



## State Renewable Energy Programs



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Coal mine methane (CMM) is considered an increasingly important alternative or renewable energy resource to help states meet their renewable energy portfolio standards (RPS). Of the top 15 coal producing states in 2014,<sup>1</sup> five — Pennsylvania, Ohio, Utah, Indiana and Colorado — include CMM in their renewable or alternative energy standards. CMM is treated similarly in several respects to landfill gas, which is a renewable energy resource under federal and state law.<sup>2</sup> Methane gases from these otherwise disparate sources are released over time during industrial-type operations, and efforts to capture and use or destroy CMM are technically similar to measures used to collect and dispose of landfill gas. Additionally, utilization or destruction of CMM satisfies the non-energy attributes of renewable energy such as the reduction of greenhouse gas (GHG) emissions to the atmosphere.<sup>3</sup>

Pennsylvania and Ohio each designate CMM as an “alternative” energy resource rather than a “renewable” energy resource. Generally, renewable energy resources include sources such as: solar-electric, solar thermal energy, wind power, hydropower, geothermal energy, fuel cells, and certain biomass energy and biologically derived fuels. However, the designation of alternative energy sources varies from state-to-state and may include sources such as waste coal, demand-side management or energy improvement projects, and solid waste conversion technologies. Where CMM is included as part of a state’s renewable or alternative energy portfolio standards, other state-level alternative energy incentives for development can also exist.

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<sup>1</sup> Wyoming, West Virginia, Kentucky, Pennsylvania, Illinois, Montana, Texas, Indiana, North Dakota, Colorado, Ohio, New Mexico, Utah, Alabama, and Virginia

[http://www.nma.org/pdf/c\\_production\\_state\\_rank.pdf](http://www.nma.org/pdf/c_production_state_rank.pdf)

<sup>2</sup> Energy Policy Act of 2005, Sec. 203(b)(2), <https://www.gpo.gov/fdsys/pkg/BILLS-109hr6enr/pdf/BILLS-109hr6enr.pdf>

<sup>3</sup> Renewable Energy Requirement Guidance For EPACK 2005 and Executive Order 13514 [http://energy.gov/sites/prod/files/2013/10/f3/epact05\\_fedrenewenrgyguid.pdf](http://energy.gov/sites/prod/files/2013/10/f3/epact05_fedrenewenrgyguid.pdf)

### Pennsylvania

Pennsylvania was the first state to define CMM as an alternative energy fuel in its Alternative Energy Portfolio Standard (AEPS), signed into law November 30, 2004.<sup>4</sup> The AEPS does not distinguish between renewable and alternative energy resources; it designates all sources as alternative energy. Eligible technologies include demand-side management, waste coal, CMM, and coal gasification. The AEPS requires each electric distribution company and electric generation supplier that sells electricity to customers in Pennsylvania to supply 18 percent of its electricity from alternative energy resources by 2020, with at least 8 percent from “Tier 1” resources (which includes CMM) by May 31, 2021. The PUC is responsible for carrying out and enforcing the requirements of this law.

The AEPS offers a variety of incentives for recovery and use of CMM, including alternative energy credits (AECs), alternative compliance credits (ACPs), alternative energy tax credits, and state grant programs. One AEC is equal to one MWh of alternative energy generated. If a utility cannot produce the required AECs for one year, they must purchase ACPs to offset the deficit. AECs are similar to traditional renewable energy credits except that AECs include both renewable energy resources and Pennsylvania-specific alternative resources. Energy derived from alternative energy sources inside Pennsylvania or within the PJM Service Territory outside the state (the regional transmission group) is eligible to meet the AEPS requirements.

On July 9, 2008, the Alternative Energy Investment Fund Act was signed into law establishing a state tax credit of 15 percent of the net cost of alternative energy production projects.

Currently, Vessels Coal Gas, Inc. is operating an abandoned mine methane project in Ebensburg, Pennsylvania, which captures methane from the abandoned Cambria 33 Mine’s workings and generates electricity and injects the scrubbed and compressed gas into the Dominion Peoples Interstate Pipeline. The project generated 7,580

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<sup>4</sup> Pennsylvania Alternative Energy Portfolio Standards Act <http://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2004&sessInd=0&act=213>

RECs in the state of Pennsylvania through 2013 and 2014<sup>5</sup>.

## Ohio

Ohio's Alternative Energy Resource Standard (AERS) was created by S.B. 221 in May 2008. The AERS combines renewable energy resources and advanced energy resources into one category termed "alternative energy resources." In July 2009, legislators amended the original law with Sub H.B. 1, to include methane gas emitted from abandoned coal mines as well as methane from operating coal mines as an alternative energy resource. The law was also amended to include projects with technologies, products, activities, and management practices or strategies that facilitate the generation or use of energy that supports reduced energy consumption or production of clean renewable energy. Thus, CMM pipeline sales projects could qualify under the revised law.

In May 2014 S.B. 310 changed the original standards set forth by S.B. 221, by freezing the ramp-up schedule of renewable percentage benchmarks for two years, removing the in-state requirement for renewable energy procurement, and pushing back the final renewable benchmark from 25 percent to 12.5 percent from 2024 to 2026. The AERS applies to electric utilities and electric service companies serving customers in Ohio<sup>6</sup> and requires utilities to provide 12.5 percent of their retail electricity supply from alternative energy sources by 2024.

AERS compliance is achieved by earning or purchasing qualified renewable energy certificates (RECs), which have a lifetime of five years following acquisition. One REC is issued per one MWh of electricity generated by a renewable energy source. Only RECs generated after July 31, 2008, from a facility with a capacity of more than 6 kilowatts (kW) may be used for compliance. In order to qualify under the AERS, alternative energy and renewable energy facilities must have a placed-in-service date of January 1, 1998 or later, and must be a member in good standing of the PJM (a regional transmission

organization), MISO (the regional electric power market), or other credible tracking system.

CBM Ohio LLC operates an abandoned mine methane project and is receiving RECs for its methane-to-pipeline sales in Harrison County, Ohio. They are currently managing exploration and production of over 20,000 acres of abandoned coal mines in the state. In 2013, CMM accounted for 1.4 percent of the total REC retirements in the state.

## Utah

Utah established a renewable portfolio goal in the "Energy Resource and Carbon Emission Reduction Initiative" enacted in March 2008 (similar to renewable portfolio standards in other states). Under this act, to the extent that it is cost-effective to do so, retail electric sales of each electrical corporation and municipal electric utility shall consist of "qualifying electricity" or renewable energy certificates (RECs), equal to 20 percent of its adjusted retail electricity sales.

In early 2010, the Utah legislature passed H.B. 192 "Renewable Energy – Methane Gas", which amended the definition of "renewable energy source" to include "methane gas from an abandoned coal mine or a coal degassing operation associated with a state-approved mine permit" as part of waste gas or waste heat captured or recovered for use as an energy source for an electric generation facility.<sup>7</sup> Initially, the bill included methane gas from abandoned and working coal mines; however, the Senate Transportation and Public Utilities and Technology Committee's proposed Amendment 01 struck the term "working" in front of coal mines as a potential methane gas resource that might qualify as renewable energy. The amendment was approved by the Senate and House, effective May 11, 2010.

<sup>5</sup> Cambria 33 Abandoned Mine Methane and Use <http://www.vesselscoalgas.com/Media/Projects/Cambria%2033%20Abandoned%20Mine%20Methane%20Use.html>

<sup>6</sup> The Public Utilities Commission of Ohio <http://www.puco.ohio.gov/puco/index.cfm/industry-information/industry-topics/ohioe28099s-renewable-and-advanced-energy-portfolio-standard/#sthash.xNb2QpXc.dpbs>

<sup>7</sup> Utah State Legislature H.B. 192 Renewable Energy - Methane Gas – Watkins, C. <http://le.utah.gov/~2010/htmdoc/hbillhtm/HB0192.htm>

## Indiana

In May 2011, Indiana passed the Clean Energy Law which established the Clean Energy Portfolio Standard, also known as the Comprehensive Hoosier Option to Incentivize Cleaner Energy (CHOICE) program<sup>8</sup>. Regulated by the Indiana Utility Regulatory Commission (IURC), the program creates incentives for the state's utilities to voluntarily increase the amount of clean energy resources in their electricity portfolios, and is open to electricity suppliers approved by the IURC. The voluntary goal set forth by the CHOICE program requires that 10 percent of electricity produced is generated from qualifying clean energy sources by 2025. The Clean Energy Law names 21 clean energy sources qualifying under the standard, including coal bed methane. Similar to Utah, utilities can meet this target by producing electricity from an eligible form of renewable energy or by purchasing "Clean Energy Credits", which are defined as one MWh of clean energy or 3,412,000 British thermal units (BTU).

Electricity suppliers who choose to participate in CHOICE must apply to and be approved by the IURC, and submit a plan to meet the goals, including a detailed business plan and identification of specific projects and resources, as well as proof of compliance to the program's requirements.

Hoosier Energy, an electricity and generating cooperative, constructed a 13 MW coal bed methane (CBM) power generating facility in Sullivan county. This is the first of its kind facility, as it is the only facility solely operating on CBM. The project is unique because the methane is collected, processed and converted to electricity entirely onsite, and began operations in May 2013. The project eliminates approximately 390,000 tons of carbon dioxide equivalent (CO<sub>2</sub>e).<sup>9</sup>

## Colorado

Colorado became the first state to adopt a RPS by ballot initiative, when voters approved Amendment 37, the "Colorado Renewable Energy Requirement Initiative", in November 2004. More

recently, the passing of SB 13-252<sup>10</sup> in 2013 has the use of coal mine methane been included as an eligible energy resource for utility providers. According to Colorado's RPS, electricity generated from coal mine methane must also be demonstrated to be greenhouse gas neutral over a five-year period. The state's RPS requires utilities to generate varying percentages of power from eligible energy resources, based on their sector type. By 2020, each sector must generate electricity from eligible energy sources in the following proportions of their retail sales: 30 percent for investor-owned utilities (IOU), 20 percent for electric cooperatives serving 100,000 or more meters, 10 percent for electric cooperatives serving fewer than 100,000 meters and 10 percent for municipal utilities serving more than 40,000 customers. RECs are good until the end of the fifth calendar year following the year in which it was generated, and a utility can buy, sell or trade RECs given that it obtains and retires sufficient RECs to comply with the RPS requirements.

Since November of 2012, Colorado's Elk Creek Mine Project in Gunnison County, is generating 3 megawatts of electricity which is bought by Holy Cross Energy<sup>11</sup>. The project is operated by Vessels Coal Gas, Inc.

## Summary

Because numerous economic variables are considered as part of a CMM project's economic feasibility study, it is difficult to assess whether the RECs incentives will actually encourage the development of new CMM projects that would not have otherwise been constructed. The value of RECs range significantly between programs, and because nearly all of the incentive programs (aside from the PA AEPS in 2004) have only been in place since 2008 or later, it is too early to assess the effectiveness of these programs. New CMM projects in the United States are typically developed at a rate of just one per year or less.

<sup>8</sup> Indiana CHOICE Program <http://www.in.gov/oed/2649.htm>

<sup>9</sup> Hoosier Energy's Osprey Point CBM Project <https://www.hepn.com/assets%5Cfiles%5Cenergylines%5CDecember%202012.pdf>

<sup>10</sup> Colorado Senate Bill 13-252

[http://www.leg.state.co.us/clics/clics2013a/csl.nsf/fsbillcont3/D1B329AEB8681D4D87257B3900716761?Open&file=252\\_enr.pdf](http://www.leg.state.co.us/clics/clics2013a/csl.nsf/fsbillcont3/D1B329AEB8681D4D87257B3900716761?Open&file=252_enr.pdf)

<sup>11</sup> CMM to Electricity in Colorado

[http://www.vesselscoalgas.com/COAL%20MINE%20METHANE%20TO%20ELECTRICITY%20IN%20COLORADO%20-%20August%201%20version%20\(3\).pdf](http://www.vesselscoalgas.com/COAL%20MINE%20METHANE%20TO%20ELECTRICITY%20IN%20COLORADO%20-%20August%201%20version%20(3).pdf)