system, we believe it is consistent with legislative intent that the customer receive all of the benefits (TRCs) from purchasing these systems. This recommendation holds for both net-metered, net-billed situations, and utility-installed units. The only time that might warrant an exception is when the utility is considered the owner of the system or a significant portion of the system, or if the system generates more electricity than is used on-site and the utility is paying an above-market rate for the excess generation. The use of buy-down subsidy by the state systems benefits fund would not constitute partial ownership by the utility, unless that is explicitly stated.

In general, the authors recommend avoiding any contract language for residential or small business customers that gives the rights to the TRCs to the utility. If a utility reduces the cost of on-site systems to the customer in exchange for retaining the TRCs, the commission might allow this exchange as long as it is done prospectively and customers are fully cognizant of the implications. If, however, the utility is given the rights to the TRCs from net-metered facilities, then they should also pay "fair and just" compensation for the added value of the attributes, in addition to the credit for the electricity generated.

Best Practice: TRCs from customer-owned on-site generation units should be considered the property of the customer and should not be transferred to the utility, except under

[21] Most commonly these will be PV or small wind generators though in the future they might also include fuel cells or small solar thermal electric systems.

limited circumstances, for example, when the utility has paid a portion of the costs of the unit and such payment confers ownership rights. Contract language should specify such transfer.

3.5.4.2 Customer Leased Systems

If the utility has a renewable energy program where the customer is leasing the system, is involved in a lease/purchase arrangement, or will receive the system after some period of time in exchange for the utility's use of the customer's roof, Basic Principles dictates that the right to the TRCs goes along with ownership of the system. The utility has the property rights to the TRCs as long as they are the owners of the system. At whatever point in time ownership of the system is turned over to the customer, then the property rights to the TRCs would be transferred along with the system ownership, unless otherwise specified by contract.

Best Practice: TRCs from customer-leased on-site generation systems should be credited to the owner of the system, whether that is the utility or another party.

3.6 Regulatory Jurisdiction over TRC Transactions

3.6.1 General Jurisdiction

The authority to impose rules on TRCs is coterminous with legal authority to approve contracts entered into by regulated entities, to regulate electric operations and services, and to oversee environmental matters. Commissions may be given the authority to implement RPS disclosure rules. In addition, non-governmental entities, such as Center for Resource Solutions in its certification role as the Green-e Program Administrator, may be able to establish standards relating to TRCs that are voluntarily honored by private entities engaged in TRC transactions. In the earliest stages of TRC market development, rules governing TRC transactions have been established through patterns of practice in private negotiations and contracts, market offers and consumer acceptance, in protocol for accounting systems in New England, Texas and Wisconsin.

Additionally, since many retail marketers are associated with regulated entities in some way (e.g. the utility sends out the bills and collects the money for the services, or the TRC marketer advertises on a utility bill stuffer or web site), there may be more jurisdictional opportunities open to regulators than appear on the surface.

Similarly, some laws and rules governing electricity inadvertently impact or limit the use of TRCs. For example, the methodology for calculating a state or utility fuel mix may inadvertently double count TRCs if it does not have a mechanism to subtract out TRCs that are sold separately from commodity electricity. Consequently, such electricity rules may prevent generators from being able to sell TRCs without creating a double counting scenario.

Often, such rules are created without considering their impact on the TRC market, despite the fact that TRCs are used widely at the wholesale level.

Most of a commission's regulatory authority comes from its jurisdiction over an "*electric corporation"* generally defined by State statute and *"electric service providers"* also generally defined by state statute in states that have restructured their electricity sector. More generally, commissions are typically given the authority to implement RPS and disclosure rules. The following sections discuss specific jurisdictional questions in more detail.

3.6.2 Regulation or Licensing of TRC Marketers

To the extent that TRC marketers do not fall under the definition of an "electric service provider" or "electric corporation", then state utility regulators probably do not have jurisdiction over these marketers or their transactions, unless they are partnering with a utility (described below). However, State Departments of Consumer Affairs, Attorneys Generals and the Federal Trade Commission do have jurisdiction over TRC marketers' marketing claims and any transactions deemed to be fraudulent or illegal.

3.6.3 Jurisdiction Over Utility TRC Transactions

State utility regulatory commissions do, under traditional regulation, have jurisdiction over purchases or sales of TRCs that are included in utility tariffs or come from renewable generating facilities paid for through customer tariffs (either through regular rates or green pricing tariffs). See Section 4 for a more specific discussion of non-legal issues.

3.6.3.1 Jurisdiction Over TRCs Produced by Utility Affiliate-Owned Renewable Facility

If an unregulated utility affiliate company owns a renewable generation facility that is producing TRCs, regulators will only have jurisdiction over the disposition of those TRCs if they are purchased by a jurisdictional utility or to the extent that there is other regulatory jurisdiction over said facility.

3.6.3.2 Jurisdiction Over Utility Marketing

Regulators may also have jurisdiction over specific product marketing materials and claims made by a utility under their jurisdiction that is (1) selling TRCs to its own customers as part of a green pricing or some other type of renewable program such as RPS, and (2) buying the energy or TRCs from a renewable facility or producing TRCs from a utility-owned renewable facility. The use of the *utility billing envelope* for marketing TRCs should be consistent with the rules for the utility marketing any other type of product through billing envelope inserts. If the utility is buying power from a renewable facility but not buying the TRCs, the transaction is for generic power and not for renewables that would be reflected in their marketing materials.

3.6.4 Jurisdiction in Restructured Markets:

Jurisdiction over TRC transactions in a restructured electricity market follows the same guidelines already stated: it is coterminous with the jurisdictional authority included in the restructuring law and the authority to regulate electric operations and services, approve contracts entered into with regulated entities and to oversee environmental matters. In addition, commissions may be given the authority to implement RPS and disclosure rules that can affect TRC markets significantly.

3.7 Laws That Effectively Prohibit the Separation of TRCs from the Commodity Electricity

There are a few examples where a state law effectively prohibits the separation of TRCs from their energy component within a particular jurisdiction. The law may be a deliberate attempt to control TRC transactions, or it may be an inadvertent result of regulation that does not contemplate TRC transactions. Such rules, whether deliberate or inadvertent artificially constrain renewable development and, perhaps more importantly, may prevent a renewable energy facility from earning revenue that would otherwise legally come to it. This latter point could create a legal challenge if it constituted a "taking" under the U.S. Constitution, Commerce Law.

If the concern being addressed is to be able to accurately calculate the residual fuel mix in a state, the authors believe this can be done more gracefully and efficiently through the design of the accounting system in a way that meets both the State's and the renewable generator's needs. If the concern is that the renewable development occurs within the region, for example, renewables purchased to meet a state RPS, there may be other more elegant solutions to the concern than an outright ban of TRC transactions. Several states have required that for TRCs to be eligible for use in the State's RPS program, both TRCs and the related electricity from the renewable facility must be sold into the state.[22] This ensures that the TRCs will come from within the region. If your state agency is considering a geographic requirement for a renewable mandate, you will want your attorneys to review the concept first to ensure there is no conflict with the U.S. Constitution, Commerce Law or the concept of 'Takings.'

Best Practice: Regulators should take care to consider TRC transactions when making regulatory decisions governing renewable programs. Some regulatory decisions can have the inadvertent effect of preventing the separation of TRCs from commodity energy, and could create a legal challenge under U.S. Commerce Law.

[22] The following states have an RPS that contains either a strict in-state generation requirement or a requirement that the electricity be delivered into the state or regional power pool: CA, IA, WI, NJ, MA, ME, AZ, NM, TX, CT. Many of the regulations that govern out-of-state eligibility were being modified at the time of this writing so this list may not be strictly accurate.

3.8 Laws Governing Sales of Disaggregated TRCs

Disaggregation of TRCs refers to the separate sale of some portion of the TRC (e.g. the carbon benefits or NO_x benefits) from the rest of the TRC leaving a TRC with only a subset of the attributes it had at its inception. Federal Trade Commission Part 260 – *Guides for the Use of Environmental Marketing Claims* does not directly address the severability of renewable energy attributes.[23] However, the general tenor of the guidelines is that claims must be supported by substantiation and must not be deceptive. For example, the FTC's treatment of "recycled content" may provide some guidance for this discussion. The guidelines provide that: "For products or packages that are only partially made of recycled material, a recycled claim should be adequately qualified to avoid consumer deception about the amount, by weight, of recycled content in the finished product or package."[24] Although FTC's environmental marketing guidelines include no direct prohibition against marketing of TRCs with fewer than all attributes, any renewable product so configured should also adequately qualify expressed or implied claims of environmental benefit in order to avoid customer deception.[25] See Section 5.4 for Best Practices related to disaggregation of TRCs.

3.9 Commerce Clause, NAFTA and GATT Issues[26]

Regulation of TRCs can run afoul of the Commerce Clause of the U.S. Constitution, the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT) for the same reasons that electricity transactions in general may do so. Some state RPS laws explicitly exclude renewable energy generated from out-of-state or non-U.S. sources. According to Radar et al., such laws would likely violate the Commerce Clause [interfering with inter-state commerce], as well as NAFTA.[27] There are two reasons TRCs may be vulnerable to Commerce Clause, NAFTA or GATT action: (1) To the extent that TRCs are used as the mechanism to track and verify State RPS programs and are bought and sold for this purpose, any restriction on such trade is considered in violation of these laws. (2) Because TRCs avoid the difficulties and cost of wheeling electricity from long distances, they are an attractive mechanism for generators and renewable power marketers to reach markets that might not otherwise be available for direct electricity sales. As a result, Commerce Clause and NAFTA issues may arise because TRCs open new market opportunities to new players that, were it not for TRCs, would

[23] Federal Trade Commission Guidelines sec. 260.7 can be found at http://www.ftc.gov/bcp/grnrule/guides980427.htm#260.7

[24] Federal Trade Commission Part 260 – *Guides for the Use of Environmental Marketing Claims*, Sec. 260.7(e): http://www.ftc.gov/bcp/grnrule/guides980427.htm#260.7

[25] Note: The Green-e program does not certify partial TRCs (those that have disaggregated the attributes) because they believe it would be too confusing to customers even if explained.

[26] This portion of the discussion was adapted from a paper authored by Scott Hempling and Nancy Rader "Comments for the Union of Concerned Scientists to the Commission for Environmental Cooperation," January 31, 2002. To gain a greater understanding of these issues, the reader should refer directly to this and other papers on Commerce Clause and NAFTA issues.

[27] Nancy Radar and Scott Hempling, " The Renewable Portfolio Standard: A Practical Guide." Pages A1-A9.

not be able to physically deliver power to meet the RPS. One solution for states that prefer their RPS be met with in-state renewable generation is to require that eligible TRCs must be bundled with electricity to the state border to be eligible for a state program. This would somewhat restrict TRCs that come from far away but does not interfere with the aforementioned laws. Again, legal counsel on the specific situation is strongly recommended.

Best Practice: The primary recommendation for this area is to avoid legal or regulatory language in RPS or other State renewable energy programs that explicitly excludes electricity or TRCs from renewable energy facilities that are out-of-state or are from non-U.S. sources, and to avoid language that has the effect of prohibiting the sale of TRCs from another state or international sellers.

3.10 For More Information

Certificate Tracking and Accounting Systems:

NEPOOL GIS and GIS Operating Rules: http://www.nepoolgis.com/

ERCOT REC Program: http://www.texasrenewables.com/recprogram.htm

Wisconsin RRC Program: www.wirrc.com

American Association of Issuing Bodies: http://www.resource-solutions.org/TRCAAIB.htm

Federal Trade Commission Part 260 – Guides for the Use of Environmental Marketing Claims, http://www.ftc.gov/bcp/grnrule/guides980427.htm#260.7

Pepper, Janice C., Enertron Consultants, "Renewable Certificates for Photovoltaics: A Model to Build Upon," April 26, 2002. Prepared under contract for: Renewable Energy Technology Project - Pace Law School Energy Project. Available at: http://www.paceenergyproject.org

Radar, Nancy and Scott Hempling, "The Renewable Portfolio Standard: A Practical Guide." February, 2001, Prepared for the National Association of Regulatory Utility Commissioners

State of Maine, Public Utilities Commission, "Investigation of GIS Certificates Associated with Qualifying Facility Agreements." September 6, 2002, Docket number 2002-506. Available at http://www.state.me.us/mpuc/orders/2002/2002-506noi.pdf

SECTION IV: RATESETTING: RATEPAYER VALUE AND FAIRNESS

4.1 Topics Discussed in this Section

- Off-system sales of TRCs
- Tariff recovery for TRC purchases
- Green pricing tariffs

4.2 Introduction

There are a number of ways in which TRCs may intersect with ratesetting. The three areas addressed in this section include utility sales of TRCs from facilities paid for by ratepayers, utility cost recovery for TRCs that the utility purchased to meet some type of state requirement, and green pricing tariffs for renewable energy. Are ratepayers receiving all the value they are paying for and paying for the value they are receiving? The answer to this question should guide regulatory decision-making when dealing with TRCs just as it does for all ratemaking activities. Renewable energy and renewable attributes are just two parts of a similar 'good' and as such should be treated consistently except where technical differences suggest otherwise. The following discussion addresses these ratesetting issues.

4.3 Off-System Sales

The sale by a regulated utility of the TRCs or attributes from a renewable energy facility that it owns, or with which it has a contract for renewable power that includes the rights to the TRCs, should generally be treated like an *off-system power sale.* If the utility's customers have paid or are paying for the renewable energy facility and if the utility sells the TRCs to another entity, then the ratepayers should be recompensed accordingly from the revenue received. Because this issue has not been thoroughly vetted through a comprehensive stakeholder process, regulators may want to consider these questions to help guide their decision-making.

- Do the general utility tariffs already include the cost of the renewable energy?
- Does the utility or utility affiliate have the right to sell the renewable attributes from this power? Does the utility have a claim to the ownership of the TRCs?

- What was the reason the utility purchased the renewable energy originally -- Was it due to a state mandate, resource planning decision, or regulatory directive? Is the mandate, decision or directive still satisfied if the TRCs are sold?
- Are there ratepayer benefits due to the purchase of renewables that should be retained? (i.e. should the renewables remain in the general utility tariff?) If not, what is a fair disposition of the revenue from this sale?

4.4 Tariff Recovery for TRC Purchases

Utilities that have purchased TRCs to meet regulatory or state renewable energy mandates should be allowed to recover those costs in their general rates or some other mechanism as long as the TRCs purchased are eligible for the program and are consistent with the rules governing the renewable requirement. In addition, the utility should not be allowed to recoup their costs twice.

Question to guide your decision-making:

- Does the TRC purchase meet the criteria for the renewable energy mandate?
- Is the purchase cost already covered in another manner, e.g. through the green pricing program?

4.5 Green Pricing Tariffs

Cost recovery under a green pricing tariff, should be guided by the same rules as any other tariff; two sets of customers should not be charged for the same benefits (double counting). As with the off-system sale example in Section 4.3, if a utility has a renewable energy facility or renewable purchase embedded in the general tariff, it is not appropriate for the utility to sell the TRCs from that facility to its green pricing customers without compensating the general ratepayers.

Questions to guide your decision-making with regard to this situation:

- Do the general utility tariffs already include the cost of this renewable energy?
- Does the utility or utility affiliate have the right to sell the renewable attributes from this power? Does the utility have a claim to the ownership of the TRCs?
- What was the reason the utility purchased the renewable energy originally -- was it due to a state mandate, resource planning decision, or a regulatory directive? Is the mandate still satisfied if the TRCs are sold?
- Are there ratepayer benefits due to the purchase of renewables that should remain in the general utility tariff?
- Would the green pricing customers receive equal or greater benefits if the utility purchased new renewable power on their behalf rather than purchasing renewable power from an existing facility? (i.e. would the green pricing customers prefer new

renewable power?) If yes, can new renewable energy be purchased at a price that is acceptable to the green pricing customers?

Regulators are appropriately concerned with ensuring that non-green ratepayers are not subsidizing a voluntary green pricing program. What is sometimes overlooked is a concern that green pricing customers are getting good value for their money. In general, this means that those customers who are willing to pay a premium for renewable energy should receive incremental renewable generation above and beyond what is already provided to them through the regular utility tariff and that the price is consistent with the benefits being offered. This view is supported by industry norms, voluntary programs such as the CRS Green Pricing Accreditation Criteria, and through stakeholder consensus. If the energy or TRCs are not additional to the general electricity mix, the green pricing customer's premium is making no incremental difference and is therefore not a good value for the green pricing customer.

Best Practice: A widely adopted industry best practice is to ensure that revenues collected from green pricing programs contribute to incremental purchases of renewable energy or renewable capacity beyond what the utility is otherwise doing through their resource planning and acquisition process. The green pricing tariff should be appropriately set to ensure that the price paid by consumers is consistent with the benefit received, and that green pricing customers are getting a good value for their money.

4.6 For More Information

Center for Resource Solutions, Accreditation of Green Pricing Programs Final Criteria, Version IX, October 11, 2002. http://www.resource-solutions.org/greenpricingcriteriadocs.htm

SECTION V: CONSUMER PROTECTION

5.1 Topics in the Section

- Double counting, double use, double sale
- Marketing practices with disaggregated TRCs
- Age of TRCs in renewable products
- Emission avoidance claims
- Sale of TRCs generated in the future
- Environmental disclosure

5.2 Introduction

Given the abstract nature of TRC products, consumers need to be confident that TRCs have been legitimately produced and that the same TRCs are not being sold to more than one end use customer. Consumer understanding of the TRC product is important for the success of any effort to expand the demand for renewable electric generation through TRC use. The consumer must have access to sufficient information to understand what they are paying for and confidence that buying the TRC product satisfies their needs (e.g. local or global environmental benefits, financial support for renewables, etc.). Adequate disclosure of the product's characteristics and independent tracking and verification are imperative for consumer confidence in TRC-based products.[28]

The following discussion of consumer protection issues includes Best Practices developed by various stakeholder groups identified in the Introduction. The text covers issues related to TRC-only products, as well as consumer protection issues around disclosure and RPS rules.

[28] For the purpose of this discussion, "disclosure" refers to information that is required or recommended to be 'disclosed' to customers in TRC marketing and contract materials. Information that should be made accessible to interested consumers through a web site, database or similar means will be referred to as 'public information.' Disclosure also refers to information that is 'disclosed' to the public pertaining to a specific utility's or State's electricity resource mix. Both may be included on a disclosure label.

5.3 Discussion of Double Counting TRCs[29]

Double counting – the use of the attributes from one unit of renewable electricity by one or more parties at any given time and usually for more than one purpose – can be manifested in several ways, such as:

- Double Sale -- Outright fraud (e.g. simultaneously selling the same TRC to two different customers)
- Partial Double Sale -- Sale of TRCs where one or more separate attribute is sold to more than one party (e.g. carbon is sold to one entity while the remaining portion of the TRC is sold to another as a renewable energy product.)
- Double Claiming – More than one party claiming ownership of a single TRC (e.g. a utility buying electricity from a renewable generating facility, but not the TRCs, and claiming the renewable benefits on its disclosure label, while the generator is selling the TRCs to another party)
- Double Use -- When a single entity holding the property rights to a TRC and is using that TRC for more than one purpose (e.g. one owner using the renewable energy attributes from the same facility output for two separate purposes) or when two parties own a single TRC sequentially and each one uses it, one after the other.

We discuss these terms below to clarify and distinguish among these different situations**.** Table 1 contains a summary of recommendations and examples.

5.3.1 Full Double Sale

Full double sale occurs when the bundled attributes associated with a single MWh of generation are ultimately sold to or associated with more than one customer. This can occur when TRCs are used in situations where there is no verification system, when there are conflicting verification systems, a verification system has loopholes, or when a TRC system creates loopholes (flexibility mechanisms such as different settlement periods, banking or makeup compliance). Double sale situations may occur due to fraud or due to inadvertent flaws in tracking systems or program rules. The authors see no public policy or public interest rationale whatsoever for allowing TRCs or bundled renewable energy attributes associated with a single MWh of generation to be simultaneously owned by more than one buyer, whether those sales are in mandated or voluntary markets.

Best Practice: All cases of full double sale are unacceptable and should be prohibited.

[29] Many of the ideas in the double counting discussion come from the CRS/TRC White Paper chapter on double-counting coauthored by Alan Nogee, Union of Concerned Scientists; Ryan Wiser, Lawrence Berkeley National Laboratory; Meredith Wingate, Center for Resource Solutions; Rick Weston, RAP; and Bob Grace, Sustainable Energy Advantage.

5.3.2 Partial Double Sale

Partial double sale occurs when a fully aggregated TRC representing "renewable electricity" is sold to one party,[30] and one or more disaggregated attributes, such as CO_2 allowances, associated with the same MWh of generation is sold to another party. This amounts to a double sale of a particular attribute, e.g. carbon. As with full double-sale, double sales of individual environmental attributes should be prohibited. In such a case, a retail marketer, for example, should be disallowed explicitly or implicitly from marketing the CO_2 benefits of their renewable power product while simultaneously reselling those CO_2 credits to another party through the sale of the TRC from the same MWh. See Section 5.6 for more information on emissions avoidance claims.

Best Practice: Cases of partial double sale, where a single environmental attribute associated with a TRC is sold to more than one party, should not be allowed.

5.3.3 Double Claiming

Double claiming occurs when two or more parties simultaneously lay claim to the same MWh of renewable benefits. We differentiate this term from double sale, because in this case, the TRC is not actually sold twice, though two people may think they own it, rightly or not. For example, when a utility purchases commodity electricity from a renewable generator, but reflects the purchase as a "renewable" purchase in its disclosure label. In this example, the renewable generator has sold the TRC to another party, resulting in two parties that are claiming the renewable benefits from a single MWh. Double claiming is usually a result of unclear contracts or a lack of understanding of TRCs and their use in electricity transactions. Double claiming can also occur inadvertently if a state does not have an adequate mechanism for removing TRCs from a utility system mix calculation.

Best Practice: Although the double claiming may be the result of an honest misunderstanding or misinterpretation of contracts, it nonetheless can mislead ratepayers and can create a deceptive environment for TRC consumers. Accordingly, we recommend that utilities and marketers only claim on their disclosure labels or marketing materials those TRCs that have been explicitly purchased. In addition, we recommend that states review their procedures for calculating disclosure labels and utility system mix to provide a mechanism to remove TRCs from the calculation if the utility has purchased commodity electricity without the TRCs.

[30] Which may be perceived to represent the bundle of all primary (direct descriptive) attributes and secondary attributes (or benefits).

5.3.4 Double Use

Double use occurs primarily when a single entity holding the property rights to TRC attributes is using those attributes for more than one purpose.[31] For example, a retail supplier might use a TRC simultaneously to meet its RPS requirements and its generation performance standard (GPS) compliance purposes, or for RPS and retail disclosure purposes.[32] Another example of a double use is when the same retail supplier uses a single TRC to meet both an RPS requirement as well as retail claims to its end-use customers. These examples assume the uses are compatible with each other (i.e. do not conflict with the program rules) and do not result in two different entities claiming the property rights to the same TRC.

Specific program rules may be the best guide as to whether double use is allowed or not. For example, if a state RPS program specifies that state public benefit funds (PBF) are to be used to reduce the price difference between renewables and conventional power (as is the case in California), then receiving PBF funds for renewable energy production and using the TRCs that result from that production to meet RPS compliance would be a compatible double use. If, however, the PBF legislation or rules expressly give ownership of TRCs coming from a facility that has received PBF funds to the fund Administrator, then this would not be a compatible double use. See Section 6.4 for a discussion of PBFs and TRCs.

Other forms of double use should be prohibited, and regulators should develop explicit language to ensure that such double use is not occurring. For example, renewables sold to green pricing customers at a premium should not be allowed to count towards a state RPS. Another possible form of double use that should be avoided occurs when a utility uses TRCs to discharge a renewable program obligation, and later resells the TRCs. This example could result in two companies using the same TRCs to meet their renewable obligation, such as an RPS or retail renewable product claims. This can occur if the state does not have an adequate mechanism to retire certificates after they have been used to meet an RPS or green pricing program or does not have explicit regulatory language to prevent this from occurring. It is also important to note that neither of these examples are uniquely a TRC problem. Unless program rules specifically allow these types of double use, they should be avoided.

Best Practice: Many forms of 'double use' should be allowed to the extent they are consistent with the intent of the applicable regulatory obligations and/or the rules of the programs, and should be addressed in the context of specific requirements by environmental or utility regulators. Other forms of double use should not be allowed depending on the specific program rules, the intent of the legislation or regulation, or the extent to which ratepayers are covering the full costs of the programs. In these instances, regulators should develop explicit language to prevent double use from occurring.

[31] This is distinguished from a double sale where the property rights to the TRC attributes are being simultaneously claimed by two different entities.
[32] GPS is also referred to as emission performance standards (EPS) in some states.

Table 1. Summary of Recommendations and Examples of Double Counting

Double Counting				
	Double Sale	Partial Double Sale	Double Claiming	Double Use
Definition	TRC is sold to more than one party	Portion of a TRC is sold to more than one party	More than one party is claiming ownership of a single TRC or portion of a TRC	One party is using the same TRC for more than one purpose or two parties own a single TRC sequentially and each use it, one after the other
Number of Parties Involved	2	2	2	1 or 2
Best Practice Recommendation	Should be prohibited in all cases	Should be prohibited in all cases	Should be prohibited in all cases	Regulators should develop explicit language to prevent circumstances of double use that are not intended.
Other Comments	Usually deliberate and fraudulent	May occur inadvertently due to customer confusion about what is included in product	Usually a result of unclear contracts or lack of understanding of TRCs	May be acceptable in some cases, depending on the legislative intent.
Example	A RE generator sells a single TRC to two parties: a utility buying MWhs with the TRCs included in the contract, and a TRC marketer.	A RE marketer sells a TRC to a green power customer while simultaneously selling the CO_2 benefit to a private company so it can make greenhouse gas claims.	RE generator sells its TRCs to a marketer and the electricity to a utility. The utility claims the electricity purchased is renewable on its disclosure label.	A utility uses a single TRC to meet both an RPS requirement and to meet retail green marketing claims, as reflected on its disclosure label.
Example	A utility buys TRCs to meet its RPS; the costs for this have been included in the general utility tariff. The utility also offers a green pricing program where it collects a premium. Double selling occurs when if it uses its RPS renewables to meet its green pricing product demand.	A utility sells TRC to its green pricing customers, who believe they are receiving all of the RE benefits, while simultaneously selling the NO_x to an emissions trader.	A company installs a large PV installation on its roof. In its product marketing, it claims it is solar powered. To finance the system, it also sells the TRC to a broker that aggregates them and sells them to a utility that uses them in their green pricing product.	A retail supplier uses a TRC simultaneously to meet its RPS requirements and for Generation Performance Standard compliance purposes.
Example	A utility operating in more than 1 state sells a single TRC to more than 1 set of customers.	A generator received pollution allowances for its RE which it sold into a govt. sponsored pollution trading program. It also is selling its TRCs to a utility to meet retail RE claims.		A company uses a TRC to discharge its RPS obligation and then later sells the TRCs to another company who use them to discharge their RPS obligation.

5.4 Marketing Practices with Disaggregated TRCs

Disaggregation refers to stripping off the individual environmental attributes from the TRC and selling them separately. For example, selling a TRC that has the carbon attribute removed, but contains all of the other environmental attributes intact, creating a partial TRC that does not contain the full set of environmental benefits of the renewable generation. As a general rule, it is believed that most end-use consumers expect, when purchasing a renewable power product, that their purchase is helping to alleviate a range of immediate and/or long-term environmental threats, even if the marketer does not expressly make such claims. The most credible and understandable renewable power product is therefore one that includes a complete bundle of environmental attributes and credits.

This idea has been vetted through a national stakeholder process and the same conclusion was reached. During the development of certification criteria established for the TRC-only products certified by the Green-e Program, there was broad consensus among stakeholders that any delivered renewable electricity or TRC-only product should contain all attributes, fully aggregated. "To be eligible, a TRC must contain all of the environmental attributes associated with a unit of renewable generation, to the extent possible based on current law."[33] The reasoning for this was that stakeholder generally felt that disaggregated TRC products were not appropriate for mass marketing or marketing to residential customers. The risk of customer confusion, and the potential for double claiming is high and therefore the Green-e Program agreed and decided that disaggregated TRCs should not eligible under the Green-e Program standards. They reasoned that the risk to the credibility of the nascent green power market is much higher than the market benefits of the disaggregation of TRCs at this time. Further, in the absence of a national TRC verification and accounting system, the Green-e Program felt that it was not equipped to verify disaggregated TRC products.

Best Practice: It is the opinion of the stakeholder groups that disaggregated TRCs pose a significant consumer protection threat, largely because the concept of peeling off various environmental attributes from electricity is so sophisticated that the majority of consumers will not understand it, even if it is disclosed to them. This is inherently confusing and has tremendous potential for consumer deception. Whether the deception is inadvertent or deliberate, it is the opinion of the authors that the risk of confusion, allegations of fraud, and the potential for double counting is high enough to recommend that disaggregated TRC products not be mass marketed.[34]

[33] "Green-e National Tradable Renewable Certificate Standard," Center for Resource Solutions 2002.
[34] The one exception to this rule is where the attribute is involuntarily stripped off (as in the case of the current S02 cap and trade system)

5.5 Age of TRCs in Renewable Electricity Products

Because TRCs are bankable, it is possible to hold on to TRCs for several months or years before selling them. The chief concern is that a utility or marketer could use "old" TRCs in either a delivered renewable electricity product (TRCs + commodity electricity) or a TRC-only product. Based on the stakeholder work that Center for Resource Solutions has done through the Green-e Program, advocates believe that most consumers will assume that the electricity or TRCs they buy have been generated within a recent period of time. As a result, most product certification and other programs that deal with retail TRC sales require that the TRCs used in retail products should not be any older than eighteen months from the time they were created (a few have extended banking periods to two or more years). The recommended Best Practice is eighteen months per Section 3.4.

However, a few programs have limited TRC use to two to three months from their date of creation. Usually, this is more a function of the compliance period of an environmental disclosure label or the methodology used to calculate a quarterly fuel mix than a specific desire to keep TRCs "fresh". This short lifespan, however, can deprive the generator or marketer of potential sales due to seasonal variations in both the supply and demand for TRCs that are not necessarily synchronous with each other. Furthermore, because of the annual variability in energy production from renewable facilities (due to heavy or light rainfall years, wind and solar availability), parties with the obligation to meet RPS requirements based on load served (even those with long-term RE contracts) may not know until the end of the year whether they have enough TRCs to meet the target requirements. However, if the last quarter of the year is a time when few TRCs are produced due to the seasonality of the resource, there could be insufficient TRCs available to fill the market need, while excess TRCs were abandoned earlier in the year.

Best Practice: The authors believe that eighteen months from the date of creation is a reasonable period of time for TRCs to be available for sale to retail customers and is consistent with customer expectations. This recommendation is consistent with the Green-e product certification standards. We believe that anything less than one year is too short a period and may jeopardize the financial viability and liquidity of TRC markets. We believe that due to the seasonality of renewable resources, RPS and GPS programs as well as state disclosure laws would benefit from the same general policy. Further, we recommend that TRC tracking and accounting systems allow unused certificates to be banked or saved for ten years or more to facilitate their possible conversion to pollution credits or for other non-retail customer uses that may be allowed as greenhouse gas and other global pollution markets evolve. RPS and GPS programs can also have longer banking and settlement periods as long as they are compatible with state disclosure laws.

5.6 Emission Avoidance Claims

Claims of SO_2 or similar pollution benefits in a cap-and-trade environment are problematic. Under the cap-and-trade program for SO_2 as presently implemented in the United States, the mere introduction of incremental renewable energy generation provides no incremental and immediate SO_2 benefit. Since SO_2 emission allowances in a cap and trade program are given to the polluters, a renewable energy generator may reduce the total emissions of a utility, but this generally will not reduce the total SO_2 emission, it only frees up those excess allowances for sale or trade to other polluters. Incremental SO_2 reductions may only legitimately occur through the retirement of SO_2 allowances.[35]

This may be true of other pollutants as well. Nitrogen oxide emissions are sometimes covered by emission caps and sometimes not, depending of the geographic location and season. For example, power plant NO_x emissions are capped during the 5 warm weather months in 9 northeastern states, and several Northeastern states are moving to impose annual NO_x caps. Until an annual cap is imposed therefore, renewable generation that operates year round will likely reduce NO_x emissions from the power sector. More problematic for renewables are proposals in Congress to establish nationwide annual caps on NO_x, CO_2, and mercury along with a new and stricter national SO_2 cap. Some of these proposals would allocate emission allowances directly to the renewable energy generator, thereby preserving the ability of the generators to participate in green marketing (by retiring the allowances). Other proposals would essentially require renewable generators to purchase allowances from an auction process or from fossil generators (who in the early years of the program would receive the allowance allocations for free). The effect is to make it significantly more expensive for renewable generators to participate in TRC sales transactions.

Accordingly, a majority of the stakeholders in the CRS process believe that, at a minimum, the current practice by some marketers of directly ascribing SO_2 benefits in their marketing claims from green power sales effectively represents a partial double sale, and such SO_2 claims should be prohibited. However, there is a distinction between claiming that an MWh was produced with 'zero SO_2 emissions' and claiming that an MWh 'reduces SO_2 emissions by X tons.' The former claim is accurate and conveys the point that this power is not part of the SO_2 problem. The latter claim is simply wrong unless X tons of SO_2 allowances are retired as part of the transaction.

Best Practice: TRC and renewable power providers should be prohibited from making explicit claims about SO_2 or similar cap-and-trade pollutant benefits due to renewable energy or TRC customer purchases. Claims that TRCs or renewable generation avoids the emission of NON cap-and-trade pollutants such as particulates, mercury and CO_2 should be allowed. More generally, state and federal environmental regulators should take care to develop regulatory mechanisms that treat renewable generators fairly and do not reduce the market opportunities for TRCs.

[35] This is not strictly accurate as the SO_2 regime does not cover all SO_2 sources. However, well over 90% of power sector SO_2 emissions are subject to the cap and trade programs, so sources that aren't covered are quite insignificant.

5.7 Sales of TRCs Generated in the Future:

The question has arisen as to whether marketers should be allowed to sell the future output from a renewable facility as a mechanism for financing new renewable facilities. There are actually three different types of transactions that could come under the 'futures' topic:

(1) Future Purchase Commitment – The customer makes a commitment to purchase a specified amount of TRCs that will be generated in the future and pays when the TRCs are delivered (this is a standard long-term contract type commitment commonly used today and is usually called a 'forward')

(2) Contribution to Future Generation – The customer makes a commitment to purchase TRCs that are generated in the future but pays up front. In this case the customer takes the risk that the project may never be constructed and operated or may not produce the output as projected.

(3) Capacity Purchase – In this type of arrangement, the customer pays up front for a very small portion of renewable capacity. Any future TRCs generated from that capacity are retired on behalf of the customer. This is used as a financing mechanism for new renewable facilities. In this case, there is no explicit promise made with regards to how many TRCs will be created and retired as a result of a particular customer's contribution and there is a risk to the customer that the project may not produce the output as expected. On the other hand, the customer does receive the benefit of knowing that their money directly contributed to the construction of new renewable generation in a very tangible way.

The first and second types of future purchases are fairly common and should not present problems for regulators as long as the customer is fully aware of what they are signing up for and there is some regulatory oversight to ensure that the program is using the money judiciously. Since utility customers move on average of every two and a half years (depending upon the state), collecting revenue from customers for TRCs from plants that might not produce TRCs (or even be built) for three years or more in the future can result in the customer no longer being available to receive the benefits from their purchase. A process to rebate payments where the customer is moving could be costly for the program. Therefore it is recommended that a contribution program should deliver some results within two years of collecting the money. This is consistent with the Accreditation of Green Pricing Programs Criteria developed by the Center for Resource Solutions.

The third case is fairly new in the renewable energy marketplace and there has been little analysis as to the legal ramifications of such a program. This type of TRC product may be governed by commodities or security market rules (depending upon the structure of the deal). The legal issues are very case specific. Or the offering may be a specialized type of charity contribution. As with (1) and (2), there needs to be enough regulatory oversight to ensure that the money collected is used in a way consistent with marketing claims.

Best Practice: To provide maximum flexibility to marketers and to be consistent with the settlement periods of the certification and renewable programs in several states, it is recommended that future sales of TRCs be allowed with regulatory oversight to ensure that money collected is spent judiciously. Money should not be collected until the TRCs are created or the TRCs should be delivered within a year from when the money is collected. Further research into the legal ramifications of sales of renewable capacity is suggested.

5.8 Environmental Disclosure[36]

There are several regulatory issues related to environmental disclosure that are impacted by the use of TRCs. One primary concern for state regulators that are responsible for implementing environmental disclosure laws is how to treat TRCs that are used in products. In this section we will provide some recommendations on the type of information that should be disclosed to consumers who are purchasing three types of products: (1) TRCs combined at the point of sale with system power, (2) TRC-only products, and (3) utility system mix where TRCs have been sold off, effectively removing them from the environmental disclosure calculation.

The purpose of product disclosure labels may vary from state to state, but in general they are designed to provide information about the customer's service or to help the consumer make an informed product choice that meets their particular interests and needs. The information needed by any particular consumer may vary tremendously and may include types of information that are not easily represented on a simple label. Table 2 contains a summary of information that may be desirable to include in an environmental disclosure label. A disclosure system that provides information that is inappropriately technical for the consumer, is presented in an unclear format, or is so expansive in scope that it is overwhelming can be counterproductive to the informational goals of disclosure. By contrast, too little information may be misleading to consumers, particularly when dealing with a new product such as TRCs. The recommendations below attempt to strike a balance between these two opposing points. These recommendations were developed through a national stakeholder process organized around developing disclosure guidelines for the Green-e Program.

It is important to note that in some states, a certificate accounting system has been created as a mechanism to track the generation type in the state or control area in order to be able to implement environmental disclosure laws. Sometimes these tracking systems issue certificate for all generation, not just renewable generation. Two examples of this are the NEPOOL GIS and the system under development in PJM. Once certificates are created, however, they can be easily bought, sold and used for other purposes.

[36] For a more complete discussion of general disclosure issues, see the Regulatory Assistance Project (RAP) paper on disclosure listed in the reference section of this handbook.

5.8.1 Environmental Disclosure for Products Containing TRCs Combined with System Electricity

The environmental disclosure recommendations for utilities or green power marketers that are buying spot market electricity and TRCs separately, and then bundling them at the point of sale, depend on the geographic location of the TRC generator.

In the situation where the renewable product is a combination of TRCs from a facility located within the control area and system electricity, the use of a TRC is no different in environmental impact than purchasing renewable electricity directly through standard green pricing or green marketing programs. This is also true of TRCs from a renewable facility located outside of the control area that has delivered electricity into the control area. Because the environmental impact is the same and the potential negative effects of trying to explain the TRC-system electricity recombination to consumers, it is recommended by all the stakeholder groups that it is not necessary to disclose that TRCs were used in the makeup of the product.

There was also stakeholder consensus that there *is* a difference between TRCs generated in a consumer's state or control area versus those generated across the country or outside of the country, assuming no delivery of electricity occurs between control areas. If presented with a product of generic electricity plus TRCs combined at the point of sale, it is assumed that the consumer will, most likely, believe that somehow the electricity from the TRC generator was delivered into the grid serving them. In this case, it is recommended that electricity and the TRCs be viewed as two separate products, a system electricity product and a TRC-only product, when the TRCs are NOT generated in the customer's control area, and no electricity delivery occurs between the source and sink pools.[37] This is to guard against any chance that consumers might be inadvertently misled and to draw attention to the fact that there is not an air pollution benefit in the customers control area or region.

In this case, some level of geographic disclosure is necessary when the TRCs come from a generation facility located far from the consumer. The importance of the location of the generation vis-à-vis the consumer is based on the motivational factors of different consumers. Some consumers are willing to pay a premium for renewable power because they believe it helps their local or regional air quality. There is widespread consensus between stakeholders on this issue, although it is very difficult to define boundaries for deciding when geographic disclosure is necessary and when it is not. The Green-e Program uses the control area as the delineation between when a TRC product is considered a renewable electricity product (in-pool TRCs plus system power) and when it is considered a TRC-only product plus a system power product. If, in the latter case, electricity is delivered from the source pool into the sink pool, then this product could be considered a renewable electricity product and no geographic disclosure may be necessary since the delivery of electricity will have an offsetting effect in the sink pool.

The author's acknowledge that using the control area as a boundary is somewhat arbitrary because air pollution doesn't follow control areas, and in fact, control areas may be a poor

[37] In the case of very small power pool regions, it may be desirable to expand the scope to include a neighboring power pool as well.

indicator for the reduction of local air pollution. There will always be some customers on the edge of a control area such that intra-pool deliveries of attributes can have no meaningful effect on the buyer's area. Furthermore, as control area boundaries expand or regional transmission organizations are formed, the control area boundary may become even more inconsequential as a proxy for air pollution benefits. At the moment, however, the control area seems to be the most widely accepted geographic boundary despite its problems.

Best Practices: Listed below are Best Practices for each of the three cases where TRCs are combined at the point of sale with generic system electricity: [38]

(1) If the TRCs are sourced from the same control area that the customer is located in, then,

- The product should be considered a renewable electricity product,
- No disclosure is needed about the fact that TRCs were used, and
- No geographic disclosure is needed.

(2) If the TRCs are sourced from a different control area than the one that serves the customer, and electricity is delivered to the customer's pool, then,

- The product should be considered a renewable electricity product,
- No disclosure is needed about the fact that TRCs were used, and
- No geographic disclosure is needed.

(3) If the TRCs are sourced from a different control area than the one that serves the customer and no delivery occurs between pools, then,

- The product should be considered as if it were two products: a TRC-only product and a system electricity product,
- There should be some disclosure to notify customers that they are buying a TRC-only product as differentiated from a renewable electricity product, and
- In addition to any other environmental disclosure required by the state, the marketer or utility should be required to disclose the generation location of the TRCs as described below in Section 5.8.2.

An example of the Green-e default disclosure label for TRC-only products is found in Figure 3. The language on this label was vetted though a stakeholder process.

If the control area covers a very small or very large region, regulators may want to define their own geographic delineation for when a product is considered a TRC-only product and when it is considered a green electricity product. Although stakeholders agree that geographic disclosure should not be strictly required in cases one and two, disclosure of the source of the renewable generation may be helpful and of interest to consumers.

[38] This is in addition to fuel mix and other environmental disclosures that might be required by the state.

Table 2. Information That May Be Carried on a TRC and Used for Environmental Disclosure Purposes

The following table includes some of the possible pieces of information that may be attached to a TRC in a certificate accounting system. All of this information is within the realm of what might be required to be disclosed to customers for different state or private programs either directly in marketing and contractual materials or indirectly in TRC databases about which customers should be informed. The items with an * in front of them are most likely to be contained on an environmental disclosure label. The other information might be available to consumers through a certificate-accounting database or may be important for coordination between neighboring states.

Generation Attribute	Description/Purpose
Generation Technology or Fuel Type*	For example, wind, geothermal, small hydro, solar PV, solar thermal, landfill gas, biomass – agr. waste, MSW, animal manure, etc.
Location of Generation*	Consumers interested in purchasing TRCs for air quality reasons may value local air improvements over distant air improvements. There may also be a local economic development motivation.
Operational Date of Renewable Facility/New Renewable Designation*	The date the facility first became operational, or alternatively, a designation as "new renewable" may be important to some consumers. This may also be important for state RPS or PBF eligibility.
Date of Generation*/Time of Generation	Market participants purchasing TRCs to meet regulatory mandates may need information on the time of generation. For example, there could be interest in purchasing "peak" TRCs. Consumers may be interested in knowing that the TRC was purchased within the year or some reasonable amount of time from the time of sale.
Environmental Designations or State Program Eligibility	The eligibility of the generating facility for state RPS, GPS, and other programs, or an environmental designation, such as *Low Impact Hydro Certified*, *ERT*'s *Eco-Power*, or eligibility under *Green-e Program* may be important to include with the TRC.
Emission Profile of Biomass TRC*	Quantity of SO_x, NO_x, Mercury, particulate, and CO_2 emissions attributed to the TRC.
Fate of Emissions/ Emissions Avoidance	The fate of TRCs emissions would let regulators know if the TRCs have been disaggregated, meaning that one of more emissions allowances have been sold separately. Similarly, the quantity of SO_x, NO_x, mercury, particulate, and CO_2 emissions avoided through the purchase of the product.
Project Subsidies	Market participants may be interested in knowing the level of state and federal subsidization of a generation project to ensure that their purchase has an incremental benefit on new renewable development.
Labor and/or Other Management Status of the Generator	In some areas it may be desirable or mandated to provide information about labor practices of the generator, such as whether employees are unionized.

5.8.2 Environmental Disclosure for TRC-Only Products

The recommendations below apply to TRC-only products, and products where the TRCs are generated outside of the control area (and where no electricity has been delivered between pools) and sold as a separate product. At this point, it is not clear whether utility regulators will have jurisdiction over TRC-only products, but they will most likely have jurisdiction over TRCs that are sold with electricity transferring between source and sink pools.

Best Practices: For TRC-only products, there should be general disclosure on what a TRC is and that the customer is not buying a delivered electricity product. In addition, disclosure of the generation location (in marketing and contractual information) should be required for all transactions where TRCs are used and are sourced from outside the consumers' control area and where no electricity transfer has occurred between control areas. The following recommendations were developed by the Green-e Program and accompanying stakeholder process.

- If the TRCs are sourced from inside the U.S., a simple tag line that tells the consumer what state or region the TRC was generated in;
- If outside the U.S., a simple statement that tells the consumer what country the TRC was generated in;
- And, a reference to a web site and toll free number that provides more information about TRCs (e.g. explains how a TRC from California can be sold to a consumer in Philadelphia.)

Figure 3: Green-e Recommended Product Content Label and Disclosure Language

PRODUCT CONTENT LABEL

This is a renewable certificate product. For every unit of renewable electricity generated, an equivalent amount of renewable certificates is produced. The purchase of renewable certificates supports renewable electricity generation, which helps offset conventional electricity generation in the region where the renewable generator is located. You will continue to receive a separate electricity bill from your utility.

This product matches X% of your estimated electricity usage. The product will be made up of the following new renewable resources averaged annually. [use alternate language below for fixed size blocks and historic disclosure]

New[1] Renewable Resources in [PRODUCT NAME]		**Generation Location**
Biomass	**X %**	
Geothermal	**X %**	
Low Impact Hydro	**X %**	
Solar	**X %**	
Wind	**X %**	

[1] Includes renewable generators that first started operating after January 1, 1999 or as regionally defined.

For comparison, the current average mix of energy sources supplying the US includes: Coal (52%), Nuclear (18%), Oil (2%), Natural Gas (8%), Large Hydroelectric (10%), Other Fossil (8%), and Renewables (2%). (from USEPA E-GRID)

For specific information about this product, contact [Company Name], [phone], [website].

This product is certified by the Green-e Program. For more information call 888-63-GREEN or visit www.green-e.org

Alternate language for fixed size blocks: The product is sold in blocks of [150] kWh. The product will be made up of the following new renewable resources.

5.8.3 Environmental Disclosure of Utility System Mix When TRCs Are Claimed by Another Party

In the event that a utility is either (1) buying the output, but not the TRCs, from a renewable generator, or (2) selling the TRCs from a utility-owned renewable generation facility and using the electricity to meet customer load, the renewable attributes of the generating unit should not be included in the calculation of the utility system mix. The reason for this is that the utility has no legal right to claim the renewable attributes or to represent the kWhs as renewable on their disclosure label. This can present a problem for regulators who may not have created a method for subtracting out attributes from the utility system mix. Several states today only recognize scheduled and delivered electricity when calculating the fuel mix for environmental disclosure purposes.[39]

Best Practice: When developing the rules for environmental disclosure, regulators should develop a mechanism to account for TRCs that are used on the wholesale level to meet green power claims. This means having a mechanism for removing TRCs from a utility system fuel mix calculation, and a mechanism for adding TRCs into a fuel mix calculation. TRCs should be counted on a state disclosure label such that the label accurately reflects the utility or marketer's contractual claims and purchases made on behalf of the customer. In addition, if TRCs are purchased from outside of the state, there should be adequate communication between state regulators such that out-of-state TRCs are not double counted (counted once in the source state and counted again in the state in which they are sold). The development of regional generation attribute or certificate accounting systems will perform this function. When TRCs are purchased from outside of the control area, there are also issues of geographic disclosure discussed above.

5.8.4 Environmental Disclosure -- Coordination between Two States with Different Protocols

Double counting of TRCs can occur if one or both states do not adequately count or subtract out TRCs that have been sold separately on their fuel mix disclosure labels. For example, this can occur if the source state of the TRCs uses contract-path accounting for disclosure of fuel mix calculations and does not recognize the separation of attributes, but the renewable generator has sold the attributes to an LSE in another state. It can also create opportunities for an inappropriate double use from other programs, such as RPS or EPS.

Best Practice: To resolve this problem, a consistent accounting methodology needs to be implemented for TRCs nationally. This means that when a TRC is sold out of a particular jurisdiction, it should not be included in the fuel mix calculations for that jurisdiction and if there is an accounting system in the importing state or region, the details of the imported certificates

[39] This has the inadvertent effect of requiring green power marketers to enter into bi-lateral electricity contracts when procuring electricity to meet green power claims. However, the use of TRCs on the wholesale level to satisfy green power claims has become ubiquitous. In many parts of the country, green power marketers prefer to enter into contracts for TRCs and to purchase the electricity to meet their customer load off of the spot market. In some markets, this is easier for both renewable generators and marketers, allows each party to get the best price, and helps create liquidity in the renewable market, which in turn stabilizes prices.

should be recorded. Close coordination between regulators and designers of accounting systems in neighboring jurisdictions will help facilitate this transfer of information and recordkeeping. In addition, the establishment of an American Association of Issuing Bodies (AAIB) to help develop the protocols and principles guiding the accounting and transferring of TRCs between jurisdictions will be particularly helpful. For more information on this effort, please see Section 7.8.

5.9 For More Information

Center for Resource Solutions, "Accreditation of Green Pricing Programs Final Criteria, Version IX," October 11, 2002. Available at http://www.resource-solutions.org/greenpricingcriteriadocs.htm

Center for Resource Solutions, "Green-e Code of Conduct for Tradable Renewable Certificate (TRC) Products." http://www.green-e.org/ipp/code_of_conduct.html

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SECTION VI: OVERSIGHT AND REGULATION RELATED TO FEDERAL, STATE AND COMMISSION MANDATED RENEWABLE ENERGY PROGRAMS

6.1 Topics Discussed in this Section

- Use of TRCs in renewable portfolio standards
- Intersection of public benefits funds and TRC ownership and sales
- Use of TRCs in green pricing programs

6.2 Introduction

Utility regulatory commissions frequently are given oversight authority over state renewable energy programs created by state legislatures and Congress. Under general delegations of authority to regulate the electric power industry, commissions are generally empowered to investigate and issue orders correcting behavior that is harmful to the public interest. In addition, a commission may institute renewable energy mandates, requiring commission oversight of the implementation details and compliance. Some of these requirements use TRCs to track compliance. The following is a discussion of some of the TRC related issues that may emerge in conjunction with these types of programs.

Many of the issues discussed below relate to double use of TRCs, defined as the ability to use a single renewable energy attribute for more than one purpose by a single entity. Many forms of 'double use' should be allowed to the extent consistent with the intent of the applicable regulatory obligation and should be addressed in the context of specific program requirements by program administrators. Final determination of double use allowance is a case-by-case decision dependent upon specific circumstances. For fairly common regulatory situations, it is beneficial to establish Best Practice Recommendations. In lieu of such recommendations, questions to think about when deciding whether double use should be allowed include:

1. Are the property rights to the TRCs being sold by (or held by) more than one entity? If so, this is a double sale rather than a double use and should be prohibited.

2. Does the double use serve the needs of the same entity? Are the uses compatible (look to the intent of the legislation e.g. RPS and GPS) or mutually exclusive (e.g. meeting the RPS requirements in two different states)?

The Attorney General also can engage in oversight of double-counting claims under its general consumer fraud protection mandate. It is helpful if the regulator and the Attorney General are

clear about how their jurisdictions will intersect, and communicate when assistance from the other party is needed.

Below are some specific examples of double use and other more general TRC regulatory oversight issues where the authors have clear Best Practice recommendations.

6.3 Use of TRCs in Renewable Portfolio Standards

There are several types of legislative and regulatory renewable energy mandates. Currently, the most common is a state RPS, which sets a minimum level of renewable energy that is required as part of the resource mix of electric utilities or energy service providers in the state. There are three key issues with renewable mandates and TRCs; the first is double use, for example, a retail supplier might use a single TRC simultaneously for RPS and some other purpose that would result in two different entities claiming the property rights to the same TRC. Listed below are some examples of double use of renewables used to satisfy a mandate that may not be compatible with each other and may result in a double-claiming or double-counting scenario. The second issue is the use of renewable certificates to track renewable purchases and determine compliance with the RPS. The third issue is the use of partial or disaggregated TRCs to meet a mandate.

6.3.1 Double Use of Renewables Used to Satisfy a Renewable Mandate

6.3.1.1 Using Renewables to Simultaneously Meet a RPS Obligation and Green Pricing or Green Marketing Program Obligation

A double use scenario that deserves high priority from a public interest perspective is the use of renewable energy for both RPS compliance and to satisfy renewable product claims. Although this is not exclusively a TRC issue, this scenario can create substantial risk of misleading or confusing customers, resulting in an inappropriate double use.

Under a company-based RPS, retail suppliers could meet their overall RPS requirement through the sale of renewable power products to a subset of their customers. However, this should be avoided because it asks a subset of customers to pay for the costs of compliance with an existing mandate. The renewable power customer may be mislead in thinking that their purchase has had an incremental effect when in fact the utility was required to supply that amount of renewables anyway. Mandatory disclosure (i.e., requiring the retail supplier to inform its green power customers that their purchase is being used solely to meet an RPS requirement) is an insufficient measure of protection, as few customers could be made to understand the implication of the disclosure, however prominently displayed. Therefore, in the authors' opinion, such a scenario should be avoided.

Similarly with a product-based RPS, where the company is required to have a minimum percentage of renewable energy in each product sold, care should be taken to ensure that the

customer is only paying a premium for incremental renewables above the minimum requirement. In this situation, it is generally viewed to be an inappropriate double use if a customer is asked to pay a premium for renewables that are part of a legislative mandate. In addition, a product-based approach distributes the costs of the mandate and public benefits more evenly over all customers as compared with a company-based RPS.

There are examples where a utility regulatory commission specifically has used green pricing as a mechanism to pay for the above market costs of compliance with the RPS. As with the example above, this practice should generally be avoided because it unfairly apportions the costs of a public good to a few green pricing customers.

Best Practice: Double use of a single TRC to meet a renewable mandate and simultaneously be sold to green pricing customers should be avoided. The best way to prevent this is to ensure that regulatory requirements (RPS, GPS, etc.) imposed on utilities or retail electricity providers (utilities and renewable power marketers), (1) be placed on all electricity products offered by the utility or retail supplier, and (2) that "green power" claims be associated with the supply of green energy that exceeds regulatory mandates. Some state RPS administrators are taking this approach, and some observers also believe that the NAAG Environmental Marketing Guidelines for Electricity, and/or state Attorney General electricity marketing rules (in some states) effectively take this approach as well.[40]

6.3.1.2 TRCs Used to Meet State and Federal RPS Requirements Simultaneously

If a national RPS is imposed on retail suppliers, it is possible that a single supplier could use the same TRC to meet both its state and federal RPS requirements. This is another example of double use. This may not represent a problem per se, unless one or the other is explicitly written to be incremental to the other.

Best Practice: Whether such double use should be allowed or whether, instead, the state RPS should be additional to the federal RPS, is best left to state and federal policy decision makers. If a federal RPS is passed, it is recommended that states be given the option to decide for themselves whether or not such double use is allowed.

6.3.1.3 TRCs to Meet RPS Requirements of Two Different Suppliers or Two Different States

Using the same TRCs to meet the RPS requirements of two suppliers or two states could be the result of a double sale or double use. Regardless, it should be prohibited, unless specifically allowed under law. This situation could arise if a renewable energy generator sells the TRCs to a retail supplier and sells the corresponding electrical energy to a utility, and the utility counts this towards its RPS requirement. This would be a clear example of double counting and should be avoided. In this instance, the utility would not actually be meeting its RPS obligation if it had no contractual right to claim the renewable attributes. Another example is if the state does not have an adequate mechanism to retire certificates after they have been used to meet an RPS. In this instance a utility could use the certificates

[40] National Association of Attorneys General, "Environmental Marketing Guidelines for Electricity," December 1999.

to meet their RPS, and then later sell those certificates to another company. This is an example of an inappropriate double use. A third example is when a utility that serves multiple states uses the same TRCs to meet their renewable requirement in both states.

Best Practice: In general, TRCs should be only used once to fulfill a renewable mandate, after which time, they should be retired from an accounting system or otherwise prevented from being used again in another state or sold to another company, unless specifically allowed under the RPS rule.

6.3.2 TRCs as an Enforcement and Tracking Mechanism

Ownership and retirement of TRCs is often used to prove compliance with state RPS mandates. The entities with the obligation to meet the RPS mandate must have sufficient TRCs in their "account" to meet the RPS target (e.g. TRCs equivalent to 20% of the load being served). Where TRCs are used for this purpose, an electronic accounting system may be employed, as is the case in Texas (ERCOT system for the one state), New England (NEPOOL Generation Information System for the NE region) and Wisconsin (Renewable Resource Credit Program).

To avoid loopholes and assure that a credit registry will actually be useful in mitigating double-counting threats, it is critical that generators opt-in fully: if a generator receives TRCs for any generation during a period of time, then it must receive them for all generation during that period of time. If this does not occur, a generator may be able to claim the renewable energy attributes of a single MWh twice, once through the use of a TRC and another time with the use of a power sales contract. By requiring that generators opt-in fully, a purchaser from that generator will know that they have a right to make renewable power claims only if they purchase the generator's TRCs.

Best Practice: Ideally, such accounting systems:

- Recognize that the generic power created when a TRC is marketed separately is power without attributes (i.e., the electricity itself cannot be claimed as "renewable");
- Require a particular generator to register all of their output with a single accounting system;
- Assign all TRCs and associated emissions benefits to generators who could then sell or transfer those certificates to wholesalers, retailers or end-use customers or indicate contractually that the certificates have been retired;
- Allow participants to easily transfer certificates to other participants in the accounting system, and
- Provide a mechanism to retire, or otherwise record when a TRC has been used in a way that would prevent it from being resold.

A coherent state or regional accounting system is necessary to achieve acceptable results and avoid some of the double counting issues discussed earlier. In addition, such an accounting system should be compatible with other accounting systems used in any area from which

TRCs might be purchased. See Section 7.6 – 7.8 for a discussion of interregional coordination.

6.3.3 Disaggregated TRCs Used to Meet an RPS

If the TRCs used to meet RPS requirements do not include the rights to all relevant secondary attributes (such as emissions benefits) that may be sold separately, this may constitute a partial double sale. In this case, the RPS may not be having the desired effect on lowering air pollutant emissions.

Best Practice: These issues should be addressed on a state-by-state basis in RPS legislation and regulation. It is possible, for example, that the goals of the RPS in some states hinge more on technology development and resource diversity than on a reduction in CO_2 or other emissions. In this case, a state might reasonably allow CO_2, SO_2, or NO_x to be sold separately from TRCs used for RPS compliance purposes. In other cases, the goals of the RPS may require the continued bundling of all, or specific secondary attributes. Regulators and purchasers of such credits should carefully consider whether, under a mandatory RPS, emissions credits are truly additional.

6.4 Intersection of Public Benefit Funds and TRC Ownership and Sales

Public benefit funds (PBFs) are used to fund electricity related public benefit programs such as renewable energy research and development, energy efficiency, low-income customer benefits, etc. The rules for use of the PBF monies are specific to each state and the intent of the enabling legislation. The following are some TRC specific issues that have arisen in conjunction with the administration of these funds.[41]

6.4.1 TRCs Sold Under an RPS and Supported by a PBF or other Incentive Policy

Should TRCs from projects supported by PBF monies be allowed to be used for RPS compliance?

The authors do not believe that using public support funds for renewable energy projects that serve an RPS constitutes double counting unless the legislation specifically transfers ownership of the TRCs to the State. In fact, in California the RPS legislation specifies that the PBF be used as needed to reduce the incremental cost of meeting the state mandate. This is similar to the way production tax credits are treated.

[41] For more general information on State PBF funds, see http://eetd.lbl.gov/ea/ems/cases/

However, this could lessen the positive impact of state RPS and PBF policies on renewable energy development, if such funds were intended to create entirely incremental benefits above and beyond RPS requirements. To ensure that renewable energy policies have the greatest positive impact, it is recommended that PBF administrators consider and make explicit whether and when it is appropriate to prohibit certain projects from having their TRCs used to comply with RPS mandates (in their state or other states) while simultaneously receiving PBF support. For example, the PBF Administrator might say that because the PBF is designed so that the state (on behalf of its citizens) takes ownership and retires all TRCs produced by projects that receive PBF funds, those TRCs are not available for other uses elsewhere.

Best Practice: The use of public benefits funds for renewable energy projects that serve an RPS should not constitute double counting unless the legislation specifically transfers ownership of the TRCs to the state or PBF Administrator.

6.4.2 TRCs Supported by a PBF or Other Incentive Policy and Sold in Retail Green Power Markets

Under this example, renewable energy projects receive two forms of above-market revenue - a green power customer premium and a public policy incentive.

Allowing TRCs supported by a PBF or other incentive policy to be sold in a retail green power market is a compatible use unless policy intent dictates otherwise. This does constitute double counting if the PBF policies prohibit such use (as discussed above) or the public policy incentive is in the form of a regulatory mandate that requires renewable generation to come on line (such as a regulatory mandate requiring the utility to include renewable resources as X percent of its resource mix) because two entities may not simultaneously claim the property rights to the same TRCs.

In the case of project incentives, however, whether from a PBF, tax incentive, or another measure, the authors note that in certain instances consumers may be paying an unnecessary premium for renewable power (due to the availability of public policy incentives). Regulators should appropriately consider PBF and other incentives when approving the green pricing tariff. Mitigation of this situation may be necessary in certain circumstances to prevent customers from paying excessive premiums.

Best Practice: TRCs that are from facilities supported by a PBF or other incentive policy should be compatible with retail green power markets and green pricing programs provided that the PBF does not expressly prohibit such use, and regulators have taken such incentives into consideration when determining the green tariff.

6.4.3 When PBF Monies Are Targeted to Help Air Quality

If PBF monies are targeted to improve local air quality, they should support projects within the local airshed. However, if the facility is located in a state or region where the renewable

facility is allocated tradable pollution allowances or credits, there may be additional requirements necessary to ensure that local air quality goals are met. For example, if the generator can sell the pollution allowances and, in effect, give license to some other company to pollute more, the PBF monies have no incremental benefit on local air quality.

Best Practice: If a PBF was established to create local air quality benefits, it is important to verify that the renewable generator is not allocated emissions allowances. If they are given such allowances, it may be prudent to require the facility to retire its emission allowances in exchange for receiving the PBF money. TRC accounting and pollutant registry systems will reduce or eliminate the opportunity for this problem to arise.

6.5 Use of TRCs in Green Pricing Programs

Green pricing programs involve the sale of renewable energy, usually at a premium price, by a franchise utility to its electricity customers as an alternative to system power. Several green pricing programs use TRCs to meet their renewable demand as an alternative to building their own renewable generating facilities. The following are some examples of where TRCs might intersect with green pricing programs and some guidance for program regulators.

6.5.1 Geographic Eligibility of TRCs for Re-bundled Green Pricing Products

One question for regulators is whether TRCs generated outside of the state or control area should be eligible for sale as part of a green pricing electricity product. If part of the intent of a utility's green pricing program is to improve local air quality, this goal will not be achieved if TRCs from a distant geographic area are rebundled with generic energy and sold as a green pricing product. If however, the intent is to stimulate greater demand for renewables, TRCs wherever generated will accomplish that.

Best Practice: If improvement in local air quality or construction of new renewable facilities in-state is the intent or partial intent of the program, the use of TRCs from distant generators by the utility should be minimized. Similarly, if customers are led to believe through utility advertising that their support for a green pricing program is helping local air quality, then only local TRCs should be used to meet program demand. Since state utility regulatory commissions and oversight boards oversee the design of green pricing programs as well as approving green pricing tariffs, it is incumbent upon them to ensure that customers are not misled and that the programs are designed to meet the goals for which they were created.

6.5.2 Selling TRCs or Energy from Renewable Facilities in the General Tariff to Utility Green Pricing Customers

There are two key issues that need to be considered when selling TRCs or energy from renewable facilities in the general tariff to utility green pricing customers: ratepayer value and double counting/double selling. With regards to ratepayer value, green pricing customers who are willing to pay a premium for renewable energy should receive incremental renewable generation above and beyond what is already provided to them through the regular utility tariff. Frequently, this implies new renewable resources should be a part of a green pricing program. This view is supported by industry norms, voluntary programs such as the CRS Green Pricing Accreditation Criteria, and through stakeholder consensus. If the energy or TRCs are not additional to the general electricity mix, the green pricing customer's premium is making no incremental difference and is therefore not a good value for the green pricing customer. For more information on the definition of new resources, please see the Text Box on the following page.

The second issue, double counting or double selling, relates to the utility collecting money twice for a single MWh of electricity generation. If a utility has a renewable energy facility or renewable purchase embedded in the general tariff, it is not appropriate for the utility to sell the TRCs from that facility to its green pricing customers without compensating the general ratepayers. Otherwise, it would constitute a double sale of the renewable attributes. Similarly, regulators should prohibit utilities from buying TRCs from a renewable energy facility that is rate-based in another utility's territory, when the other utility's ratepayers are not compensated. For more information on double selling and green pricing programs, please see Sections 4.3-4.5 and 2.3.4.

Defining 'New'

Various types of programs contain requirements that only TRCs from 'new' renewables are eligible to participate. The 'new' in this case refers to the date when the renewable energy facility became operational (or was repowered) NOT to the date the power was generated. The date used to define a new facility is generally based on the status of renewable energy development and regulatory or legal mandates in that particular region of the country.

The Green-e Program has defined "new" TRCs in the following way: An eligible new renewable generation facility must either be: (1) placed in operation (generating electricity) on or after January 1, 1999; (2) repowered on or after January 1, 1999 such that 80% of the fair market value of the project derives from new generation equipment installed as part of the repowering; (3) a separable improvement to or enhancement of an operating existing facility that was first placed in operation prior to January 1, 1999, such that the proposed incremental generation is contractually available for sale and metered separately from existing generation at the facility; or (4) a separately metered landfill gas resource that was not being used to generate electricity prior to January 1, 1999. 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 considered new, with the exception of new landfill gas resources identified in (4) above.

Best Practice: TRCs or renewable electricity used in green pricing programs should be from facilities that are not already paid for through the general utility tariff to avoid a double sale and to protect green pricing customers. Similarly, buying TRCs from a renewable energy

facility that is rate-based in another utility's territory should also be prohibited, except when that other utility's customers are appropriately compensated. A widely adopted industry best practice is to ensure that revenues collected from green pricing programs contribute to incremental purchases of renewable energy or renewable capacity beyond what the utility is otherwise doing through their resource planning and acquisition process.

6.5.3 Sale of Renewable Energy to Green Pricing Customers and Simultaneous Use of TRCs to Meet a State Mandate

A utility selling the output from renewable energy facilities to their green pricing customers and simultaneously using the TRCs from that same power to meet their state RPS or renewable mandate requirements is an inappropriate double use. The property rights to the renewable energy attributes have already been sold to the green pricing customers and are therefore should not be available for use in compliance with other mandates. For more information on this topic, please see Section 6.3.1.1.

Best Practice: Using TRCs to simultaneously meet a state renewable mandate and to meet the retail claims of a green pricing programs constitutes and inappropriate double use should be avoided.

6.6 For More Information

National Association of Attorneys General, "Environmental Marketing Guidelines for Electricity," December 1999. Available at http://www.naag.org/issues/pdf/Green_Marketing_guidelines.pdf

Radar, Nancy and Hempling, Scott "The Renewable Portfolio Standard: A Practical Guide." February, 2001, Prepared for the National Association of Regulatory Utility Commissioners

Wiser, Ryan, et al. Case Study Series by Berkeley Lab and the Clean Energy Group analyzes the innovative practices of state clean energy funds in support of renewable energy, including both large-scale and small-scale distributed resources. Available at: http://eetd.lbl.gov/ea/ems/cases/EMS_case.html

For documents discussing the interaction between green pricing programs or voluntary green power marketing and an RPS:

Center for Resource Solutions, "Accreditation of Green Pricing Programs Final Criteria, Version IX," October 11, 2002. http://www.resource-solutions.org/greenpricingcriteriadocs.htm

Center for Resource Solutions, "Green-e Renewable Electricity Certification Program Standard," http://www.green-e.org/ipp/standard_for_marketers.html

SECTION VII. TRC ACCOUNTING AND VERIFICATION SYSTEMS

7.1 Topics Discussed in this Section

- Overview and comparison of verification methods: contract path and certificate-based
- Functional characteristics of a certificate-based accounting and verification system
- Other certificate-based accounting system design issues
- Coordination with neighboring states and environmental regulators
- Coordination with regional and national tracking initiatives

7.2 Introduction

Utility regulatory commissions often have responsibility for verifying compliance with renewable energy programs such as green pricing, environmental disclosure, emission reduction programs, and renewable mandates. Many states are struggling with the task of developing a comprehensive and fraud-proof verification methodology. The fast growth of renewable programs in the U.S. combined with the use of TRCs from other states or regions to meet program compliance raises the need for a more sophisticated accounting and verification methodology. In this section, we discuss some of the auditing and verification methods that have been used, and best practices in their design.

7.3 Overview of Verification Methods: Contract Path and Certificate-Based

There are three primary methods of retail tracking and verification- contract path, certificates-based, and hybrids between the two. We will not cover the latter because of the large number of possible design combinations. It is important to note that there are a large number of possible design features with certificate tracking systems, including hybrid options, which can satisfy the unique requirements of every state.

7.3.1 Contract Path Method

Contract path systems use bilateral contracts and receipts, usually going back to the generator, to verify the quantity and characteristics of the electricity purchased by the load serving entity (LSE). Generally, a company's product or portfolio mix is considered to be a sum of its energy contracts. Nearly all contract path systems are characterized by a third party review, usually an auditor or regulator, of sworn attestations, contract receipts and other

proof of generation and transfer of ownership (e.g. between a generator, intermediary, or final marketer). Meter data is sometimes used to verify such attestations and contracts.

Contract path tracking systems can be used to verify the retail sale of TRCs, although they are much more cumbersome and are considered a less secure way to verify TRCs sales and other TRC-only transactions. Contract path systems suffer from a lack of clear, simple, unambiguous and fair methods of dealing with spot market or undifferentiated system power transactions. It is very difficult for system/RTO operators to create a fair way of allocating generation attributes among companies that purchased undifferentiated system power. This is a common request from states that have an environmental disclosure requirement. This is further complicated when TRCs are unbundled from the underlying electricity. **For this and other reasons, contract path tracking systems are generally, though not exclusively, associated with transactions where the energy and attributes remain bundled together.**

7.3.2 Certificate-based Systems

We use the term 'Certificate-based System' to describe an electronic verification methodology whereby the generation data is automatically entered into an electronic system, usually by the transmission company or ISO. The generation data used can be based on financial settlements or gross generation depending on the rules of the program. Certificates are issued by the program administrator for each increment of electricity, usually denominated in MWhs. Certificates are then deposited into the certificate owner's "account." Usually the first point of deposit is the generator.

Once issued, certificates can be traded and transferred easily regardless of the actual energy flow. Both the buyer and seller must confirm the transaction (e.g. quantity and whether bundled or unbundled with energy) before it is officially entered into the system. Certificate-based systems typically retire certificates when they are sold to retail marketers or customers (depending upon the system), used to meet a regulatory requirement such as an RPS, or are exported out of the system. In this way, certificate systems are able to track all certificates generated and "used" to ensure that no one certificate is "used" more than once (double-counting). Typically, a certificate is "used" when it is noted on a disclosure label or used to meet retail load, used for a regulatory purpose (such as an RPS), exported out of the system, or otherwise retired (e.g. if it expires per PUC/ISO rules).

The primary differentiating characteristics between certificate-based verification and contract path verification include the source of data, the mechanism to establish ownership of TRCs, the separation of TRCs from energy, and the use of certificate-based systems to serve broader renewable market functions. Under certificate systems, data transfers are typically automated, and generally do not require a manual review of contracts to establish generation attribute ownership. Perhaps more important is that the possession of the certificate itself is proof of attribute ownership so there is no need to track ownership through the daisy chain of intermediaries in energy transactions. In every case to date, certificate-based systems have

been developed and implemented so that TRCs can be sold separately from the electricity.[42] Thus, another defining characteristic of certificate verification systems is the unbundling of renewable attributes from energy flow. Finally, certificate-based verification systems also serve a much broader market function of establishing ownership of TRCs and creating a mechanism to record transfer of ownership between market participants, outside of their use in a regulatory program. This serves a critical function of providing verification and thus credibility in burgeoning voluntary retail renewable markets, and facilitates the transfer of TRCs into emissions markets.

One confusing development in the use of certificates to verify compliance with an RPS or other regulatory program is that some states use a flexible certificate-based trading system to allow utilities to trade renewable certificates among themselves for compliance, however, they do not use a certificate-based verification methodology (as defined here). One example of this is Nevada. In this case, electronic certificates are created according to generation as manually reported by the generator (and periodically verified by the PUCN). Once issued, the certificates can be traded and transferred, but the state regulatory body looks at contracts to verify that the utility has purchased the certificates and has complied with the RPS.

It also should be noted that Independent System Operators (ISOs) typically also use an automated system to track energy flows at a wholesale level. These systems are conceptually similar to certificate-based verification systems in that meter data is electronically transferred to a central database. Therefore, ISOs are one of the best entities to take on certificate issuing and tracking functions.[43] In fact, the NARUC Board of Directors adopted a resolution in July 2002 to encourage "each RTO/ISO or larger geographic region to assume the responsibility of developing tracking databases for all electricity generation, and for issuing, recording transfers, and redeeming or retiring attributes within the tracking database."[44]

Because certificate-based systems are highly automated, they have great flexibility and expandability to track many different characteristics of the energy attributes or electricity generator. There are many different design variations that determine how certificates are transferred between parties, how certificates are imported or exported, and how system mix is determined and balanced based on certificate withdrawals. Those readers who are familiar with the design features of the NEPOOL GIS should recognize that this system design is not synonymous with certificate-based accounting. In fact, the accounting systems for the Texas Renewable Electricity Credits Program and other international accounting systems are quite different in their design features. Certificate-based accounting systems can be designed with

[42] There are currently three systems in operation in the U.S., the Texas RECs Program, the New England Generation Information System, and the Wisconsin Renewable Resource Credit Program. Worldwide, there are systems in operation in several European countries and in Australia.

[43] One key difference between certificate tracking systems and energy tracking systems is that energy tracking systems track metered flows of energy in the system, both incoming (generation meter) and outgoing (customer meter), whereas certificate tracking systems usually track only incoming flows to determine the number of certificates that are issued.

[44] NARUC Resolution to Support the Incorporation of Regional Energy Generation Tracking Systems in ISO/RTO Responsibilities and in FERC's Standard Market Design adopted July 31, 2002.

a wide variety of features that can be adapted to different market needs and regulatory environments as needed.

Information Carried on TRCs

The following information is commonly tracked as part of the electronic register for every certificate issued.

- Company Name
- Company Address
- Company Phone
- Company Fax
- Company Email
- Company Contact person
- Generating ID Number
- Fuel Source
- Technology Types
- Capacity of Facility
- Vintage (DD/MM/YY commercially operational)
- Time and date of Generation
- Fate of Emissions Allowances
- SO_x Emissions
- NO_x Emissions
- CO_2 Emissions
- Mercury Emissions
- PM-10 Emissions
- Eligibility for Green-e
- Union Labor
- Public Support

7.3.3 Comparison between Contract-Path and Certificate-Based Accounting Methods

There are several reasons why certificate-based accounting is the recommended method for states or regions that are contemplating the verification of state energy mandates or state environmental disclosure labels. The primary reason is that the contract path method of verification and tracking is a much less flexible and less reliable method of verifying complicated supply contracts, which more and more rely of the separation of attributes and commodity electricity. Ultimately contract path verification relies on some third party audit of contracts, which inherently adds an element of subjective evaluation into the verification method. In addition, most contract-path verification methods that have been used to date are predicated on energy supply contracts that assume that the commodity electricity and attributes are bundled and part of a single contract. Therefore, most contract-path verification methods do not recognize the separation of attributes from commodity electricity, and this can create double counting issues when TRCs are sold separately. Finally, contract-path verification is unable to check for double-selling or double-counting system-wide because in each audit, the auditor is only looking at a piece of the total electricity market (i.e. auditing one supplier). In this way, it is very difficult for a regulatory body to ensure that no double–selling or double-counting of TRCs is occurring.

By contrast, a certificate-based accounting method creates a closed loop system, whereby individual suppliers are audited in the context of the entire electricity market or renewable electricity market in state or region. In this way, it is a more reliable verification method. In addition, because a certificates-based accounting system is automated, it is much more flexible to track and verify a wide range of information. If it is set up and designed correctly, a certificate-based system can perform a variety of functions and services that serve multiple states and regions.

Besides the flexibility and reliability of a certificate-based accounting system, it fosters the development of a robust and liquid certificates market. The separate sale of TRCs allows the market to internalize renewable energy's benefits. Though the primary focus has been on

capturing the value of the environmental externalities of renewables, the TRC premium can also capture some of the economic development and technology diversity benefits as well as any social benefits. The separation of the electricity and the TRCs means that to the extent renewables cost somewhat more than other types of electricity, the incremental premium can be collected from a larger population of people than just the local utility customer. However, for TRC sales to be robust, there needs to be consumer confidence that the TRCs are a legitimate product. Most stakeholders agree that a national network of certificate-based accounting systems is the best way to establish property rights of TRCs needed to give them legitimacy.

This diversification of the revenue stream available to developers of renewable generating facilities opens the door to multiple funding sources for new project development. It is particularly useful when local renewable resource sites have been exhausted while local demand for renewable resources remains strong (either through mandates, voluntary programs, or private company efforts). TRCs also allow individual consumers, small or large, to financially express their preference for renewable energy independent of the preferences of their state government or utility.

Finally, certificate-based accounting has emerged as the most common method for accounting for renewable generation and for preventing double counting of TRCs. In addition to Texas, New England, and Wisconsin who already have certificate-based accounting systems in operation, certificate-accounting systems are under development in the PJM and being contemplated for California and the wider WECC.[45] There is also an effort discussed below to form a national TRCs accounting network that will link states and regions that have certificate-based accounting systems. This will allow TRCs to be freely transferred between states and regions, for whatever purpose, and will ensure that TRCs are not double counted or double sold and are accounted for until final retirement.

Best Practice: A comprehensive accounting and verification framework for TRCs is the best way to eliminate many of the double counting scenarios identified earlier. Ideally, accounting systems will be set up regionally to fulfill a variety of market needs and not on a state-by-state basis or with limited functionality. Such systems should be designed to be compatible with other accounting systems (even those outside of the region) because certificates are increasingly traded across state and even national boundaries. One key aspect to compatibility is that all accounting systems should track, or at least have the ability to track a minimum set of information that will enable a certificate to be able to be transferred within the entire network of certificate accounting systems, and not limited to a single region.

[45] The development of a WECC-wide renewable tracking system is being lead by the Western Governors' Association.

7.4 Functional Characteristics of a Certificate-Based Accounting System

Accounting systems should be designed to broadly anticipate possible future needs of the market, for example to verify TRC sales and RPS compliance, to determine the fuel or emissions portfolio on a disclosure label, and to track non-renewable attributes. There are several key functions that each certificate-based accounting system should be able to do to remain compatible with other systems that have been developed in the U.S. and satisfy the majority of market needs. Systems must be able to:

- Establish the property rights of certificate owners,
- Retire certificates after they have been used to meet government mandates or retail sales,
- Enable market participants to transfer ownership of certificates between parties registered in the system,
- Ensure that basic information carried on the TRCs and quantity of certificates is accurate and verified,
- Meet a variety of regulatory objectives, such as verification of compliance with RPS or verification of green power product claims,
- Communicate with neighboring certificate accounting systems in an efficient and secure manner; and,
- Prevent double counting.

Individual systems that are developed should be easy to use, transparent, flexible, and have low entry and transaction costs.

Table 3 provides an overview of the key functional components of existing certificate-based accounting and tracking systems.

7.5 Other Certificate-Based Accounting System Design Issues

7.5.1 Full Participation by Generators

As discussed above, it is very important that certificate-based accounting systems require that generators fully opt-in, meaning that all output from a given generation facility is tracked, and it is tracked by one and only one tracking regime. This will ensure that multiple certificates are not issued for a single MWh. A national generator registration could keep track of which accounting system a specific generator is registered with and thus would prevent a generator from signing up with more than one accounting system. The American Association of Issuing Bodies (AAIB) described below is being designed to perform this function. Therefore, another important aspect of setting up a state or regional accounting system is coordinating with the AAIB.

Best Practice: Any generator that is involved in a certificate accounting system should be required to fully opt-in to such system, meaning that all of the output from said generating facility is tracked by a single accounting system. In addition, it is recommended that a national generator registry be developed to record which certificate accounting regime a generator is subscribed to, to ensure that no one generator is having certificates issued by more than one accounting regime.

7.5.2 Treatment of Energy Without Attributes

One issue that has been a major stumbling block for regulators designing a certificate-based accounting system is how to treat the energy that is sold without the attributes or otherwise has no attributes associated with it. This is a concern to utility regulators when calculating a state system mix or utility mix for environmental disclosure purposes. When the regulator goes to calculate the system mix, there is usually a true-up period where all of the MWhs are assigned to a LSE. The problem arises when TRCs are sold to another party outside of the state or regional accounting system or as part of a TRC-only product. When TRCs are sold separately without electricity, the associated MWh can no longer be claimed as renewable. In regions where the attributes from all types of generation are tracked, this may become a problem in the future for non-renewable clean attributes as well, such as natural gas. The question for regulators is how to report these "naked" or "null" MWhs on an environmental disclosure label.

There are several ways for regulators to deal with this. The best model comes from the NEPOOL GIS System. Essentially, any null MWhs at the end of a compliance period are assigned the system average after subtraction of TRC sales. This provides the simplest and most expeditious method of reporting null MWhs on a disclosure label. For example, normally a MWh has a single attribute, like wind, solar, gas, or nuclear that is created when the MWh is generated. With a null MWh, the attribute has been sold separately. Under the NEPOOL method, the null MWh will be assigned the system average, such that it does not have one single resource type, but a percentage of each of the resources in the system. It is important to note that the use of the system average is merely a construct to calculate an environmental disclosure label or system mix. States that do not have an environmental disclosure reporting requirement may not need to be concerned with how to characterize null MWhs if system mix information is never reported publicly.

Best Practices: The best model in practice for assigning attributes to null MWhs for the purposes of environmental disclosure is to assign each null MWh with the system average after subtracting out TRC sales.

7.5.3 Retirement of TRCs from the Accounting System

The ability to retire certificates from an accounting system is critical to ensure that no double counting or double claiming is occurring. Accounting systems should have a mechanism for

market participants to voluntarily retire certificates and state regulators should have a mechanism to retire certificates after they have been used by a market participant to meet state energy program mandates, have been sold to consumers, or as required by law. The retirement mechanism should allow the public to see which certificates and how many certificates have been retired by any participant in the accounting regime. This is important for building consumer credibility.

Best Practice: In general, certificates should be retired (i.e. taken out of the accounting system) under three circumstances: (1) the certificate is counted on a state disclosure label and/or the certificate is used to meet the retail load of a load serving entity (2) the certificate is used to meet a regulatory requirement, such as an RPS, or (3) the certificate is sold as a part of a TRC-only product. Certificates may also be retired from individual accounting systems if they are exported into another accounting system, or they may expire according to the rules of the accounting system.

7.6 Coordination with Neighboring States and Environmental Regulators

The TRC market has evolved to be regional and national in scope. Because of this, it is recommended that state utility regulators collaborate with their counterparts in neighboring states and with environmental regulators in their own states to develop and implement regional accounting systems that can serve multiple functions. Many of the same pieces of basic data are needed to track renewable energy for environmental disclosure purposes, PBF and RPS programs, green pricing and pollution emission reduction or greenhouse gas registries. Moreover, an individual state accounting system still must interact with neighboring states where energy or attributes are traded across state lines.

Another reason for coordination with other states is to avoid double counting in the disclosure of each state's electricity system mix. The sale of TRCs separate from electricity can make it difficult to determine an accurate state resource profile unless TRCs sold outside the state are subtracted from the in-state renewable base. Participation in a regional accounting system and coordination with other accounting systems allows these adjustments to be made accurately and automatically.

Finally, because of the interaction between and among various state renewable energy programs, coordination with other states in the design phase of new programs will provide valuable 'lessons learned' and allow for greater compatibility between states.

7.6.1 Coordination with Environmental Regulators on Emissions Reported

There are a number of reasons why coordination between utility and environmental regulators can be helpful. Coordination with environmental regulators may be necessary for

air quality reporting, e.g. 'counting' of emissions, and emissions allowances. Some energy accounting systems track all types of generation, not just renewable generation. Close cooperation between energy accounting administrators and environmental regulators is desirable to facilitate good communication and combined efforts where useful. For example, many environmental regulators under a cap and trade compliance regime need a system to verify compliance and the trading of emission allowances. That function could be incorporated into electricity or TRC accounting systems and thereby save costs of having duplicate systems. To the extent that TRCs are used for utility emission allowances and offset credits, this further reinforces the need for good communications between environmental and utility regulators, who may have a role in the enforcement of emission rules by their regulated utilities. In this case, the problem to be avoided is double counting of emission allowances.

There are two sources of emissions data for emissions reporting- continuous emission monitoring (CEM) and EPA's eGRID. CEM is required under the Clean Air Act for SO_2, NO_x and Carbon emissions for most large utility-owned fossil electricity generation units. However, there are a couple of problems with using CEM in a certificate-based generation tracking system. CEM requirements are unit specific, not plant specific, so many plants that fall under the Clean Air Act requirement are only monitored for one or more units, not the entire plant. Second, the Clean Air Act's CEM requirement selectively excludes certain types of generating units, including simple combustion turbines, cogenerators, non-utility generators and very small-scale generators, for example biomass generators. Reconciling these differences can make CEM data difficult to use in a tracking system that tracks certificates from a generation plant. If CEM were required, this could pose a fairly significant new regulatory burden on some biomass generators or very small generators. EPA's eGRID is a good substitute for CEM. EGrid includes all the CEM data, augmented with the best available estimated emissions for generating units that do not have CEMs. All emissions are matched unit-by-unit with EIA's generation data. More than 90% of the emissions reported in eGRID come from CEMs. However, one problem with using eGRID is that the data is usually two or more years old when it is released.

Best Practice: Coordination between utility and environmental regulators is recommended to prevent double counting when air quality issues are reported to the public. This may be due to participation in a state or national cap-and-trade program, emissions trading program, or due to environmental disclosure requirements. CEM and eGRID are two good sources of emissions information that can be used in a certificate-based tracking system, though the pros and cons of each should be evaluated carefully.

7.7 Coordination with State, Federal and International Greenhouse Gas Registries

State Greenhouse Gas (GHG) Registry systems are becoming more prevalent. These systems have many tasks to perform besides those dealing with CO_2 credits from renewable energy

facilities. Similarly, TRC accounting systems have many more functions than dealing with renewable energy CO_2 allowances. By working together in the design of their respective systems, however, administrators from these two programs can design the systems so the translation of TRCs into a Greenhouse Gas Registry is seamless and efficient, saving both programs time and money. First of all, sufficient information should be contained in the TRC database to allow the TRC to be converted into a CO_2 offset. The TRC system will not then be concerned about calculating CO_2 allowances but only with having an accurate database of information. Secondly, when a TRC moves from the energy accounting system to the GHG Registry, it must be removed from the energy accounting system to avoid any double counting. An accurate and credible energy accounting system will provide confidence that the carbon benefits from TRCs have not already been sold or used prior to their transfer to the GHG system and confidence that they will not be used as TRCs again after they have been moved into the GHG system.

Best Practice: TRC registration and accounting systems should contain sufficient and credible information in the database such that emissions, emissions allowances, and emissions allowances can be tracked overtly, or calculated by interested parties. To ensure a seamless translation of TRCs to emissions information that an be exported to State Greenhouse Gas Registries, certificate-accounting regimes should track, at a minimum, the generator's name, fuel type, facility location and date and time of generation.

7.8 Coordination with Regional and National TRC Accounting Systems

A coordinated network of accounting systems is probably the best way of avoiding double counting and related consumer protection issues discussed in Section 5. Moreover, the potential passage of a national RPS program where TRCs are likely to be used for accounting purposes underscores the need for a coordinated system that is compatible with state, regional and national programs. This is much easier to do during the start-up phase of these programs than later once money has been spent and there are vested interests in the status quo. If designed carefully, state and regional systems can be integrated into a national system that meets the needs of all. Moreover, a coordinated and integrated national/North American system will facilitate international trading of TRCs and CO_2 credits as those markets develop.

7.8.1 American Association of Issuing Bodies (AAIB)

European market participants have formed an *Association of Issuing Bodies* that coordinates and networks different certificate accounting systems in the European Union. In June 2002, Center for Resource Solutions held a national stakeholder meeting to investigate the potential for a similar organization to collaboratively develop a set of standard protocol for newly developing certificate-accounting systems in the U.S. There was very positive response and efforts are moving forward to establish an American Association of Issuing Bodies or AAIB. The participating "Issuing Bodies*"* are envisioned to be independent system operators-- ISOs (such as ERCOT and NEPOOL) that have already developed or are developing such accounting systems. In areas without a planned ISO-type system, a default accounting system might be implemented by an independent entity.

The AAIB will lead the effort to develop basic rules and minimum standards for certificate accounting in North America.[46] The rules and standards will be conceptually oriented with general principles that preserve transferability and accuracy of information. The AAIB will not govern how a specific Issuing Body operates or what mechanism an Issuing Body uses to fulfill the minimum obligations necessary to participate in the national network. As envisioned, the rules and standards for coordination, known as the AAIB Basic Commitment, will be discussed and modified through the stakeholder process directed by the AAIB. Ideally, each Issuing Body will incorporate these guidelines and minimum operating procedures into their own system. The most recent draft of the AAIB Basic Commitment can be found at www.resource-solutions.org.

7.8.2 Issuing Bodies

Under the AAIB, TRC Issuing Bodies will be established for different regional domains in North America. A domain is defined by geographical boundaries (e.g. state, control area, country, or region) or other similar delineations such that a renewable generating facility is assigned to one and only one domain. Each Issuing Body will develop its own operating protocol consistent with the laws and renewable energy programs in its geographic domain and will agree to abide by the procedures established for cooperation with other Issuing Bodies.

Best Practice: Utility regulators that are working to develop a state or regional certificate accounting system should work with the American Association of Issuing Bodies to ensure that the system developed will be compatible with the emerging national network of certificate accounting entities or "Issuing Bodies." To find out more about the AAIB effort, please contact the Center for Resource Solutions at 415-561-2100 or http://www.resource-solutions.org/TRCAAIB.htm.

[46] The incremental cost of establishing a framework that serves the needs of the hemisphere is very low. Both Canada and Mexico have already indicated their interest in participating sometime in the near future.

7.9 For More Information

NARUC Resolution supporting attribute based accounting and tracking systems: http://www.naruc.org/Resolutions/2002/summer/ere/tracking_systems.shtml

Western Governors' Association "Western States Energy Policy Roadmap- Policy Resolution 03-03": http://www.westgov.org/wga/policy/03/index.htm
Certificate Tracking and Accounting Systems:

NEPOOL GIS and GIS Operating Rules: http://www.nepoolgis.com/

ERCOT REC Program: http://www.texasrenewables.com/recprogram.htm

Wisconsin RRC Program: www.wirrc.com

American Association of Issuing Bodies: http://www.resource-solutions.org/TRCAAIB.htm

For a discussion of tracking and verification methods:

Hamrin, Jan and Meredith Wingate, " Developing a Framework for Tradable Renewable Certificates, Version 2.4." August 2002. Available at: http://www.resource-solutions.org/TRCAAIB.htm

For a discussion of tracking and verification methods and their application to an RPS:

Radar, Nancy and Hempling, Scott "The Renewable Portfolio Standard: A Practical Guide." February, 2001, Prepared for the National Association of Regulatory Utility Commissioners.

For a discussion of imports and exports and tracking:

Grace, Robert and R. Wiser, "Transacting Generation Attributes Across Market Boundaries: Compatible Information Systems and the Treatment of Imports and Exports," November 2002. Prepared for Lawrence Berkeley National Lab, technical report number LBNL-51703. Available at: http://eetd.lbl.gov/ea/ems/reports/51703.pdf

Table 3. Comparison of Existing RPS Verification Programs Using Renewable Certificates[47]

	Texas Renewable Energy Credit (REC) Program	NEPOOL Generation Information System (GIS)	WI Renewable Resource Credit (RRC)	Nevada	European RECS and Country Summary	Australia ORER Registry[48]
Type of Tracking Methodology	Certificate tracking with automated verification	Certificate tracking with automated verification	Certificate tracking with automated verification	Certificate tracking with contract path verification	Certificate tracking	Certificate tracking
Type of Generation Tracked	Existing and new renewable generation	All generation in or delivered to NEPOOL dispatch and control area	Renewable generation delivered in excess of state RPS requirement	Existing and new RPS eligible renewable generation	Existing and new renewable generation	Existing and new renewable generation
System Overview	- RECs are issued based on settlement data & deposited in generator accts. -RECs are bought/sold/traded per privately arranged contracts -RECs transfers occur electronically, initiated by participants -RPS compliance is verified via REC ownership at end of compliance period - RECs are retired after they are used to meet RPS compliance	- Certificates are issued based on settlement data & deposited in generator accts. -Certificates are bought/sold/traded per privately arranged contracts -Certificate transfers occur electronically, initiated by participants -RPS and GPS compliance is verified via certificate ownership at end of compliance period - At end of compliance period, all unsold certificates are assigned the "residual mix" and are retired; all certificates in LSE accts used to calculate disclosure label or verify compliance w/ RPS or GPS	-RRCs are issued for any amount of RE generation delivered in excess of an LSEs RPS obligation -RRCs are bought/sold/traded per private contracts - RRC transfers occur electronically, initiated by participants -At end of compliance period, all RRCs used to meet RPS are retired.	-Generators register with PUCN -Generators/utilities submit quarterly forms indicating amount of RE generated and purchased -PUCN verifies information submitted through utility contracts and billing statements -Credits are issued for eligible RE delivered, multipliers applied if applicable -Credits may be traded -At end of compliance period, all credits used to satisfy RPS are retired	-RECS is an extra-governmental network of individual country certificate tracking systems. -There are presently 6 individual country certificate-based tracking systems in place (AU, DE, NL, UK, IT, BE) - These are networked together via RECS, although some country rules do not allow trading between countries.	-Generators calculate certificate entitlement and create electronic certificates via web-based registry operated by ORER -Any change in ownership of certificates is recorded in ORER registry -Certificates are retired/expired at request of owner

[47] This Table was developed for the California Energy Commission for inclusion in the Renewable Portfolio Standards Proceedings, Phase 2 Implementation May 13, 2003 Workshop, Background Materials, p. 12-13.

[48] Office of Renewable Energy Regulator

	Texas Renewable Energy Credit (REC) Program	NEPOOL Generation Information System (GIS)	WI Renewable Resource Credit (RRC)	Nevada	European RECS and Country Summary	Australia ORER Registry
Location/ Domain	Texas/ERCOT Control Area	NEPOOL Control Area- 6 New England States	Wisconsin	Nevada	Each country that has system generally controls certificates issued to generators in their country. However, anyone may participate in RECS network.	Australia
Primary Function of System	Verify utility and ESP compliance with State RPS. Secondary function to verify green power claims)	Develop and issue environmental disclosure labels; Verify RPS and GPS compliance where applicable	Track and verify utility compliance with State RPS; facilitate trading of RRCs among electric providers	Verify compliance with State RPS.	Verify RE generation for in-country greenhouse gas requirements, in-country RE obligations, and voluntary green markets.	Verify compliance with Federal RPS
System Administrator	ERCOT with some shared responsibilities with PUCT	APX with some shared responsibilities by NE regulators	Clean Power Markets	PUCN	Usually governmental entity in each country	ORER
Source of Data	Electronic transfer of settlement quality meter data	Financial settlements data from ISO's Market Settlement System	Combination of electronic transfer of settlement quality meter data; manual entry of meter data; and self-reported	Self-reported by generators and utilities with verification through contracts and spot checks	Electronic transfer of meter data;	Self-reported
Participation in System	Mandatory for companies that must meet RPS; voluntary for other market participants	Mandatory for all generators and LSEs; voluntary for other market participants	RPS compliance mandatory for all WI electric providers; RRC trading participation voluntary	Voluntary	Varies- in general, all countries have mandatory participation at some level, except for the Netherlands	Mandatory for all companies with a renewable obligation; voluntary for other market participants
Imports/ Exports	Generally not applicable	Unit-specific imports or exports must be physically delivered to/from NEPOOL system. System mix imports/exports assigned system or "residual" average.	Imports of renewable energy allowed from renewable generators that have a wholesale contract with a WI electric provider	Generators must be interconnected with T&D system of utility. At present time, standards for "proof of interconnection" have not been developed	About 1/2 of countries allow international trade of RE certificates	Not applicable

	Texas Renewable Energy Credit (REC) Program	NEPOOL Generation Information System (GIS)	WI Renewable Resource Credit (RRC)	Nevada	European RECS and Country Summary	Australia ORER Registry
Verification of Generator Attribute Information	Generators register and become "certified" by the PUCT	Generator information verified by state regulators	Generators register and become "certified" by Wisconsin PSC, including out-of-state generators referenced above	Verified by PUCN through contracts and PUC filings	In country system operator	ORER oversees the accreditation, verification and spot auditing of generators and information recorded in registry
Small-scale Systems Capability	Yes	Yes	Yes	Yes	Varies	Yes
Maximum Lifespan of Certificates	Approx 3 years	1 quarter	Current rules have no expiration date for RRCs	Approximately 5 years	Varies. Certificate lifespan ranges from 2 years to unlimited amount of time.	Current rules have no expiration date for certificates
Other Features	Banking and borrowing capability for RPS	GIS organized in quarterly trading periods. System automates line losses, pumped storage, green tag transactions, etc.	"Bulletin board" provided to facilitate trading of RRCs	Credits are first issued according to financial settlement statements, however, starting in 2004, there will be a reconciliation where additional credits will be issued for the difference between gross generation and energy delivered that occurred in 2003.		-Stiff penalties for fraudulent creation of certificates; -Interfaces with a privately operated market-trading platform known as Green Electricity Market (GEM). Participants in GEM can download transaction information into ORER database

SECTION VIII.BEST PRACTICES SUMMARY

The following is a summary of the Best Practice recommendations from this Handbook. The "Best Practices" contained in the Handbook came from a variety of sources: (1) the result of a national stakeholder decision-making process organized by the Center for Resource Solutions, (2) a national dialog facilitated by the National Wind Coordinating Committee, (3) case law, (4) practices commonly adhered to by market participants, (5) National Association of Attorneys General Green Marketing Guidelines, and (6) the authors' opinions based on all of the above and generally held tenets regarding consumer protection and green power marketing. The section of the Handbook where each Best Practice is discussed is noted in parenthesis after each Best Practice. Reports from the multi-stakeholder activities are available on the CRS website (www.resource-solutions.org) and included in the references to this document. The Basic Principles that guide thinking about the issues and form the underlying assumptions used to develop this list of Best Practices can be found in the beginning of this Handbook. Because experience with TRCs is still limited, these Best Practice recommendations are not static but are expected to evolve over time.

8.1 Ownership, Property Rights, and Contracts

Creation of a TRC: A TRC should be deemed to come into legal existence at the moment the electrical output of the renewable energy facility is measured, either by physical metering or at the moment the energy is delivered to the grid or other load without metering. (Basic Principles, Section 3)

TRC Ownership: In the absence of specific legislative, regulatory, or contract provisions, a TRC should be deemed to be owned by the owner(s) of the renewable energy facility that generated the accompanying electrical energy. (Section 3)

TRC Ownership: All renewable energy contracts should stipulate the disposition and ownership of the renewable attributes or TRCs. Determining the ownership of TRCs sold under pre-existing contracts should be handled on a case-by-case basis. Renegotiation of contracts may be the best way to clarify TRC ownership. (Sections 2, 3, Appendix C)

Transfer of Property Rights: TRCs may be transferred by private, specific contractual agreement; by acts deemed to have accomplished a transfer under law or regulation; or, in the absence of such agreement or legal authority, according to general principles of commercial law. Under these principles, the purchase of TRCs assumes the transfer to the final consumer of all of the renewable attributes unless otherwise noted by contract. In the early stages of TRC market development, rules governing TRC transactions may be established through patterns of practice in private negotiations. (Section 3, Appendix C)

PURPA Contracts: It is recommended that the TRCs associated with renewable power purchased under PURPA contracts be retired on behalf of the utility ratepayers. If this position is adopted, then neither the utility nor the facility owner has the right to sell TRCs from energy purchased under PURPA contracts (barring contract language to the contrary). (Section 3)

8.2 Legal Issues

Separation of TRCs from Electricity: Regulators should take care to consider TRC transactions when making regulatory decisions governing renewable programs. Some regulatory decisions can have the inadvertent effect of preventing the separation of TRCs from commodity energy, and could create a legal challenge. (Section 3, 7)

RPS and Out-of-State Restrictions: It is best to avoid legal or regulatory language in an RPS or other state renewable energy program that explicitly excludes electricity or TRCs from renewable energy facilities that are out-of-state or are from non-U.S. sources. Such language could create a legal challenge under U.S. Commerce Law, NAFTA, and GATT. (Section 3)

8.3 On-Site Generation and Net Metering

Ownership of TRCs from On-Site Generation: TRCs from customer-owner on-site generation units should be considered the property of the customer and should not be transferred to the utility, even if the utility has installed (but does not own) the system. There may be limited exceptions to this Best Practice, for example, when the utility has paid a portion of the costs of the unit and such payment confers ownership rights, or contract language specifies such transfer. (Section 2, 3)

Customer Leased On-Site Generation: TRCs from customer-leased on-site generation systems should be credited to the lessor because in this case the lessor, whether a utility or another party owns the system. (Section 3)

8.4 Disaggregated TRCs

Mass-Marketed TRCs: Renewable electricity products that are mass marketed to consumers should contain only fully-aggregated TRCs where all of the environmental and other benefits are intact. (Sections 3, 5)

8.5 RPS and Green Pricing Programs

RPS Baseline Calculation: Renewables purchased under PURPA contracts should be credited to the utility for the purposes of calculating a renewable baseline for an RPS. (Section 3)

TRCs Used to Meet an RPS: RPS rulemaking language should specify that the RPS requirement can be discharged only if the all of the renewable attributes are included. (i.e., not null MWhs) (Section 2, 6)

TRCs Used to Meet an RPS: For states that have a renewable mandate, TRCs can be used by the utility to meet the mandate or sold to a third party, but not both simultaneously. (Section 2, 6)

TRCs Used to Meet an RPS: TRCs purchases should be treated the same way as renewable electricity purchases, and therefore should count toward discharging a renewable mandate, provided that the regulatory agencies have the ability to prevent the inappropriate double-counting, double using or double-selling of those TRCs. (Section 2, 6)

TRCs Used to Meet an RPS: In general, TRCs should be only used once to fulfill a renewable mandate, after which time, they should be retired from an accounting system or otherwise prevented from being used again in another state or sold to another company, unless specifically allowed under the RPS rule. (Section 6)

RPS and Out-of-State Restrictions: Utility regulators should take special care to ensure that RPS implementation language does not conflict with the U.S. Commerce Clause, NAFTA or GATT. Definitions of 'eligible resources' should not strictly exclude all out-of-state renewables or TRCs. Another option for states is to require TRCs used for compliance to include energy delivery into the state so energy and TRCs are bundled to the border. This would restrict TRC eligibility to nearby states and would ensure some in-state or in-system displacement, and would result in the same air quality benefits as in-state generation. (Section 2, 3)

Federal RPS and State RPS: Double use of a single TRC to meet both a state and federal RPS is best left to state and federal policy decision makers. If a federal RPS is passed, it is recommended that states be given the option to decide for themselves whether or not such double use is allowed. (Section 6)

Disaggregated TRCs: The use of disaggregated TRCs to meet an RPS should be addressed on a state-by-state basis in RPS legislation and regulation. (Section 6)

Renewable Programs and Air Quality Goals: If improvement in local air quality or construction of new renewable facilities in-state is the intent or partial intent of the renewable program or mandate, the use of TRCs from distant generators by the utility should be carefully considered. Similarly, if customers are led to believe through utility advertising that their support for a green pricing program is helping local air quality, then only local TRCs should be used to meet program demand. (Sections 5, 6)

TRCs Used in Green Pricing Programs: TRCs or renewable electricity used in green pricing programs should be from facilities that are not already paid for through the general utility tariff to avoid a double sale and to protect green pricing customers. Similarly, buying TRCs from a renewable energy facility that is rate-based in another utility's territory should also be prohibited, except when that other utility's customers are appropriately compensated. A widely adopted industry best practice is to ensure that revenues collected from green pricing programs contribute to incremental purchases of renewable energy or renewable capacity beyond what the utility is otherwise doing through their resource planning and acquisition process. (Section 4, 6)

TRCs that are Supported by PBFs and Used in Retail Markets: TRCs that are from facilities supported by a PBF or other incentive policy should be compatible with retail green power markets and green pricing programs provided that the PBF does not expressly prohibit such use, and regulators have taken such incentives into consideration when determining the green tariff. (Section 6)

TRCs Used in both Green Pricing Programs and RPS: Double use of a single TRC to meet a renewable mandate and simultaneously be sold to green pricing customers should be avoided. The best way to prevent this is to ensure that regulatory requirements (RPS, GPS, etc.) imposed on utilities or retail electricity providers (utilities and renewable power marketers), (1) be placed on all electricity products offered by the utility or retail supplier, and (2) that "green power" claims be associated with the supply of green energy that exceeds regulatory mandates. (Section 2, 6)

RPS and Banking TRCs: RPS and GPS programs may also benefit from banking and settlement periods over one year as long as they are compatible with state disclosure laws. (Section 5)

8.6 Public Benefits Funds and TRCs

PBFs and RPS: The use of public benefits funds for renewable energy projects that serve an RPS should not constitute double counting unless the legislation or PBF administrator specifically transfers ownership of the TRCs to the state or PBF Administrator, or otherwise restricts the use of the TRCs from PBF funded projects. (Section 6)

PBFs and TRCs: Commissioners should look at whether the PBF funds intended to retain ownership of the renewable output or TRCs in allocating the funds. If the state considers the PBF contribution as a purchase of TRCs or a legitimate claim to the TRCs, then the TRCs should be removed from circulation or this would constitute a double sale. Otherwise, the TRCs belong to the generator and may be sold or otherwise used. (Section 2, 6)

PBFs and TRCs: PBF Administrators should very clearly state in contracts with recipients of fund monies the disposition of the TRCs from facilities supported by public funds.

PBFs and TRCs: If a PBF was established to create local air quality benefits, it is important to verify that the renewable generator is not allocated emissions allowances. If they are given such allowances, it may be prudent to require the facility to retire its emission allowances in exchange for receiving the PBF money. TRC accounting and pollutant registry systems will reduce or eliminate the opportunity for this problem to arise. (Section 6)

PBFs and Green Pricing Programs: TRCs that are from facilities supported by a PBF or other incentive policy should be compatible with retail green power markets and green pricing programs provided that the PBF does not expressly prohibit such use, and regulators have taken such incentives into consideration when determining the green tariff.

8.7 Ratesetting and Ratepayer Value

Revenue from the Sale of TRCs: Revenue from the sale of TRCs from facilities that are paid through the general utility tariff should be treated like an 'off-system sale' and ratepayers should be compensated accordingly. (Sections 2, 4)

Tariff Recovery: Tariff recovery of TRC purchases should be treated consistently with tariff recovery of renewable electricity purchases for a utilities portfolio, or for green pricing tariffs, for example a green pricing tariff. (Section 4)

Green Pricing: A widely adopted industry best practice is to ensure that revenues collected from green pricing programs contribute to incremental purchases of renewable energy or renewable capacity beyond what the utility is otherwise doing through their resource planning and acquisition process. The green pricing tariff should be appropriately set to ensure that the price paid by consumers is consistent with the benefit received, and that green pricing customers are getting a good value for their money. (Section 4)

8.8 Double Counting, Double Claiming, Double Sale, and Double Use

Double-Selling TRCs: Cases of double sale, where TRCs or bundled renewable energy attributes associated with a single MWh of generation are sold to more than one party, whether those sales are in mandated or voluntary markets, should be prohibited. (Section 5)

Double-Selling Individual Attributes: Cases of partial double sale, where a single environmental attribute associated with a TRC is sold by more than one party, should not be allowed. (Section 5)

Double Claiming: Although double claiming may be the result of an honest misunderstanding or misinterpretation of contracts, it nonetheless can mislead ratepayers and can create a deceptive environment for TRC consumers. Accordingly, we recommend that utilities and marketers only claim on their disclosure labels or marketing materials those TRCs that have been explicitly purchased. In addition, we recommend that states review their procedures for calculating disclosure labels and utility system mix to provide a mechanism to remove TRCs from the calculation if the utility has purchased commodity electricity without the TRCs. (Sections 2, 3, 5)

Double-Use: Many forms of 'double use' of TRCs should be allowed to the extent they are consistent with the intent of the applicable regulatory obligations and/or the rules of the programs. Other forms of double use should not be allowed depending on the extent to which ratepayers are covering the full costs of the programs or the intent of the rule or legislation. In these instances, regulators should develop explicit language to prevent double use from occurring. (Section 5, 7)

Double-Use: Double use of a single TRC to meet both a renewable mandate and to serve green pricing customers should be avoided except under limited circumstances. (Sections 2, 5, 6)

Double Sales: Circumstances of clear double sales should be prohibited. A coherent state or regional accounting system is necessary to achieve acceptable results and avoid some of the double counting issues. (Section 2, 5)

Preventing Double-Counting: A consistent accounting methodology needs to be implemented for TRCs nationally to prevent inappropriate double use, double claiming and double sales. (Section 5, 7)

8.9 Marketing Practices

Disaggregated TRCs: Disaggregated TRCs provide a tremendous opportunity for consumer misunderstanding, largely because the concept of peeling off various environmental attributes from electricity is so sophisticated that the majority of consumers will not understand it, even if it is explained to them. Whether the deception is inadvertent or deliberate, it is the opinion of the authors that the risk of confusion, allegations of fraud, and the potential for double counting is high enough to recommend that disaggregated TRC products not be mass marketed.[49] (Section 5)

Emissions Avoidance Claims: TRC and renewable power providers should be prohibited from making explicit claims about SO_2 or similar cap-and-trade pollutant benefits due to renewable energy or TRC customer purchases. Claims that TRCs or renewable generation avoids the emission of NON cap-and-trade pollutants such as particulates, mercury and CO_2 should be allowed. Nitrogen oxide emissions are sometimes covered by emission caps and sometimes not, depending of the geographic location and season. (Section 5)

[49] / The one exception to this rule is where the attribute is involuntarily stripped off (as in the case of the current S02 cap and trade system)

8.10 Shelf-life of TRCs, Banking, and Future TRCs

Shelf-Life of TRCs: The authors believe that one year to eighteen months from the date of creation is a reasonable period of time for TRCs to be available for sale to retail customers and is consistent with customer expectations. (Section 5)

Sales of Future TRCs: To provide maximum flexibility to marketers and to be consistent with the settlement periods of the certification and renewable programs in several states, it is recommended that future sales of TRCs be allowed with regulatory oversight to ensure that money collected is spent judiciously. Money should not be collected until the TRCs are created or the TRCs should be delivered within a year from when the money is collected. Further research into the legal ramifications of sales of renewable capacity is suggested. (Section 5)

Banking Periods: For specific renewable mandates or voluntary green pricing programs, compliance periods should be consistent with banking rules as best possible. It is recommended that suppliers be given up to 18 months to meet their compliance obligation for renewable programs. (Sections 3, 5)

Banking TRCs: Within certificate accounting and accounting systems, there should be a mechanism created to allow TRC generators or owners to bank their TRCs. One solution is to establish a "reserve account" system where generators or others can deposit certificates of generation for later sale. All market participants should be treated the same with regards to banking. (Sections 3, 7)

Banking TRCs: TRC accounting or accounting systems should allow unused certificates to be banked or saved for ten years or more to facilitate their possible conversion to pollution credits or for other non-retail customer uses that may be allowed as greenhouse gas and other global pollution markets evolve. (Section 5)

8.11 Environmental Disclosure

Environmental Disclosure and TRCs: State disclosure rules should be carefully drafted to accommodate TRC transactions and to avoid causing harm or problems for other states from whom TRCs may be bought or sold. (Sections 2, 5, 7)

Environmental Disclosure and TRCs: When developing the rules for environmental disclosure, regulators should develop a mechanism to account for TRCs that are used on the wholesale level to meet green power claims. This means having a mechanism for removing TRCs from a utility system fuel mix calculation, or adding TRCs purchased separately from

electricity into a fuel mix calculation. TRCs should be counted on a state disclosure label such that the label accurately reflects the utility or marketer's contractual claims and purchases made on behalf of the customer. In addition, if TRCs are purchased from outside of the state, there should be adequate communication between state regulators such that out-of-state TRCs are not double counted (counted once in the source state and counted again in the state in which they are sold). (Section 5)

Null Electricity: "Null" or "naked" MWhs, where the renewable attributes have been sold to another party as a TRC, should be assigned the remaining system average for the purpose of calculating system mix for environmental disclosure. (Sections 2, 7)

Treatment of TRCs in Different Products: Listed below are Best Practices for each of the three cases where TRCs are combined at the point of sale with generic system electricity: [50]

(1) If the TRCs are sourced from the same control area that the customer is located in, then,

- The product should be considered a renewable electricity product,
- No disclosure is needed about the fact that TRCs were used, and
- No geographic disclosure is needed.

(2) If the TRCs are sourced from a different control area than the one that serves the customer, and electricity is delivered to the customer's pool, then,

- The product should be considered a renewable electricity product,
- No disclosure is needed about the fact that TRCs were used,
- No geographic disclosure is needed.

(3) If the TRCs are sourced from a different control area than the one that serves the customer and no delivery occurs between pools, then,

- The product should be considered as if it were two products: a TRC-only product and a system electricity product,
- There should be some disclosure to notify customers that they are buying a TRC-only product as differentiated from a renewable electricity product, and
- In addition to any other environmental disclosure required by the state, the marketer or utility should be required to disclose the generation location of the TRCs.

If the control area covers a very small or very large region, regulators may want to define their own geographic delineation for when a product is considered a TRC-only product and when it is considered a green electricity product. (Section 5)

Disclosure of Generation Location: For TRC-only products, disclosure of the generation location (in marketing and contractual information) should be required for all transactions where TRCs are used and are sourced from outside the consumers' control area and where no electricity has occurred between control areas.

[50] This is in addition to fuel mix and other environmental disclosures that might be required by the state.

- If the TRCs are sourced from inside the U.S., a simple tag line that tells the consumer what state or region the TRC was generated in;
- If outside the U.S., a simple statement that tells the consumer what country the TRC was generated in;
- And, a reference to a web site and toll free number that provides more information about TRCs (e.g. explains how a TRC from California can be sold to a consumer in Philadelphia.) (Section 5)

Use of Out-of-State TRCs and Disclosure: When a TRC is sold out of a particular jurisdiction, it should not be included in the fuel mix calculations for that jurisdiction and if there is an accounting system in the importing state or region, the details of the imported certificates should be recorded. Close coordination between regulators and designers of accounting systems in neighboring jurisdictions will help facilitate this transfer of information and recordkeeping. (Sections 5, 7)

8.12 TRC Accounting and Tracking Systems

TRC Verification: It is recommended that the state utility commissions cooperate with other states in the region to support a regional (and national) TRC issuing and accounting system. In the absence of a national accounting network, utility commissions are encouraged to require contract audits and/or require certification of green pricing or green electricity products. (Section 2, 7)

TRC Accounting: A single certificate accounting system in a geographic area that is responsible for creating TRCs and tracking transfers of ownership until final retirement provides the most reliable method for ensuring that TRCs are not double counted or double sold. (Sections 3, 7)

TRC Banking: Within certificate accounting systems, there should be a mechanism created to allow TRC generators or owners to bank their TRCs for use outside of specific regulatory programs. One solution is to establish a "reserve account" system where generators or others can deposit certificates of generation for later sale. (Sections 3, 7)

TRC Banking: TRC tracking or accounting systems should allow unused certificates to be banked or saved for ten years or more to facilitate their possible conversion to pollution credits or for other non-retail customer uses that may be allowed as greenhouse gas and other global pollution markets evolve. (Section 5)

TRC Accounting System Design: TRC tracking and accounting systems should, (1) recognize that the generic power created when a TRC is marketed separately is power without attributes (i.e., the electricity itself cannot be claimed as "renewable"), (2) require a particular generator to register all of their output with a single accounting system; and (3) assign all TRCs and associated emissions benefits to generators as a default, (4) allow participants to easily transfer

certificates to other participants in the accounting system, (5) provide a mechanism to retire, or otherwise record when a TRC has been used in a way that would prevent it from being resold. (Section 6)

TRC Accounting System Design: A comprehensive accounting and verification framework for TRCs is the best way to eliminate many of the double counting scenarios identified earlier. Ideally, accounting systems will be set up regionally to fulfill a variety of market needs and not on a state-by-state basis or with limited functionality. Such systems should be designed to be compatible with other accounting systems (even those outside of the region) because certificates are increasingly traded across state and even national boundaries. One key aspect to compatibility is that all accounting systems should track, or at least have the ability to track at a minimum set of information that will enable a certificate to be able to be transferred within the entire network of certificate accounting systems. (Sections 6, 7)

Generator Participation in TRC Accounting and Tracking Systems: Any generator that is involved in a certificate accounting system should be required to fully opt-in to such system, meaning that all of the output from said generating facility is tracked by a single accounting system. In addition, it is recommended that a national generator registry be developed to record which certificate accounting regime a generator is subscribed to, to ensure that no one generator is having certificates issued by more than one accounting regime. (Section 6, 7)

Tracking of Energy Without Attributes: "Null" or "naked" MWhs, where the renewable attributes have been sold to another party as a TRC, should be assigned the remaining system average for the purpose of calculating system mix for environmental disclosure. (Sections 2, 7)

TRC Retirement: In general, certificates should be retired (i.e. taken out of the accounting system) under three circumstances: (1) the certificate is counted on a state disclosure label and/or the certificate is used to meet the retail load of a load serving entity (2) the certificate is used to meet a regulatory requirement, such as an RPS, or (3) the certificate is sold as a part of a TRC-only product. Certificates may also be retired from individual accounting systems if they are exported into another accounting system, or they expire according to the rules of the accounting system. (Section 3, 7)

TRC Accounting System Design: TRC registration and accounting systems should contain sufficient information in the database such that emissions allowances can be tracked overtly, or calculated by interested parties. To ensure a seamless translation of TRCs to emissions information that an be exported to State Greenhouse Gas Registries, certificate-accounting regimes should track, at a minimum, the generator's name, fuel type, facility location and date and time of generation. (Section 7)

TRC Accounting System Source of Emissions Information: Continuous Emissions Monitoring and eGRID are two good sources of emissions information that can be used in a certificate-based tracking system, though the pros and cons of each should be evaluated carefully. (Section 7)

8.13 Interstate Regulatory Coordination

Preventing Double-Counting: Coordination between utility and environmental regulators is recommended to prevent double counting when air quality issues are reported to the public. This may be due to participation in a state or national cap-and-trade program, emissions trading program, or due to environmental disclosure requirements. (Section 7)

Development of a National TRC Tracking Network: Utility regulators that are working to develop a state or regional certificate accounting and tracking system should work with the American Association of Issuing Bodies to ensure that the system developed is compatible with the emerging national network of certificate tracking entities or "Issuing Bodies." To find out more about the AAIB effort, please contact the Center for Resource Solutions at 415-561-2100 or http://www.resource-solutions.org/TRCAAIB.htm. (Section 7)

ABBREVIATIONS AND ACRONYMS

AAIB	American Association of Issuing Bodies
CEM	Continuous Emissions Monitoring
CO_2	Carbon Dioxide
CRS	Center for Resource Solutions
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EPS	Emissions Portfolio Standard
ERCOT	Electric Reliability Council of Texas
GHG	Green House Gas
GIS	Generation Information System
GPS	Generation Performance Standard
ISO	Independent System Operator
LSE	Load Serving Entity
MWh	Megawatt hour
NARUC	National Association of Regulatory Utility Commissioners
NEPOOL	New England Power Pool
NO_X	Nitrogen Oxides
ORER	Office of Renewable Energy Regulator (Australia)
PBF	Public Benefits Fund
PUCN	Public Utility Commission of Nevada
PURPA	Public Utility Regulatory Policy Act
QF	Qualifying Facility
REC	Renewable Energy Credits (Texas)
REC	Renewable Energy Certificate (generic)
RECS	Renewable Energy Certificate System (European)
RRC	Renewable Resource Credit
RPS	Renewable Portfolio Standard
RTO	Regional Transmission Organization
SO_X	Sulfur Dioxide
TRC	Tradable Renewable Certificate

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APPENDIX A. GLOSSARY OF TERMS

Additionality: A term used to describe the test or metric by which a project or action is considered to be above and beyond what otherwise would have occurred under the normal course of business or in the absence of the project or action. Examples of a 'project' or 'action' might be a utility procurement of renewables, a company reducing its emissions, installment of more energy efficient equipment. When referring specifically to emissions reductions, additional means that the reduction is over and above what would have occurred without any government program or direct incentive for reductions.[1] This term is most commonly used in conjunction with greenhouse gas offsets.

American Association of Issuing Bodies (AAIB): A membership-based North American alliance of tradable renewable certificate (TRC) Issuing Bodies that would be responsible for organizing all renewable certificate issuing and tracking bodies wishing to participate in a national and international certificate tracking network. The AAIB will lead the effort to develop common standards and minimum protocols for North American Issuing Bodies. Each Issuing Body will be required to incorporate these minimum standards and operating procedures into their own system in order to participate as a member of the AAIB.

Attribute: Descriptive or performance characteristics of a particular generation resource. The characteristics of renewables and other generating types (both positive and negative) include environmental, economic, and social characteristics. A renewable attribute refers to the characteristics of renewable generation.

- **Environmental Attributes:** Environmental attributes include the environmental benefits and costs associated with the construction and operation of specific types of power generation facilities. For renewable facilities, their environmental attributes might include the benefits of such things as emissions avoidance or offsets, as say from wind-generated electricity. Several air pollutants (e.g. CO_2, NO_x, and SO_x) have separate markets today where the value of a pound of pollution is determined through sales and trade. Trading markets for other power plant pollutants, such as mercury and particulates do not exist today but may come into being soon.
- **Economic Attributes:** Economic attributes might include such things as the development of local jobs and businesses, as well as reductions in the costs of having a secure domestic supply of electricity.
- **Social Attributes:** Examples of social attributes include health and quality of life factors, the introduction of innovative technologies and technology applications, as well as social equity considerations related to the location and siting of power plants.

Economic and social attributes are not generally quantified separately in today's marketplace, though they are part of the whole bundle of attributes that are a part of a TRC and contribute to the reason some consumers are willing to pay more for renewable electricity or TRCs.

[1] http://www.gert.org/guidance_documents/documents/word/chrisad1.doc

Allowances: In a cap-and-trade system, allowances are the amount of emissions, set by regulators, that a source is allowed to emit within regional or National Ambient Air Quality Standards.

Banking: See Certificate Banking.

Baseline: In this handbook, baseline refers to the quantity of eligible renewable resources that were procured prior to a RPS or other obligation taking effect. State or federal regulatory programs determine the parameters of what is included in a baseline calculation.

Basic Commitment: The American Association of Issuing Bodies (AAIB) Basic Commitment serves as the common agreement between all members of the AAIB. The Basic Commitment contains the minimum common set of definitions and criteria for the creation, issue, transfer and use as evidence of transfer of ownership and eventual removal from the market of tradable renewable certificates (TRCs).

Bundled Electricity Product: A bundled transaction is one where the renewable certificates and electricity are sold together. On a wholesale level, a bundled product can be created by purchasing renewable electricity and TRCs from the same renewable generator, or by purchasing TRCs from a renewable generator and undifferentiated electricity (null electricity) from a spot market or regional system power pool.

Cap-and-Trade: A system developed to meet specific regional and national air quality goals. The emissions cap is the total amount of pollution that sources can emit in a state or region. Regulators distribute allowances up to the cap amount in the region. Sources then have the flexibility to choose how to meet their limits, by reducing their own emissions or purchasing allowances from other sources. Sources measure and report emissions, and must have sufficient allowances to cover their emissions. Usually, significant automatic penalties apply for noncompliance. The cap ensures that the reductions are achieved and maintained over time even as new power plants are built.

CO_2: Carbon dioxide is a naturally occurring gas produced by living organisms, fermentation, and through the combustion of carbonaceous fuels. It is a normal component of the breath we exhale, it is hazardous in concentrated volumes, and is one of the primary greenhouse gases suspected of causing climate change. The symbol CO_2e (CO_2 equivalent) is often used as a proxy for the whole family of greenhouse gases.

Carbon Offsets: A reduction in greenhouse gas pollutants counted toward an official greenhouse gas pollution target. See Offsets.

Certificate Banking: Deposit of certificates for later application or trade.

Certificate-Based Accounting System: Describes an electronic verification methodology whereby the generation data is automatically entered into an electronic system. Certificates are issued by the program administrator for each increment of electricity generated. Once issued,

certificates are deposited into the certificate owner's "account," usually the first point of deposit is the generator. The certificates can be transferred easily between accounts (e.g. from the generator to the utility) and used as a mechanism to verify that a company has acquired enough renewable energy to fulfill their RPS obligation. Both the buyer and seller must confirm the transaction (e.g. quantity and whether bundled or unbundled with energy) before it is officially entered into the system.

Certificate Borrowing: The use of a certificate that has not yet been generated, but for which there is a contract or intent to purchase, to meet a current obligation, e.g. using 2005 certificates to meet an obligation in 2004. Certificate borrowing usually occurs in conjunction with a regulatory program that has a multi-year compliance period.

Certificate Retirement: Certificate retirement can be a voluntary or mandatory activity, usually the result of the, (1) delivery and consumption of a certificate to the end-use consumer; (2) application of the attribute value of a certificate the environmental impact of a consumer's use of electricity, or (3) the use of the certificate to comply with a statutory or regulatory requirement. Retirement of a certificate generally has the intent of removing the certificate from the market for subsequent sale, purchase, or use toward meeting a regulatory requirement or voluntary application. Certificate retirement may have a very specific legal meaning in the context of a regulatory program.

Climate Neutral Footprint: Products, services, and enterprises that have reduced or offset their greenhouse gas emissions, usually measured in carbon of carbon equivalent, with which they are associated to achieve a net zero impact on the earth's climate. Companies or institutions that offset all of the gases resulting from the full spectrum of their internal operations can yield a climate neutral footprint.

Compliance Period: See True-up Period.

Contracts for Differences (CFD): A type of bilateral contract arrangement in which an energy producer or seller receives a fixed price for energy plus an adjustment value to cover any differences between the agreed-upon fixed price and the actual market price of the energy at the time it is delivered. CFD energy prices are usually set low to insure that the energy is bought, but both buyer and seller run risks of high or low spot prices at the time the energy is delivered.[2]

Contract-Path Accounting System: Refers to an accounting methodology whereby individual contracts and financial settlement data are used to verify renewable purchases. Such a system usually involves some sort of manual review of contracts, though the information may be entered into database or otherwise put into an electronic format.

Criteria Air Pollutant: The Clean Air Act directs the EPA to identify and set National Ambient Air Quality Standard (NAAQS) for the most common air pollutants known to be hazardous to human health. The six "criteria pollutants" used as indicators of air quality are: ozone, carbon monoxide, total suspended particulates, sulfur dioxide, lead, and nitrogen oxide. The term,

[2] http://www.energyvortex.com/energydictionary/contracts_for_differences_(cfd).html

"criteria pollutants" derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.

Delivered Electricity Product: An electricity product that contains both the energy and attributes of generation and guarantees the delivery of a specific mix of generation sources. Also known as a bundled electricity product.

Disaggregation: Separation of one or more attributes from the unbundled TRC, usually to permit independent sale of such attributes (e.g. of CO_2 as carbon offset).

Disclosure (Label): A requirement under some state programs whereby utilities and other energy suppliers are required to provide information to consumers on the generation characteristics from which supplied electricity is derived. The information commonly disclosed includes, but is not limited to, resource mix, price and environmental performance, a description of the attributes connected to or eliminated from inclusion in a TRC-only sale. This information is typically provided to customers as part of their marketing information and contract with the supplier.

Domain: The geographic territory (or other political or technological definition) of a single Issuing Body. Generators located within the boundaries of a domain are assigned to the corresponding Issuing Body for that domain.

Double Counting: This term is used in the context of generation attributes to describe a number of different situations that may arise in TRC markets or accounting regimes.

- **Double Sale:** When the bundled attributes associated with a single MWh of generation are ultimately sold to or claimed by more than one consumer.

- **Partial Double Sale:** The simultaneous sale of a TRC **to represent** renewable energy to one party, in addition to the sale of one or more unbundled benefits (secondary attributes such as CO_2 offsets) associated with the same MWh of generation to another party.

- **Double Use:** When a single TRC or renewable energy attribute are used for more than one purpose by a single owner, or when a single TRC or renewable energy attributes is used sequentially by two companies (i.e., used, sold, used again).

Eligible Renewables: Sources of renewable electricity, such as solar electric, wind, geothermal, biomass and hydroelectric eligible to participate in a particular program. See Green-e Certification Program and Renewable Energy.

Emissions Allowances: Under a cap-and-trade system, the amount of pollution a source is allowed to emit according to the regional or National Ambient Air Quality Standards.

Emissions Offset: A permanent reduction in a source's emission rate, created by an action taken above and beyond that required of the source by regulation. Offsets can be created by installing advanced technology controls beyond regulatory requirements or from the permanent shutdown of an air pollution source (the latter being the most common).[3] See Offset.

Emissions Profile/Emissions Portfolio: An accounting of the total release of pollutants/emissions from a company or plant.

Emissions Trading: Trading emissions offsets or emissions allowances to maintain compliance with regional or National Ambient Air Quality Standards.

Green-e Certification Program: A voluntary certification program for renewable electricity products including renewable energy that is sold by monopoly utility programs and voluntary marketing programs. Either may include bundled electricity and renewable energy attributes or TRC-only offerings. The Green-e Program sets consumer protection and environmental standards for electricity products, and verifies that Green-e certified products meet these standards. Electricity products that meet the Green-e Standard for environmental excellence are denoted by the Green-e logo.

Green Tags, Green Certificate: These are alternative terms used to describe TRCs. See Tradable Renewable Certificate (TRC).

Greenhouse Gas (GHG): A gas, such as carbon dioxide or methane, which contributes to climate change. Carbon and CO_2e are commonly used as a proxy for the whole family of greenhouse gases.

Greenhouse Gas (GHG) Registries: In the US, a GHG registry is usually a state affiliated inventory, registry, and information system of greenhouse gas emissions from companies. GHG registries allow companies to record their emissions and emissions offsets voluntarily to establish a baseline that may be used in a future regulatory regime.

Green Power: A generic term commonly defined as power from renewable generating facilities.

Green Power Marketer: A company that sells some form of renewable electricity to its customers, usually in a restructured electricity market, or TRC-only products in both restructured and monopoly electricity markets.

Green Pricing Program: The practice of a monopoly utility offering consumers an option to pay a special tariff for the purchase of clean energy, usually renewable-based electricity.

[3] http://www.climatechangecentral.com/info_centre/discussion_papers/GHGoffsets.pdf

Green Pricing Tariff: A price or schedule of prices for the differentiated purchases of renewable-based electricity, usually in a monopoly utility market where retail prices are determined by a regulatory body, usually a utility commission.

Issuing Body: An entity that issues certificates based on the amount of electricity generated and the type of electric generation technology or fuel used within a geographic domain. Issuing Bodies also track wholesale certificate transactions, provide certificate banking and other services, retire certificates, maintain a database of information and perform such other services as may be required by law and appropriate to meet the needs of its clients. Issuing Bodies are often associated with independent transmission system operators.

Load Serving Entity (LSE): An entity that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electrical energy to end-use customers located within a control area.

NAAG Guidelines: National Association of Attorneys General recommendations for conducting green power (or green credit/tags) transactions to avoid committing consumer fraud. The guidelines as they pertain to TRCs may be summarized as: (1) clearly disclose all product information necessary to inform buyers; (2) ensure that buyers understand what the product is they are buying; (3) don't double sell (or double count) the product that is being sold.

Net Metering: A program, often established legislatively, used to encourage customer investment in on-site renewable energy technologies. Net metering programs increase the value of the electricity produced by renewable generation by allowing customers to "bank" their energy and use it at a different time than it is produced, giving customers more flexibility and allowing them to maximize the value of their production. Net metering laws generally cap the amount of energy that can be banked at the customer's total annual consumption. Utilities and their customers may also benefit from net metering programs because when customers are producing electricity during peak periods, the system load factor is improved.[4] Utilities and customers may also benefit from receiving any power generated by the customer in excess of the customer's annual load free of charge.

New Renewable Resource: A New Renewable Resource describes the date a renewable generating facility was placed into service as contrasted with existing renewable resources. States set their own dates for when a facility is considered "new" or "existing," usually for the purpose of eligibility in a renewable energy programs.

NO_x: An oxide of nitrogen that in ambient air is a major component of photochemical smog. NO_x is a product of combustion from transportation and stationary sources such as fossil fuel burning power plants. It is a major contributor to the formation of ozone in the troposphere and to acid deposition. NO_x is also one of the greenhouse gases that are suspected of causing climate change.

[4] http://www.eere.energy.gov/greenpower/netmetering/index.shtml

Null Electricity, Null MWhs, Null Electrons: A vernacular term used to describe the electrical energy associated with a MWh that has been stripped of its renewable attributes or TRCs, meaning that the TRCs have been unbundled from the underlying electricity and are sold or used independently of the electrical energy.

Offsets: A method used in the 1990 Clean Air Act to give companies that own or operate large (major) pollution sources in non-attainment areas flexibility in meeting overall pollution reduction requirements when changing production processes. If the owner or operator of the source wishes to increase its release of a criteria air pollutant, an offset (reduction of a somewhat greater amount of the same pollutant) must be obtained either at the same plant or by purchasing offsets from another company. See also Emissions Offset.

Off-System Power Sale: The sale by a utility of energy from its generating system to another entity outside its system.

Particulate Matter (PM): Solid or liquid particles found in the air, which can be directly emitted or can be formed in the atmosphere when gaseous pollutants such as SO_x and NO_x react to form fine particles.

Pollution Market: Refers to the trading of specific pollutants, emission offsets and emission allowances for either voluntary or mandatory reasons.

Power Pool: Two or more interconnected utilities that plan and operate to supply electricity in a reliable, efficient, and economical way to meet their combined load. Such groups of utilities typically coordinate the planning and operation of their systems in accordance with contractual agreements that establish each utility's responsibility to the pool.

Public Benefit Fund (PBF): A fund containing monies collected through a System Benefits Charge. Usually the money is dispersed to assist projects with some public benefit related to electricity.

Qualifying Facility (QF): A category of cogeneration or small power generating facility (using biomass fuel, geothermal, small hydro -- under 30 MW size, solar electric and wind technologies) that meets certain ownership, operating, and efficiency criteria established by the Federal Energy Regulatory Commission (FERC) pursuant to the Public Utility Regulatory Policies Act (PURPA) (See the Code of Federal Regulations[5], Title 18, Part 292). PURPA created two types of QFs, Qualifying Small Power Producers and Qualifying Cogeneration Facilities. A qualifying facility is typically owned and/or operated by a cogenerator or small power producer that under federal law has the right to sell its excess power output to public utilities.

Ratebase: The value of property upon which a utility is permitted to earn a specified rate of return as established by a regulatory authority. The ratebase generally represents the value of

[5] http://www.access.gpo.gov/nara/cfr/

property used by the utility in providing service and may be calculated by any one or a combination of the following accounting methods: fair value, prudent investment, reproduction cost, or original cost. Depending on which method is used, the ratebase includes cash, working capital, materials and supplies, and deductions for accumulated provisions for depreciation, contributions in aid of construction, customer advances for construction, accumulated deferred income taxes, and accumulated deferred investment tax credits.

Ratebased Facility: A power plant that has been permitted to receive a specific rate of return. See Ratebase.

Regional Renewable Energy Registry: A database that is able to track the generation and its ownership from the point of generation through any number of wholesale transactions to the end retail supplier and end user. The information tracked in the database includes anything deemed necessary to serve the needs or interests of users of the system.

Registration: The process by which a governmental or other accredited entity officially identifies and includes in a database information concerning the generation or other attribute characteristics of power plants. Such registration of renewable power plants allow TRC production claims and transactions to be recorded, as a basis for interested parties to verify claims and conduct further transactions.

Renewable Certificate, Renewable Credit, REC: A term used synonymously with "TRC." Renewable credits are often times used to define TRCs that can be used to meet a specific state or Federal renewable energy mandate. See TRC.

Renewable Energy: Energy from solar, wind, geothermal, hydro, biomass and other diverse sources whose common characteristic is that they are non-depletable or naturally-replenishable, but flow-limited. Excluded are all fossil and nuclear fuels and electrical energy derived from these sources. In general, renewables have less negative environmental impacts than non-renewables.

Renewable Portfolio Standards (RPS): A state or federal level policy, often initiated under restructuring, that requires that a minimum amount (usually a percentage) of supply provided in any retail or wholesale product by each supply company is to come from renewable energy. This can also be applied on a portfolio basis. This type of policy is also sometimes referred to as a renewable energy mandate, renewable obligation, or a renewable energy set-aside.

Sink Pool: The power pool where a renewable certificate was transferred into or where it was retired. Transfer usually occurs as a result of a purchase by a retail customer located within the geographic confines of the power pool, or a wholesale customer operating within a regional power pool.

Source Pool: The power pool from which a renewable certificate originated.

SO_x: An oxide of sulfur, produced when sulfur, or materials containing sulfur (e.g., coal, oil, etc.) are burned and the emissions are released into the air. Sulfur oxides can be a component of smog and are a regional pollutant that results in acid deposition (acid rain, acid fog, etc.) that causes severe environmental damage to plants and ecospheres.

System Electricity: The mix of electricity fuel sources consumed in the utility territory, state, or region that are not disclosed or marketed as specific purchases or as defined by the relevant state agency. The production methods or fuels used to produce the electricity are indistinguishable once the electrons enter the system grid.

System Benefits Charge (SBC): A state or national policy that imposes a volumetric fee on electricity usage (generally on a per kWh basis) to support energy efficiency, renewable energy and public benefit programs. Also known as a Public Goods Charge (PGC).

Time of Delivery Requirement: Requirement that an amount of electricity be delivered within a specified time period for use to meet load or other contractual agreements. Unbundled attributes are free from the time of delivery requirements needed to supply electricity.

Tradable Renewable Certificate (TRC): A generic term for a bundle of attributes that does not include the actual electrical energy associated with the generation of electricity at a renewable energy facility. Depending upon the facility, the TRC will embody various attributes with varying quantitative values. Values – such as avoided emissions – are quantified according to some baseline metric, engineering estimate, or a value deemed by private or government bodies. A renewable or green 'tag', green certificates, and renewable energy certificate (REC) are the equivalent of a TRC.

TRC-Only Product: A product sold by green power marketers that includes only the attributes of renewable generation. Electricity associated with these attributes is fed into the system grid.

True-up Period: The time period allowed by a program administrator for an electricity marketer to purchase supply to meet their obligation under the rules of that program. Also known as the compliance period.

Unbundled TRC/Unbundling: An unbundled transaction is one where the renewable certificates may be sold separately from the associated commodity electricity.

Verification: A process for establishing that the primary attributes of an eligible renewable power resource were produced from the designated resource during the designated time period. Verification may be by contract provision enforcement, by registration and audit, or by another standardized method.

Vintage: Refers to the date (usually month and year) a TRC was created. Vintage is also sometimes used to describe the date a renewable generating facility was placed into service.

APPENDIX B. USEFUL REFERENCES AND WEBLINKS

For useful links with general information about TRCs
Green-e website: http://www.green-e.org/
Green Power Network: http://www.eere.energy.gov/greenpower/certificates.shtml

Certification Standards
Center for Resource Solutions, "Accreditation of Green Pricing Programs Final Criteria, Version IX," October 11, 2002. http://www.resource-solutions.org/greenpricingcriteriadocs.htm

Center for Resource Solutions, "Green-e Renewable Electricity Certification Program Standard," http://www.green-e.org/ipp/standard_for_marketers.html

Center for Resource Solutions, "Green-e Renewable Electricity Certification Program TRC Standard," http://www.green-e.org/pdf/trc_standard.pdf

Low Impact Hydropower Institute, "Low Impact Hydropower Institute Certification Criteria," http://www.lowimpacthydro.org/

Environmental Resources Trust, ECO-Power Program: http://www.ert.net/ecopower/index.html

Contract Path Accounting and Verification System
Center for Resource Solutions, Green-e Program Verification Audit Protocols:
http://www.green-e.org/ipp/vprocess.html

California Energy Commission, "SB 1305 Annual Report Forms." Available at:
http://www.energy.ca.gov/sb1305/documents/index.html

EGRID Emission database
http://www.epa.gov/airmarkt/egrid/index.html

Emissions Trading and TRCs
For general information about TRCs and credit trading and emissions markets:

EPA's Clean Air Markets Program: http://www.epa.gov/airmarkt/index.html

National Wind Coordinating Council has a working group working on green power marketing and credit trading. Information on their process and progress can be found at: http://www.nationalwind.org/workinggroups/credit/default.htm

NWCC Credit Trading and Green Power Marketing Working Group, "Credit Trading and Wind Power: Issues and Opportunities." February 2002. Available at:
http://www.nationalwind.org/workinggroups/credit/default.htm

For documents discussing how renewables may be used in emissions trading programs and markets:

Wooley, David. "The Clean Air Act Amendments of 1990: Opportunities for Promoting Renewable Energy" National Renewable Energy Laboratory, December 11, 2000, Technical Report NREL/SR-620-29448. Available at: http://www.nrel.gov/docs/fy01osti/29448.pdf

Wooley, David. "A Guide To The Clean Air Act For The Renewable Energy Community," published by the Renewable Energy Policy Project, Washington, DC, March 2000. Available at : www.repp.org

For emissions market information and TRC market information:

Cantor Fitzgerald: http://www.emissionstrading.com/

The Carbon Trader: http://www.thecarbontrader.com/

Chicago Climate exchange: http://www.chicagoclimatex.com/

CO2E: http://www.co2e.com/

Emission Credit Brokers: http://www.emissioncreditbrokers.com/

Evolution Markets: Evolution markets puts out an excellent newsletter with TRC market information that is not on their website. To receive a copy call Evolution Markets at 914-323-0255

Evolution markets: http://www.evolutionmarkets.com/

International Emissions Trading Association: http://www.ieta.org/

Natsource- Natsource puts out an excellent newsletter that gives monthly market trading information and prices for TRCs. This newsletter is not available on their website, but you can get a copy by calling Natsource at 212-232-5305.

Natsource: http://www.natsource.com/markets/index.asp?s=2

Environmental Disclosure

For general disclosure information:

Sedano, Richard, "Electric Product Disclosure: A Status Report," June 2002. Prepared for the National Council on Competition and the Electric Industry. Available at: http://www.ncouncil.org/pubs.shtml

For an example of an Environmental Disclosure Label for TRC Products:

> Center for Resource Solutions, "Green-e Code of Conduct for Electricity Products, Version XVIII." http://www.green-e.org/ipp/code_of_conduct.html (for bundled TRC and electricity products)
>
> Center for Resource Solutions, "Green-e Code of Conduct for Tradable Renewable Certificate (TRC) Products." http://www.green-e.org/ipp/code_of_conduct.html (for TRC-Only products)

Environmental Marketing Guidelines

National Association of Attorneys General, "Environmental Marketing Guidelines for Electricity," December 1999. Available at http://www.naag.org/issues/pdf/Green_Marketing_guidelines.pdf

Federal Trade Commission Part 260 – Guides for the Use of Environmental Marketing Claims. Available at: http://www.ftc.gov/bcp/grnrule/guides980427.htm - 260.7

Green pricing and green power marketing and TRCs

NREL Green Power Network: http://www.eere.energy.gov/greenpower/home.shtml

Blank, Eric, Lori Bird, and Blair Swezey, "A Certificate-Based Approach to Marketing Green Power and Constructing New Wind Energy Facilities." Available at: http://www.eere.energy.gov/greenpower/home.shtml

Holt, Ed, and Meredith Holt, "Green Pricing Resource Guide" Second Edition, 2002. Prepared for American Wind Energy Association. Available at http://www.awea.org/.

Lieberman, Dan, Carrie Harvilla and Meredith Wingate, "Federal Power Marketing Administration Options for Promoting Renewable Energy Certificates: Implications and Recommendations," April 2003, Center for Resource Solutions, prepared for the Public Renewables Partnership. Available at: http://www.resource-solutions.org/Library/Library-DomesticUSpage.htm

Lieberman, Dan, "Green Pricing at Public Utilities: A How-to Guide Based on Lessons Learned to Date." October 2002, Center for Resource Solutions, prepared for the Public Renewables Partnership. Available at: http://www.resource-solutions.org/Library/Library-DomesticUSpage.htm

Swezey, Blair and Lori Bird, "Utility Green Pricing Programs: What Defines Success?," September 2001. NREL/TP.620.29831. Available at: http://www.eere.energy.gov/greenpower/29831.pdf

International Tracking Systems
Australia Office of Renewable Energy Regulator, REC registry: http://www.rec-registry.com/public/home.main

RECerT: The Renewable Electricity Certificate Trading Project: http://recert.energyprojects.net/

European Renewable Energy Certificate System (RECS): http://www.recs.org/

TRECKIN- The one stop information network for tradable renewable certificates: http://www.treckin.com/

Legislation and Regulation
PURPA: http://www.ferc.gov/informational/acts/purpa.htm

US Commerce Clause: http://caselaw.lp.findlaw.com/data/constitution/article01/index.html

NAFTA: http://www.nafta-sec-alena.org/english/index.htm

Net-Metering and Distributed Resources
NREL: http://www.eere.energy.gov/greenpower/netmetering/index.shtml

On-Site Generation
Pepper, Janice C., Enertron Consultants, "Renewable Certificates for Photovoltaics: A Model to Build Upon," April 26, 2002. Prepared under contract for: Renewable Energy Technology Project - Pace Law School Energy Project. Available at : http://www.paceenergyproject.org/.

Policy Resolutions Supporting TRCs and TRC tracking:
FERC resolution:

NARUC Resolution supporting attribute based accounting and tracking systems: http://www.naruc.org/Resolutions/2002/summer/ere/tracking_systems.shtml

NARUC Resolutions supporting the TRC Handbook: http://www.naruc.org/Resolutions/2003/winter/ere/handbook.shtml

Western Governors' Association "Western States Energy Policy Roadmap- Policy Resolution 03-03": http://www.westgov.org/wga/policy/03/index.htm

Products and Providers
TRC-Only Marketers:

For links to all Green-e certified TRC marketers: http://green-e.org/your_e_choices/trcs.html

Note, the Green-e website is updated regularly. However, since the Green-e Program is a voluntary certification program, there may be TRC marketers that are not certified by the program. Check the NREL Green power network site for a complete list at http://www.eere.energy.gov/greenpower/certif_summ.shtml

Renewable Capacity Products:

Native Energy: http://www.nativeenergy.com/index.html

Renewable Electricity Products:

For Green-e Certified/Accredited Products:
http://www.green-e.org/your_e_choices/pyp.html

For a complete list of green pricing and green power marketing programs:
http://www.eere.energy.gov/greenpower/home.shtml

Public Benefits Funds
This case study series by Berkeley Lab and the Clean Energy Group analyzes the innovative practices of state clean energy funds in support of renewable energy, including both large-scale and small-scale distributed resources. Available at:
http://eetd.lbl.gov/ea/ems/cases/EMS_case.html

Renewable Energy Policy Project:
http://www.repp.org/articles/static/1/1023973847_1023962558.html

Interstate Renewable Energy Council:
For a complete list of public benefits funds and other renewable energy incentive programs, visit:
www.dsireusa.org

PURPA Contracts and TRCs
State of Maine, Public Utilities Commission, "Investigation of GIS Certificates Associated with Qualifying Facility Agreements." September 6, 2002, Docket number 2002-506. Available at
http://www.state.me.us/mpuc/orders/2002/2002-506noi.pdf

Renewable Certificate and Generation Attribute Tracking
Certificate Tracking and Accounting Systems:

NEPOOL GIS and GIS Operating Rules: http://www.nepoolgis.com/

ERCOT REC Program: http://www.texasrenewables.com/recprogram.htm

Wisconsin RRC Program: http://www.wirrc.com/

American Association of Issuing Bodies:
http://www.resource-solutions.org/TRCAAIB.htm

For a discussion of tracking and verification methods:

Hamrin, Jan and Meredith Wingate, " Developing a Framework for Tradable Renewable Certificates, Version 2.4." August 2002. Available at:
http://www.resource-solutions.org/TRCAAIB.htm

For a discussion of tracking and verification methods and their application to an RPS:

Radar, Nancy and Hempling, Scott "The Renewable Portfolio Standard: A Practical Guide." February, 2001, Prepared for the National Association of Regulatory Utility Commissioners.

For a discussion of imports and exports and tracking:

Grace, Robert and R. Wiser, "Transacting Generation Attributes Across Market Boundaries: Compatible Information Systems and the Treatment of Imports and Exports," November 2002. Prepared for Lawrence Berkeley National Lab, technical report number LBNL-51703. Available at: http://eetd.lbl.gov/ea/ems/reports/51703.pdf

Renewable Portfolio Standard
For general RPS information:

Radar, Nancy and Hempling, Scott "The Renewable Portfolio Standard: A Practical Guide." February, 2001, Prepared for the National Association of Regulatory Utility Commissioners

Wiser, Ryan and Ole Lagniss, "The Renewables Portfolio Standard in Texas: An Early Assessment, " November 2001. Prepared for Lawrence Berkeley National Lab. Technical report number LBNL-49107. Available at: http://eetd.lbl.gov/ea/ems/reports/49107.pdf

Renewable Energy Policy Project: http://www.repp.org/rps_map.html

For a listing of RPS laws by state: http://www.dsireusa.org/

For documents discussing the interaction between green pricing programs or voluntary green power marketing and an RPS

Center for Resource Solutions, "Accreditation of Green Pricing Programs Final Criteria, Version IX," October 11, 2002.
http://www.resource-solutions.org/greenpricingcriteriadocs.htm

Center for Resource Solutions, "Green-e Renewable Electricity Certification Program Standard," http://www.green-e.org/ipp/standard_for_marketers.html

State Greenhouse Gas Registries
California: http://www.climateregistry.org/

Canada's Climate Change Voluntary Challenge and Registry: http://www.vcr-mvr.ca/index_e.cfm

EIA Voluntary Reporting of Greenhouse Gas Program: http://www.eia.doe.gov/oiaf/1605/frntvrgg.html

New Hampshire: http://www.des.state.nh.us/ard_intro.htm

Wisconsin: http://www.dnr.state.wi.us/org/aw/air/HOT/climchgcom/

APPENDIX C. SAMPLE CONTRACT LANGUAGE FOR CONTRACTS WITH TRCS

Example 1

SALE AND PURCHASE
COMMITMENTS; PAYMENT

1 Sale and Purchase of Energy, Unforced Capacity, Ancillary Services, and Credits

During the term of this Agreement, Seller shall deliver and sell to Buyer and Buyer shall accept and purchase from Seller (a) the Electrical Output of the Plant; (b) all Credits associated with, and to the extent available from, such Electrical Output purchased by Buyer; (c) all Unforced Capacity, if any, associated with the Plant as determined by PJM; and (d) all Ancillary Services, if any.

2 No Sale to Third Parties

So long as no Event of Default has occurred and is continuing with respect to Buyer, Seller will not have the right to sell to third parties any of the Electrical Output of the Plant, and any Ancillary Services from the Plant.

Credits: means any credits, credit certificate or similar items such as those for greenhouse gas reduction, or the generation of green power or renewable energy, created by any Governmental Agency and/or independent certification board or group generally recognized in the electric power generation industry, and generated by or associated with the Plant, but specifically excluding any all state and federal production tax credits, investment tax credits and any other tax credits which are or will be generated by the Plant.

Electrical Output: means the entire electric energy output of the Plant, net of Station Service Power – Non-Retail, and therefore delivered to the Point of Metering, as measured by the meters installed pursuant to Article 6 of this Agreement.

Example 2

Sale and Purchase of Wind Generation Benefits. In consideration to the Energy Payment Rate, Seller hereby transfers and sells to Company all present and future right, title and interest of Seller in and to the Wind Generation Benefits, to the extent (i) Seller will have such right, title, and interest in and to such Wind Generation Benefits under applicable law, and (ii) such transfer and sale to Company is not in violation of nay applicable law at the time of any transfer and sale. Notwithstanding whether such Wind Generation Benefits are transferable to Company under any applicable law, Seller covenants that it has not and will not transfer any portion of such right, title and interest in and to the Wind Generation Benefits to any other Person. Seller shall take such action as may be necessary to transfer and evidence the transfer of the Wind Generation Benefits to Company or its designee (provided that Company shall be solely responsible for the marketing, sale and transfer of any such Wind Generation Benefits to third parties). Seller shall also cooperate with Company's third-party sales of the Wind Generation Benefits as reasonably requested by and at the expense of Company, and shall provide such information and permit such monitoring and verification with respect thereto as Company shall reasonably request; provided that Company shall reimburse the Seller for any reasonable administrative and monitoring expenses with respect to Wind Generation Benefits incurred by the Seller in connection with a request by Company in excess of any expenses that would have been incurred by Seller in the absence of such a request by Company. Notwithstanding the foregoing, in no event shall Wind Generation Benefits include anything that Company reasonably believes may expose Company to liability or the threat of liability. Nothing in this Agreement shall represent a purchase by Company of emissions or constitute an assumption of any obligation of Seller for regulatory or environmental compliance by the Facility. Notwithstanding the foregoing, in no event shall Wind Generation Benefits include anything that Seller reasonably believes may expose Seller to liability or the threat of liability. Without limiting the generality of the preceding sentence, nothing herein shall constitute an assumption by Seller of any obligation that Company may have as a purchaser and seller to third parties of the Wind Generation Benefits.

Payment for Energy Output

Price for Energy Output. On and after the Effective date and until the Facility Completion Date or the Partial Facility Completion Date, as appropriate, the Energy Payment Rate shall be $XX.XXX per kilowatt-hour.

Example 3

AGREEMENT

1. DEFINITIONS AND ASSUMPTIONS

1.1 "Certificate" means the Non-Power Attributes associated with the power generated from the Specified Resources. One Certificate represents the Non-Power Attributes made available by the generation of one megawatt-hour (MWh) from one or more of the Specified Resources.

1.2 "Certificate Record" is the written document establishing contractual rights and obligations associated with ownership and control of one or more Certificates and attributing the Certificates to electricity generated from the Specified Resources, as further described in Section 2 of this Agreement.

1.3 "Certificate Reporting Rights" means the right of the Buyer to report accumulated annual Non-Power Attributes in compliance with federal or state law, if applicable, and to a federal or state agency or any other party at the Buyer's discretion.

1.4 "Green-e Certification" means the certification awarded by the Center for Resource Solutions (CRS) in San Francisco, California that the green power or Certificate product meets the standards established by CRS therefore.

1.5 "Non-Power Attributes" means the fuel, technology, emissions, or any other attributes of one or more of the Specified Resources deemed of value by the Buyer except its energy, capacity, reliability, or power quality attributes. These Non-Power Attributes include but are not limited to any avoided emissions of pollutants to the air, soil or water such as sulfur dioxide (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), and any other pollutant that is now or may in the future be regulated under the pollution control laws of the United States; and further include any avoided emissions of carbon dioxide (CO_2) and any other greenhouse gas (GHG) that contributes to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere, along with the Certificate Reporting Rights to these avoided emissions.

1.6 "Renewable Energy Facilities" are energy production facilities powered by wind, solar, geothermal, wave or tidal action, low-impact hydro, biomethane from landfill gas or other organic sources, biomass energy using solid organic fuels from dedicated energy crops, or from wood, forest or field residues that do not include wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol or copper-chrome-arsenic.

1.7 "Residual Electricity" is the electricity generated in conjunction with the production of Certificates, which is sold, traded, assigned, or otherwise transferred independently of the Certificates and free of any claim or assertion of Certificate Reporting Rights.

1.8 "Specified Resources" are Renewable Energy Facilities that meet the environmental design, siting, and operational criteria established by and produce and deliver electricity to a utility transmission or distribution system.

2. IDENTIFICATION AND QUANTIFICATION OF CERTIFICATES

2.1 The Non-Power Attributes associated with the generation of electricity from the Specified Resources may vary depending on the energy resource and its attributes, the generating technology and process, the generating facility location, and other factors.

2.2 The Certificates that are the subject of this Agreement are associated with the generation of electricity from one or more of the Specified Resources described in Exhibit A of this Agreement.

2.3 Seller shall obtain competent, reliable and verifiable evidence to support the expectation of the parties that each Renewable Energy Facility described in Exhibit A will generate electricity and associated Certificates sufficient to satisfy the demands of this Agreement, shall perform due diligence to ensure that no more than one Certificate will be issued for each megawatt-hour of electricity produced by each Renewable Energy Facility, and that the sale of Residual Electricity from each Renewable Energy Facility is free of any claims or assertion of rights by any other party with respect to any Certificate component, including any claims that such Residual Electricity is being used to satisfy state or federal resource diversity requirements, and shall purchase the exclusive rights to these Certificates in an amount sufficient to satisfy the demands of this Agreement. Competent, reliable and verifiable evidence includes, but is not limited to, a verifiable record of actual production of electricity from each Renewable Energy Facility. Upon request from Buyer, Seller shall provide Buyer with supporting information and documentation sufficient to allow Buyer to assess Seller's performance of its obligations under this paragraph.

2.4 Notwithstanding Buyer's ability to request supporting information in accordance with Section 2.4 above, Seller shall provide Buyer with a periodic verifiable statement of account, not less often than annually, documenting the actual production of electricity and associated Certificates from each facility until all Certificates that are the subject of this Agreement have been produced and Seller's remaining obligations under this agreement have been satisfied. Buyer will further contract to have its Certificate transactions audited annually by a qualified, independent auditing firm to ensure the consistency of those transactions with attestations standards established by the

American Institute of Certified Public Accountants, and will provide Seller with true copies of the pertinent annual audit reports.

3. PURCHASE AND SALE OF CERTIFICATES

3.1 Seller agrees to sell, assign and transfer to Buyer, and Buyer agrees to purchase from Seller, Certificates produced from one or more of the Renewable Energy Facilities described in Exhibit A to this Agreement and made available to Buyer in accordance with the terms and conditions specified in Exhibit A of this Agreement.

4. OTHER COMMITMENTS

5. TRANSFER OF CERTIFICATES

5.1 The Certificates that are the subject of this Agreement have an economic value independent of the value placed on them in this Agreement, and this value may be expected to change over time in accordance with changes in market conditions associated with the Non-Power Attributes represented by the Certificates.

5.2 The Certificates that are the subject of this Agreement are being purchased for Buyer's direct use or for the purpose of reselling the Certificates to Buyer's retail electric customers. The Parties agree that the Certificates may not be used for any other purpose or transferred to any other party for any purpose.

6. REPRESENTATIONS REGARDING NON-POWER ATTRIBUTES

6.1 The Certificates that are the subject of this Agreement represent the Non-Power Attributes with generating electricity from an Specified Resources compared with the effects of generating electricity from non-environmentally preferred resources.

6.2 The Residual Electricity generated in conjunction with the Certificates must be sold without any claims or assertion of rights with respect to the Non-Power Attributes of such electricity, and without any reference to its origination from an Specified Resource.

6.3 For each Certificate purchased, the Buyer shall have the exclusive right to claim credit for all of the Non-Power Attributes associated with the Certificate, to the extent allowed under applicable law, for as long as the Buyer remains the legal owner of the Certificate. In the event of the sale of a Certificate to another person or entity in accordance with Section 5 of this Agreement, Buyer relinquishes the right to make any claims with respect to Non-Power Attributes for each Certificate so transferred,

and the right to make any such claims passes exclusively to the subsequent purchaser of the Certificate, except that a retail supplier of electricity may retain the right to make limited claims with respect to its role in supplying and/or delivering Certificates to its retail customers, to the extent permitted by law.

EXHIBIT A:

ADDITIONAL TERMS TO THE AGREEMENT FOR THE PURCHASE AND SALE OF CERTIFICATES

This Exhibit describes the transaction-specific details of each Certificate purchase, including a description of the primary Renewable Energy Facility or Renewable Energy Facilities from which the Certificates are expected to be produced, the conditions Seller's performance of its obligations, the price and quantity of Certificates that are the subject of this Agreement, the terms of Seller's delivery for the Certificates, and the terms of Buyer's Payment for the Certificates.

This Exhibit is an integral part of the foregoing Agreement and is intended by the parties to be treated as a part of the entire Agreement.

DESCRIPTION OF THE FACILITY

A. The Certificates that are the subject of this Agreement are expected to be produced from the following electric generating facilities:

[List facilities here]

CONDITIONS OF PERFORMANCE

B. The Certificates that are the subject of this Agreement are expected to be produced from the Renewable Energy Facility or Facilities described above during the following time period:

Expected Beginning Date	Expected Ending Date	Amount

At Seller's discretion, but consistent with requirements for Green-e certification, for deliveries within any calendar year, Seller may supply to the Buyer Certificates generated from the Designated Facilities: (i) during the same calendar year; or (ii) during the first quarter of the following calendar year; or (iii) during the last two quarters of the preceding calendar year, or (iv) from another renewable energy facility with comparable resource and operating characteristics and within the same time periods.

DURATION OF AGREEMENT

C. The Contract Period for this Agreement is _____.

PRICE AND QUANTITY OF CERTIFICATES

D. The total number of Certificates to be purchased by Buyer pursuant to this Agreement is:

_____ (_____) Certificates.

E. The unit price for each Certificate is: _____ ($ _____).

F. The total purchase price to be paid to SELLER by Buyer is $ _____.

TERMS OF DELIVERY

G. Seller will deliver to Buyer an annual Certificate Record documenting actual production of Certificates for delivery to Buyer, based on metered and verified production as reported to Seller by its suppliers of Certificates. The Certificate Record shall specify at a minimum the quantity of Certificates delivered, the Renewable Energy Facility or Facilities from which the Certificates were produced, and the time period during which the Certificates were produced.

TERMS OF PAYMENT

SIGNATURES