STATE OF MINNESOTA
Legislative Budget Office

Solar Energy Systems and Wind Energy Conversion Systems Tax Exemptions Evaluation

PREPARED FOR THE TAX EXPENDITURE REVIEW COMMISSION

NOVEMBER 05, 2025

Agenda

- Tax Expenditure Objective
- Background
- Evaluation Findings
- Nine Components of Review

Tax Expenditure Objectives

"The objective of the **Solar Energy Systems** General Sales and Use Tax Exemption is to incentivize and promote the implementation and utilization of solar energy systems in the state of Minnesota to achieve a greater percentage of renewable energy contributions to the state's electricity fuel generation mix."

"The objective of the **Wind Energy Conversion Systems** General Sales and Use Tax Exemption is to incentivize and promote the implementation and utilization of wind energy systems in Minnesota. The exemption is meant to achieve a greater percentage of renewable energy contributions to the state's electricity fuel generation mix."

Both objectives were approved by TERC on March 15, 2024

Background: Solar Energy Systems

- Exemption from the General Sales and Use Tax for particular goods and services
- Enacted 2005
- $10,000,000 estimated foregone revenue in FY 2026
- Examples include photovoltaic solar panels and concentrated solar thermal systems
- A purchaser is required to provide the seller with the completed Form ST3, Certificate of Exemption to receive the exemption

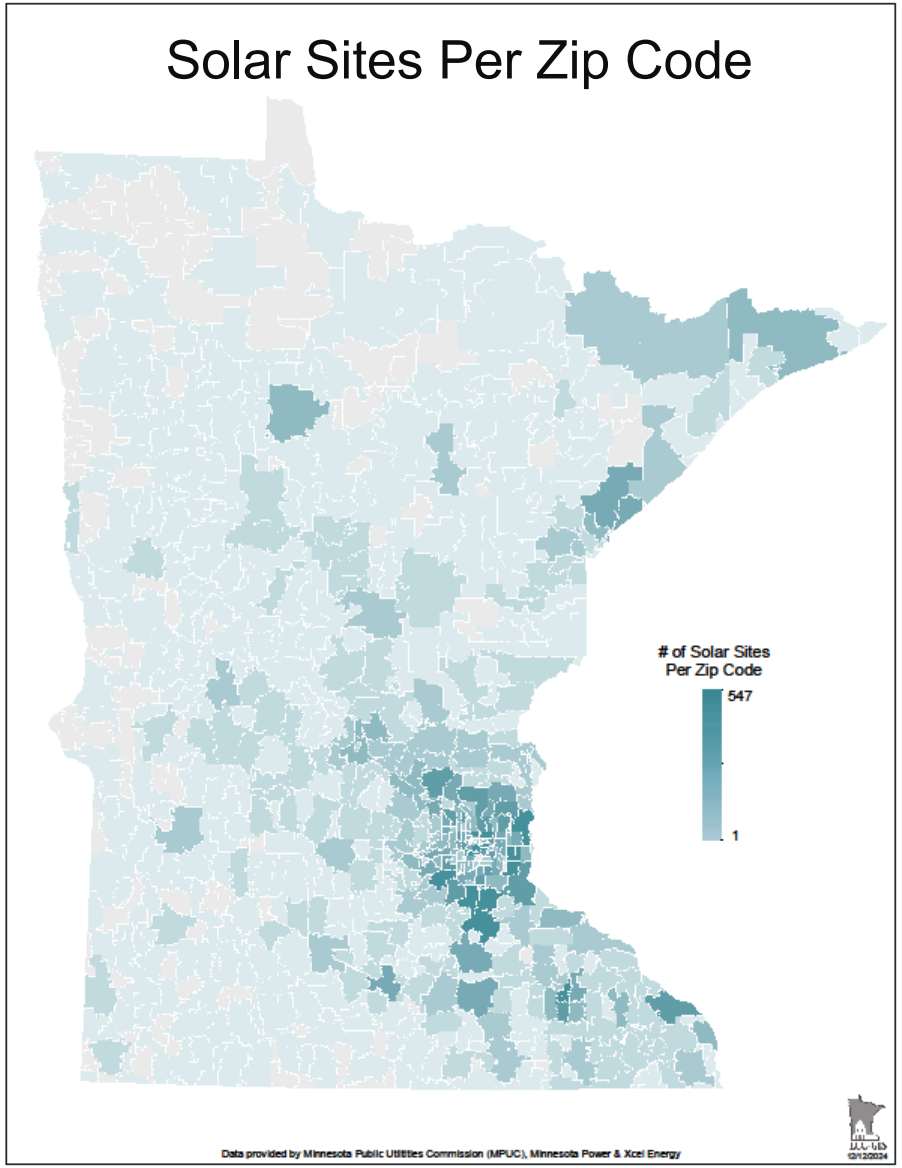
Background: Wind Energy Conversion Systems

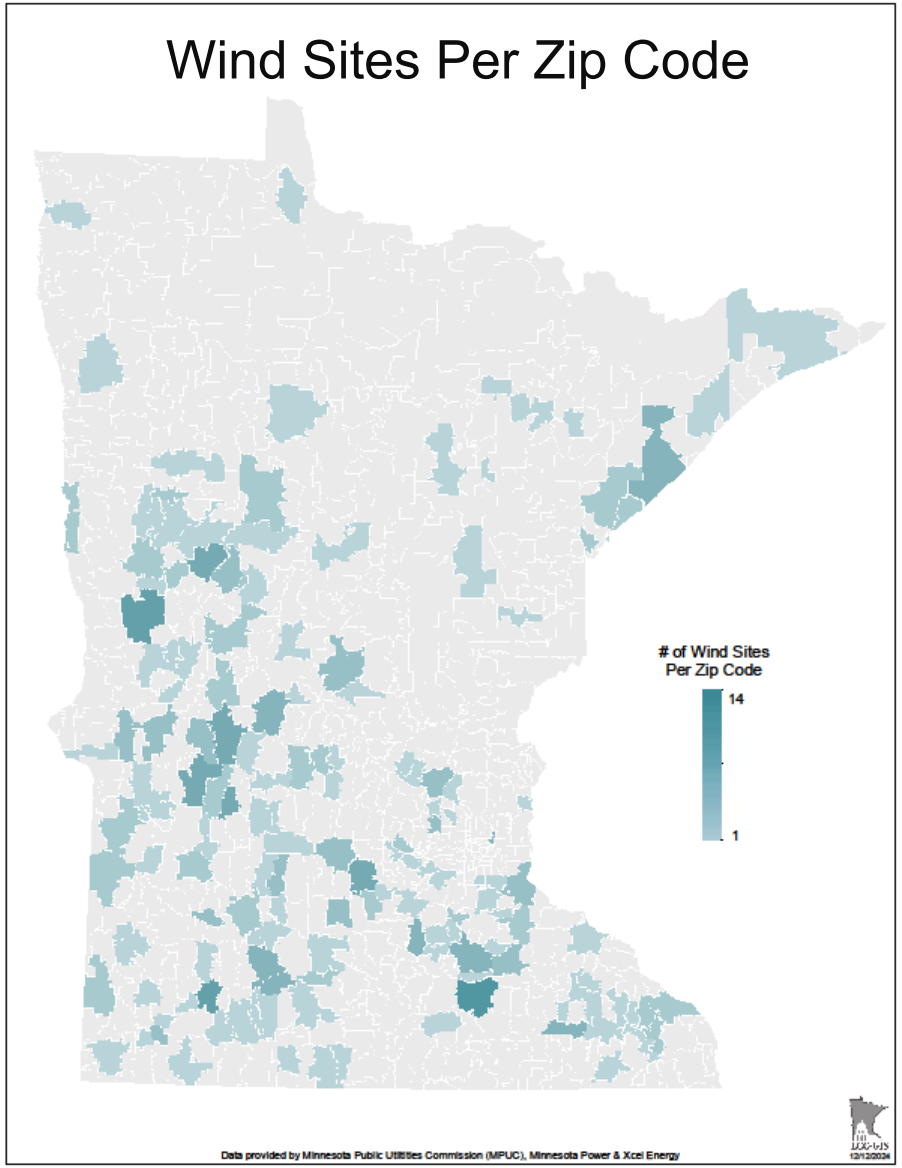
- Exemption from the general sales and use tax for particular goods and services
- Enacted 1992
- $12,000,000 estimated foregone revenue in FY 2026
- Examples include wind chargers, windmills, or wind turbines
- A purchaser is required to provide the seller with the completed Form ST3, Certificate of Exemption to receive the exemption

Scope of Evaluation

- Limited to distributed energy resources
- Distributed energy resources: systems that are less than 10 megawatts, interconnected to a distribution system, and operate in parallel with a utility
- Manufacturing, repair, and replacement costs are not included
- Expenditures were bundled for research efficiency

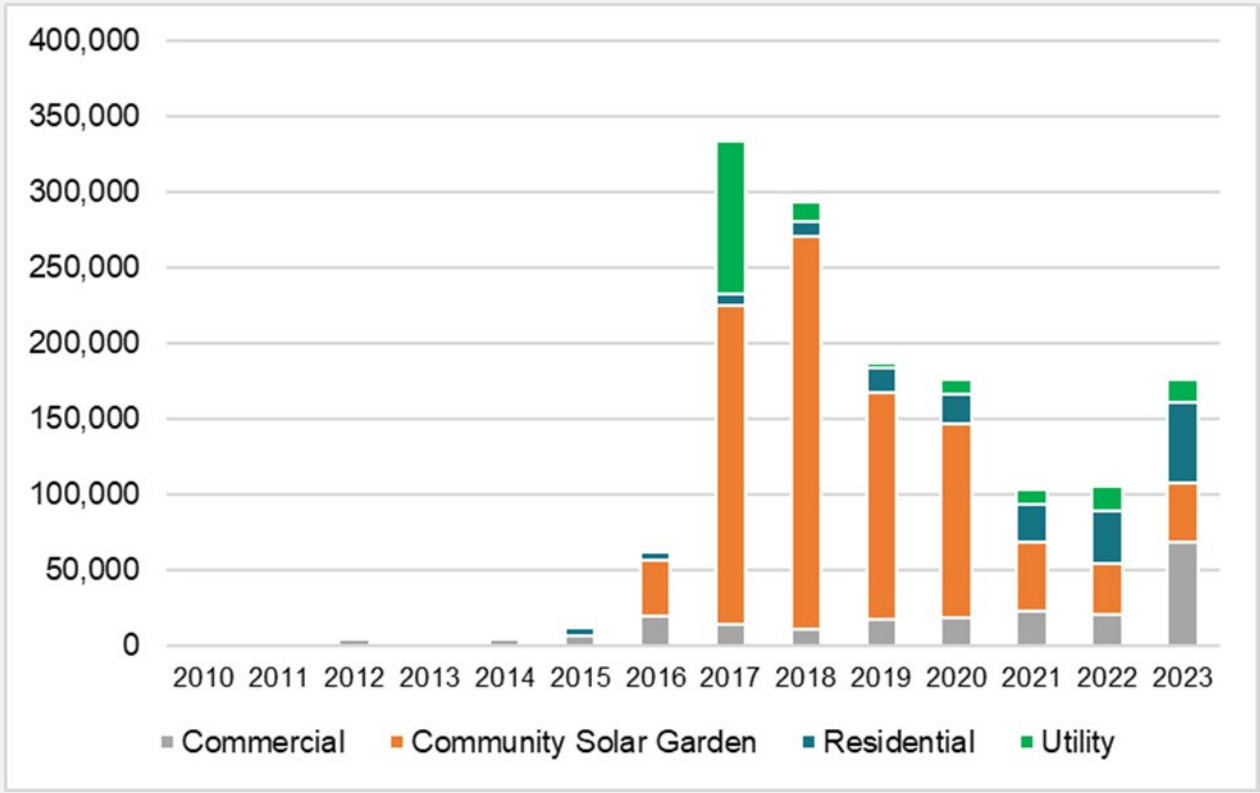
Distribution Across Minnesota, 2023



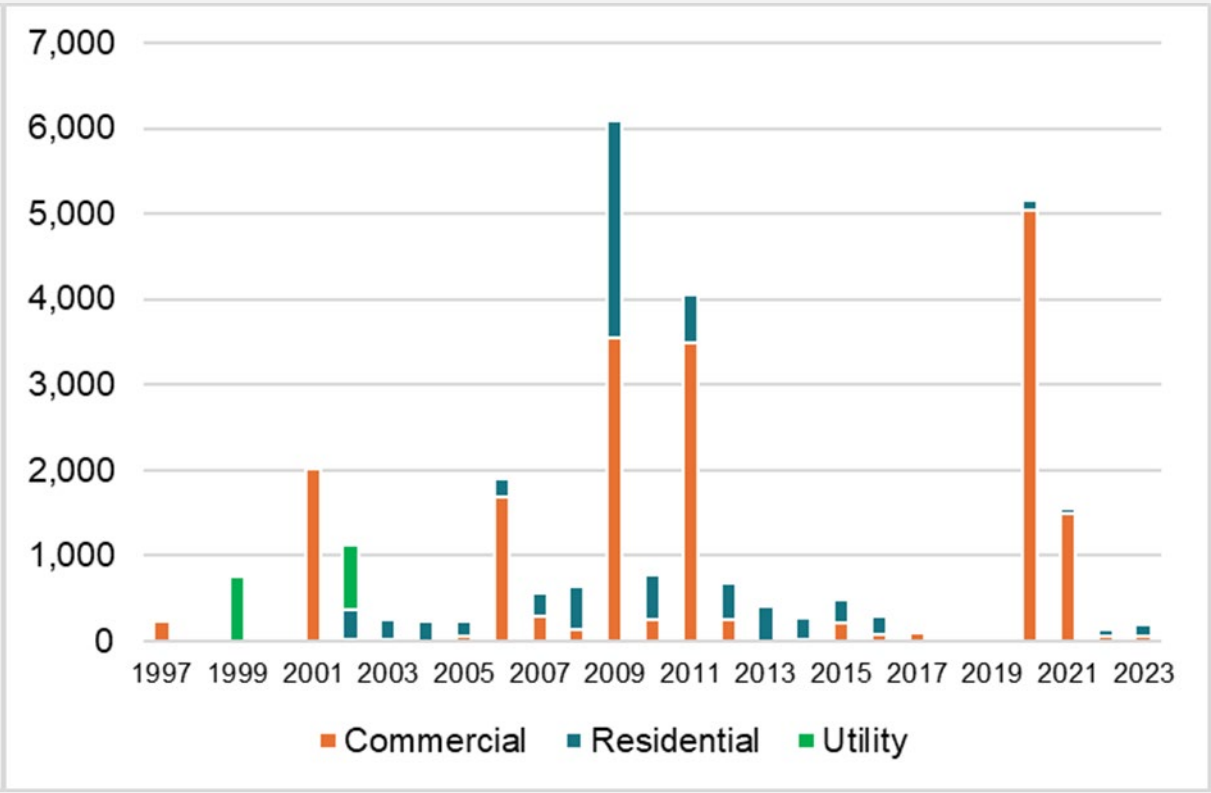


Annual Added Capacity By Customer Type

Solar



Wind

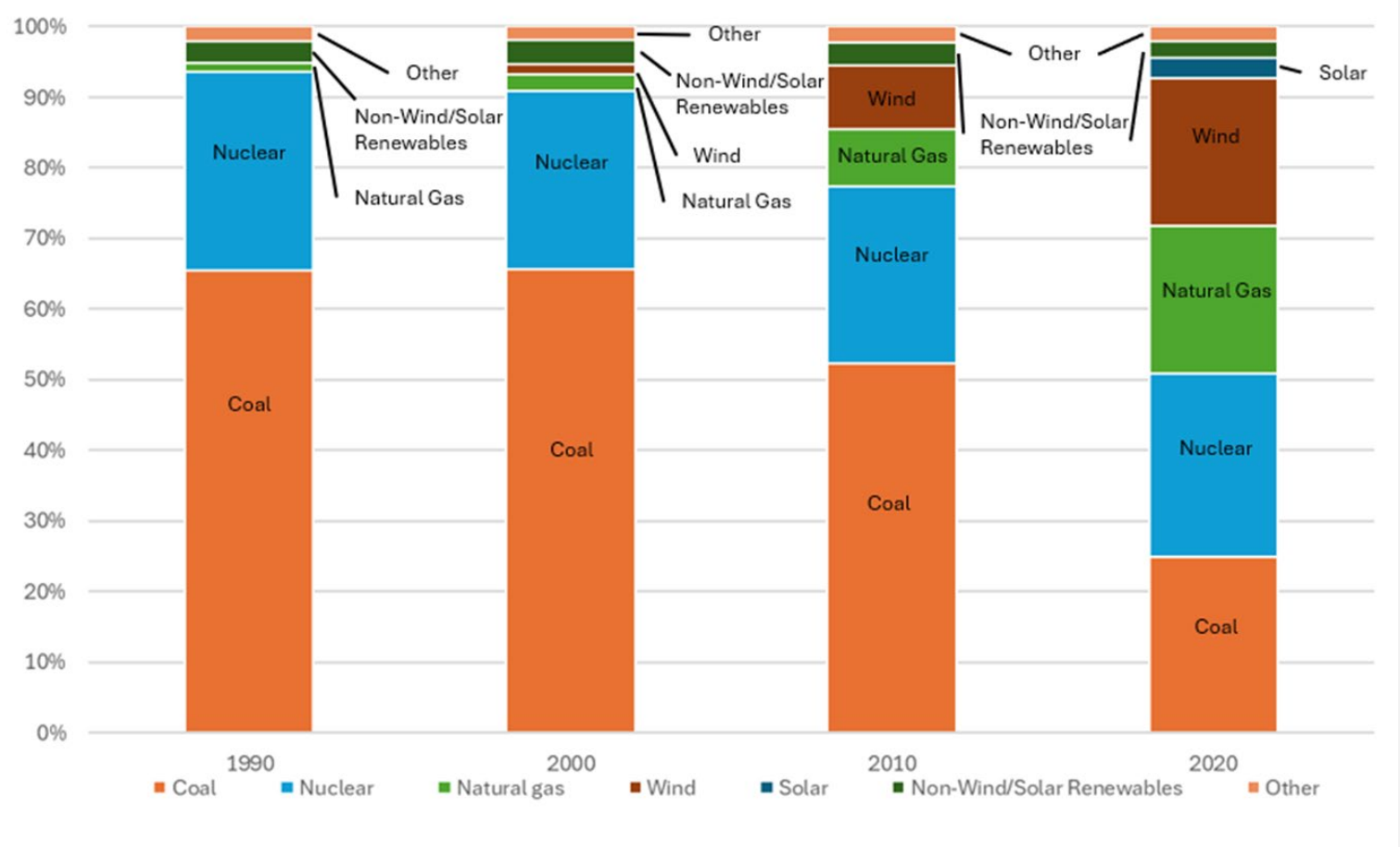


Data provided by Minnesota Public Utilities Commission (MPUC), Minnesota Power, and Xcel Energy

Evaluation Findings

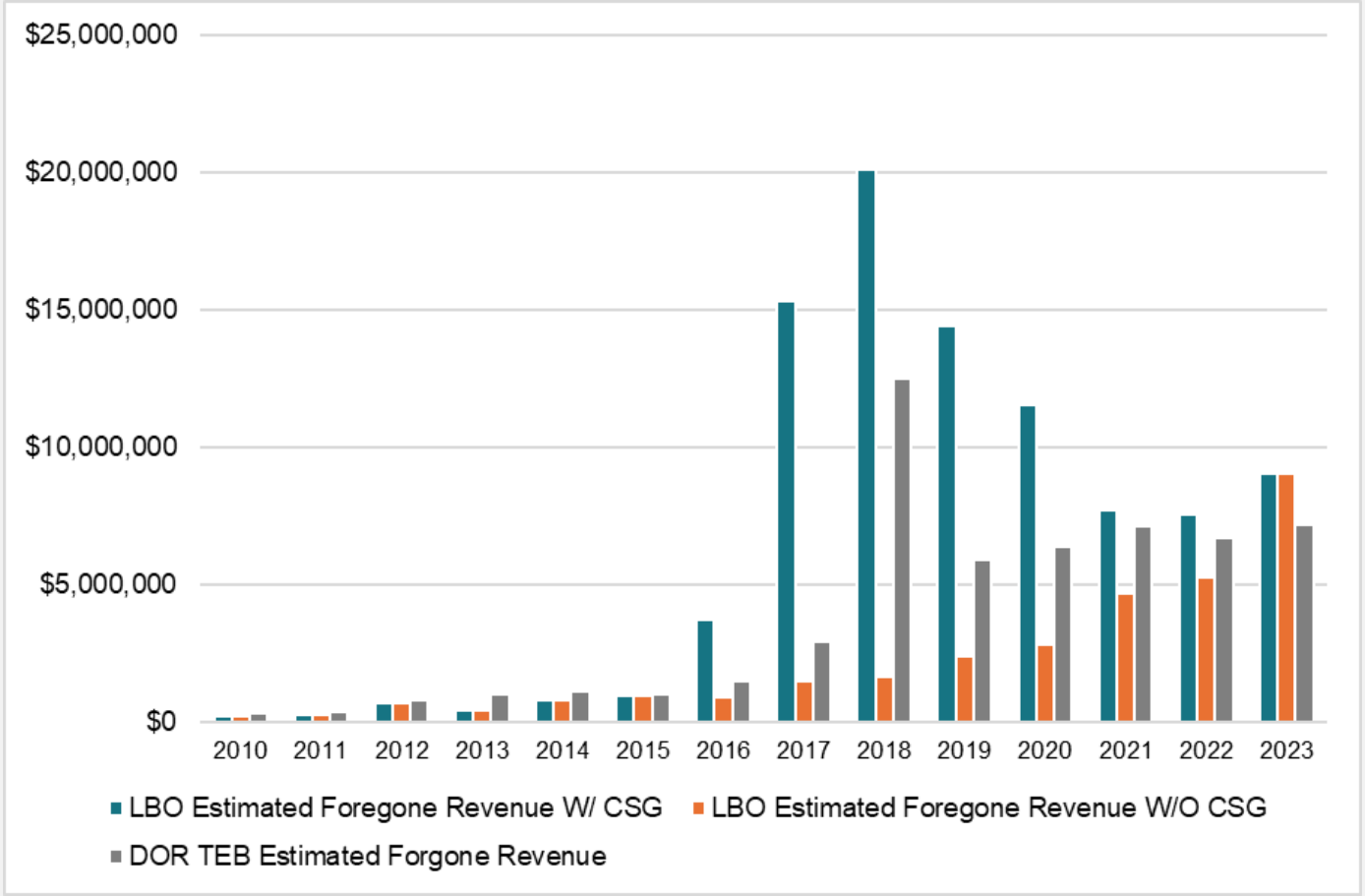
- The energy contribution of wind and solar to the state's electricity fuel generation has increased over the last several decades
- What is less clear is the explicit role that these two tax expenditures have played in that process
- LBO estimates of foregone revenue for the solar energy systems exemption vary from DOR estimates in previous years due to non-public data that was made available to the LBO upon request from utilities providers

Minnesota Electricity Fuel Generation Mix, 1990 – 2020 (percent of total MWh)



Data provided by Minnesota Public Utilities Commission (MPUC), Minnesota Power, and Xcel Energy

Comparison of Foregone Revenue Estimates



Data provided by Minnesota Public Utilities Commission (MPUC), Minnesota Department of Revenue (DOR), Minnesota Power, and Xcel Energy

Component of Review #1:
Estimate of Annual Revenue Lost

Fiscal Year	2024	2025	2026	2027
Estimated Fiscal Impact: Solar Energy Systems	$9,000,000	$9,300,000	$10,000,000	$10,700,000
Estimated Fiscal Impact: Wind Energy Conversion Systems	$11,300,000	$11,600,000	$12,000,000	$12,500,000

Estimates from the Department of Revenue 2024 Tax Expenditure Budget

Component of Review #2: Objective of the Tax Expenditure

The objective of the **Solar Energy Systems** General Sales and Use Tax Exemption is to incentivize and promote the implementation and utilization of solar energy systems in the state of Minnesota to achieve a greater percentage of renewable energy contributions to the state's electricity fuel generation mix.

The objective of the **Wind Energy Conversion System** General Sales and Use Tax Exemption is to incentivize and promote the implementation and utilization of wind energy systems in Minnesota. The exemption is meant to achieve a greater percentage of renewable energy contributions to the state's electricity fuel generation mix.

Both objectives were approved by TERC on March 15, 2024

Component of Review #3:
Impacts and Efficiency in Accomplishing Objective

- This evaluation determines that both sales and use tax exemptions meet their objectives in that they contribute to a broader policy initiative
- Estimating the impacts and efficiency of the two exemptions as stand-alone policies is not feasible for several reasons
  - The complexity of the renewable energy policy area
  - Significant data limitations
  - The levelized cost of renewable energy has decreases independent from government subsidies

Component of Review #4:
Compare to Direct Expenditure with the Same Objective

- An alternative to an upfront sales tax exemption is a direct payment incentive like a grant or a loan
  - A sales tax exemption has the potential to reach a broader population, though the benefit per entity is likely smaller than that of a grant or a loan
  - A direct payment incentive could have a greater impact for a targeted population

Component of Review #5:
Potential Modifications to Increase Efficiency or Effectiveness

- No potential modification to increase efficiency or effectiveness were identified
  - Sales and use tax exemptions are an administratively efficient type of tax expenditure
  - Objective has been determined to be met

Component of Review #6:
Revenue Neutral Tax Rate Reduction

Tax Expenditure	Current Tax Rate	Revenue-Neutral Tax Rate
Wind Energy Conversion Systems	6.875%	6.866%
Solar Energy Systems	6.875%	6.868%

Estimates from the Department of Revenue 2024 Tax Expenditure Budget

Component of Review #7:
Incidence of the Tax Expenditure and Effect on State Tax System

- An incidence analysis is not available for wind energy conversion systems or solar energy systems sales and use tax exemptions
  - DOR Tax Research assumes the incidence of both exemptions to be similar to the incidence of the business sales tax
  - Based on Residential Clean Energy Credit at the federal level, the LBO estimates that 67 percent of the value of these exemptions are realized by households with adjusted gross income in the top 24 percent

Component of Review #8:
Cumulative Fiscal Impacts of Other State and Federal Policies

- The cumulative fiscal impacts of other state and federal taxes providing benefits to taxpayers for similar activities in calendar year 2023 are about $77 million for solar and roughly $1.3 million for wind
  - Minnesota Solar Energy Production Incentive Program
  - The federal Residential Clean Energy Credits
  - Federal grants under the Rural Energy for America Program
- These estimates are not comprehensive of all available programs such as those offered by utility providers and federal exclusions

Component of Review #9: Recommendation to the Legislature

The Commission may choose to consider these findings in preparing a recommendation to the legislature to continue, repeal, or modify the tax expenditure, as is required of the Commission under Minnesota Statutes section 3.8855, subdivision 5.

Thank you

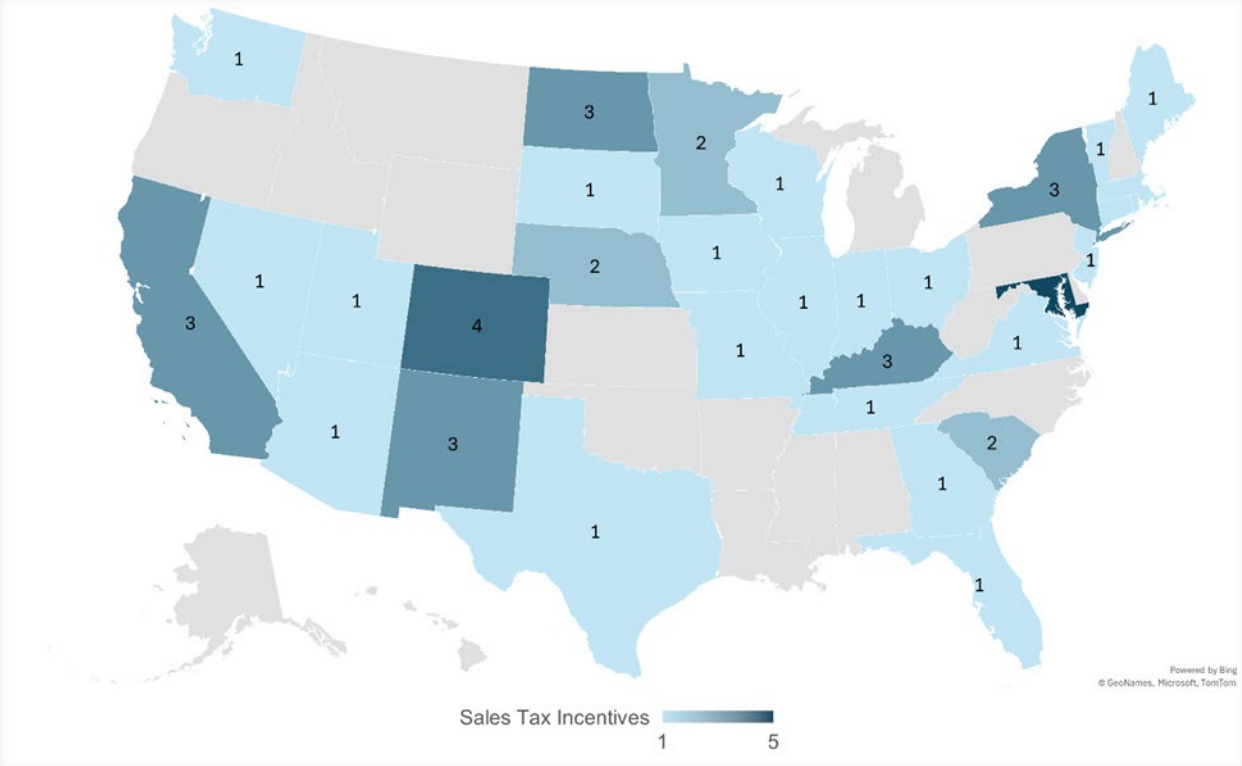
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Appendix Section

Appendix: What are other states doing?

- Thirty-two U.S. states offer a sales tax incentive for the purchase of a distributed renewable energy system
- These programs vary significantly in structure and eligible sectors



Source: Database of State Incentives for Renewables and Efficiency

Appendix: Best Practices to Evaluate Tax Expenditures

- At minimum, evaluations should include:
  - A description of the incentive, including its history and goals
  - An assessment of the program's design and administration
  - Estimates of the expenditure's economic and fiscal impacts
  - Policy recommendations

Best Practices presented to TERC August 11, 2022, by PEW Charitable Trusts

Appendix: Best Practices… Other Criteria to Consider

- Displacement – to what extent does the expenditure benefit certain taxpayers at the expense of others?
- Leakage – does the expenditure benefit non-state residents?
- Timing – how does timing impact the level of fiscal risk and economic return to the state?
- Opportunity costs – are there trade-offs related to expenditure costs?
- “But for” – does the credit change taxpayer behavior?

Best Practices presented to TERC August 11, 2022, by PEW Charitable Trusts

General Tax Principles

I. Allocative Efficiency (Neutrality)

II. Fairness and Equity

- Horizontal Equity – Equal treatment of equals

III. Simplicity

- Transparency
- Ease of compliance and administration

May conflict with each other or with policy goals (vertical equity, maintaining state competitiveness, promoting economic development)

Minnesota Statutes 3.8855, Subdivision 5

Tax expenditure review must include:

1. **Annual revenue lost** as a result of the expenditure
2. **Objective** of the tax expenditure
3. **Impacts and efficiency** in accomplishing its objective
4. **Compare the effectiveness** of a tax expenditure and a direct expenditure with the same objective
5. **Potential modifications** to the tax expenditure to increase efficiency or effectiveness
6. **Amount the tax rate could be reduced** if the revenue lost due to the tax expenditure were applied to a rate reduction

Minn. Stat. 3.8855, Subdivision 5 (continued)

7. **Incidence** of the tax expenditure and the effect of the expenditure on the incidence of the state's tax system (if tax expenditure is significant)
   - A significant tax expenditure, as defined in Minnesota Statutes, section 270C.11, subdivision 6, is a tax expenditure but excludes any tax expenditure that:
     a) is incorporated into state law by reference to a federal definition of income;
     b) results in a revenue reduction of less than $10,000,000 per biennium; or
     c) is a business tax credit
8. **Fiscal impacts of other state and federal taxes** providing benefits to taxpayer for similar activities
9. **Recommend** whether the tax expenditure be continued, repealed, or modified

Incidence Table

General Sales Tax, Business Portion

Population Decile	Sales & Use Tax	Business Portion of Sales & Use Tax	Share of Business Portion
$15,544 & Under	$275,989,456	$108,858,170	2.7%
$15,545 - $24,961	$321,365,571	$119,743,208	2.9%
$24,962 - $35,168	$369,752,647	$139,471,032	3.4%
$35,169 - $45,808	$417,394,917	$159,742,201	3.9%
$45,809 - $58,014	$465,046,347	$178,530,355	4.4%
$58,015 - $73,668	$526,644,412	$201,895,886	4.9%
$73,669 - $95,360	$641,957,246	$248,497,825	6.1%
$95,361 - $127,780	$802,412,748	$311,867,360	7.6%
$127,781 - $183,475	$988,123,559	$386,770,698	9.5%
$183,476 & Over	$2,041,065,136	$882,501,822	21.6%
Nonresidents	$1,605,124,031	$1,354,771,928	33.1%
All	**$8,454,900,000**	**$4,092,700,000**	**100%**

Incidence analysis from the Department of Revenue 2024 Tax Expenditure Budget

Methodology

- Data and methods
  - Minnesota Public Utilities Commission (MPUC) publishes the Annual Distributed Generation Report, which compiles utility-reported information on distributed electricity generation throughout Minnesota
  - Two Minnesota utility companies, Minnesota Power and Xcel Energy, had installed costs that were not included in the public versions of their reports, meaning they were left out of the MPUC dataset
  - Descriptive statistics were generated from all datasets to understand the distributed wind and solar energy system installations across Minnesota
  - The Energy Information Administration data was used to track long-term trends in the state's electricity generation mix and installed capacity, focusing on the growth of wind and solar energy
- Limitations
  - Purchases of solar energy system components, production, and manufacturing are not captured in the data