ETNNA WHITE PAPER SYSTEM CHANGES TO SERVE A FEDERAL RES

The purpose of this paper is to anticipate what would be needed to adapt the existing and emerging state/regional tracking systems to serve a federal renewable electricity standard (RES), also known as a renewable portfolio standard (RPS), should such a policy be approved by Congress.[1] This paper does not judge the desirability of a federal RES or the critical policy provisions contained in the four pending RES bills. Rather this paper focuses on the feasibility and ease with which existing state/regional tracking systems could be adapted to serve a federal RES system under the four different schemes suggested by the bills pending before Congress. The intent is for the state/regional tracking systems to continue providing the services needed by state RES programs and the voluntary renewable energy market while adding the changes needed to serve a federal RES. {Appendix A is a discussion of the advantages of using the existing and emerging state/regional tracking systems for federal RES implementation rather than creating an entirely separate federal system. Appendix B gives an overview of the current systems and how they operate.}

Background

There are presently four bills pending before Congress that would create a federal renewable energy standard requiring utilities to procure electricity from renewable energy sources to meet a portion of their overall loads. These bills are sponsored by:

- Senator Bingaman (2009)
- Representative Markey (H.R. 890)
- Waxman-Markey (2009)[2]
- Senator Udall (S. 433)

These bills differ in a number of key policy areas however this paper focuses on the tracking of the federal renewable energy credits that may be used for compliance as described under the different bills. Three of the four bills (Markey, Waxman-Markey, and Udall) call for the Department of Energy to rely on existing state and regional tracking systems to the extent possible to implement the RES policy and track compliance. The revised Bingaman bill now specifically states that the Federal Energy Regulatory Commission (FERC) may delegate authority to regional systems for tracking credits. Since one of the goals is to avoid double counting then the only tracking options are (a) use the regional systems for both federal and state purposes; or (b) use a new federal system for both purposes. It would be much simpler to modify the existing regional systems than to create a whole new system.

Table I compares the four pieces of legislation with regard to key federal renewable energy credit (FREC) elements that would need to be accounted for within a Federal RES compliance accounting system.

[1] / The term RES is being used for both a renewable portfolio standard (RPS) as well as a renewable energy standard (RES).

[2] / In the rest of this document "Waxman" is being used to refer to Waxman-Markey.

Table 1 – Comparison of Key Federal Renewable Energy Credit (FREC) Issues in Four Proposed Federal RES Bills

KEY ISSUE	Bingaman 2009	Markey 2009 (H.R. 890)	Waxman 2009	Udall 2009 (S. 433)
Issuing federal credits	Implies dual REC system	Implies dual REC system	Implies dual REC system	Implies dual REC system
Contracts silent on FREC	In PPAs power purchaser gets the credit, based on date facility was placed in service. Also applies to new projects (after 1.01.06). Silent on REC only contracts.	In PPAs power purchaser gets the credit, based on effective date of legislation, for duration of contract. Silent on REC only contracts.	In PPAs power purchaser gets the credit, based on effective date of legislation, for duration of contract. Silent on REC only contracts.	In PPAs power purchaser gets the credit, based on effective date of legislation, for the duration of the contract. Silent on REC only contracts.
Disposition of FREC	Issued to generators. Issued to utilities if complied with state RPS, paid state ACP, or in case of central procurement. For existing contract retail provider gets credit	Issued to generators. Exceptions for central RPS procurement and ACP payments for generation attributable to such payments. For existing contracts, retail electric provider gets credit.	Issued to generators. Exceptions for central RPS procurement and ACP payments. For existing contracts, retail electric provider gets credit.	Issued to generators. For existing contracts, retail electric provider gets credit, ACP or other payments to state. RPS are credited based on resulting generation
Size of FREC	FREC = 1kWh	FREC = 1kWh	FREC = **1MWh**	FREC = 1kWh
Resource Eligibility	**Existing** (in service before 1/1/06): Solar, wind, geothermal, ocean, biomass, LFG. **New:** In service on or after 1/1/06, plus incremental output if in service before 1/1/06), plus incremental hydro.	Wind, solar, geothermal, biomass, LFG, qualified hydro, marine & hydrokinetic.	Wind, solar, geothermal, biomass, LFG, qualified hydro, marine and hydrokinetic, fuel cells (biomass definition differs from Markey)	Solar, wind, ocean tidal, geothermal, biomass, LFG, incremental hydro, hydrokinetic.
Existing vs New	FRECs are only issued for incremental output of existing	Does not distinguish	Does not distinguish	Does not distinguish except for disposition of FREC.
Distributed Gen	At customer site 1 MW limit	Non-combustion, customers at or near facility up to 2 MW	Non-combustion, customers at or near facility up to 2 MW	On-site up to 1MW, offsets customer's electric use.
Credit Multipliers	2 FREC for projects on tribal lands; 3 FREC for distributed generation	3 FREC for distributed generation	3 FREC for distributed generation, review by Jan 2014	2 FREC for projects on tribal lands (bio on-site); 3 FREC for distributed generation.
FREC Banking	3 years	3 years	3 years	3 years, borrowing first 3 yrs
FREC Trading	Prohibits trading unbundled FREC from "existing" generators (prior to 1/1/06)	No apparent restrictions on unbundled FREC	No apparent restrictions on unbundled FREC	Prohibits trading unbundled FREC from PPAs that are silent on FREC ownership
Energy Efficiency	Can be used to meet up to 25% target each year	Not included	State may petition to reduce annual obligation by 20%	Not included
FREC Tracking	Rely on existing state or regional tracking systems	Rely on existing state or regional tracking systems	Rely on existing state or regional tracking systems	Rely on existing state or regional tracking systems

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FEDERAL RENEWABLE ENERGY CREDITS

The Size of a Federal REC (FREC)

In three out of the four proposed renewable electricity standards the FREC is denominated at the kWh level (i.e. 1 FREC = 1 kWh). The one exception is the Waxman bill where 1 FREC = 1 MWh.[3]

Tracking System Implications – All existing tracking systems use 1 REC = 1 MWh. All of the systems collect their MWh data to the third decimal place (i.e. at the kWh level) and round up or down as appropriate. Using a kWh increment for FRECs is not a technical problem but it could involve an expense in switching over the system even though the data are reported at the kWh level.

It has been suggested that a kWh FREC might be preferable for small behind the meter (BTM) installations that have relatively low monthly electricity output. Tracking systems currently collect output data from small, BTM systems, but issue the RECs in MWh units by holding the kWh credits in an account until there are1000 kWh. If it is determined that there are sufficient benefits for small, BTM generators to justify issuing FRECs in kWh increments, this approach could be implemented for this class of generator. Such an approach would result in fewer modifications and expenses to the systems.

ISSUING FEDERAL RENEWABLE ENERGY CREDITS

What a Federal Renewable Energy Credit (FREC) Represents

A FREC represents a credit of one megawatt-hour (MWh) or one kilowatt-hour (kWh) toward a federal RES energy requirement as specified in the legislation. None of the proposed legislation indicates that the federal renewable energy compliance credit (FREC) represents any environmental or other renewable energy attributes. Therefore to the extent that environmental or other attributes are considered to be incorporated as part of a non-federal REC by either state regulators or administrators of voluntary programs, the existence of a FREC would not interfere with those transactions. However those wanting to use RECs for climate change purposes would need to purchase and retire both the REC and the FREC due to the additionality requirement for climate change benefits.[4]

Issuing Federal Renewable Energy Credits (FREC)

All four bills indicate that federal renewable energy credits (FREC) will be issued separate from the RECs that are presently issued by state/regional tracking systems.

For new projects without PPAs or with PPAs that indicate the generator retains the federal credit, all four bills issue FRECs to the generator. **Exceptions:** There are exceptions for: existing contracts that are silent on FREC ownership, central RPS procurement (e.g. the New

[3]/ Only the Waxman bill specifies a unique serial number for each FREC issued though one might assume this is implied by the others since a unique serial number is the primary mechanism for avoiding double counting.

[4] / In order to claim greenhouse gas reduction benefits, the renewable power must be "additional" – e.g. it would not have occurred otherwise.

York procurement method) where the retail service provider makes a payment to the state for central procurement. There is also an exception where a retail service provider pays an alternative compliance mechanism (ACP), in which case the FRECs are issued or transferred to the retail service provider (under all four bills) in proportion to the output of the renewable facilities that come online as a result of the ACP payments. Existing generators under Bingaman (i.e. those that became operational before 1/1/06) may only receive FRECs for incremental output. For existing power contracts that are silent on the ownership of the FREC, the power purchaser gets the federal credit. The Bingaman bill applies to both existing and new contracts that are silent on ownership and does not define the length of time over which the FRECs go to the power purchaser. The Udall, Markey and Waxman bills give the credits to the retail provider only for the duration of the contract.[5] There is one other issue and that is where a REC only contract may exist that is silent on FREC ownership. There is no specific treatment of that in any of the bills.

Tracking System Implications – Existing tracking systems primarily issue RECs to the generator who can then transfer them through contract, sale or trade to another account holder. An exception for some systems (WREGIS, M-RETS and possibly others) allows the generator to assign their registration rights to a counterparty and have the RECs put directly into that party's (e.g. a utility) account. Federal protocols will need to be carefully designed to avoid double issuing of RECs and FRECs.

To the extent that tracking systems can continue their practice of using automatic protocols to transfer credits consistent with specific legislative "exceptions," this would make for a smoother integration of the federal and state certificate systems. The tracking systems will need to add protocols to indentify eligibility for issuing the FREC (including incremental output from facilities operational before 1/1/06 – Bingaman) as well as an alternative serial number system to track the FREC. Tracking systems will need to add a prefix/suffix to identify where the original FREC was issued (e.g. W for WREGIS, E for ERCOT, etc.) The tracking systems will also need to create federal RES retirement accounts separate from their state RPS retirement accounts for liable account holders. Other issues include:

> **Central Procurement --** In the case of central procurement, the transfer of FRECs would be made in the same manner as other REC transfers are made today. E.g. the state procurement agency would open an account and FRECs would be transferred from the generators from whom the Central Procurement agency is purchasing attributes consistent with the quantities being purchased. Then transfers would be made from that agency to participating utilities' RES compliance retirement accounts allocated according to each utility's financial contribution to the procurement.
>
> **ACP Payments --** For utilities that pay into an alternative compliance mechanism rather than purchasing renewable power or FRECs, they can receive credit in proportion to the amount of generation that actually results from their ACP contributions. The agency administering the ACP would provide direction to the tracking system regarding the quantity of FRECs that should be issued to each

[5] / The Bingaman bill is silent on the length of time during which the retail provider would receive the credits.

participating retail service provider's account and indicate the ACP funded generator from which the certificates are to be transferred. [6]

Contracts Silent on Ownership – For contracts silent on FREC ownership, the FREC would still be issued by the tracking system and put into the generator's account but a protocol would need to be added to automatically transfer those FRECs to the power purchaser if the contract was silent. One option for implementing this requirement would be to add to the Generator Information Form an affirmation by each generator of whether their PPA specifies their ownership of the FREC. Where there is a question, the federal Administrator could appoint a board or arbitrator to review the relevant information.

Though pre-existing REC only contracts were not specified in any of the bills, it could be inferred that they would be treated the same as any other pre-existing contract. If a pre-existing contract specifies any future FRECs will be transferred with the REC, those FRECs or federal RES compliance attributes would need to be added to that purchaser's account in the quantity appropriate under the implementing rules. The FRECs would remain with the generator if the contract so specifies. If the contract is silent on the disposition of the FRECs, they would be transferred to the retail service provider that is purchasing the power.

Dual versus Single REC System

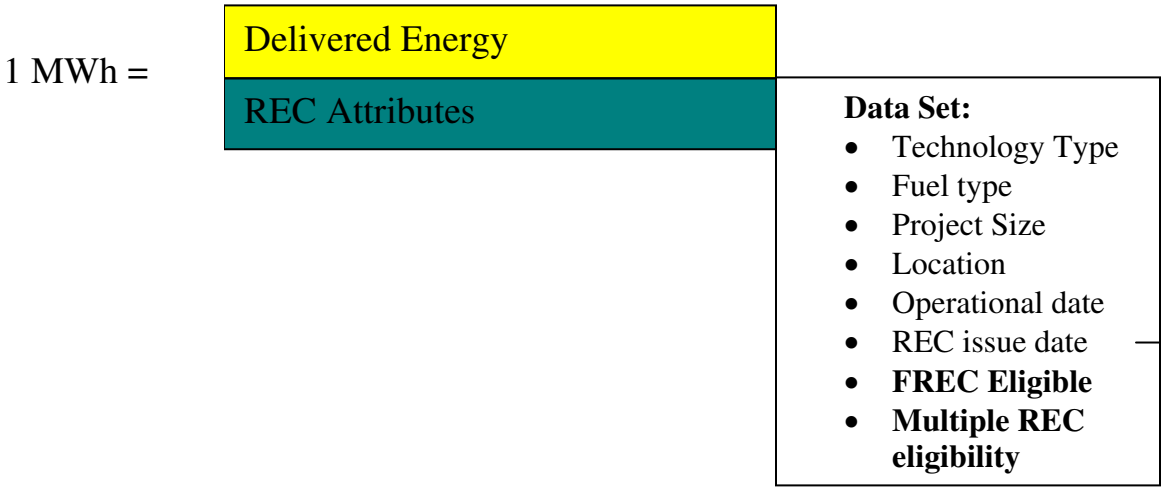
Though all four of the bills seem to imply a dual REC system, this does not have to be the case in order to accomplish the intent of the legislation and there could be benefits of handling federal RES credits in another way.

Alternative Single REC System: An alternative to issuing a separate FREC would be to add a new attribute data field to RECs that specifies the eligibility of that MWh or kWh to meet federal RES compliance. This federal attribute – (demonstrating federal RES compliance) could still be unbundled from the primary REC and sold or traded separately in the same manner as a FREC would be handled. The diagram below illustrates how a single system might be designed

The potential benefit of having this federal renewable energy credit as a REC attribute rather than as a separate REC is that it would be easier to track to ensure against double counting since both would have the same unique serial number as the parent REC. This would make it easier to trace the origin of the FREC and ensure no duplicate issuance. Moreover, to the extent the parent REC was bundled with a power sale, both the REC and the federal renewable energy credit would be transferred together avoiding the need to create a separate protocol to identify if the power purchaser should receive the FREC as well. In addition, where the REC was sold separate from the power (as specified in the power purchase agreement and consistent with federal program rules), the federal credit could be transferred with the REC until it is sold or traded separately without requiring a separate transaction and a

[6] / There is a potential problem because of the time lag in payment of the ACP and when the project comes on line. However that is a policy problem not a tracking problem.

separate transaction fee. A single REC system would simplify implementation of the Federal RES.



The easiest way to implement a single REC approach (as opposed to the dual approach presently contemplated) would be for the final federal legislation to defer this decision to the federal RES administrator directing them to use criteria that includes the ease of implementation, stakeholder understanding, and the veracity of the system to avoid double counting. A public process or stakeholder advisory committee would be helpful for this process

Tracking System Implications – If the federal credit becomes a subset of the parent REC, there will still need to be a protocol for indicating under what circumstances a REC is eligible for a federal credit attribute designation. In this case there will be no need for a separate serial number system. A "D" (for dual) could be added as a suffix to those RECs that include the federal credit.[7] The suffix would be changed when the federal credit is separated from the REC (e.g. the REC is #W-98989D when it includes the bundled federal credit while the federal credit once separated from the REC is #W-98989F). No separate transaction fees will need to be charged by the tracking system until or unless the federal credit is separated from the parent REC.[8] Federal credit sub-accounts will also be necessary for compliance purposes and to the extent that federal credits are separated from RECs and traded separately by intermediate players.

[7] / Regardless of the system, once systems import or export RECs those RECs will need to have a prefix that indicates the tracking system from which the REC originated – E.g. W for WREGIS, P for PJM-GATS, E for ERCOT, etc.

[8] / However, there might be a small "creation" fee charged for adding the federal credit to the REC attributes. (?)

Distributed Generation
All of the existing tracking systems issue certificates for small and distributed generation. All four bills include distributed renewable generation as eligible resources from which data will need to be collected.

Tracking System Implications – It does not appear that any tracking system changes would need to be made in order to issue FRECs for distributed generation. However, participation by small distributed generators has been limited due to the transaction costs. To the extent that the federal RES Administrator wants to encourage broad participation by distributed generators, consideration might be given to some type of grant or support program to cover the incremental costs of tracking system participation by small users.

Credit Multipliers
All four bills contemplate providing multiple FRECs for small (<1MW) customer sited distributed generation. Two of the bills, Bingaman and Udall, have credit multipliers for generation on Indian lands and Markey and Waxman for non-combustion generators (< 2 MW) serving customers near the facility. A number of state RPS programs use credit multipliers to stimulate particular types of generation (e.g. solar) or for small BTM systems and this is usually implemented by the program administrators themselves rather than by having the tracking system issue multiple RECs. It appears that the four bills contemplate actually issuing multiple RECs rather than having the Federal RES Administrator apply the appropriate multiplier when calculating compliance. The latter would be far simpler to administer with less chance of error.

Tracking System Implication – To the extent that separate multiple FRECs are issued, a protocol must be added to issue multiple FRECs where a facility meets the static criteria for doing so. These data are already part of the generator static data set with the exception of whether the facility is located on Indian Tribal Lands. This question would need to be added to the generator information form. These multiple FRECs would either need to have individual unique serial numbers or preferably they could have the same serial number with a special prefix/suffix indicating that they are a multiple of the original energy production and whether they are multiple # 1, 2 or 3 so they could be sold and tracked separately.

If the federal credit was an attribute subset of the parent REC, then, using the appropriate protocol, the dataset for that REC could indicate the number of federal credits associated with this attribute. If the FREC is unbundled to be traded separately, then each individual FREC would have a prefix or suffix for their multiple # (as suggested above) so they could be tracked separately.

OTHER FREC ISSUES

Addressing Differences in Eligible Resources or Vintage
Existing REC tracking systems include a data set that accompanies each REC. These data sets allow regulators and program administrators to assess which RECs are eligible to receive credit for their programs (whether mandatory or voluntary programs). These data sets include static data about the generator that produced the energy associated with the REC (e.g. type of

resource/technology type, fuel -- if appropriate, especially relevant for biomass and co-fired projects, date the project came into service, project size, location, ownership, etc.) as well as dynamic data related to the issuance of new RECs (e.g. when the REC was created).

Resource Eligibility –State RPS programs often differ from each other with regards to technology/fuel eligibility requirements. All existing regional tracking systems have more than one state RPS program participant with different resource eligibility requirements and are designed to accommodate these differences. The proposed federal RES bills have resource eligibility requirements that may differ from some state RPS resource eligibility requirements.

Tracking System Implications – Existing regional tracking systems are already issuing and tracking RECs that serve different resource eligibility requirements of different programs located in their jurisdiction. As mentioned earlier, unique serial numbers and data sets associated with each REC will allow these tracking systems to serve unique federal program requirements. The resource eligibility definitions for a federal RES, including co-firing, do not pose a problem for regional or state systems. To the extent that the federal RES program includes an eligible resource not already included by a particular tracking system, adding a new data field for this resource is easy to implement and within the present scope of all the tracking systems. Incremental hydro resources are one such possible addition.[9]

Existing versus New Resources – The Bingaman bill has specific resource eligibility criteria depending upon when different types of resources came into service and only issues FRECs to incremental energy produced by generators that began service prior to 01/01/06.[10]

Tracking System Implications – Since the date of service is already collected by state/regional tracking systems this requirement has minimal implications for issuing certificates. For project contracts silent on ownership, a protocol will need to be added so the date of service that can be used to determine when FRECs or credits may or may not be issued. This provision can be accomplished by adding a question to the generator information form asking each generator to indicate the retail service providers to whom they sell their power and the quantities specified in those contracts. Under Bingaman there will need to be another affidavit that the FRECs are not being sold separate from the power.[11]

There is an issue of existing contracts in which the REC has already been traded and the contract also transferred the rights to the FREC along with the REC. This could be done either through visual verification of the PPA or it would require another question/affidavit in the generator information form asking whether there is a separate

[9] / In this case the Federal Energy Regulatory Commission would probably need to certify hydro generator eligibility since they would have the relevant data.
[10] / In the Bingaman bill projects with a date of service before 1/1/06 are considered existing rather than new.
[11] / None of the bills seem to contemplate power sales into wholesale markets so whether there is a need for special provisions for handling the FRECs under these circumstances is unclear.

RECs only contract associated with this project and if so, whether the FRECs are to be transferred along with the RECs.

FREC Banking and Borrowing

All four of the bills allow banking of FRECs for up to three years. The existing state/regional tracking systems generally do not have specific banking provisions (though many state RPS programs do) but RECs can exist in the system until such time as they are retired.[12] The Udall Bill permits borrowing of FREC credits. However none of the state/regional tracking systems has borrowing protocols.

Tracking System Implications – Since date of issuance is already part of the data set collected by existing tracking systems the information will already be available to implement this provision. Protocols can be added that automatically retire (make unavailable for use) federal REC credits three years after their creation or the federal RES program Administrator could simply not count federal credits for compliance more than three years after their date of issuance. Because federal banking requirements might be different from state RPS banking requirements, Federal REC credits that are being held under federal rules could be put into a separate "FREC savings account." If the federal credit were part of the REC dataset and the owner wanted to 'bank it" the same approach could be used by splitting it off and putting it into a federal savings account.

With regards to borrowing FRECs, the language in the Udall Bill that permits borrowing involves qualitative analysis by the federal RES Administrator of the likelihood of obtaining sufficient FRECs to repay the FREC loan and to meet all future needs. Since this judgment would be made by the RES Administrator, it is unclear the extent to which there is a role for the tracking systems though an additional field might be needed where the Administrator could note the quantity of FRECs borrowed and the date they were borrowed as part of the net total calculations for the compliance account.

REC Trading

All four bills contemplate trading of FRECs but the Udall Bill prohibits trading of unbundled FRECs from PPAs that don't clearly dispose of the FRECs. (The revised Bingaman bill deleted explicit language that limited FREC trading.) Disposition of any excess federal credits is not addressed in the Bingaman Bill. However the other three bills defer to the states to regulate the disposition of excess federal credits.

Tracking System Implications – There will need to be electronic protocols for imports and exports of FRECs among all the tracking systems since trading, both bundled or unbundled is contemplated under all four bills.

[12]/ However, in addition to state RPS banking provisions, some individual state RPS programs and voluntary renewable energy programs have vintage dates that essentially limit the market value of RECs more than a few years old. Moreover, some state banking provisions may hold the excess RECs in a separate account until they are needed.

The Udall trading restriction could be handled by adding a REC ownership affirmation field to the REC data set, with a mechanism to trigger ineligibility for trading the RECs acquired through "silent PPAs." In this way the silent PPA (under Udall) could trigger the REC's retirement based on the data entered at the time of the issuance.[13]

To the extent some states decide not to allow trading of excess FRECs, protocol will be needed to indicate those FRECs that must be placed in the federal RES retirement account of a retail service provider located in their state of origin.

Double Counting of FRECs – All four bills prohibit double counting of federal RES credits.

Tracking System Implications – A federal RES would require a single national generator registry to ensure that each FREC was properly associated with its issuing tracking system, renewable facility, and REC, and to further ensure appropriate tracking of data needed for RES compliance, legislative exceptions, and other exceptional cases. For example, a national generator registry would be needed to track FRECs generated in states served by more than one tracking system and for generators selling renewable energy to more than one retail service provider.

The basic data for a national registry can be gleaned from existing tracking system public data (e.g. technology and fuel type, size, location, date of initial operation), though some necessary data may be confidential (e.g. total number of FRECs annually issued to the facility, and the wholesale/retail energy service providers to whom power is being sold) but could be needed by the RES Administrator. There could be a public version of the national registry and a version with the necessary confidential information only available to the RES Administrator and possibly state regulators.

Double Counting of Voluntary Purchases -- One of the concerns voiced by participants in voluntary REC markets is the potential for double counting of renewable energy attributes. The rules governing voluntary REC sales implemented by Green-e® and other certification groups do not allow a REC to be used for compliance with a state RPS program and have the same REC sold in the voluntary market. A generator or marketer can choose to either sell their REC in the compliance market or in the voluntary market but not both. The logic behind this rule is that the renewable power a customer buys should be above and beyond what would otherwise have occurred without the REC purchase. The same logic applies to a federal RES credit. In other words if a federal RES credit associated with a particular REC (a specific kWh or MWh of energy production) is used to meet the federal RES requirement that would disqualify the associated REC from being available for use in the voluntary REC market.

Tracking System Implications – A data field associated with the basic REC should be added that indicates whether or not the FREC has been used for federal RES compliance purposes. This is true whether separate federal RECs have been issued or whether the federal renewable energy credit was issued as part of the REC data set. Where the federal renewable

[13]/ According to current tracking system practices, once a REC is put into a retirement account it can no longer be traded, sold or used and its serial number is retired.

energy credit was issued as part of the REC data set, a protocol can be added to indicate if a FREC was removed and sold separately. Where there is a separate federal REC issued, adding a protocol would be most easily implemented if both the regular REC and FREC have the same serial number (but with a different prefix/suffix).

If a single REC system were implemented, rather than a dual REC and FREC system, an additional protocol would be added to the existing tracking systems to provide a clear indication of any FREC separated from the parent REC for federal compliance.

Energy Efficiency Credits

The Bingaman bill creates a system of tradable Energy Efficiency Credits (ESC) that can be used in lieu of federal energy efficiency credits to meet up to 25% of the federal RES target in a given year. The Waxman bill does not allow tradable ESCs but allows states to petition the Secretary of Energy to reduce the annual RES targets, if the state's utilities are in compliance with a separate energy efficiency resource standard contained in the bill.

Tracking System Implications – NE/GIS, and PJM GATS as well as the APX North American Renewables Registry (NAR) issue energy efficiency credits (EEC) and already have protocols that could be applied to a federal RES energy efficiency credit or federal Energy Efficiency Resource Standard (though it is unclear the extent to which existing EECs can presently be traded). These protocols could be replicated by the other tracking systems. Alternatively, one or more of the existing systems with existing EEC capability could act as the issuing body for EECs. Those credits would then be imported into the appropriate tracking system and applied to the appropriate federal RES account consistent with direction from the Program Administrator.

If using energy efficiency to meet a portion of the RES standard is a qualitative decision (e.g. the Governor of a state applies to the RES administrator to reduce their renewable energy target as a result of their state's energy efficiency program) then there would be no need for tracking systems to incorporate energy efficiency credits.

Summary and Conclusions

1. A *National Generator Registry* will be required to assist the federal RES Administrator administer the program, to protect against double counting and to facilitate FREC trading. Such a generator registry is important whether the federal RECs are issued separately or are part of the REC dataset since this is a national program, there are a number of existing and emerging state/regional tracking systems, the existing regional tracking systems sometimes include states that are divided between more than one tracking system, and since some renewable energy generators may sell power to more than one retail service provider located in more than one tracking system. (For a longer discussion of a national database, see the ETNNA white paper on "Inter-registry REC Transfers" that will be posted by the end of June.

2. *A special numbering system* will need to be developed if separate federal renewable energy credits are issued that links the FREC to its associated REC. The existing serial numbering system can be used with slight modifications if a single REC issuing system is used.

3. *Electronic export and import protocols* will be needed to facilitate efficient FREC trading between state/regional tracking systems.

4. Adding a federal RES credit to the REC data sets rather than issuing separate FRECs would make double counting less likely, make compliance with several of the RES provisions easier to track, and reduce transaction costs for federal RES compliance compared with a dual REC/FREC system.

5. I*ssuing federal RES credits in MWh rather than kWh increments* would simplify the integration of the federal and state credits and reduce system integration costs.

Table 2 summarizes the protocol additions and changes that might be necessary to implement a Federal RES within state and regional tracking systems.

Table 2 – Potential Tracking System Changes

KEY ISSUES	Tracking System Changes
Issuing FREC	Either the systems will need to issue separate FRECs (possibly using the same serial number as the parent REC with federal prefix or suffix) or the federal credit attribute could be added to each eligible REC's data set with a federal prefix or suffix to identify it if it is unbundled from the parent REC.
Silent on FREC ownership	Add question to generator information form that generator affirms their PPA gives them the legal rights to FRECs. In cases where ownership is silent, add protocol to automatically move FRECs to account of existing retail provider (for duration of contract for Markey & Waxman bills).
Other Disposition of FREC	**Central Procurement Agency (CPA):** These transactions would use the same existing transfer protocol as for other REC transactions: the CPA would open an account and FRECs would be transferred from the generators from whom the Central Procurement agency is purchasing power consistent with the quantities being purchased. The CPA would then allocate the FRECs to each utility consistent with their investments. **.State RPS Compliance:** For sales from generator to liable retail energy providers (where RECs are placed

	in state RPS retirement accounts) add protocol to transfer FRECs to retail service provider's federal compliance account. If federal credit is part of REC data set, add protocol to automatically move federal credit with REC under the conditions just described. **ACP Payments:** Where utilities have made ACP payments, regulators will inform tracking system of the number of FRECs that should be issued to the retail service provider as a result of such payments and from which generator. The data sets for these FRECs would state "ACP credit."
Size of FREC	It may be necessary to issue FRECs in kWh increments that could require some tracking system adjustments.
Resource Eligibility	Add protocol to identify facilities eligible for participation in federal RES.
Existing vs New	**Bingaman Bill:** for projects in service before 1/1/06, a protocol would be needed to move FREC or federal credit attributes directly into account of existing retail provider.
Distributed Generation	Add protocols to identify DG facilities eligible for participation in Fed RES
Credit Multipliers	Add protocols to identify eligible facilities and corresponding multiplier. Add question related to Indian Tribal Lands to generator registration form.
FREC Banking & Borrowing	No change necessary for banking. For borrowing tracking system implications are unclear.
FREC Trading	Add electronic import and export protocols to facilitate FREC trading between state/regional tracking systems. **Bingaman Bill**: for projects in service before 1/1/06 add protocol to deposit FRECs into retirement account of first account holder to whom FRECs were transferred.
Energy Efficiency	**The Bingaman bill** may require the issuance of EECs or the transfer of EECs from a tracking system that issues such credits into the liable federal retirement accounts of retail service providers using REC tracking systems. Add protocol to indicate which states have requested and received permission to use EECs. (Could be handled by Federal Administrator.)
FREC Double Counting & Ease of Administration	From existing public tracking system data, develop a national generator registry that provides static data about each generation facility, in which tracking system the facility is registered, as well as some confidential dynamic information (e.g. to whom power output is being sold) that would be available to regulators.
Voluntary Market Double Counting	If separate FREC certificates are issued, add information into REC data set indicating if FREC has been applied to federal RES/RES program. If federal credit is added to REC data set, add protocol to indicate if federal credit is unbundled from REC.
Federal FREC Accounts	There will need to be separate federal compliance retirement accounts for liable retail providers.

APPENDIX A
BENEFITS OF USING EXISTING/EMERGING STATE AND REGIONAL TRACKING SYSTEMS FOR A PROPOSED FEDERAL RES

The benefits of using the existing tracking systems to support the implementation of a Federal RES are the following:

1. Use of the existing regional systems would be more likely to avoid double counting of renewable electricity generation in any of the regional tracking system areas than if there were separate federal and regional systems.
2. Use of the existing regional systems would be more efficient and avoid duplication of efforts and resources put in by many states, electricity providers and renewable energy generators to create and operate the systems already in existence. With the soon to be added North American Renewables Registry (being developed by APX) it will be possible to track renewable generation throughout the entire US without creating a new federal tracking system.
3. Use of the existing systems would avoid having to establish separate meter data reporting relationships with the hundreds of qualified reporting entities, such as balancing authorities, regional and independent transmission system operators. It is time consuming and cumbersome even for regional tracking systems to establish these meter data reporting relationships and to administer the transfer and verification of meter data on an ongoing basis. But now that the regional systems have established these relationships, it would be a significant burden, not to mention a duplication of efforts, for a new Federal tracking system to set up and administer a second meter data reporting, transfer and verification system with these numerous entities throughout the nation.
4. By using the existing systems there would also be considerable savings of effort and greater ease in tracking RECs that are used simultaneously for both state and federal compliance particularly where they are contracted for in a single transaction as will often be the case.
5. Use of the existing regional systems would be less disruptive to electricity providers and renewable generators than requiring all renewable generators and utilities to open duplicate accounts in a second system. Even where registration and separate accounts are required on the state level, it has been time consuming to make certain that all the generators are registered and reporting transactions correctly. Using the existing systems would allow for a unified generator registry that would reduce redundancy and be easier to monitor for compliance by both state and Federal RES/RPS regulatory agencies.

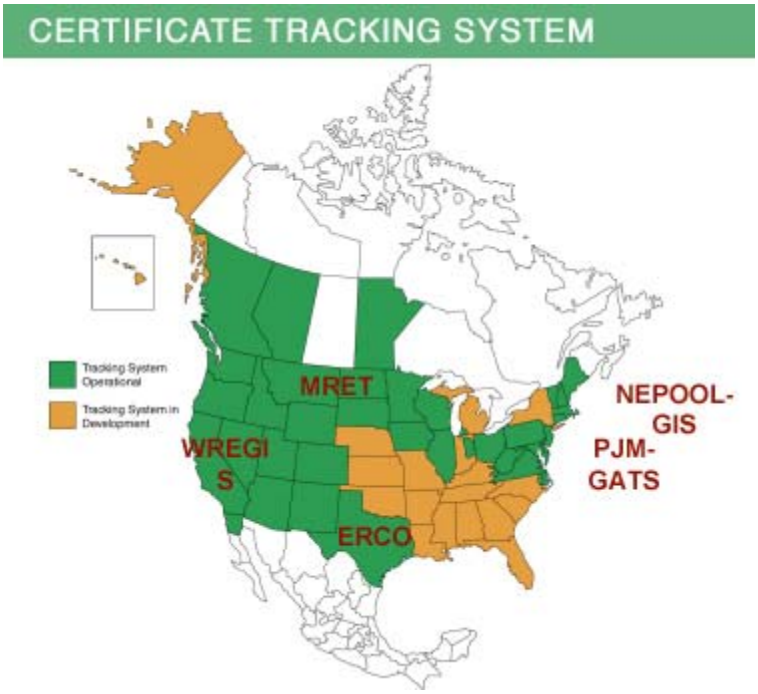
In summary, duel systems could raise questions about the clear title for RECs, introduce unnecessary complexity and conflicts with existing contracts, add extra governmental costs under an already strained economy, and greatly increase the potential for double counting of RECs.

APPENDIX B
TRACKING SYSTEMS

There are two primary methods for verifying renewable energy generation ownership: through contract-path auditing and through tracking systems. Tracking systems are becoming the preferable method because they can be highly automated, contain specific information about each MWh generated, and are accessible to market participants through the internet. Tracking systems are databases, typically electronic, with basic information about each MWh of renewable power generated in the region covered by the tracking system. The accounting tool used by the tracking systems is a renewable energy certificate (REC). A REC with a unique serial number is issued for each MWh that has been generated according to direct electronic data supplied by the control area in which the renewable generator is located.

Electronic tracking systems allow RECs to be transferred among account holders much as in online banking. Any market participant can open an account through which RECs can be transferred. The database associated with each REC includes specific static information including facility location, generation technology, facility owner, fuel type, nameplate capacity, the year in which the facility began operation, and the month/year the MWh was generated. Since each MWh has a unique identification number and can only be in one account at any time, this reduces ownership disputes and opportunities for double counting.

A tracking system can be used by regulators as a registry of generating facilities, as a means of verifying compliance with a Renewable Portfolio Standard (RPS), for aiding in the creation of disclosure labels, and for other purposes such as verifying wholesale supply for green power products. Tracking systems are not substitutes for certification and verification, as tracking systems only monitor wholesale transactions—individual retail green power customers do not generally hold accounts in tracking systems unless they make very large purchases. That is one reason why certification from a credible third party is important for voluntary purchasers.



The tracking systems emerged regionally in response to state Renewable Portfolio Standards and needs in the voluntary market. There are several regional tracking systems in operation in the U.S., and more under development. Fully operational tracking systems include the New England Generation Information System (NEGIS), ERCOT's Texas Renewables, WECC's Western Renewable Energy Generation Information System (WREGIS), the Midwest Renewable Energy Tracking System (M-RETS) and Pennsylvania New Jersey Maryland's Generation Attribute Tracking System (PJM-GATS). New England and PJM's systems track all generation (not only renewables), while the other systems only track renewable certificates. New York state is in the process of developing its own tracking system and there is also a default tracking system launched by the APX company in October 2008 that will issue and track certificates for renewable energy projects located in areas not currently covered by another tracking system. With the exception of the APX default system, most of the others are quasi-governmental, creations of the governmental regulators from the participating states/provinces within their jurisdiction.