

Colorado Renewable Portfolio Standard Report Card:

Colorado's Renewable Portfolio Standard (RPS) sets renewable electricity goals and determines which energy sources qualify as renewable. These programs can be a vital part of a state's energy policy portfolio to drive the shift to renewable energy. But Colorado's weak RPS program cannot foster the rapid transition to clean, renewable energy in time to stave off the worst effects of climate change. The state's RPS program is further compromised by Colorado's continued aggressive oil and gas promotion and reliance on fossil-fueled electricity generation.

The Colorado RPS program is undermined by its lackluster target date combined with a weak portfolio definition that counts dirty power sources toward its renewable energy goals — including burning wood and burning waste methane from landfills, sewage treatment plants, coal mines and factory farms. It also includes renewable energy "credits" (RECs), which allow utilities to continue burning fossil fuels while buying credits for renewable power produced elsewhere, even outside of Colorado.

Colorado's RPS program is better than that of many states (see Table 1), largely because the state's growing wind power sector is beginning the transition to clean, renew-

able energy. But Colorado can and must do better. Colorado must strengthen its RPS program by expelling dirty energy sources, eliminating RECs and strengthening its target to achieve 100 percent clean, renewable energy within two decades.

Colorado and the United States must rapidly shift to 100 percent clean, renewable power — produced from wind, solar and geothermal energy. The majority of U.S. electricity still comes from climate-destroying fossil fuels.¹ In 2016, 81 percent of Colorado's utility-scale electricity was fueled by coal, natural gas and oil; only 19 percent was generated by wind or solar energy.²

TABLE 1. Grading Colorado's Renewable Portfolio Standard

RPS provision	Ideal RPS	Colorado RPS	Colorado grade	Average state grade
Target and time frame	100%	30% by 2020	D	D (30% by 2026)
Dirty portfolio and RECs	No RECs, none of 6 dirty energy sources	Allows RECs and 2 dirty energy sources	C	D (allow 4 dirty sources/RECs)
Transition to renewable energy	Shift to 100% by 2038	Projected to achieve 57% by 2038	C	D (projected to achieve 31% by 2038)
Overall			C-	D

Washington's failure to act on climate change means that the states must take decisive action to transition to clean energy. Strengthening RPS programs is an important component of state climate policies and could dramatically increase the renewable power generation necessary to curb climate change.

Introduction to Renewable Portfolio Standards

State renewable portfolio standards establish a renewable power goal and target date and define which sources of energy count toward fulfilling the renewable electricity goals. All states allow solar and wind power, but they also allow a range of dirty energy sources such as municipal waste incineration or even coal. Almost all states allow utilities to purchase renewable energy credits (RECs), instead of generating renewable energy.³

Iowa adopted the first mandatory RPS in 1983, and in 2004 Colorado's voters became the first in the country to adopt an RPS by ballot initiative.⁴ By 2018, 29 states and the District of Columbia had mandatory RPS programs, covering utilities that delivered 56 percent of U.S. electricity sales.⁵

Strong RPS programs can be essential parts of state renewable energy policy, along with energy efficiency standards, tax incentives and grants for installing renewable energy, and other programs. But renewable incentives can be undercut when states like Colorado promote the expansion of natural gas or oil exploration and fossil fuel infrastructure.

Food & Water Watch evaluated Colorado's RPS program based on the strength of its target, the inclusion of RECs and dirty energy sources, and how well it was projected to shift its energy mix to wind, solar and geothermal power sources over coming decades. (For more on the scorecard, see *Cleanwashing: How States Count Polluting Energy Sources as Renewable*⁶)

Colorado's indifferent RPS target goal and time frame are too weak to curb climate change

Strong RPS policies would set a target of 100 percent renewable electricity generation from only wind, solar and geothermal energy, which is imperative to avoiding the worst effects of climate change. The planet is poised to emit more carbon dioxide (CO₂) than what the Intergovernmental Panel on Climate Change conservatively estimated would give us only a two-out-of-three chance of avoiding a catastrophic 1.5 degrees Celsius rise in temperature.⁷ As the concentration of greenhouse gases in the atmosphere exceeds crucial thresholds, the effect on climate change could be sudden and potentially irreversible.⁸ Reducing these emissions by

about 20 percent every year would drive emissions to near zero within 20 years.⁹

Colorado's phased-in RPS target requires private utilities to generate 30 percent of their power from renewable sources by 2020; municipal utilities and electric cooperatives with more than 100,000 customers must generate 20 percent of their power from renewable sources by 2020.¹⁰ A small amount of this power must come from distributed generation (smaller, independent generators, including residential rooftop solar or household wind).¹¹ These targets are too weak to halt or reverse climate change.

Colorado's RPS allows dirty energy sources and policies

Food & Water Watch identified six dirty "renewable" energy sources as well as whether states allowed RECs that must be expelled from RPS programs. Colorado's RPS allowed two dirty energy sources — waste methane and wood-burning power — as well as RECs.¹² Colorado's RPS did not include several common RPS dirty energy sources (including garbage incineration, so-called clean coal, nuclear power and paper mill waste), but it must shed waste methane, wood-fired power plants and RECs to clean up its RPS program.

Waste methane (landfills, sewage treatment plants, factory farms and coal mines): Colorado's RPS included burning waste methane from landfills, sewage treatment plants and animal waste, such as manure digesters (burning the methane released from factory farm manure).¹³ This methane is often referred to as biogas.¹⁴ Biogas is primarily methane and is essentially indistinguishable from fracked natural gas, with many of the same problems.¹⁵ Colorado also counts coal mine methane as a source of "renewable" energy.¹⁶ Burning biogas or methane releases greenhouse gases such as CO₂ as well as pollutants including nitrogen oxides, ammonia and hydrogen sulfide.¹⁷

Weld County's Heartland Biogas is one of the nation's largest factory farm digesters; the facility's permit was suspended in 2016, due in part to more than 600 odor complaints from county residents.¹⁸ Colorado also hosts two landfill gas facilities near Denver and Boulder.¹⁹ These expensive, inefficient and polluting facilities primarily generate power for the facilities themselves.²⁰ A now-shuttered Koch Industries coal mine operates as the state's only coal mine methane facility and generates a small amount of energy — although the vast majority of the captured methane is just flared, generating greenhouse gas emissions.²¹

Wood-fired power plants: Processing, transporting and burning wood all produce greenhouse gas emissions, and



Colorado's RPS includes burning waste methane captured from landfills, as pictured above. Burning methane releases greenhouse gases and pollutants known to contribute to climate change. / PHOTO CC-BY © GENE SPESARD

burning wood can release more emissions than coal.²² The Eagle Valley wood-burning power plant in Gypsum burns about 250 tons of wood daily.²³ Residents have worried about its effect on air quality, since the facility is located near residential areas and two schools.²⁴

Renewable energy credits: Allowing RECs under Colorado's RPS program permits utilities to burn polluting fuels while purchasing distant renewable energy credits, potentially diminishing the environmental and job creation benefits of renewable energy.²⁵

Colorado's RPS is not strong enough to achieve 100 percent renewables within two decades

Most states would not meet their RPS goals through wind, solar and geothermal power alone, and almost no states are on track to deliver 100 percent clean, renewable power by 2038. The installation of wind, solar and geothermal power has accelerated rapidly in recent years, but the Trump administration's attack on renewable energy will likely curb the adoption of these needed energy sources.²⁶

Colorado has experienced significant renewable energy growth over the past few years. By 2016, Colorado had about 4,000 megawatts of installed wind and solar power capacity, amounting to one-fifth of the state's electricity generation.²⁷ Colorado is projected to reach nearly 57 percent renewable energy by 2038 from only wind, solar and geothermal energy — well above its weak target of 30 percent by 2020 but not enough to curb climate change.²⁸ Colorado's stronger adoption of wind and solar helped it outperform most states.

Now is the time to strengthen Colorado's RPS program

Robust mandatory RPS programs can be an important part of state policies to encourage the shift to renewable energy. Colorado must raise its target goal, expel dirty energy sources and eliminate renewable energy credits to ensure that the policies can promote a swift transition to genuine renewable energy. Colorado must raise its RPS goal to 100 percent renewable energy and eliminate RECs, wood burning power, and waste methane from coal mines, landfills, sewage treatment plants and factory farms from its eligible RPS energy sources.

Endnotes

- 1 Food & Water Watch analysis of U.S. Department of Energy (DOE). Energy Information Administration (EIA). Calculation based on Forms: EIA-826, "Monthly Electric Utility Sales and Revenues with State Distributions Report," EIA-860, "Annual Electric Generator Report," EIA-861, "Annual Electric Power Industry Report" and EIA-923, "Power Plant Operations Report." Data downloaded April 2018.
- 2 *Ibid.*
- 3 See Food & Water Watch. "Cleanwashing: How States Count Polluting Energy Sources as Renewable." July 2018 at 8.
- 4 Iowa Code §476.44; 77th Iowa G.A. Chapter 182, S.F. 380; Hartman, Todd. Colorado State University. Center for the New Energy Economy. "A Blueprint for a New Energy Economy." November 2015 at 5 to 6.
- 5 Barbose, Galen. Lawrence Berkeley National Laboratory. "U.S. Renewables Portfolio Standards 2017 Annual Status Report." July 2017 at 6. Note: 56 percent figure cited is as of July 2017.
- 6 See Food & Water Watch (2018).
- 7 Pachauri, Rajendra K. et al. "Climate Change 2014: Synthesis Report." Intergovernmental Panel on Climate Change (IPCC) (IPCC Synthesis). 2015 at 64; Food & Water Watch calculation based on: Le Quéré, Corinne et al. "Global carbon budget 2016." *Earth System Science Data*. Vol. 8, Iss. 2. November 14, 2016 at 609 and 633; Friedlingstein, P. et al. "Persistent growth of CO2 emissions and implications for reaching climate targets." *Nature Geoscience*. Vol. 7. September 21, 2014 at 710.
- 8 Drijfhout, Sybreen et al. "Catalogue of abrupt shifts in Intergovernmental Panel on Climate Change climate models." *Proceedings of the National Academy of Sciences*. October 12, 2015 at E5777.
- 9 *Ibid*; Friedlingstein et al. (2014) at 710.
- 10 Colorado Revised Statute (Colo. Rev. Stat.) §40-2-124(1) and §40-2-124(1)(c)(I)(A, D and E) and §40-2-124(1)(c)(V.5).
- 11 Colorado Public Utility Commission. Adopted Rules in Legislative Format. Decision No. C14-0390. Docket No. 13R-0901E. April 14, 2014 at 3655(a)(V) and 3655(b). By 2020, private utilities must source 3 percent of their power from distributed generation and half of that from residential distributed power.
- 12 Colo. Rev. Stat. §40-2-124(1)(a)(I)(A-C), (1)(a)(II) and (X)(B)(d).
- 13 Colo. Rev. Stat. §40-2-124(1)(a)(I)(B and C).
- 14 U.S. Environmental Protection Agency (EPA), DOE and U.S. Department of Agriculture (USDA). "Biogas Opportunities Roadmap." August 2014 at 8.
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- 16 Colo. Rev. Stat. §40-2-124(1)(a)(II).
- 17 Kuo, Jeff. California State University, Fullerton. "Air Quality Issues Related to Using Biogas From Anaerobic Digestion of Food Waste." February 2015 at 2; Sharvelle, S. and L. Loetscher. Colorado State University. "Anaerobic Digestion of Animal Wastes in Colorado." May 2011 at 1 and 3; Whiting, Andrew and Adisa Azapagic. "Life cycle environmental impacts of generating electricity and heat from biogas produced by anaerobic digestion." *Energy*. Vol. 70. 2014 at 181, 184, 187 and 191 to 192.
- 18 Colorado Energy Office et al. "Colorado Climate Plan: State Level Policies and Strategies to Mitigate and Adapt." 2015 at 3; Marmaduke, Jacy. "Waste-to-energy facility brings smelly complications." *Coloradoan*. January 15, 2017; Silvy, Tyler. "Truck traffic ongoing at Heartland Biogas facility near LaSalle as officials say plant is shut down amid lawsuit." *Greeley Tribune*. February 3, 2017.
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- 20 Post, Tom. "Farmer uses methane to make electricity." *Minnesota Public Radio News*. June 27, 2008; Lopez, Ricardo. "From waste to watts." *Los Angeles Times*. June 9, 2013; Clarke Energy. "Combined heat and power for sewage gas applications." Available at <https://www.clarke-energy.com/sewage-gas/>. Accessed January 2018.
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- 23 "Colorado's first biomass plant begins delivering electricity." *Colorado Public Radio*. December 16, 2013.
- 24 Food & Water Watch analysis of EIA-826, EIA-923, EIA-860 and EIA-861; *Colorado Public Radio* (2013).
- 25 Mack, Joel et al. "All RECs are local: how in-state generation requirements adversely affect development of a robust REC market." *Electricity Journal*. Vol. 24, Iss. 4. May 2011 at 9 and 11.
- 26 Eilperin, Juliette and Brady Dennis. "Trump puts critic of renewable energy in charge of renewable energy office." *Washington Post*. May 2, 2017; Bussewitz, Cathy and Geoff Mulvihill. "Trump creates uncertainty for wind, solar power." *Seattle Times*. January 25, 2017.
- 27 Food & Water Watch analysis of EIA data for "Net generation for electric power, Colorado." 2017. Accessed January 2018; DOE. "Wind Energy in Colorado." WIN-DEXchange. Accessed January 11, 2018 at 1; Solar Energy Industries Association. "Solar Spotlight: Colorado." January 9, 2018.
- 28 Food & Water Watch analysis of EIA-826, EIA-923, EIA-860 and EIA-861. Food & Water Watch estimated the projected in-state share of utility scale power (including distributed rooftop solar) generated by wind, solar (including rooftop solar) and geothermal and the share of retail electricity sales from in-state wind, solar (including rooftop solar) and geothermal to 2038 with a 10-year linear projection of these annual percentages based on the 2007 to 2016 period.