Renewable Energy Certificate Tracking Systems

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April 30, 2015

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What is a REC?

https://www.youtube.com/watch?v=opJMrzNauFQ&feature=youtu.be

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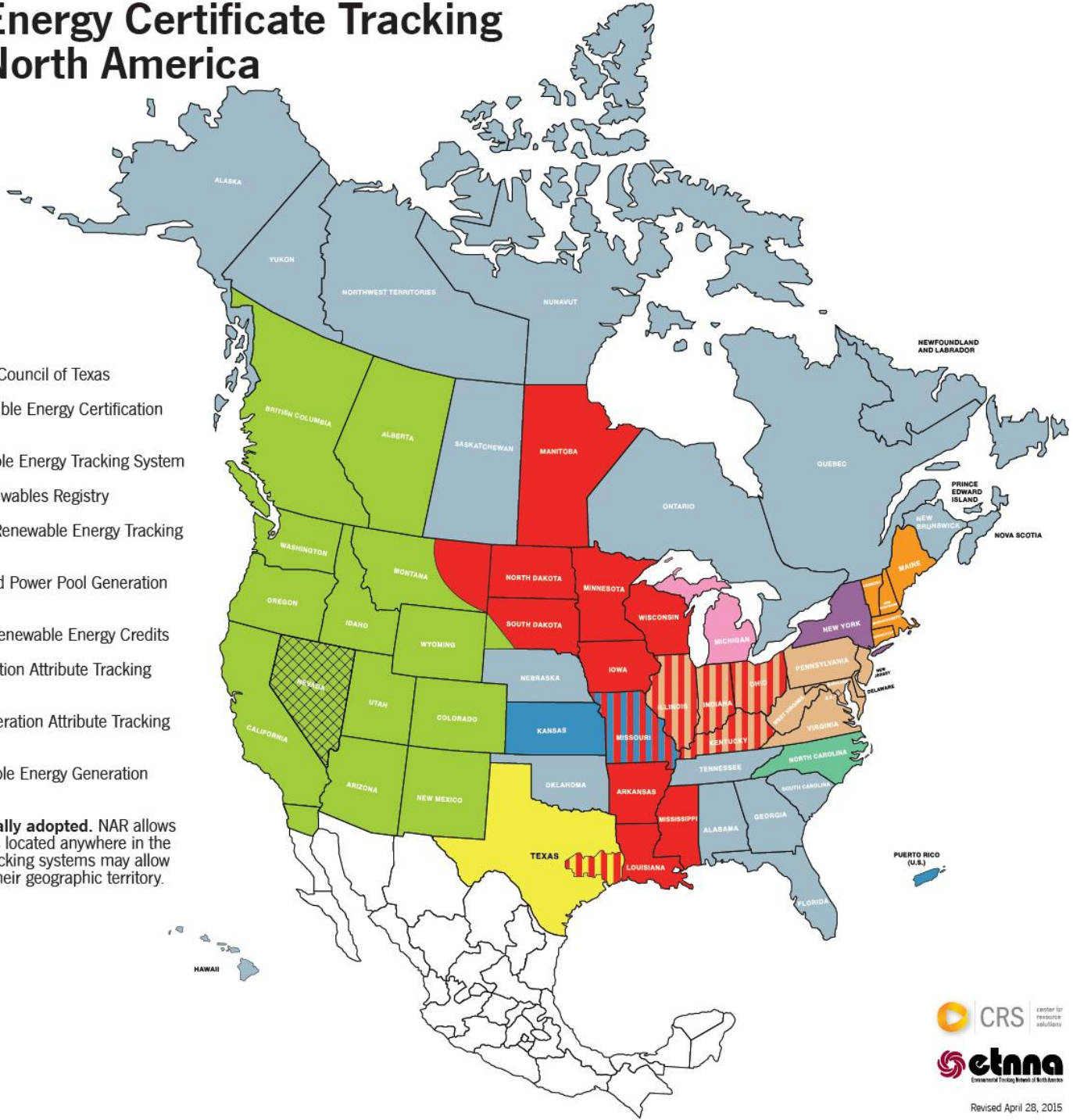
What is a REC Tracking System?

- Accounting system for renewable energy
  - Certificates are the currency (unique serial numbers, carry information about the generator)
  - Participants in tracking systems have accounts
  - Certificates can be transferred (traded) between accounts
  - Certificates are used when they are retired (permanent).
  - ***Policy Neutral***

Why Tracking Systems?

- RECs first created in late 1990s during electricity sector restructuring
  - Tool to facilitate trading and verification of renewable energy for state renewable portfolio standards and the voluntary green power market
  - Traded through contracts
  - Verified through auditing generation production and contracts
- Tracking systems provide verification of production and certainty of ownership.

Renewable Energy Certificate Tracking Systems in North America



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etnna Environmental Tracking Network of North America

Revised April 28, 2015

Two Types of Tracking Systems

All-generation tracking systems

- PJM GATS
- NEPOOL GIS
- NYGATS (in development)

Renewable-only tracking systems

- ERCOT
- MIRECS
- M-RETS
- NAR
- NC-RETS
- NVTREC
- WREGIS

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Key Roles of REC Tracking Systems

- Document generator production using metered data
  - 1 MWh = 1 certificate with unique serial number
- Establish ownership
  - Track who owns renewable electricity attributes once they are generated
- Assure no double counting
  - Only 1 certificate per MWh, REC exists in only one account at a time
- Facilitate trading of renewable energy
  - Certificates can be transferred between accounts
- Verify certificate retirements (use)

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Primary Users

- Generating Facilities
- Load Serving Entities
  (utilities, electricity suppliers)
- REC Traders/Sellers
- Program Administrators
  - State RPS program verification
  - Power source and emission disclosures
  - Green-e Energy verification

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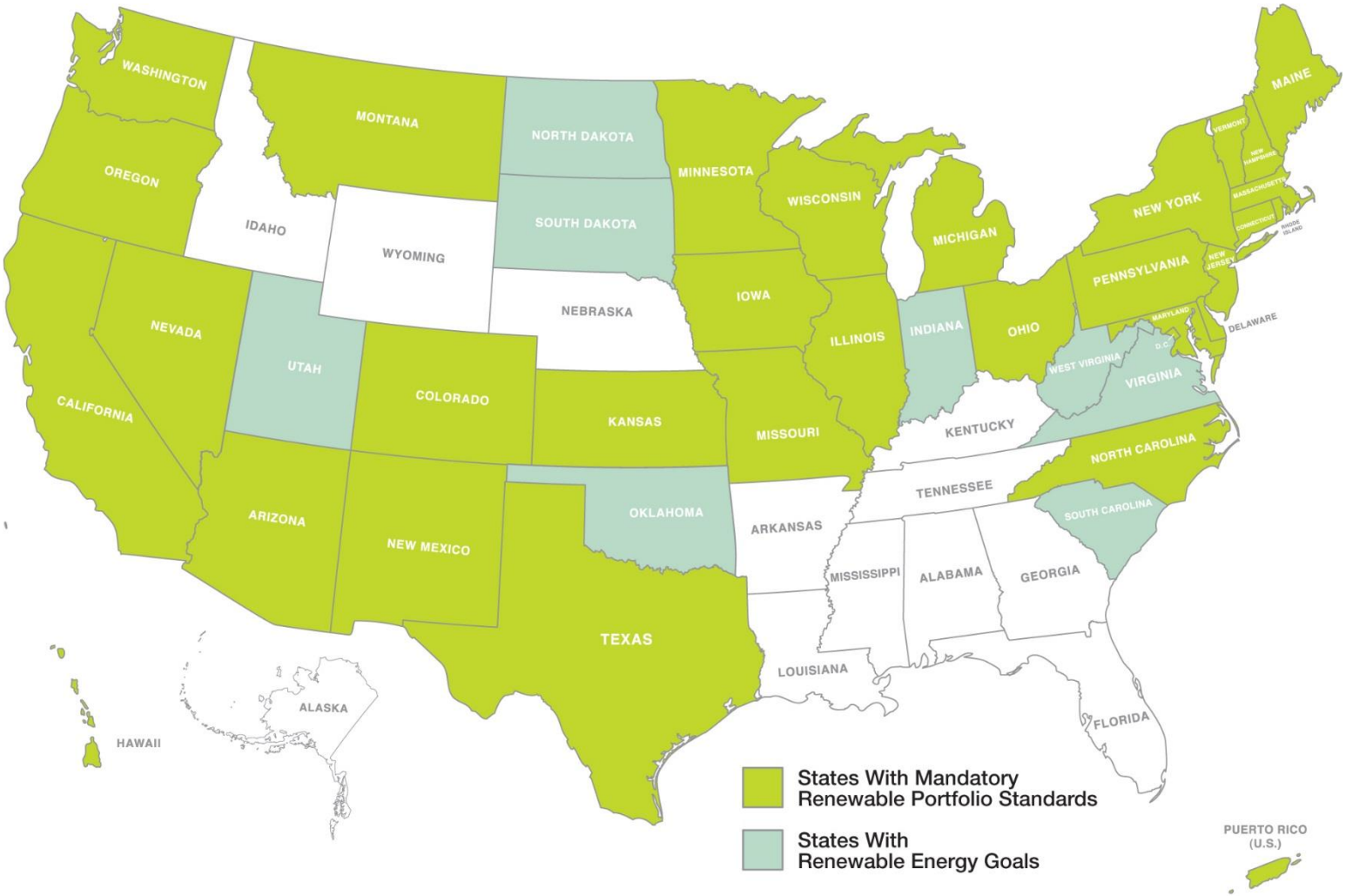
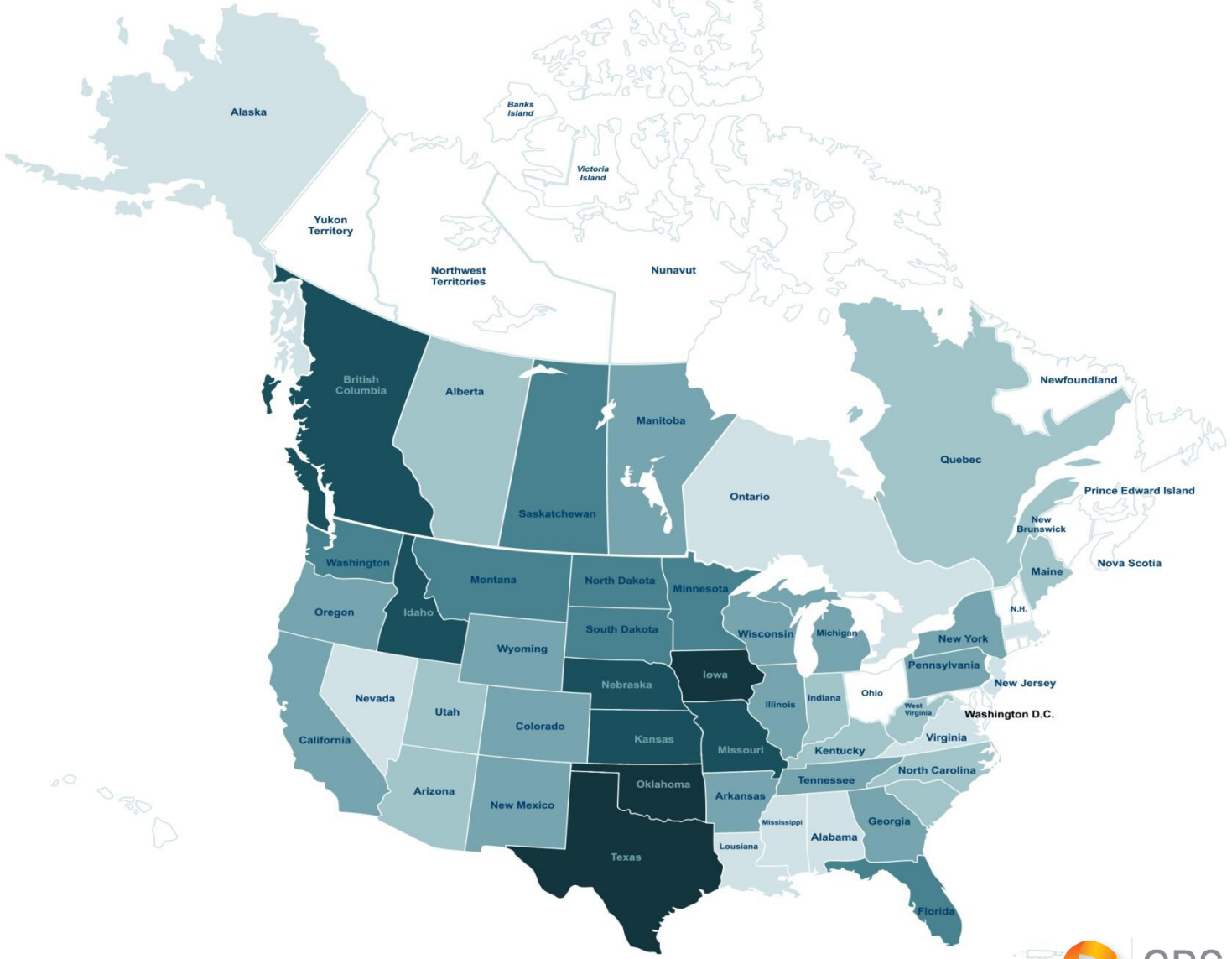
State RPS Programs



Source: *Database of State Incentives for Renewables and Efficiency (DSIRE) available at http://dsireusa.org/documents/summarymaps/RPS_map.pdf.*

Green-e Energy Generation Locations 2013



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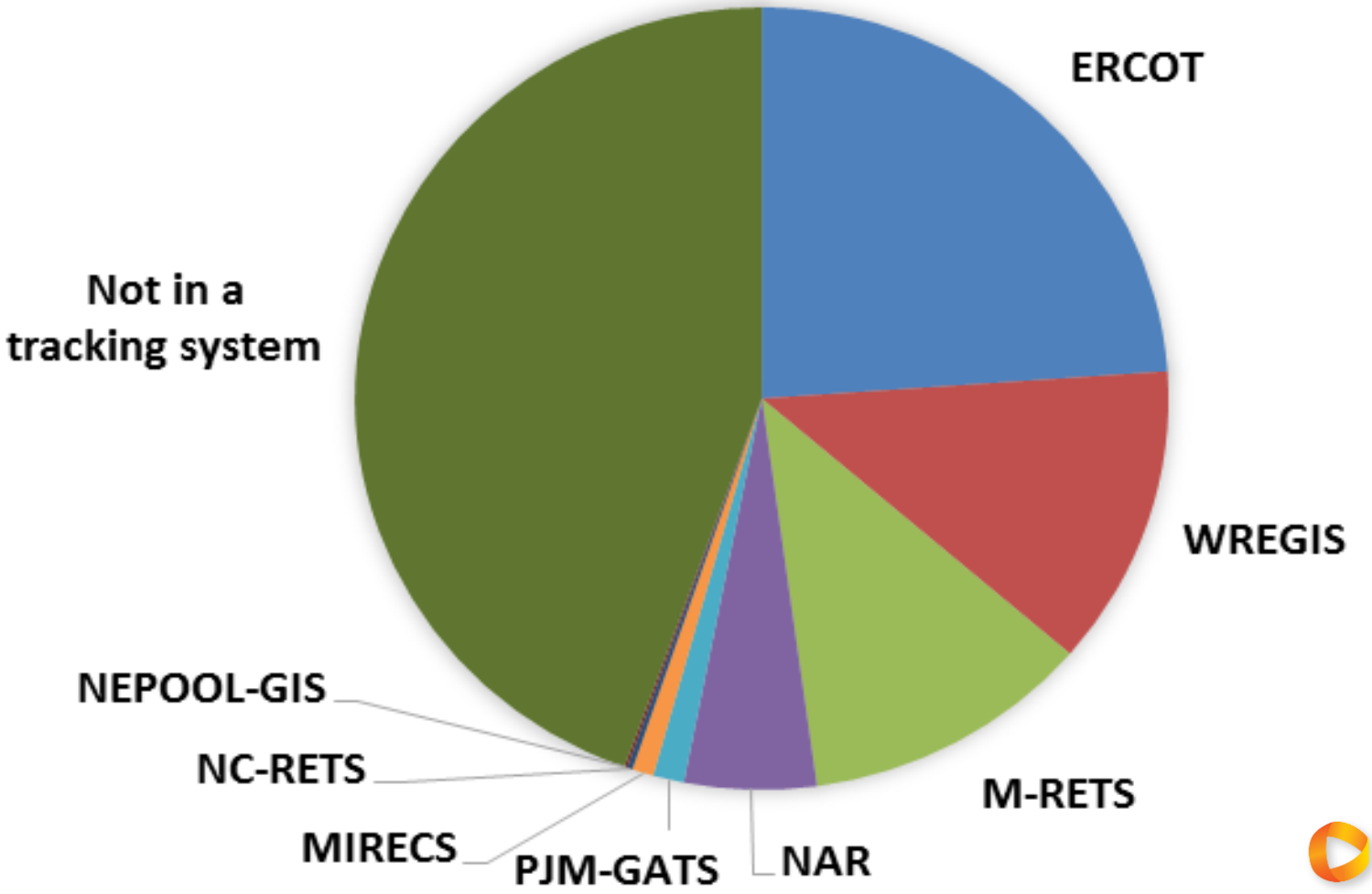
Use of Tracking Systems
Green-e Energy Certified Retail Sales
2013



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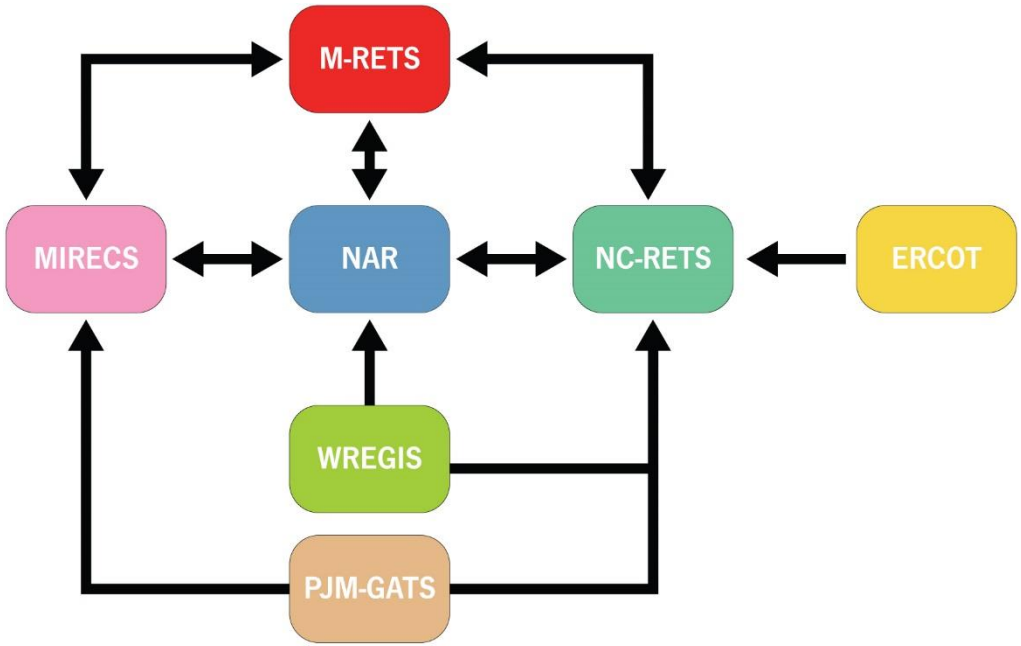
Certificate Transfers Between Registries



Source: *North American Renewables Registry (http://www.narecs.com) and The Midwest Renewable Energy Tracking System (M-RETS; http://www.mrets.org/resources/frequently-asked-questions/). Data accessed 2/10/15.*

RPS States, DC and Puerto Rico	Allow RPS Imports From
4 States Allow No Imports	
2 States Allow Imports From	1 State
1 State Allows Imports From	2 States
2 States Allow Imports From	3 States
3 States Allow Imports From	4 States
1 State Allows Imports From	6 States
2 States Allow Imports From	7 States
1 State Allows Imports From	8 States
15 States Allow Imports From	9+ States

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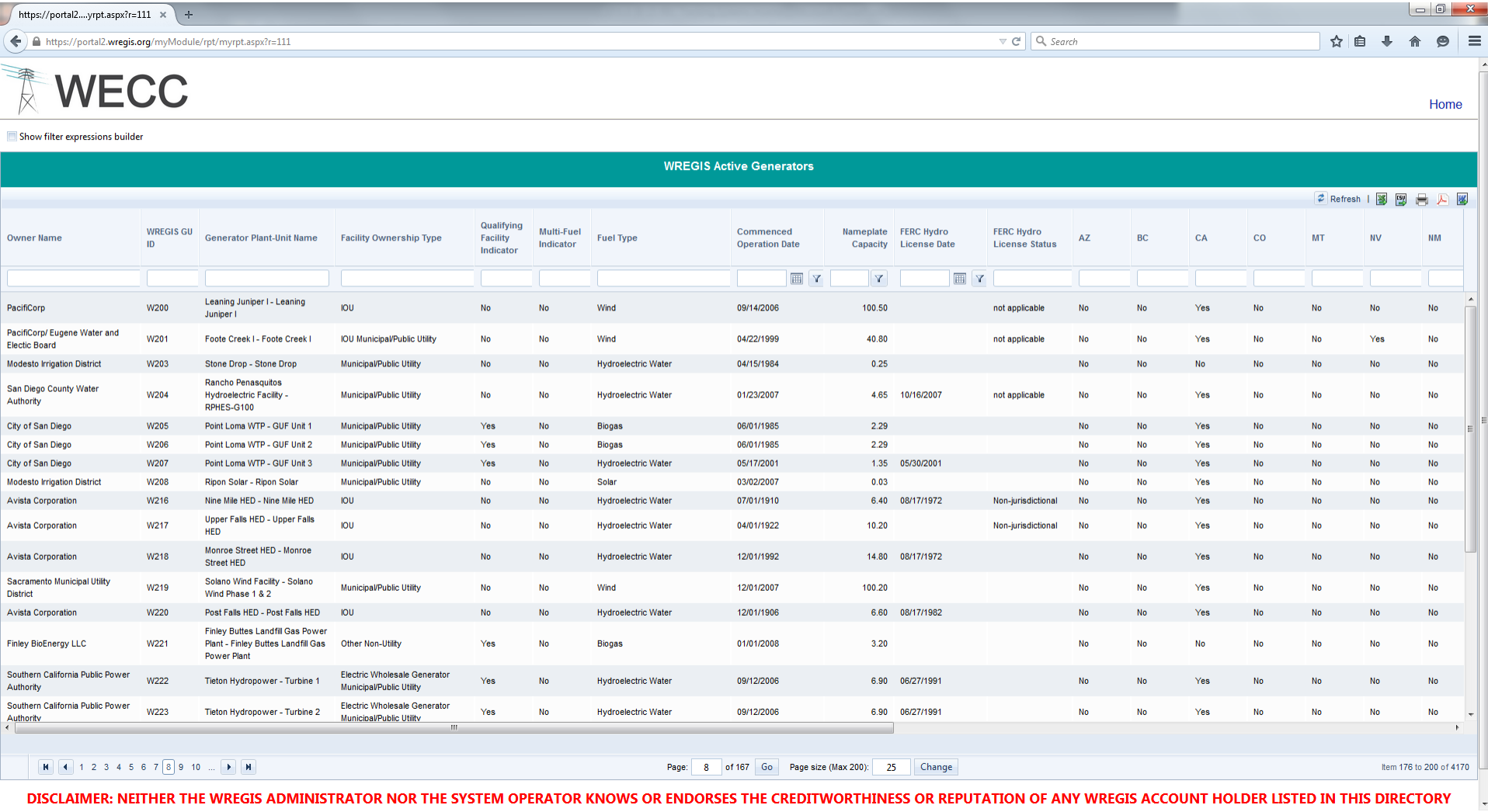
Tracking System Data Reflects Program and Market Needs

Typical Certificate Data	
Issuing Tracking System/Certificate Type	State or Province
Generator's Tracking System ID	Country
Project Type	Grid region
Project Name	Fuel Type/Energy Source
Certificate Date of Generation (e.g., month/year)	Nameplate Capacity
Certificate Serial Number	Reporting Entity Type (e.g., QRE, self reporting)
Certificate Creation Date	Reporting Entity Contact Company or Organization
Utility to Which Project is Connected	Repowered Indicator (Y/N)
Utility to Which Facility is Interconnected	Repowered Amount
Program Eligibility (e.g., state RPS, Green-e Energy)	Repower Date (required if repowered indicator = Y)
Commenced Operation Date	Emissions

Example Public Report: WREGIS Generators



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WECC

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WREGIS Active Generators

Refresh

Owner Name	WREGIS GU ID	Generator Plant-Unit Name	Facility Ownership Type	Qualifying Facility Indicator	Multi-Fuel Indicator	Fuel Type	Commenced Operation Date	Nameplate Capacity	FERC Hydro License Date	FERC Hydro License Status	AZ	BC	CA	CO	MT	NV	NM
PacifiCorp	W200	Leaning Juniper I - Leaning Juniper I	IOU	No	No	Wind	09/14/2006	100.50		not applicable	No	No	Yes	No	No	No	No
PacifiCorp/ Eugene Water and Electic Board	W201	Foote Creek I - Foote Creek I	IOU Municipal/Public Utility	No	No	Wind	04/22/1999	40.80		not applicable	No	No	Yes	No	No	Yes	No
Modesto Irrigation District	W203	Stone Drop - Stone Drop	Municipal/Public Utility	No	No	Hydroelectric Water	04/15/1984	0.25			No	No	No	No	No	No	No
San Diego County Water Authority	W204	Rancho Penasquitos Hydroelectric Facility - RPHES-G100	Municipal/Public Utility	No	No	Hydroelectric Water	01/23/2007	4.65	10/16/2007	not applicable	No	No	Yes	No	No	No	No
City of San Diego	W205	Point Loma WTP - GUF Unit 1	Municipal/Public Utility	Yes	No	Biogas	06/01/1985	2.29			No	No	Yes	No	No	No	No
City of San Diego	W206	Point Loma WTP - GUF Unit 2	Municipal/Public Utility	Yes	No	Biogas	06/01/1985	2.29			No	No	Yes	No	No	No	No
City of San Diego	W207	Point Loma WTP - GUF Unit 3	Municipal/Public Utility	Yes	No	Hydroelectric Water	05/17/2001	1.35	05/30/2001		No	No	Yes	No	No	No	No
Modesto Irrigation District	W208	Ripon Solar - Ripon Solar	Municipal/Public Utility	No	No	Solar	03/02/2007	0.03			No	No	Yes	No	No	No	No
Avista Corporation	W216	Nine Mile HED - Nine Mile HED	IOU	No	No	Hydroelectric Water	07/01/1910	6.40	08/17/1972	Non-jurisdictional	No	No	Yes	No	No	No	No
Avista Corporation	W217	Upper Falls HED - Upper Falls HED	IOU	No	No	Hydroelectric Water	04/01/1922	10.20		Non-jurisdictional	No	No	Yes	No	No	No	No
Avista Corporation	W218	Monroe Street HED - Monroe Street HED	IOU	No	No	Hydroelectric Water	12/01/1992	14.80	08/17/1972		No	No	Yes	No	No	No	No
Sacramento Municipal Utility District	W219	Solano Wind Facility - Solano Wind Phase 1 & 2	Municipal/Public Utility	No	No	Wind	12/01/2007	100.20			No	No	Yes	No	No	No	No
Avista Corporation	W220	Post Falls HED - Post Falls HED	IOU	No	No	Hydroelectric Water	12/01/1906	6.60	08/17/1982		No	No	Yes	No	No	No	No
Finley BioEnergy LLC	W221	Finley Buttes Landfill Gas Power Plant - Finley Buttes Landfill Gas Power Plant	Other Non-Utility	Yes	No	Biogas	01/01/2008	3.20			No	No	No	No	No	No	No
Southern California Public Power Authority	W222	Tieton Hydropower - Turbine 1	Electric Wholesale Generator Municipal/Public Utility	Yes	No	Hydroelectric Water	09/12/2006	6.90	06/27/1991		No	No	Yes	No	No	No	No
Southern California Public Power Authority	W223	Tieton Hydropower - Turbine 2	Electric Wholesale Generator Municipal/Public Utility	Yes	No	Hydroelectric Water	09/12/2006	6.90	06/27/1991		No	No	Yes	No	No	No	No

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Accessed 4/28/15 https://portal2.wregis.org/myModule/rpt/myrpt.aspx?r=111

State Verification and Reporting

Example Certificate Retirement Report

Account Holder	Sub-Account	Retirement Types	Facility ID	Generating Facility	Fuel Type	Vintage Year/ Month	Certificate Serial Numbers	Quantity	State X Eligible	State Y Eligible	State Z Eligible	Green-e Energy Eligible
ACME	State X Renewable Energy Compliance	RPS	E9823	Slainte Wind Project - Dartmouth Ridge	Wind	11/2013	108-FR-12-3654-65987-1 to 98654	98,654	Yes	No	Yes	Yes
ACME	State X Renewable Energy Compliance	RPS	E9823	Slainte Wind Project - Dartmouth Ridge	Wind	11/2013	365-EW-36-4527-45871-1 to 87457	87,457	Yes	No	Yes	Yes
ACME	State X Renewable Energy Compliance	RPS	R2165	Kiba Solar - Blackrock Solar Energy Project	Solar	10/2013	656-GF-36-4712-56471-1 to 200	200	Yes	No	Yes	Yes
ACME	State X Renewable Energy Compliance	RPS	H9032	Fork Union County - Damascus Renewable Energy Center	Biomass	11/2013	659-LA-85-2198-34985-1 to 69832	69,832	Yes	No	Yes	Yes
ACME	State X Renewable Energy Compliance	RPS	J8723	Sol Solutions - Ridgefield Solar Farm	Solar	9/2013	879-AQ-14-3654-45698-1 to 20	20	Yes	No	Yes	Yes

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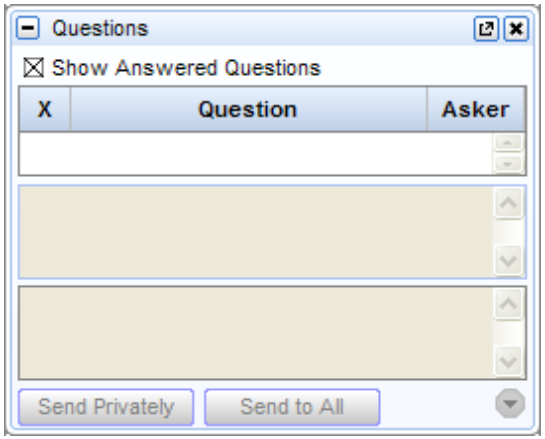
Tracking Systems

- Robust accounting systems to document generation and track ownership of renewable (and in some cases all sources) electricity attributes
- Available to generators throughout the U.S. and Canada
- Used by states and voluntary programs to for verification with program requirements
- Policy neutral
- Flexible functionality

Questions & Answers

- Submit questions and comments in writing via the online control panel.



EPA GREEN POWER PARTNERSHIP