



COMPONENTS USED TO PRODUCE RENEWABLE ENERGY EXEMPTION

EVALUATION SUMMARY | JANUARY 2022 | 2022-TE13

TAX TYPE	Sales and use	REVENUE IMPACT	\$6.2 million
YEAR ENACTED	2008	NUMBER OF TAXPAYERS	Could not determine
REPEAL/EXPIRATION DATE	None		

KEY CONCLUSION: The exemption provides some support to Colorado’s renewable energy industry, but because it provides a relatively small tax benefit in comparison to typical renewable energy project costs, it has likely had a limited impact on industry growth in the state.

WHAT DOES THE TAX EXPENDITURE DO?

The Components for Renewable Energy Exemption [Section 39-26-724(1)(a), C.R.S.] allows “all sales, storage, and use of components used in the production of alternating current electricity from a renewable energy source...[to] be exempt from taxation...” According to Department of Revenue taxpayer guidance, examples of the components that qualify for the exemption include wind turbines, solar modules, inverters, and control systems. Components not directly used in the creation of renewable energy, such as energy storage devices and remote monitoring systems, are not eligible.

WHAT IS THE PURPOSE OF THE TAX EXPENDITURE?

The legislative declaration in House Bill 07-1279, which created the exemption and other provisions related to renewable energy, states that it is “the [G]eneral [A]ssembly’s intent to encourage the development of projects that produce electricity from renewable energy sources in Colorado.” Additionally, when discussing the most recent amendment for this expenditure, both the bill sponsor and witnesses stated that they believed the purpose of the exemption was to help grow and support the State’s renewable energy industry.

WHAT POLICY CONSIDERATIONS DID THE EVALUATION IDENTIFY?

The General Assembly may want to consider:

- Establishing performance measures for the exemption.
- Reviewing the cost-effectiveness of the exemption.



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EVALUATION RESULTS

WHAT IS THE TAX EXPENDITURE?

The Components for Renewable Energy Exemption (Renewable Energy Exemption) [Section 39-26-724 (1)(a), C.R.S.] allows “all sales, storage, and use of components used in the production of alternating current electricity from a renewable energy source...[to] be exempt from taxation...” Alternating current (AC) electricity is the type of electrical current that is commonly produced by power plants, wind and solar farms, and household photovoltaic systems. According to Department of Revenue (Department) taxpayer guidance, examples of the components that qualify for the exemption include wind turbines, solar modules, inverters, and control systems. Components not directly used in the creation of renewable energy, such as energy storage devices and remote monitoring systems, are not eligible.

The exemption was created in 2007 by House Bill 07-1279. In 2008, House Bill 08-1368 made changes to clarify the types of components that are eligible. Additionally, there have been two temporary expansions of the types of components eligible for the exemption, which have both expired. In 2009, House Bill 09-1126 extended the exemption to include components used in solar thermal systems from 2009 through 2017. In 2014, House Bill 14-1159 made biogas components eligible for the exemption from 2014 through 2019.

In addition to providing a state level sales and use tax exemption, under Section 29-2-105(1)(d)(I), C.R.S., local governments that have their sales taxes collected by the State have the option of adopting ordinances to apply the exemption to their sales taxes as well. As of July 1, 2021, 30 state-collected cities, and 22 state-collected counties have adopted

this exemption. Under Article XX, Section 6 of the Colorado Constitution, home rule cities and counties that do not have their sales taxes collected by the State can set their own tax policies independently from the State and are not required to provide a similar exemption. We found that of the 15 most populous home rule cities, one has established a similar exemption.

The Renewable Energy Exemption is typically applied at the time of purchase by vendors who do not collect sales tax on eligible sales. Vendors must report exempt sales using either the Colorado Retail Sales Tax Return (Form DR 0100) or the Retailer's Use Tax Return (Form DR 0173). If a vendor does not apply the exemption to an eligible sale, the purchaser can apply for a refund using the Department's Claim for Refund of Tax Paid to Vendor (Form DR 0137B).

WHO ARE THE INTENDED BENEFICIARIES OF THE TAX EXPENDITURE?

Statute does not directly state the intended beneficiaries of the exemption. Based on the operation of the exemption and taxpayer guidance provided by the Department, we considered the direct beneficiaries to be owners of renewable energy production facilities, and homeowners who purchase qualifying solar energy systems. In Calendar Year 2020, the renewable energy industry provided 30 percent of the state's electricity production, according to the U.S. Energy Information Administration. Colorado's total wind generating capacity for 2020 was 4,716 megawatts from wind and, in 2021, 2,130.9 megawatts installed for solar. Colorado is ranked seventh among states in installed wind power capacity and thirteenth among states in solar power-generating capacity. There are 347 solar power companies and about 90,000 installations of solar systems in the state.

WHAT IS THE PURPOSE OF THE TAX EXPENDITURE?

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IS THE TAX EXPENDITURE MEETING ITS PURPOSE AND WHAT PERFORMANCE MEASURES WERE USED TO MAKE THIS DETERMINATION?

We found that the exemption is meeting its purpose, but to a limited extent because the support it provides is relatively small compared to typical renewable energy project costs.

Statute does not provide quantifiable performance measures for this exemption. Therefore, we created and applied the following performance measure to determine the extent to which the exemption is meeting its purpose:

PERFORMANCE MEASURE: To what extent has the Renewable Energy Exemption supported and incentivized the development of renewable energy projects?

RESULT: Overall, we found that the exemption provides some support to the State’s renewable energy industry, but that support is relatively small compared to typical renewable energy project costs. Based on Department data, the exemption was applied to about \$214 million in eligible sales in Calendar Year 2019. To assess the potential impact of the exemption, we compared the cost savings purchasers would realize due to the exemption to typical overall project costs, which include ineligible costs such as labor for site preparation, construction, and installation. According to our review of National Renewable Energy

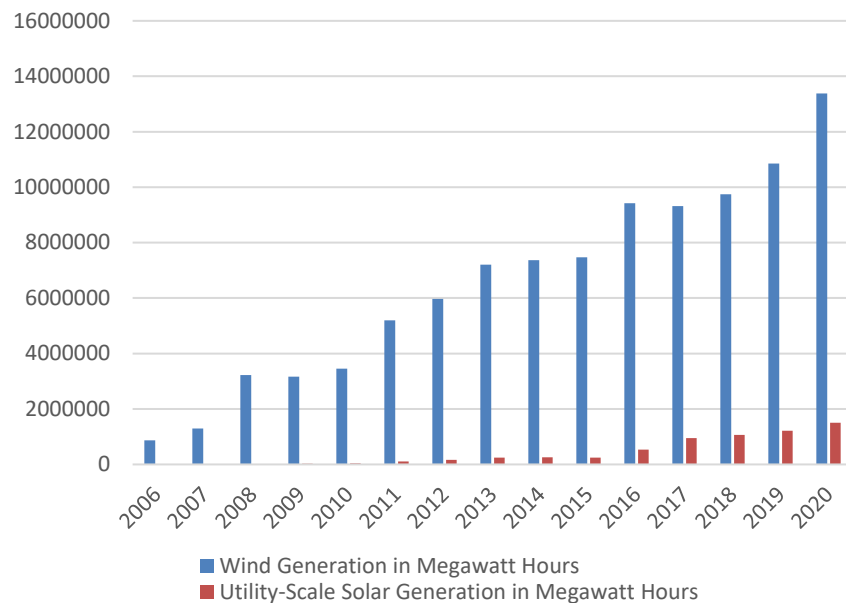
Laboratory (NREL) reports, components eligible for the exemption on typical utility-scale wind and solar projects make up about 69 percent of overall project costs. Therefore, based on the State's 2.9 percent sales tax rate, the exemption would reduce total project costs by about 2 percent.

Additionally, we found that while the exemption could act as an additional incentive to encourage businesses to invest in renewable energy projects in Colorado, other factors likely play a larger role in driving renewable energy industry growth in the state. According to stakeholders, the exemption has helped the industry grow in Colorado and is particularly helpful because it provides savings on the upfront cost of building renewable energy facilities. Reducing up-front costs may be important within the renewable energy industry sector since, according to the U.S. Energy Information Administration, the initial capital cost of building renewable energy facilities is typically higher than the cost of non-renewable energy facilities. However, based on the exemption's relatively small benefit compared to the typical cost of renewable energy projects, it appears unlikely to be the deciding factor for most businesses when considering whether to invest in renewable energy production in the state. Economic reports on business tax incentives, such as *A New Panel Database on Business Incentives for Economic Development Offered by State and Local Governments in the United States*, prepared in 2017 by Timothy Bartik for the Pew Charitable Trusts, indicate that tax credits can influence businesses to make additional investments; however, credits that are small in comparison to the investment amount, such as the exemption, have less impact on business investment decisions.

Furthermore, it appears that other factors are more likely to have driven growth in the State's renewable energy industry. For example, a 2018 study by the University of Texas found that, in Colorado, the cheapest method of energy production was either wind or solar, with wind resulting in the lowest cost. Based on our review of economic studies, in the coming years, the cost of renewable energy is expected to continue to decline due to the improvement of technology and increased production of components, which could further drive the adoption of

renewables. Our review of NREL data also indicates that Colorado, in particular eastern and southern parts of the state, receives a significant amount of wind and sun, and therefore, is a favorable location for renewable energy development. Additionally, in 2004, Colorado voters passed a Renewable Energy Standard, which generally required utilities to obtain 30 percent of their energy from renewable sources by 2020. This requirement may have also played a significant role in increasing investments in renewable energy. EXHIBIT 1 shows the growth in wind and solar electricity production in Colorado since 2006.

EXHIBIT 1. ELECTRICITY GENERATION IN COLORADO FROM WIND AND UTILITY-SCALE SOLAR SOURCES CALENDAR YEARS 2006-2020



SOURCE: Office of the State Auditor analysis of U.S. Energy Information Administration data on electricity generation from wind and solar sources.

WHAT ARE THE ECONOMIC COSTS AND BENEFITS OF THE TAX EXPENDITURE?

According to the Department's 2020 Tax Profile & Expenditure Report, the Renewable Energy Exemption resulted in \$6.2 million in forgone state revenue and a corresponding benefit to purchasers of renewable energy components in Calendar Year 2019. Similar to the increase in renewable energy capacity in the state, the revenue impact of the exemption has grown in recent years, up from about \$400,000 in Calendar Year 2015 and \$2.3 million in 2017.

The exemption also reduces local government sales tax revenue and provides a corresponding benefit to purchasers who buy components in the 30 cities and 22 counties for which the State collects sales taxes that have adopted the exemption. Although we lacked data necessary to quantify the impact to these local governments, the sales tax rates in these cities and counties range between 0.25 percent and 4 percent. Therefore, combined with the state sales tax exemption, purchasers would save between 3.15 percent and 6.9 percent in sales tax on eligible purchases in these jurisdictions. However, most local governments that have their sales taxes collected by the State do not apply the exemption. Furthermore, as discussed, home rule cities and counties that collect their own sales taxes are not required to apply a similar exemption and only one of the 15 most populous home rules cities and counties have done so. Therefore, purchases of components used to produce renewable energy are still subject to local sales tax in most areas of the state.

WHAT IMPACT WOULD ELIMINATING THE TAX EXPENDITURE HAVE ON BENEFICIARIES?

If the Renewable Energy Exemption was eliminated, the State's 2.9 percent sales and use tax would be applied to every purchase of components used to produce renewable energy. As discussed, this additional cost would be relatively small compared to the typical cost of renewable energy projects. However, eliminating the exemption

would reduce the support the State currently provides to the industry and could have a greater impact on marginal projects that have smaller expected profits. Additionally, one stakeholder said that eliminating the expenditure could signal that Colorado is not as business friendly for this industry, which could have a negative impact on growth in the state. Another stakeholder stated that the cost of solar components would increase, which would likely result in a decrease in customer purchases if the exemption was eliminated. However, as discussed, we found that Colorado is generally a favorable location for renewable energy development and that factors other than the exemption are more likely to drive industry growth. Therefore, while eliminating the exemption may have a negative impact on some businesses and could factor into some businesses' decisions on where to invest, doing so would likely have a relatively small impact overall on the renewable energy industry in the state.

ARE THERE SIMILAR TAX EXPENDITURES IN OTHER STATES?

Of the 45 states that levy a sales tax, 16 states (not including Colorado) have a sales and use tax exemption for components used to produce renewable energy: California, Connecticut, Florida, Indiana, Maryland, Massachusetts, Minnesota, Missouri, New Jersey, New York, North Dakota, Rhode Island, Texas, Utah, Virginia, and Washington.

We also looked at whether states with the highest wind and solar capacity offer a similar type of exemption. EXHIBIT 2 shows the sales tax treatment of wind and solar energy system components in the top five wind and solar energy capacity states. As shown, most of the wind energy states do not have a similar exemption, while a majority of the solar states do have some type of exemption.

EXHIBIT 2. SALES TAX EXEMPTIONS FOR WIND AND SOLAR ENERGY SYSTEM COMPONENTS FOR TOP FIVE U.S. WIND AND SOLAR ENERGY CAPACITY STATES

Top Five Wind Capacity States		Top Five Solar Capacity States	
State	Exemption?	State	Exemption?
Texas	Yes	California	Yes
Iowa	No	Texas	Yes
Oklahoma	No	Florida	Yes
Kansas	No	North Carolina	No
Illinois	No	Arizona	No

SOURCE: Office of the State Auditor review of Bloomberg BNA data and other state's statutes.

ARE THERE OTHER TAX EXPENDITURES OR PROGRAMS WITH A SIMILAR PURPOSE AVAILABLE IN THE STATE?

We identified the following tax expenditure and program that may also encourage renewable energy development in the state:

ENTERPRISE ZONES INVESTMENT TAX CREDIT [Section 39-30-104(1)(a), C.R.S.]—Allows taxpayers to claim a nonrefundable income tax credit for 3 percent of the qualified investment that they make in an enterprise zone when the property is used solely and exclusively in an enterprise zone for at least 1 year. Credits resulting from investments in renewable energy property that was placed in service prior to January 1, 2018, may be carried forward for 22 years. Credits resulting from investments in renewable energy property placed in service on or after January 1, 2018, may be carried forward for 14 years. For income tax years beginning on or after January 1, 2014, the amount that may be claimed by a taxpayer in an income tax year is the lesser of (1) \$5,000 of the taxpayer's tax liability plus 50 percent of any portion of the tax liability that exceeds \$5,000, or (2) \$750,000.

COLORADO RENEWABLE ENERGY STANDARD [Section 40-2-124(1)(c), C.R.S.]—Created in 2004, this provision requires qualifying utilities, excluding municipal-owned facilities and some cooperative electric

associations, to produce a growing percentage of their total electricity using renewable sources, though the electricity is not required to have been generated in Colorado. The provision culminates with a final goal of 30 percent of all electricity in the state coming from renewable sources by 2020 and beyond. As of 2020, renewable energy sources accounted for 30 percent of the state's electricity production.

WHAT DATA CONSTRAINTS IMPACTED OUR ABILITY TO EVALUATE THE TAX EXPENDITURE?

There were no data constraints that impacted our ability to evaluate the tax expenditure.

WHAT POLICY CONSIDERATIONS DID THE EVALUATION IDENTIFY?

THE GENERAL ASSEMBLY MAY WANT TO CONSIDER AMENDING STATUTE TO ESTABLISH PERFORMANCE MEASURES FOR THE RENEWABLE ENERGY EXEMPTION. As discussed, statute and the enacting legislation for the exemption do not provide performance measures for evaluating its effectiveness. Therefore, for the purposes of our evaluation, we developed a performance measure to assess the extent to which the exemption is meeting its purpose. However, the General Assembly may want to clarify its intent for the exemption by providing performance measure(s) in statute. This would allow our office to more definitively assess the extent to which the exemption is accomplishing its intended goal(s).

THE GENERAL ASSEMBLY MAY WANT TO REVIEW THE COST-EFFECTIVENESS OF THE EXEMPTION. As discussed, the revenue impact of the exemption grew from about \$400,000 in Tax Year 2015 to about \$6.2 million in 2019, and may continue to increase along with growth in renewable energy production capacity in the state. Although stakeholders indicated that the exemption has encouraged industry growth, which is the purpose of the exemption, our review indicates that the benefit provided by the exemption is relatively small in comparison to typical project costs and appears to act as one additional

factor among many that businesses are likely to consider when deciding whether to invest in renewable energy projects in the state. Additionally, other factors may be more likely to drive growth in the state's renewable energy industry, which, as of 2020, produced about 30 percent of the state's electricity and over 10 times the amount of electricity from wind and solar sources than in 2007 when the exemption was created. For example, the state's favorable wind and solar conditions, decreasing renewable energy costs, and Renewable Energy Standard have likely had a more significant impact on the growth in the renewable energy industry in the state.

On the other hand, stakeholders indicated that the exemption continues to be helpful to the industry, especially since renewable energy projects typically have high up-front costs, which are reduced by the exemption. Further, stakeholders indicated that the exemption helps keep Colorado competitive with other states and may signal to investors that the State continues to be "friendly" to the industry. We found that, although only one of the top five wind energy producing states has a similar exemption, three of the top five solar energy producing states have a similar exemption. Therefore, the General Assembly may wish to compare the costs of the exemption to its benefits to determine if it continues to meet its policy goals.