



Energy Conservation and Optimization Programs Report

Pursuant to Minn. Stat. § 216B.241, subd. 1e(d)

February 15, 2025

Report Prepared By

Minnesota Department of Commerce
Division of Energy Resources
85 7th Place East, Suite 280
St. Paul, MN 55101
mn.gov/commerce/energy

As requested by Minnesota Statutes § 3.197: This report cost approximately \$1,100.00 to prepare, including staff time, printing and mailing expenses.

Upon request, this material will be made available in an alternative format such as large print, Braille, or audio recording. Printed on recycled paper.

Contents

2024 Legislative Report for ECO Energy Programs	1
Overview of CERTs	1
CERTs 2024 Activities.....	2
Overview of CARD Program	9
2024 CARD Projects.....	9
Overview Minnesota Sustainable Building 2030 Program	14
Minnesota Sustainable Building 2030 Activities.....	15
Program Progress	15
Case Studies Database.....	15
Sustainable Building Operations	15
Minnesota Sustainable Building 2030 Utility Programs	16
Sustainable Building 2030 Education	16
Shifting to 90% Standard	17
State-Bonded Project Cost Effectiveness Actual Results.....	17
Minnesota Sustainable Building 2030 Next Steps	20

2024 Legislative Report for ECO Energy Programs

Funding for the Clean Energy Resource Teams (CERTs), Conservation Applied Research and Development program (CARD), and Sustainable Buildings 2030 (SB2030) has been established through Minnesota Statutes § 216B.241.

These funds originate from utility assessments that provide resources to the Department of Commerce (the Department) and other legislatively named entities to support achievement of Minnesota's statewide energy policy goals. Each of these programs is uniquely positioned to help continuously achieve energy efficiency and renewable energy project implementation throughout the state. The following report details the activities of each of these programs.

Pursuant to Minnesota Statutes, section 216B.241, subdivision 1e.

(a) The commissioner may, by order, approve and make grants for applied research and development projects of general applicability that identify new technologies or strategies to maximize energy savings, improve the effectiveness of energy conservation programs, or document the carbon dioxide reductions from energy conservation programs. When approving projects, the commissioner shall consider proposals and comments from utilities and other interested parties. The commissioner may assess up to \$3,600,000 annually for the purposes of this subdivision. The assessments must be deposited in the state treasury and credited to the energy and conservation account created under subdivision 2a. An assessment made under this subdivision is not subject to the cap on assessments provided by section 216B.62, or any other law.

(b) The commissioner, as part of the assessment authorized under paragraph (a), shall annually assess and grant up to \$500,000 for the purpose of subdivision 9.¹

(c) The commissioner, as part of the assessment authorized under paragraph (a), each state fiscal year shall assess \$500,000 for a grant to the partnership created by section 216C.385, subdivision 2.² The grant must be used to exercise the powers and perform the duties specified in section 216C.385, subdivision 3.

(d) By February 15 annually, the commissioner shall report to the chairs and ranking minority members of the committees of the legislature with primary jurisdiction over energy policy and energy finance on the assessments made under this subdivision for the previous calendar year and the use of the assessment. The report must clearly describe the activities supported by the assessment and the parties that engaged in those activities.

Overview of CERTs

The Clean Energy Resource Teams (CERTs) are a statewide partnership with a shared mission to connect individuals and their communities to the resources they need to identify and implement community based clean energy projects. CERTs empowers communities and the individuals within them to adopt energy efficiency and renewable energy for their homes, businesses, and local institutions, and, increasingly, to shift some

¹ Subdivision 9 refers to Building performance standards; Sustainable Building 2030.

² Section 216C.385 refers to the Clean Energy Resource Teams.

transportation and heating applications to electric. Through stories and decision tools, educational forums, programming cohorts, one-on-one assistance, and seed grants, CERTs helps move clean energy projects forward. CERTs' programs are developed and adapted to respond to the needs and interests expressed by Minnesota's varied communities. For instance, CERTs launched its Community Energy Ambassadors initiative in late 2023 in response to demand from communities across the state for timely, reliable information about the Inflation Reduction Act (IRA); that program has now blossomed into over 1,100 people in 68 counties.

Key metrics from CERTs' 2024 activities include:

- Sharing reliable clean energy information with the 97,000 individuals who accessed stories, clean energy guides, job opportunities, and events on the CERTs website 151,000 times. CERTs' most popular pages included the Guide to the IRA and the Clean Energy Job Board.
- Hosting a total of 70 events, both online and in person across the state, with over 4,000 attendees representing a variety of audiences: energy-burdened households, utilities, businesses, nonprofits, and local and Tribal governments. CERTs also connected with over 7,800 additional community members through over 820 meetings, presentations, and other engagement activities. Through these forums, CERTs builds relationships within and among networks and provides learning opportunities to spark action.
- Reaching over 12,346 people through the MN Energy Stories email newsletter, through which CERTs shared the 110 unique clean energy stories and news pieces it published this year (on.mncerts.org/stories). CERTs extended its reach to broader audiences through over 100 local media stories featuring CERTs' programs and partnerships.
- Engaging 87 Regional Steering Committee members from across CERTs' seven regions (on.mncerts.org/about). Steering committee members inform programming, serve as key connectors in and to their communities, and drive the seed grant process, from priority setting to reviewing and awarding funds.
- Connecting directly with 305 communities across the state, including 175 local governments, 9 Tribal governments, 38 school districts, and 46 electric and gas utilities and their associations, as well as businesses and other organizations, establishing and strengthening the long term, cross-sector relationships that enable CERTs to help communities implement their clean energy projects.
- Saving or offsetting 53.6 billion BTUs. CERTs provides hands-on assistance to spur Minnesotans to move forward on clean energy action. Table 1 details actions that resulted in quantified energy savings or offsets in 2024.

CERTs 2024 Activities

Connecting with Minnesota Communities

Regular meetings of CERTs' **regional steering committees** – with members from utilities, local and Tribal governments, community-based organizations, and other stakeholders – continued to provide key cross-sectoral connections to communities throughout Minnesota (z.umn.edu/a0zs). In addition to regional meetings, Lunch-and-Learn webinars brought together steering committee members and staff from across the state.

In 2024, CERTs connected with Minnesotans at community events around the state, sharing resources, answering questions, and learning about community members' energy concerns and priorities, which in turn continue to inform CERTs' programming. A sampling of events includes Lakes Area Sustainability Fest; Bloomington Home Energy Workshop; Duluth Harvest Fest; Rochester Earthfest; FarmFest (Redwood County);

NRRC-Financial LLC homeownership fair in North Minneapolis; and Department of Commerce’s Energy Information Center at the State Fair.

This year also saw the further development of CERTs’ **Community Energy Ambassadors** program, which works to equip Minnesotans to assist members of their communities in advancing their self-identified clean energy projects. New resources were launched, including web pages, recorded info sessions, handouts (including translations), visuals and a tracking map, a redesigned newsletter, and a checklist to help Ambassadors make their way through the training process to become “CERTified.” In-person networking events brought together Ambassadors in Worthington, Rochester, Minneapolis, Thief River Falls, Fergus Falls, and Grand Rapids, while virtual training sessions focused on energy efficiency, heat pumps, solar, electric vehicles, paying for projects, and community engagement (z.umn.edu/CEAmb). From 653 Ambassadors in the beginning of 2024 to over 1,100 as of October, with 68 MN counties represented, CERTs has almost reached a goal of Ambassadors in each Minnesota county. Email subscribers remain engaged with Ambassadors communications, with open and click-through rates well above industry average.

Supporting School Solar for Savings and STEM

CERTs continued to engage and provide technical assistance to Minnesota’s K-12 schools. CERTs staff provided one-on-one consultations with school superintendents, principals, solar installers, and other key personnel, including conducting Solar for Schools pre-application consultations and helping to develop and/or distribute Solar for Schools Requests for Proposals (RFPs). In total, CERTs offered direct assistance to 44 school districts in 2024.

Some of the outstanding Solar for Schools projects include:

- Pine Point Public Schools, the state’s smallest school district (about 270 students), was awarded a grant to install a 436 kW DC ground-mounted array;
- International Falls School District is now installing a 411 kW DC array with panels made by Heliene in Mountain Iron and 100% US-made hardware; and
- Minnesota’s first GreenStep School District – Roseville Area Schools – is incorporating its solar array into the curriculum at the Fairview Alternative High School, where students will track electricity and emissions savings.

CERTs’ technical assistance and outreach efforts to schools continues to help Commerce’s Solar for Schools program be successful. In 2024, 47 Solar for Schools grant recipients (a combination of 2022, 2023, and 2024 grant recipients) completed installations of their solar arrays, totaling 3,032 kWdc. These 2024 installations are expected to save the schools over \$280,000 in electrical expenses in the first year and \$8,483,796 over the lifetime of the arrays.

Beyond CERTs’ Solar for Schools work, staff did outreach to priority school districts for the EPA Clean School Bus Rebate. CERTs staff also gathered a coalition of 16 schools across the state to apply for a Renew America’s Schools grant application for energy efficiency projects; while this specific proposal was not awarded funds, the effort built relationships that may bear fruit in the future. To support STEM education, CERTs staff served as judges in the Northeast Regional and Statewide Envirothon competitions and presented to students at Brainerd Public Schools and at a Project YES! workshop in Royalton. (See row A in Table 1 for energy generated through CERTs’ work with schools.)

Reducing Minnesota Households’ Energy Burden

In 2024, CERTs worked with partners around the state to support individuals and families in reducing their energy burden (share of household income spent on energy). CERTs reached 1,971 households across 19

manufactured home parks with conservation kits and educational materials (translated when needed). Key partners in this work included utilities, municipal sustainability coordinators, energy assistance and weatherization service providers, Home Energy Squad, Citizens Utility Board of MN, and the park management and residents themselves. Natural gas and electric utilities across the state, along with CERTs, supplied energy saving items: LEDs, smart power strips, low-flow showerheads, faucet aerators, pipe wrap, and window film. Communities served included Burnsville, Cloquet, Coon Rapids, Fridley, Hastings, Hutchinson, Lakeville, Landfall, Lindstrom, Madelia, North Mankato, and Richfield. CERTS also supported seven seed grants focused on energy savings for manufactured homes (z.umn.edu/a0Zr).

Over the past year, CERTs worked with 78 food shelves across the state, from Fertile to Worthington, Grygla-Gatzke to Eyota. At 25 of these, CERTs staff engaged with food shelf shoppers, providing 828 shoppers with energy saving devices and educational materials from CERTs, local utilities, and community action agencies. Communities served included Appleton, Brainerd, Canby, Crosby, Detroit Lakes, Foley, Granite Falls, Jackson, Madison, Moorhead, Ortonville, St. Cloud, Staples, Tracy, Walker, Windom, Worthington, and the counties of Anoka, Hennepin, Isanti, Ramsey, and Wadena. CERTs also worked with numerous food shelves on energy usage at the facilities themselves (z.umn.edu/FoodShelves). One major effort focused on providing assistance to 62 food shelves on the Minnesota Department of Human Services' Facilities Improvement Grant. Watonwan County Food Shelf and Pine River-Backus Family Center were successful in their applications to that program.

CERTs also engaged other communities around Minnesota through events and other assistance: Empower Your Home (in Bemidji, with partners including Beltrami Electric Cooperative and Otter Tail Power); Healthy Earth, Healthy Kids (Willmar); assistance to Convivencia Hispana (St. James); energy efficiency webinars for seniors with Trellis (statewide); Brainerd area property managers on energy efficiency for renters; and distribution of door-to-door energy conservation kits and information on Affordable Solar program, Energy Assistance, and Weatherization with Minnesota Renewable Now in North Minneapolis. (See rows B-D in Table 1 for energy saved and generated through CERTs' energy burden work).

Partnering with Utilities to Advance Innovation

In addition to collaborations to serve specific audiences noted in other sections, CERTs engaged and partnered with utilities on multiple events and communications to advance program innovation, including:

- A peer-to-peer webinar about market barriers for rooftop units (z.umn.edu/a0Zt);
- An in-person peer-to-peer workshop focused on market transformation strategies for upstream innovation, attended by municipal, cooperative, and investor-owned utilities;
- An expert panel and tour of St. Thomas's microgrid, focused on the future of grid innovation, with Connexus, Camus Energy, and the City of Minneapolis (z.umn.edu/a0Zu);
- Powering Up Utility (EV) Programs, a webinar geared primarily toward Minnesota electric utilities looking for effective strategies for educating their customers about EVs and associated programs, such as time of use rates and EV charging rebates;
- Facilitation (with the Chan Lab at the Humphrey School) of the Distributed Energy Resource Innovation Initiative (DERII) project with Great River Energy and their member cooperatives; and
- Communications highlighting MN Department of Commerce Conservation Applied Research and Development (CARD) grants to quantify the savings, cost-effectiveness, and field performance of advanced technologies (z.umn.edu/a0Zv).

Assisting Businesses, Farms, and Nonprofits

CERTs serves as a resource for farms, small businesses, and nonprofits advancing cost-saving efficiency and renewable energy projects across the state. CERTs co-hosted grant-writing workshops for rural groceries and a workshop on energy savings, utility rebates, and hazardous materials for business owners in St. Cloud's East African immigrant community. CERTs also presented at the 2024 Farm Energy Conference, an Iron Range Resources & Rehabilitation meeting, a MN Farmers Union meeting, a webinar for nonprofits, and a business and nonprofit efficiency event in Paynesville, among others.

CERTs continued to provide project assistance to farms and rural small businesses in all seven CERTs regions through its USDA-funded **Renewable Energy for Greater Minnesota** program (z.umn.edu/REGM). These efforts have been supported by CERTs communications campaigns focused on clean energy for agricultural communities and rural small businesses. In collaboration with Mid-Minnesota Development Commission, local electric utilities, and the MN Technical Assistance Program (MnTAP), CERTs implemented the **Energy to Grow** program, conducting focused outreach to small businesses in Renville, Kandiyohi, McLeod, and Meeker Counties, facilitating or directly conducting 20 energy audits. In conjunction with the Empower Crookston community revitalization project, CERTs co-hosted two community events, conducted direct outreach to businesses, set up energy audits (with Otter Tail Power), worked with the county board to enable Property Assessed Clean Energy (PACE), and is now providing implementation assistance.

In the Metro, the **Small Business Equitable Energy Decarbonization Initiative** (SBEEDi) builds on a 2022-2023 NREL-funded project detailed in *Advancing Small Business Solar Equity* (z.umn.edu/a0zw). SBEEDi is working with small business-serving community-based organizations and community development financial institutions (CDFIs) to provide staff capacity, expertise, and technical assistance on solar, storage, energy efficiency, and electrification projects for their clientele. (See rows E-G in Table 1 for energy saved or generated through CERTs' work with businesses and nonprofits.)

Advancing Local Government Projects and Collaboration

Over the past year, CERTs staff provided assistance to 175 counties, cities, townships, and watershed districts – from Comfrey to Roseau to Saint Louis County. For example, CERTs staff at the Southwest Regional Development Commission continued to host the 18-county joint powers **Rural Minnesota Energy Board** and their critical work on utility- and community-scale renewable energy and transmission siting.

CERTs worked in tandem with the Department of Commerce to launch the new **Solar on Public Buildings** grant program. Thanks to this program, over 35 local governments are installing solar, including the City of New London, which is installing solar on its city hall, fire station, and senior center. In total, CERTs conducted 54 pre-application consultations across the Metro, West Central, Central, Northeast, and Southeast regions.

CERTs also recruited the **Minnesota GreenStep** program's 150th member, Bois Forte Band of Chippewa. CERTs continues to be a core partner in the program, providing ongoing assistance to communities across the state and gathering feedback through interviews with nine Greater Minnesota communities on how to strengthen support to rural communities.

CERTs also co-led the **Community Energy Network** (CEN), a forum for 117 local government entities to share peer-to-peer experiences and successes, learn about new topics, and receive technical assistance on specific actions (z.umn.edu/a0zx). CEN held an elective pay workshop with White House advisor David Eichenenthal, a geothermal tour at the Saint Paul Pipefitters Union, a MnCIFA presentation, and collaborated with West Central

Initiative to facilitate a solar cohort for municipalities in the Central and West Central regions. Through CEN, CERTs was able to bring in several cities as stronger partners in manufactured home energy efficiency work, positioning this work for opportunities for deeper efficiency measures in 2025.

(See rows H and I in Table 1 for energy saved or generated through CERTs' work with local governments.)

Partnering with Tribal Nations

Beyond the seven seed grant projects awarded to Tribal nations and the GreenStep support noted above, CERTs continued to partner with Tribal governments and Indigenous organizations in myriad ways. Some examples include:

- Providing technical assistance to **Lower Sioux Community** on their successful \$5 million Climate Pollution Reduction Grant to improve residential energy efficiency and climate resilience;
- Providing technical assistance to **Red Lake Nation** and **Upper Sioux Indian Community** staff as they explored power purchase agreements and Solar for Public Buildings applications, respectively; and
- Partnering with **White Earth Nation** and White Earth Tribal Community College (WETCC) to strengthen clean energy workforce development.
- Over the next year, CERTs looks forward to collaborating with **Leech Lake Tribal College** and others on the DEED-funded Clean Economy Jobs for Leech Lake, launched in Q3 of 2024.

Supporting Clean Energy Workforce Development

CERTs continues to advance efforts to increase the clean energy workforce with an emphasis on meeting the needs of rural and underserved communities, including through the work with Tribal colleges and K-12 schools described above. Staff also collaborated with Otter Tail Power to present two contractor workshops on clean energy incentives; with the Minnesota Department of Commerce on outreach and a webinar to attract more contractors into the weatherization field; with Ecolibrium3 in Duluth on research and education to support existing air source heat pump contractors; and hosted a panel discussion on expanding and diversifying the clean energy workforce at the well-attended Metro CERT Annual event. (z.umn.edu/a0zy)

In the communications space, CERTs partnered with the University of MN's Institute on the Environment to create a clean energy careers web page for Minnesota high school students, and produced 16 stories focused on clean energy careers, highlighting individual success stories, especially from underserved communities and rural areas. (z.umn.edu/GreenCareers)

Electric Vehicles

CERTs continued to connect communities with electric vehicle (EV) resources, with an emphasis on rural communities, such as through the peer-to-peer webinar described in the utilities section above. CERTs co-hosted a **winter ride-and-drive in Ely**, the first winter ride-and-drive in the nation. It received strong attendance as well as TV and print media attention. (z.umn.edu/a0zz) CERTs supported the launch of **Charging Smart**, a new national EV readiness certification program for cities. Nine cities in Minnesota were the first in the nation to be recognized, including St. James. (z.umn.edu/a100) In addition, staff helped ZEF Energy locate suitable hosts for the VW settlement EV charging program.

Strengthening Coordination among Technical Assistance Providers

With 2023-2024 seeing an influx of federal funding for clean energy planning and projects, CERTs partnered with the McKnight Foundation and others to develop a forum for shared learning and collaboration among technical assistance (TA) providers who support rural and disadvantaged communities. The **Minnesota Technical Assistance Collaborative** was launched with an in-person assembly of over sixty TA providers from across Minnesota and continued with monthly virtual convenings and a web portal for TA providers. Participating TA providers are working to improve coordination and service delivery to communities looking to secure federal, state, and philanthropic funding for self-identified clean energy and environmental projects.

Allocation of Legislative Funding Resources and Leveraged Resources

CERTs has 19 staff members (16 FTE), all of whom are paid in part via this legislative allocation. Staff are based across three of CERTs’ four partner organizations and across all seven regions. In 2023, additional funding enabled CERTs to transition to full-time staff in all regions. With support from AmeriCorps, Sustainability Project Coordinators provide additional capacity in the Central, Metro, Northeast, and Southeast regions.

Given the people- and relationship-focused nature of CERTs’ work, staff members are essential to carrying out CERTs’ clean energy work across the state and thus represent the largest share of CERTs spending, followed by seed grants. Seed grants catalyze local projects, connect communities to clean energy efforts, and attract other dollars to further clean energy around the state. For the 2024 seed grant round, CERTs leveraged an additional \$175,000 from the Morgan Family Foundation and the Minnesota Department of Commerce’s State Energy Office funds from the U.S. Department of Energy to fund additional projects focused on underserved communities.

Beyond the legislatively appropriated dollars, CERTs continues to leverage additional support for its work. Funding and related programmatic efforts include U.S. Department of Agriculture Rural Development funding to assist farms and rural small businesses with energy efficiency and renewable energy, McKnight Foundation and Energy Foundation funding to support Ambassadors and storytelling, Initiative Foundation funding for work with food shelves, and Department of Energy funding to support community engagement on utility-scale solar.

These leveraged dollars reflect the value of the Conservation Applied Research and Development CARD and General Fund investment in CERTs and demonstrate how those core dollars have spurred and accelerated additional programming through complementary investments.

Table 1: CERTs’ Quantified Impacts Summary

ID	Effort Description	BTUs
A	School Solar: 43 schools in 22 districts installed 20-40 kW arrays, each generating 29,250-70,096 kWh annually.	9,068,711,989 Saved
B	Manufactured Home Parks: Distributed 14,956 energy saving items (light bulbs, showerheads, faucet aerators, and do-it-yourself weatherization) and catalyzed 135 home energy assessments with Home Energy Squad. Partnered with 9 utilities and 18 organizations to reach 1,971 units across 19 manufactured home parks. Additionally we facilitate the installation of 6.5kW solar array in Park Plaza Cooperative in Fridley, a distributed items at Ramsey Manufactured Home Park Summit. In total, generating 8,541.00k Wh of solar power and savings of 326,847 kWh, 75,132 therms, and \$92,000 annually.	8,552,635,358 Saved
	29,143,087 Generated	

C	Food Shelves: Distributed 241 MERC and Xcel Energy conservation kits and an additional 1602 energy efficiency items to shoppers at 25 food shelves across the state, saving 98,624 kWh, 22,038 therms and \$27,000 annually. Provided assistance to 1 food shelf in Foley on energy efficiency upgrades, saving 48,504 kWh and 1,730 therms.	2,878,868,422 Saved
D	Other Energy Burden: Distributed 317 CenterPoint kits and 227 additional energy efficiency items to low income residents in St. James, Brainard, North Minneapolis and Ramsey County; facilitated the installation of a 4.8kW in Redwood Falls array through financing trainings at United CAP; collectively saving or generating 6,312 kWh and 52,895 kWh.	5,314,038,518 Saved
		21,520,166 Generated
E	Business Solar: Supported 1 farm and 1 coworking space in financing solar projects through REGM and PACE, generating 84,178 kWh annually.	287,215,336 Generated
F	Nonprofit Projects: Provided 2 churches and one museum with solar and energy efficiency assistance, generating 55,930 kWh and saving 5,744 kWh annually.	26,215,596 Saved
		190,840,990 Generated
G	Property Assessed Clean Energy (PACE) Financing: Engaged communities and businesses in PACE programs, which resulted in 6 energy efficiency projects being financed by PACE. Projects include upgrades to boilers, lighting, heating systems, and refrigeration, and are collectively saving \$19,900 annually.	1112,758,977 Saved
H	Local Government Solar: Assisted four governments with solar: Bloomington's public works building (600kW), Howard Lake's library (39.9kW), City of White Bear Lake's sports complex (312kW), and City of Robbinsdale's wastewater treatment plant (80kW).	4,088,551,032 Generated
I	Wastewater Efficiency: Facilitated MnTAP trainings on energy efficiency at wastewater treatment plants, saving 60,043 kWh annually.	204,875,122 Saved
J	Tribal Nations Project: Contributed to Prairie Island Indian Community net zero planning process, resulting in a 5.4 MW ground mount solar array generating 5,676,480 kWh annually.	19,368,944,467 Generated
K	Electric Vehicles and Charging Infrastructure: Saint Paul installed 9 dual-head Level 2 charging stations and 2 DC fast chargers (all publicly available) and seven local governments added 10 electric fleet vehicles, resulting in 23,630 gallons gasoline avoided, 168,950 kWh used for charging, and approximately \$62,000 net annual savings.	2,117,342,995 Net Saved
L	Completed 2024 Seed Grants Projects: Eight of 45 seed grant projects have been completed. These projects involved or reached over 22,000 Minnesotans and leveraged \$36,200 from CERTs and funding from 6 additional sources: 1 with manufactured home parks (savings included in row F), 5 energy efficiency projects (saving 75,750 kWh), and 2 electrification projects (saving 33 gallons gasoline and 45,405 kWh).	250,230,211 Saved
		9,728,011 Net Saved

M	Other Projects: Advised two households on installing and financing solar panels (22,995 kWh annually).	78,462,159 Generated
	Total Quantified CERTs Program Savings	53.6 Billion BTUs

Overview of CARD Program

The Conservation Applied Research and Development (CARD) grant program is administered by the Department of Commerce (the Department). Approximately \$2.6 million is available annually for the program. The grant funds benefit the State of Minnesota and Minnesota ratepayers through the Energy Conservation and Optimization (ECO) programs that utilities operate. Significant CARD program metrics for calendar year 2024 are summarized in Table 2.

Table 2. CARD program metrics for Calendar Year 2024

Description of Metric	For Calendar Year 2024 ^a
Successful CARD grant funding cycles	1 ^b
Request for Proposals (RFP) issued by Department	2
Request for Information (RFI) issued by Department	0
Notice of Intent (NOI) to Propose submitted by Responders and reviewed by Department staff	0
Notice of Intent (NOI) to Propose submitted by Responders and pending review by Department staff	0
Full proposals submitted by Responders and evaluated by Department staff	7
R&D project contracts executed through the CARD grant program	17
CARD projects awarded, pending contract execution	0
New or ongoing contracted CARD projects	25
Completed CARD grant projects	7

a. Includes activities through December 01, 2024, when this report was compiled.

b. This funding cycle is currently in process and won't close out until 2025.

2024 CARD Projects

CARD projects quantify the savings, cost-effectiveness, and field performance of advanced technologies; characterize market potential of products or technologies within the state; study and characterize hard-to-reach market sectors; investigate and pilot innovative program strategies; and review and analyze relevant policy

issues. Completed CARD projects provide utilities with informative and timely information to enhance energy efficiency program designs within their ECO portfolios. ³

Since the beginning of the CARD program through 2024, the CARD program has funded 180 projects totaling nearly \$39 million. These projects received (or will receive) an additional \$8.3 million in matching funds. ⁴

The vast majority of CARD grants are primarily funded through a competitive Request for Proposal (RFP) process. Based on a review of current Energy Conservation and Optimization (ECO) needs with input from utilities and other stakeholders, the Department issues an RFP, and reviews and evaluates each submitted proposal based on specific criteria including:

- ECO priorities:
- Proposal’s content, scope of work and work plan;
- Responder’s qualifications, skills and experience;
- Anticipated impacts of the project outcomes; and
- Project budget (which often includes matching funds from the responder).

In 2024, there have been two requests for proposals administered to date of which resulting contracts are anticipated to be executed this upcoming calendar year 2025.

Occasionally the Department will fund a CARD project outside of the competitive RFP process. This is typically in cases where a necessary project/service requires a sole source provider, or when the Department has the opportunity to leverage CARD funds for a project already underway or being funded from multiple sources. In 2024, one such project was awarded by this means, representing \$1,700 of total funds (Table 3).

Table 3. CARD program RFP & Non-RFP Funding and Awards in 2024

Solicitation Type	Number	Dollars Awarded	Estimated Match
All RFP Funded CARD Projects	0	\$0	\$0
Non-RFP Funded	1	\$1,700	\$0
All CARD Projects	1	\$1,700	\$0

Table 4 lists the seven completed CARD projects in 2024, including details on each project.

³ Award amounts shown in Table 3 are based on initial awards and does not include additional amounts that might be added through amendments. To date additional funds added through amendments has totaled only 0.4% of initial awards. Amounts shown in the table also do not reflect funds left unspent after the close of contracts. To date, unspent money returned to the CARD fund has been about 2% of initially awarded funds. In addition, matches shown in Table 4 are based on match commitments in initial grant contracts; collected matches often exceed what was committed in the contract. On average, matching funds are approximately 17% *higher* than initially estimated.

Table 4. CARD projects completed in 2024.

RFP Year	Fund Cycle	Grantee	Project Description	Dollars Awarded	Estimated Match	Year of Completion
2020	12	Center for Energy and Environment	How Smart Do Intelligent Buildings Need to Be?	\$202,737	\$11,585	2024
2018	10	Center for Energy and Environment	Optimized Installations of Air Source Heat Pumps for Single Family Homes	\$360,707	\$52,007	2024
2020	12	Center for Energy and Environment	Optimizing the New Generation of Grocery Refrigeration Equipment	\$392,393	\$22,674	2024
2020	12	Center for Energy and Environment	Advanced Controls for Residential HVAC Fan	\$288,659	\$23,983	2024
2018	10	Center for Energy and Environment	Ductless cold climate heat pumps for multifamily applications	\$343,940	\$41,354	2024
2018	10	LHB, Inc.	Field study of phase change material (PCM) use for passive thermal regulation	\$321,631	\$13,507	2024
N/A	N/A	Nighthawk Marketing	Webinar editing and closed captioning for ADA Compliance	\$3,000	\$0	N/A
-	-	Totals:	7 projects	\$ 1,913,067	\$ 165,110	-

Table 5 lists the 25 contracted CARD projects that are new or were ongoing, including details on each project.

Table 5. New and Ongoing CARD projects in 2024

RFP Year	Fund Cycle	Grantee	Project Description	Dollars Awarded	Estimated Match	Anticipated Completion
2020	12	Slipstream	Refrigeration Thermal Storage for Energy Efficiency	\$266,650	\$16,272	2025
2020	12	U of MN – Center for Sustainable Building Research	The Market for Passive House Multifamily Projects in Minnesota	\$255,580	\$33,747	2026
2020	12	Slipstream	Cold-Climate Variable Refrigerant Flow Demonstration and Market Research	\$378,957	\$44,864	2025
2020	12	Slipstream	Equity, Empowerment, and Energy Reduction through Community Engagement and Behavioral Interventions	\$266,155	\$24,010	2025

RFP Year	Fund Cycle	Grantee	Project Description	Dollars Awarded	Estimated Match	Anticipated Completion
2020	12	Michaels Energy	A Field Study of Ground Source Technology in Retrofit Applications in Urban (space constrained) Commercial Buildings	\$295,894	\$28,920	2025
2020	12	ThermoLift Inc.	Installation/use of patented thermal compression heat pump (TCHP) a refrigerant-free cold-climate natural-gas heating, cooling, and hot water system	\$100,000	\$74,125	2025
2020	12	Slipstream	Field Demonstration of ASHRAE Guideline 36-2018 High-Performance Sequences of Operation for HVAC Systems	\$364,710	\$30,225	2025
2022	13	Synapse Energy Economics, Inc.	Advancing and Optimizing Electric Vehicle Adoption in Minnesota through Utility Energy Conservation and Optimization (ECO) Programs	\$60,000	\$0	2025
2022	13	Slipstream Group, Inc.	Indigenous Communities and Residential Electrification Pathway Demonstration	\$362,426	\$18,059	2026
2022	13	2050 Partners, Inc.	Right-Sizing Water Distribution Pipes and Water Heating Systems to Save Energy and Reduce Building Costs	\$299,110	\$0	2025
2022	13	Slipstream Group, Inc.	Mapping Electrical Barriers, Motivations, and Perceptions about Efficient Fuel Switching	\$343,684	\$13,404	2026
2022	13	Center for Energy and Environment	Industrial Process Electrification Through Air Source Heat Pump Adoption for Process Loads	\$225,071	\$32,721	2025
2022	13	Frontier Energy, Inc.	District Geothermal Site Selection & Feasibility Study	\$182,060	\$0	2026
2022	13	Center for Energy and Environment	Establishing Protocols for a Commercial ERV Tune-Up Service	\$251,883	\$25,530	2026

RFP Year	Fund Cycle	Grantee	Project Description	Dollars Awarded	Estimated Match	Anticipated Completion
2022	13	Center for Energy and Environment	Heat pumps with thermal storage: Efficient and resilient electric space heating	\$413,321	\$21,314	2026
2022	13	Center for Energy and Environment	Packaged Terminal Air Conditioner Replacement Field Study	\$360,370	\$28,041	2026
2022	13	Center for Energy and Environment	Realizing the Potential Savings from Floating Suction Pressure Control in Minnesota's Existing Grocery Stores	\$451,678	\$42,883	2026
2022	13	Slipstream Group, Inc.	Strategic Decarbonization for Larger Utility Customers	\$184,974	\$14,997	2025
2022	13	Michaels Energy, Inc.	Ventilation Control Using Occupancy Counters	\$334,180	\$24,880	2026
2022	13	Center for Energy and Environment	CO2 Heat Pump Water Heaters for Multifamily Buildings	\$332,603	\$26,989	2026
2022	13	The Cadmus Group, Inc.	Consistent Load Shapes for Fuel-Switching Tests and Assessing Flexible Load Potential	\$219,927	\$2,408	2025
2022	13	Center for Energy and Environment	Continuous Exterior Insulation: A cold climate solution for deep savings and a pathway to cost-effective decarbonization	\$417,338	\$27,050	2026
2022	13	Slipstream Group, Inc.	Advanced Connected Diagnostics for Commissioning Residential Heat Pumps and Central Air Conditioners	\$226,816	\$12,775	2025
2022	13	Center for Sustainable Building Research	Unlocking the Potential for Safe Energy Retrofits Over Inaccessible Crawlspace	\$370,658	\$37,125	2027
N/A	N/A	Nighthawk Marketing	Webinar editing and closed captioning for ADA Compliance	\$1,700	\$0	2025
-	-	Totals:	25 Ongoing projects	\$6,965,745	\$580,339	-

Overview Minnesota Sustainable Building 2030 Program

This section of the report is also submitted in accordance with Minnesota Statutes § 216B.241, subd. 9(f) regarding the cost-effectiveness and progress of implementing SB 2030 performance standards and recommendations on the continuing need for the program. The SB 2030 program is part of the Buildings, Benchmarks and Beyond (B3) program that sets guidelines and tracks performance for state-funded buildings.

The SB 2030 program requires all state-bonded projects that began schematic design after August 1, 2009, to meet an energy reduction of 60% compared to the average building. Starting in 2015, projects were required to meet a 70% reduction standard. In 2020, this target increased to 80% better than a reference building and will shift to a 90% reduction for projects starting design in 2025.

SB 2030 requires the Center for Sustainable Research (CSBR), in cooperation with Commerce, to “establish cost-effective energy-efficiency performance standards for new and substantially reconstructed commercial, industrial, and institutional buildings that can significantly reduce carbon dioxide emissions by lowering energy use in new and substantially reconstructed buildings.” All program elements are to be based on scientific or real-world experience in building energy conservation, and all buildings are to be scientifically benchmarked and real reduction in energy consumption measured.

The energy standards for all types of buildings must be comprehensive, reliable, and equitable and provide procedures for the ongoing monitoring of energy use in buildings that have adopted the performance standards. Minnesota Statutes § 216B.241 requires that utilities develop and implement programs that help building owners achieve the energy savings goals through design assistance, incentives, and verification.

Finally, continuing education and training programs for Minnesota designers, engineers, and building operators are fundamental to the initiation of the SB 2030 standards and the law made education and training a primary goal.

Major accomplishments of the SB 2030 initiative through 2024 include:

- 321 buildings designed to the SB 2030 Energy Standard are predicted to save approximately 1,072 million kBtus/year.
- To date, 91% of all building projects enrolled in the SB 2030 program have documented designs that met or exceeded the SB 2030 Energy Standard.
- Buildings designed to the SB 2030 Energy Standard are predicted to save approximately \$20.1 million per year assuming an average cost of \$18.75 per MMBtu.
- Buildings designed to the SB 2030 Energy Standard anticipate a reduction in carbon emissions of 137,000 tons of CO₂e annually.
- Projects have reported anticipated energy consumption of 27% less than their 2030 Energy Standard.
- 254 completed SB 2030 projects are estimated to have saved 7,373 million kBtus, a reduction of 915,000 tons of CO₂e and a savings of \$138.3 million to-date.

Minnesota Sustainable Building 2030 Activities

Program Progress

Ongoing efforts are focused on the continual improvement of the tool that will be used to establish customized Energy Standards and development of the administration of the program. Additional efforts include the creation of a case study database, the development of a sustainable building operations system, and the integration of SB 2030 with the utilities' ECO programs, hosting education classes for designers and building operators, and assisting design teams in the integration of the SB 2030 Energy Standards into projects. Below are listed details of these program components.

Case Studies Database

As part of the program, predicted building performance has been documented for 201 SB 2030 projects. Reported metrics may include predicted energy use, carbon emissions and construction costs, along with several water, waste, and indoor environmental quality metrics. These case studies, which are in various stages of the design process or operation, are displayed online on the [B3 Case Studies Database](#), where owners and project teams can market their successes, and design teams can search for strategies that may help them reach the SB 2030 Standards. As operations data is collected for these projects the case studies database will update, allowing the evaluation of their actual performance.

Sustainable Building Operations

It is essential that SB 2030 designed buildings are operated at the energy standards that they were designed to achieve. To do this, building operators need methods to ensure that each significant energy consuming device is using only as much energy as needed to perform its intended function. A web-based application has been developed to enable building operators to perform this function by completing occasional routine checks on large energy consuming equipment in the building. This web-based application is used to create a custom Energy Efficient Operations (EEO) Protocol. This application performs four critical functions:

- Enables users to create a customized set of tasks for a particular building,
- Notifies building operators when tasks are due to be completed,
- Supplies detailed instructions on how to perform the task, and tracks completion and status of tasks for a building, and
- Notifies facilities managers when tasks uncover malfunctioning systems.

Eight (8) tasks are currently supported in the online tool with ready-made templates. Two (2) methods have been developed to check on correct operation of heat recovery devices, and one for demand-controlled ventilation (DCV). We also support the creation of custom tasks for system types that are not directly supported by a ready-made template.

To enable the creation of a robust EEO Protocol, and for sustained efficient operation of mechanical systems, it is critical that the design and commissioning process produce robust documentation about system parameters and correct system operation. Our investigation into materials in the program tracking tool and with completed projects found some deficiencies in conveying critical information from the designer to the building operator. The team provided a training to address these issues, but further educational efforts have been hindered by budgetary constraints.

Minnesota Sustainable Building 2030 Utility Programs

As the SB 2030 energy performance standard has been implemented, the project team has worked cooperatively with utilities to develop and/or modify CIP/ECO programs to encourage new buildings to meet the SB 2030 standards. Priority items are listed below.

- A) Comprehensive design assistance services.
- B) Bonus incentives (per unit of savings) for achieving SB 2030 standards.
- C) Comprehensive whole-building performance program for small buildings.

No utilities have yet provided financial incentives related specifically to achieving the SB 2030 Energy Standard. New construction programs do provide incentives based on energy savings for performance over and above the energy code, as well as no-cost services for projects committing to a high level of savings, including reporting of the SB 2030 Energy Standard, and B3 Guidelines tracking tool entry of data and submittals which has assisted in streamlining submissions and program compliance verification.

Sustainable Building 2030 Education

The program team continue to deliver B3 and SB 2030 educational programs and outreach for designers.

- A four-hour in-depth and in-person life cycle assessment workshop was offered in January.
- The Annual “Best of B3” program celebration was held in early February at the Norway House, a B3 and SB 2030 Project.
- In July, SB 2030 program staff presented at several sessions in the ACEEE Sumer Study on Building Efficiency, including on proposed SB 2030 updates and on opportunities to integrate resilience planning into various B3 program offerings. These sessions were titled: “US and Global Policy News on Building Performance Standards,” and “Decoding the Carbon Conundrum: Operational and Embodied Carbon Insights.”
- In October the SB 2030 White Paper outlining program updates was posted on the program website and sent to the B3 Guidelines mailing list.
- Following the release of these updates, several trainings and opportunities for discussion were held, including two open discussion sessions with CSBR and CEE staff in November. These updates were also presented in the November AIA Minnesota Conference as part of a session titled: “Transforming Building Energy Impacts: Navigating SB 2030 & Beyond” and to a workshop entitled: “City Sustainable Building Policies 101 for Development Teams.”
- In December the annual Science Museum event was held, entitled “SB 2030: 90% Better = Efficiency + Renewables” and which featured three panel discussions and included the communication of these program updates.
- Several other resources are available for on-demand access on b3mn.org, including guides on the B3 Tracking Tool, Variances and Non-Compliance, and Daylighting design. Many of these presentations were recorded are available online at the B3 Guidelines Training page. Throughout the year many individual team meetings were also held with design firms working on projects participating in the program—both to outline program requirements and to work through project-specific issues as they arise.

Shifting to 90% Standard

Beginning January 1, 2025, buildings participating in the SB 2030 program will need to meet more stringent requirements – a 90% reduction in energy use from a baseline building. This change is paired with several other significant program updates, driven by changes to Minnesota’s utility conservation program requirements, the carbon-free electricity standard, and advancements in the treatment of off-site renewable energy resources. The program updates are described in more detail in the SB 2030 in 2025: Program Update: b3mn.org/wp-content/uploads/SB-2030-2025-Program-Updates-20241022.pdf. Some of the key changes include:

- **Cost-effectiveness test:** this now includes differing payback periods that are based on equipment life and any available federal incentives. The expected effect of this update is that additional on-site measures will be included in projects – in particular, those with federal incentives, such as ground-source heat pumps and solar photovoltaic systems, and those with long measure lives, such as enclosure improvements.
- **Renewable energy procurement factors for Renewable Energy Credits (RECs):** any projects that cannot cost-effectively meet their full SB 2030 Standard using on-site measures will need to leverage off-site purchases, and the guidelines will incentivize alternatives to “unbundled RECs” – credits that are purchased separately from the electricity.
- **Future-looking electricity emission rates:** to better account for the expected carbon intensity of electricity during the lifetime of SB 2030 projects and to account for beneficial electrification, the program will use forecasted long-run, hourly, marginal CO₂e rates, using the National Renewable Energy Laboratory’s Cambium dataset.

State-Bonded Project Cost Effectiveness Actual Results

From 2009 through December 2024, 321 building projects have been involved in the SB 2030 process and have reported Energy Standard and Design Energy Consumption values. Of these 321 projects, 198 of the 219 state-required building projects and 94 of 102 volunteer building projects have reported as on track to meet the required SB 2030 Energy Standard. To date, 91% of all buildings projects enrolled in the SB 2030 program have reported meeting or exceeding the SB 2030 Energy Standard in design. On average, these projects have reported anticipated energy consumption of 27% less than their 2030 Energy Standard.

When compared to buildings that were built to code, the buildings designed to the SB 2030 Energy Standard are predicted to save approximately 1,072 million kBtu/year, a reduction in carbon emissions of 137,000 tons of CO₂e, and a savings of \$20.1 million per year, assuming an average cost of \$18.75 per MMBtu.⁵ As new projects are added each year, ongoing annual savings to the State and other building owners will increase. Based on submitted anticipated performance, the 254 completed SB 2030 projects are estimated to have saved 7,375 million kBtu, avoided 915,000 tons of CO₂e and saved \$138.3 million as of January 1, 2025. The total cost of the program using CIP funds is approximately \$8.2 million through September 2024. Table 6 summarizes these results.

⁵ The average cost per kBtu from the B3 Benchmarking database is \$0.0187541246 for the most recent available estimate (assuming a mix of electricity, gas, and other fuels). Beginning in the 2019 report, the data used to estimate program savings was improved from prior years – restricting the evaluation to only Minnesota buildings in the B3 Benchmarking program and eliminating outliers that skewed this rate. Earlier reports have not been amended to reflect this change.

Table 6. SB 2030 Estimated Cost Savings

Report year	Number of reporting projects	Estimated energy savings per year, MMBtu	Estimated cost savings per year, million \$	Estimated energy savings to-date, MMBtu*	Estimated cost savings to-date, million \$*
2013	40	250	3.25	--	--
2014	66	327	5.24	--	--
2015	78	490	7.04	--	--
2016	93	534	8.3	--	--
2017	126	634	9.8	--	--
2018	154	867	12.6	1,765	25.7
2019	166	923	14.8	1,817	29.1
2020	185	1,023	15.7	2,893	44.4
2021	197	1,067	17.5	4,581	75.0
2022	217	1,083	20.0	5,140	94.9
2023**	244	919	16.7	4,594	83.5
2024	253	924	18.0	5,257	102.4
2025***	321	1,072	20.1	7,373	138.3

*Note that savings to-date were not estimated prior to the 2018 report.

**The US Bank Stadium, although having gone through design and construction SB 2030 review and approval, has been removed from our tracking between the 2022 and 2023 reporting years and resulted in a reduction in reported annual and to-date savings metrics between those years. Prior year metrics have not been updated to remove this project.

*** Database updates in 2024 permitted the inclusion of smaller projects previously omitted from the summary table.

Example projects participating and contributing to this savings were recognized as finalists at the [2023 Best of B3 Award Event](#).⁶

⁶ As the Best of B3 Awards are awarded every two years, these projects are the most recent awardees and were noted in last year's report as well.



Figure 3: The Hennepin Medical Examiner's Facility: 64,000 sf building in Minnetonka. Annual savings over code are estimated at 8,976 mmBtu, \$175,000 and 390 tons of carbon.

Figure 4: Lake Waconia Regional Park Waterfront Pavilion in Waconia. Annual savings over code are estimated at 235 mmBtu, \$4,600 and 44 tons of carbon.



Figure 5: the Lumin at Highland Bridge: 58,790 sf building in Saint Paul. Annual savings over code are estimated at 576 mmBtu, \$11,000 and 125 tons of carbon.



Minnesota Sustainable Building 2030 Next Steps

All work on the SB 2030 program completed to-date shows it is cost effective to meet the SB 2030 target. 91% of all buildings involved in the program were able to meet the SB 2030 Energy Standard with little additional cost to the overall projects. Total project costs are \$8.2 million through September 2024.

The program has demonstrated the value of establishing customized performance targets early in the design process, which permits projects flexibility in how to best achieve those targets. The savings to-date reflect the significant energy, cost and carbon reductions achieved by the program. More educational opportunities are needed for architects and engineers to facilitate more SB 2030 designs. Two of the three largest electric investor-owned utilities have developed comprehensive design assistance services, but not all utilities have fully integrated SB 2030 programs.

Future areas of consideration in the SB 2030 Program development include the consideration of time-of-day CO2 emissions factors, which could allow the SB 2030 Program to encourage strategies that decrease energy use when the grid is the most fossil fuel dependent and could be used by design teams to accurately adjust the carbon intensity relative to the efficiency strategies that they select.

To accommodate the shift to the 90% standard, a set of updates to the program have been implemented. SB 2030 will continue to require projects to pursue a structured process of evaluation and cost-testing to develop custom project-specific targets. The 2025 updates will incentivize on-site and longer-life measures and better reflect project costs. We also expect that additional measures will be more often included in project design, in particular those with federal incentives, such as ground source heat pumps and solar photovoltaic systems.

Furthermore, the shift to the use of marginal long-term emissions rates will improve the accounting for beneficial electrification. The rollout of these updates and other program development efforts will require continued research from the project team led by the Center for Sustainable Building Research at the University of Minnesota, to ensure that projects are able to comply in a cost-effective manner with the SB 2030 Standard while ensuring that the robust program goals are maintained.

The B3 budget has remained static throughout its tenure, despite inflation and increasing number of buildings participating in the program. This effective decrease in budget has impacted the program by limiting team capacity for case studies and extra educational opportunities.