Wind Power Purchasing in Colorado

Compliance Market in Colorado

Utility Structure in Colorado

In 2005, the State of Colorado contained 57 electric utility providers (municipal, investor-owned, and consumer-owned) serving approximately 2,397,808 customers.[1] These utilities are regulated in full or in part by the Public Utilities Commission (PUC) of Colorado.[2] The PUC has full regulatory control over investor-owned electric utilities and partial control over consumer-owned utilities and municipal utilities. Consumer-owned utilities ("cooperative electric associations" or "cooperatives") return their profits to their membership in the form of capital credits.[3] They may vote to exempt themselves from PUC oversight under C.R.S. § 40-9.5-103; however, the PUC may regulate, e.g., the manner in which cooperatives keep records and accounts[4] and some aspects of their fulfillment of the Renewable Portfolio Standard.[5]

The Public Service Company of Colorado, an investor-owned utility and a regulated operating company[6] of Xcel Energy, serves 1,325,284 customers, or 59.04% of Colorado's population.[7] The only other investor-owned utility in the state is Aquila, which reaches 90,500 customers or 3.77%. The state's twenty-six cooperative electric associations serve approximately 548,814 customers (22.89%). Finally, twenty-nine municipal utilities serve 433,210 customers (18.07%).

Colorado's Renewable Portfolio Standard

Renewable portfolio standards (RPSs) are policy tools requiring retail electricity providers to incorporate a specified percentage of electricity generated from renewable energy sources into their resource portfolios.[8] Incorporation of renewable energy sources may be achieved by direct generation of electricity from renewable resources or through purchase of electricity from a provider using renewable sources. This latter option may take the form of renewable energy credits (RECs) (*infra*).

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[1] Colorado Public Utilities Commission (PUC), *Electric Power Utilities in the State of Colorado* <available at http://www.dora.state.co.us/PUC/energy/ColoradoElectricPowerUtilities.pdf>.
[2] PUC, *About the Colorado Public Utilities Commission* <available at http://www.dora.state.co.us/puc/aboutpuc.htm>.
[3] C.R.S. § 7-55-101, 101.5.
[4] C.R.S. § 40-4-111.
[5] C.R.S. § 40-2-124.
[6] Xcel Energy, *Subsidiaries* <available at http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_38873_21043-745-2_68_131-0,00.html>.
[7] *Electric Power Utilities*, *supra* n. 1.
[8] United States Department of Energy Office of Energy Efficiency and Renewable Energy (DOE-EERE), *Renewables Portfolio Standards* <available at http://www.eere.energy.gov/de/renewables_portfolio_standards.html>.

In 2004, Colorado became the first state to pass its RPS by ballot initiative.[9] Amendment 37 defined qualifying retail utilities (QRUs) as retail electric service providers reaching at least 40,000 customers.[10] The 2004 Renewable Energy Standard required QRUs either to self-generate or to obtain RECs from eligible renewable sources, including solar, wind, biomass, geothermal, and hydroelectric sources, reaching 3% of their retail electric sales in Colorado for 2007-2010, 6% for 2011-2014, and 10% for 2015 and beyond.[11] Minor amendments were made in 2005 under S.B. 05-143.

In 2007, the Colorado Legislature passed H.B. 07-1281 to revise Amendment 37.[12] The updated RPS doubled the renewable electricity requirements for investor-owned utilities and provided new requirements for cooperatives (most of which were not previously QRUs) and municipal utilities serving at least 40,000 customers.[13] The RPS is codified as C.R.S. 40-2-124 and 4 C.C.R. 723-3 §§ 3560-3699, Rules Regulating Electric Utilities.

The requirements for investor-owned utilities are:

- 3% of retail electricity sales within Colorado in 2007
- 5% in 2008-2010
- 10% in 2011-2014
- 15% in 2015-2019
- 20% in 2020 and afterwards

The requirements for cooperative electric associations and municipal utilities that serve at least 40,000 customers are:

- 1% of retail electricity sales within Colorado in 2008-2010
- 3% in 2011-2014
- 6% in 2015-2019
- 10% in 2020 and afterwards

Because additionality—the cultivation of new renewable energy sources rather than simply the utilization of older generating facilities—is a broad goal of RPSs, the Colorado RPS offers incentives for local development. A QRU may select one of three multipliers offered.[14] Each kWh of eligible renewable energy generated in Colorado counts as 1.25 kWh for the purpose of RPS compliance and 1.5 kWh may be counted for each kWh of eligible renewable energy generated by a community-based project, i.e., a project less than 30 MW in capacity and owned by a community, cooperative, non-profit, tribal organization, or local government in Colorado.[15]

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[9] Database of State Incentives for Renewables and Efficiency (DSIRE), *Colorado Incentives for Renewable Energy*, "Renewable Energy Standard" <available at http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=CO24R>.

[10] C.R.S. § 40-2-124(1).

[11] *See* 2005 Colo. Legis Serv. Ch. 63 (S.B. 05-143), Apr. 14, 2005 (codifying Amendment 37 into C.R.S. § 40-2-124). The percentage is based on power (in MWh) rather than energy capacity (in MW) or the cost of generation. Richard Mignogna, Colorado PUC (personal communication, June 16, 2008).

[12] See 2007 Colo. Legis. Serv. Ch. 60 (H.B. 07-1281), Mar. 27, 2007.

[13] *Id.*, 4 C.C.R. 723-3 § 3652(k).

[14] 4 C.C.R. 723-3 § 3654(h).

[15] C.R.S. 40-2-124(1)(c)(IV), (VI); 4 C.C.R. 723-3 § 3654(f)-(g).

Moreover, each kWh of solar electricity generated on- or off-site may be counted for compliance as 3.0 kWh.[16] The RPS mandates limited use of solar energy. At least four percent of the amount of renewable electricity a QRU is required to obtain to comply with the RPS must be derived from solar generation, and half of that amount must come from on-site solar installations at customers' facilities.[17]

Both investor-owned and cooperative QRUs must file a yearly report summarizing their fulfillment of compliance requirements, and investor-owned QRUs must file an additional report detailing their prospective plan for the following year's compliance.[18] Investor-owned QRUs are required to obtain their renewable energy sources via competitive bidding.[19] The RPS also obligates wholesale electricity providers (such as Xcel, Platte River Power Authority, and Tri-State Generation & Transmission Association) to provide the cooperatives they serve the opportunity to purchase sufficient quantities of electricity from renewable energy sources, and the associated RECs, as part of the wholesale contract.[20] Otherwise, wholesale electricity providers are not QRUs under the RPS (except for Xcel, which is an investor-owned utility in addition to a wholesale provider).

While the RPS does offer the opportunity for cooperatives to opt out from PUC oversight, the PUC may require them to provide, e.g., policy statements, REC calculations, and compliance reporting (although the cooperatives are not rate regulated under the RPS).[21] Reports are not expected from cooperative and municipal QRUs until later in 2008 at earliest.

Renewable Energy Credits

Renewable energy credits (RECs), also known as "green tags" or tradable renewable certificates (TRCs), are the environmental attributes of renewable resource-generated electricity.[22] These attributes are the quantifiable benefits of using renewable resources, such as emissions avoidance, but more esoteric benefits may be implied. One REC is equal to one MWh of electricity derived from a renewable resource, and is created each time such a MWh of electricity is generated even if it is not officially certified and tracked.[23] Several contentious legal issues surround the use of RECs, particularly the accurate marketing of green features when complicated by bundling and disaggregation, and double-counting (which is complicated by ownership issues under PURPA contracts).[24]

In 1999, the National Association of Attorneys General (NAAG) released guidelines to assist utilities in accurately advertising green power. The guidelines urge utilities to avoid deception through omission, to substantiate their claims, and to provide "clear and prominent

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[16] 4 C.C.R. 723-3 § 3654(e).
[17] 4 C.C.R. 723-3 § 3654(d).
[18] 4 C.C.R. 723-3 §§ 3662, 3657(a).
[19] 4 C.C.R. 723-3 §§ 3655(a).
[20] 4 C.C.R. 723-3 § 3660(i).
[21] Colo. PUC Decision No. C07-0622, Order Adopting Rules, p. 8-9, July 12, 2007 <available at http://www.dora.state.co.us/puc/DocketsDecisions/decisions/2007/C07-0622_07R-166E.pdf>.
[22] Ed Holt and Lori Bird, Emerging Markets for Renewable Energy Certificates: Opportunities and Challenges, National Renewable Energy Laboratory, NREL/TP-620-37388, p. 7, January 2005 <available at http://www.nrel.gov/docs/fy05osti/37388.pdf>.
[23] Jim Hamrin and Meredith Wingate, "Basic Principles," *Regulator's Handbook on Tradable Renewable Certificates*, Center for Resource Solutions, May 2003 <available at http://www.resource-solutions.org/policy/TRChandbook/TRC_Handbook.htm>.
[24] Other issues not here considered include Commerce Clause limitations and regulatory takings.

disclosure" when RECs are used.[25] Other REC certifiers, such as the Center for Resource Solutions' Green-e program, specify additional disclosure policies.

Disclosure is needed when RECs are used because green tag programs may lead consumers to believe that the premium they pay for electricity generated by renewable resources means that they are directly provided with electricity from those sources. In fact, RECs may come bundled with the electricity generated by renewable resources or they may be unbundled and sold separately such that the electricity generated from a renewable source is considered thereafter to lack its environmental attributes.[26] When RECs are unbundled and sold, the buyer may rebundle them with electricity generated from a non-renewable source, e.g. a coal-fired power plant, and then consider the non-renewable electricity "green."[27] Whether distinct environmental attributes can be disaggregated, unbundled, and sold separately on different compliance markets (e.g., CO_2, SO_2) is an unresolved legal issue in some states (see Colorado's approach, *infra*).[28] In general, RECs allow power suppliers to achieve compliance with RPSs without directly generating their own electricity from renewable resources, and they allow customers to voluntarily support green power by paying a premium without switching electricity providers.[29]

RECs are identified by both location and date of generation (the latter is the REC's "vintage").[30] Because they are "virtual" commodities,[31] they must be tracked and retired in order to prevent double-counting—the use of a REC for multiple purposes by the same organization or the use of a REC by multiple organizations. Tracking and retirement may be accomplished through contract audits or electronic tracking systems.[32] Contract audits involve independent review of the chain-of-custody of the REC purchase, but this can be time-consuming.[33] Electronic tracking systems are more efficient in that they can easily unbundle and transfer RECs separate from the flow of electricity.

Preventing double-counting becomes particularly difficult in compliance, as opposed to voluntary, markets.[34] The Public Utility Regulatory Policies Act of 1978 (PURPA) requires utilities to purchase electricity generated from cogeneration or renewable resources by qualifying facilities (QFs).[35] Because RECs were not actively traded until the 1990s, early PURPA contracts did not allocate ownership between the QF and the purchaser, and several QFs

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[25]National Association of Attorneys General, *Environmental Marketing Guidelines for Electricity*, p. 5, Dec. 1999 <available at http://www.eere.energy.gov/greenpower/buying/pdfs/naag_0100.pdf>.

[26]DOE-EERE *et al.*, *Guide to Purchasing Green Power*, p. 10, September 2004 <available at http://eetd.lbl.gov/EA/EMS/reports/purchasing_guide_for_web.pdf>.

[27] American Wind Energy Association (AWEA), *AWEA Fact Sheets*, "What Are Tradable Renewable Certificates <available at http://www.awea.org/greenpower/gp_how2.html>.

[28] Kevin Rackstraw and John Palmisano, *Credit Trading and Wind Power: Issues and Opportunities*, Prepared for the National Wind Coordinating Committee, p. 15, Jan. 2001<available at http://www.nationalwind.org/publications/credit/credit_wind.pdf>; Holt, *supra* n. 24, p.5.

[29] Holt, p. 12-13.

[30] Resource Solutions, *Glossary of Terms* <available at http://www.resource-solutions.org/policy/TRChandbook/glossary.htm>.

[31] Rackstraw, p.13.

[32] Meredith Wingate and Ed Holt, *Design Guide for Renewable Energy Tracking Systems*, National Wind Coordinating Committee, p. 3 <available at http://www.nationalwind.org/publications/rec/rec_guide.pdf>.

[33] *Id*. at 4.

[34] Ed Holt *et al.*, *Who Owns Renewable Energy Certificates? An Exploration of Policy Options and Practice*, E.O. Lawrence Berkeley National Laboratory, p. 1, Apr. 2006 <available at http://eetd.lbl.gov/ea/EMS/reports/59965.pdf>.

[35] *Id*. at 3.

petitioned the Federal Energy Regulatory Commission (FERC) in 2003 for clarification of ownership rights.[36] Allocating the RECs to the QFs would compensate them for bearing the market risk of investing in renewable resources, but could lead to double payouts from utilities in order to receive RECs needed for compliance with state RPSs. The FERC held, strangely, both that PURPA contracts do not convey REC ownership and that state law decides that ownership.[37] Requests for rehearing have been largely unsuccessful. (Colorado's experience is handled *infra*.)

RECs in Colorado

In Colorado, the PUC defines a REC as "a contractual right to the full set of non-energy attributes, including any and all credits, benefits, emissions reductions, offsets, and allowances . . . directly attributable to a specific amount of electric energy generated from an eligible energy resource."[38] This definition implies that disaggregation of environmental attributes is not permitted in Colorado. According to the PUC, RECs are designated non-solar (REC), solar (S-REC), or on-site solar (SO-REC). Double-counting of RECs is specifically prohibited except to meet federal standards in the event that a federal RPS is enacted in addition to the state RPS.[39] Amendment 37 did not resolve the REC ownership problems that arose under PURPA contracts; however, a 2005 PUC decision granted utility purchasers rather than QFs RECs under PURPA contracts based on its interpretation of voter intent to promote utility acquisition of electricity from renewable sources.[40]

Colorado's RPS explicitly allows the use of RECs to achieve the required percentages of renewable energy.[41] All RECs generated since 2004 may be applied toward RPS requirements for the year before they were generated, the year in which they were generated, or for five compliance years after they were generated.[42] This provision allows utilities to over-purchase RECs in single contracts and apply those not required for the RPS to voluntary purchasing programs or subsequent years. Yet only a fraction of the many RECs used in Colorado are generated in-state. In 2006, approximately 880,000 MWh of Green-e Certified renewable energy were sold in Colorado to 35,000 customers, but only 233,000 MWh of renewable energy were generated in the state.[43]

Currently, the Western Renewable Energy Generation Information System (WREGIS) allows members to log on and track the generation, purchase, and retirement of RECs.[44] WREGIS does track RECs in Colorado, but since it has only been aggregating data since January 2008, no state-specific figures are available.[45] Xcel Energy recently introduced its own REC tracking system.[46] Currently, the most thorough way to track RECs in the state is through the Center for Resource Solutions's Green-e program, but unfortunately, only aggregate data is

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[36] *Id*.
[37] *Id*. at 8-9.
[38] 4 C.C.R. 723-3 § 3652(n).
[39] 4 C.C.R. 723-3 § 3654(m).
[40] Holt, *supra* n. 36, p.30.
[41] 4 C.C.R. 723-3 § 3659.
[42] 4 C.C.R. 723-3 § 3654(i).
[43] Alex Pennock, Green-e (personal communication, June 16, 2008)
[44] Western Renewable Energy Generation Information System <available at http://www.wregis.org/content/view/57/49/>.
[45] *Id*.
[46] Xcel Energy, "Xcel Energy develops renewable energy credit tracking system," press release, Aug. 8, 2007 <available at http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_15531_46991-39829-2_68_131-0,00.html>.

publicly available.[47] However, virtually every supplier for direct wind energy or RECs to the state is Green-e certified.

Use of Wind Power by Utilities in Colorado

Wind energy generation within Colorado is limited but REC trading is complex and extensive. Xcel, the Arkansas River Power Authority (ARPA), and the City of Lamar Light & Power are the only utilities in the state that directly generate wind energy, and of the three, only Xcel is required to meet the state RPS. ARPA owns about 3 MW and Lamar Light & Power owns about 4.5 MW of wind power capacity in Colorado.[48,49] Xcel generates approximately 1060 MW of wind power from multiple farms in Colorado, including 400 MW from Peetz Table in Logan County and 162 MW from Colorado Green in Prowers County.[50] Approximately 60 MW is used for Xcel's voluntary green pricing program, WindSource.[51]

Xcel also sells wind power in the form of RECs to nine wholesale buyers: Aquila Networks, Grand Valley Rural Power Lines, Inc., Holy Cross Energy, Yampa Valley Electric Association, Intermountain Rural Electric Association, the City of Burlington utility, the Town of Center utility, the Municipal Energy Agency of Nebraska, and ARPA.[52] ARPA, in turn, serves the Colorado municipalities of Holly, La Junta, Lamar, Las Animas, Springfield, and Trinidad.[53] However, ARPA and Lamar Light and Power are both selling all of the RECs they generate through the Lamar Wind Energy Project to Platte River Power Authority from 2008 to 2011, so the electricity provided from ARPA to the municipal utilities it serves may no longer be considered "green."[54,55]

The Municipal Energy Agency of Nebraska (MEAN), an entity organized under NMPP Energy, receives RECs from Xcel and provides them, in turn, to several Colorado cooperative and municipal utilities, including ARPA, Aspen, Burlington, Center, Delta, Fleming, Fort Morgan, Fountain, Glenwood Springs, Gunnison, Haxtun, Holyoke, Julesburg, Lyons, Oak Creek, Yuma.[56] It sources from two Nebraska wind farms, Kimball and Ainsworth (MEAN owns 12% of Ainsworth, the rest of which is owned by NMPP).[57] MEAN sends approximately

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[47] Green-e, *Green-e Programs >> Green-e Energy*, Center for Resource Solutions, 2008 <available at http://www.green-e.org/getcert_re.shtml>.
[48] AWEA, "U.S. Wind Energy Projects – Colorado" <available at http://www.awea.org/PROJECTS/projects.aspx?s=Colorado>.
[49] Bill McEwan, ARPA (personal communication, June 18, 2008)
[50] AWEA, *supra* n. 51.
[51] Xcel Energy, *Peetz Table Wind Power Plant* <available at http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_1875_4797_4010-3671-2_68_131-0,00.html>.
[52] Public Service Company of Colorado (PSCo), *2008 Renewable Energy Standard Compliance Plan*, Vol. 1, Sec. 4, p. 2, 2008 <available at http://www.xcelenergy.com/docs/Section4-Estimates_of_Existing_and_Forecasted_RECs_Final.pdf>.
[53] Western Area Power Administration, "Arkansas River Power Authority positions itself for growth," *Energy Services Bulletin*, June 1997 <available at http://www.wapa.gov/es/pubs/esb/1997/97jun/at_ark.htm>.
[54] McEwan, *supra* n. 52.
[55] ARPA Board of Directors Meeting Minutes, p. 5, Sept. 28, 2006 <http://www.arkansasriverpowerauthority.org/meetings/minutes/ARPA09282006.pdf>.
[56] NMPP Energy, *Municipal Energy Agency of Nebraska* <available at http://www.fountaincolorado.org/egov/docs/1190925733_811309.pdf>.
[57] Billy Cutsor, Utility Project Engineer (personal communication, June 18, 2008)

two-thirds of the wind energy it generates to Colorado in the form of RECs—about 34,000 MWh in 2007.[58]

Other than Xcel Energy, Platte River Power Authority (PRPA) is the major provider of direct wind energy to utilities throughout Colorado. PRPA is a separate governmental authority created by the municipalities of Estes Park, Fort Collins, Longmont, and Loveland, and is contracted to supply wholesale power to them through 2040.[59] It owns nine wind turbines with a 5.8 MW capacity near Medicine Bow, Wyoming.[60] PRPA's wind power product is Green-e certified through a hub-and-spoke model in which its member municipalities have certified their product mix individually.[61] PRPA also obtains wind RECs from out-of-state distributors, including the Empire District Electric Company in Missouri, which sources from the Kansas-based Elk River Wind Project, and the Oklahoma Municipal Power Authority, which maintains wind turbines in Oklahoma.[62] It passes to its municipal customers a mix of 80/20 RECs to direct wind electricity (2007 figures), with plans to reduce the proportion of RECs by expanding wind energy generation over the next several years.[63]

In addition to providing electricity to its four municipal owners, PRPA also supplies wind power to the Tri-State Generation & Transmission Association ("Tri-State"), a wholesale supplier to 44 customer-owned cooperatives, of which eighteen are located in Colorado. Under a 15-year contract signed in 1999, Tri-State purchases approximately 153 MW of power per month from PRPA's Medicine Bow wind farm.[64] Tri-State also purchases wind RECs from the Basin Electric Power Cooperative PrairieWinds project based in the Dakotas and from Rocky Mountain Power.[65]

Voluntary Market in Colorado

Utility Green Power Programs

Twenty-nine utility electricity providers in Colorado offer voluntary programs through which customers may purchase renewable energy. These include one investor-owned utility, Xcel,[66] four municipal utilities (Estes Park, Fort Collins, Longmont, and Loveland), and twenty-four cooperatives. The voluntary programs offer customers the chance to pay a premium per kWh to receive RECs.[67]

Generally, wind power is sold in 100-kWh blocks (sometimes larger for commercial purchasers). The premium ranges from $0.40 to $3.00 for a 100-kWh block. Tri-State cooperatives have seen increased participation in the program since the price per block dropped,

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[58] *Id*.
[59] Platte River Power Authority, 2007 Annual Report, p. 40 <available at http://www.prpa.org/finance/i/annualreport.pdf>.
[60] *Id*. at 41.
[61] *Id*. at 10; Melissa Wangnild, PRPA (personal communication, June 19, 2008).
[62] *Id*.
[63] John Phelan, Engineer, City of Fort Collins (personal communication, June 10, 2008).
[64] Tri-State Generation and Transmission Association, *Wind Energy* <available at http://www.tristategt.org/greenpower/WindEnergy.cfm>.
[65] Basin Electric Power Cooperative, *PrairieWinds Generation* <available at http://basinelectric.com/Energy_Resources/Wind/Prairie_Winds_Generation/index.html>.
[66] Aquila does not offer its voluntary REC purchasing program to Colorado customers. Jeremy Morgan, Aquila (personal communication, June 11, 2008).
[67] *See* 4 C.C.R. 723-3, Rules 3653(a)(III), 3654(n).

most recently in 2008. Tri-State started its wind program in 1998 based on its contract with Platte River Power Authority, and dropped its price from $2.50 per 100-kWh block to $1.25 per 100-kWh block in 2007, and then to market prices (approximately forty cents) in 2008.[68] Some programs have additional requirements, such as a one-year commitment.

[68] Tri-State Generation and Transmission Association, "Tri-State issues request for renewable energy, reduces voluntary program costs," press release, 2008 <available at http://www.tristategt.org/NewsCenter/NewsItems/Renewable-Resource-RFP.cfm>.