

**Solar for Public Rural Entities (SPRE):  
Region Nine Development Commission Coalition  
Application**

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# Section 1: Overall Project Summary and Approach

## a. Description of GHG Reduction Measures

Rural Minnesota is at a crossroads in the clean energy transition. With the decarbonization goals set by the federal government, state entities, and urban municipalities, our communities are set for a massive influx of projects related to wind, solar, transmission, sustainable aviation fuel and other decarbonization tactics. These organizations look to rural areas to build solar arrays, wind turbines and the necessary transmission infrastructure to create this renewable energy and transport it to their communities. But what about our ability to decarbonize our own communities? With this greenhouse gas reduction measure, we will provide an opportunity for the benefits of the energy transition to stay in our underserved rural communities by implementing solar on public facilities. These photovoltaic solar systems will be organized and implemented by a coalition of regional development organizations in partnership with the rural communities we have served and worked in since the 1970s. The coalition of regional development organizations will leverage their local connections and staff capacity to install 3.6 megawatts of solar across 36 counties in rural Minnesota.

### **Greenhouse Gas Reduction Measure # 1: Solar on Rural Publicly Owned Facilities**

Our proposed greenhouse gas reduction measure is to implement 45 photovoltaic solar projects of varying sizes and application on publicly owned facilities across 36 counties in rural Minnesota. Through our coalition application, which includes four Regional Development Commissions and one community foundation, we will identify interested rural communities, work with them on developing RFPs, and help them design and implement solar energy projects in a way that is beneficial to them, and which ensures their communities will benefit from the clean energy transition.

#### **Major Tasks:**

- Development of community identification and application methods
- Development of RFP that complies with Bacon Prevailing Wage requirements and Build America, Buy America (BABA) and which encourages development of local solar workforce.
- Community training and sign up for elective pay benefits from renewable energy projects.
- Soliciting and reviewing competitive solar installation bids.
- Financing of solar systems and support with implementation on public facilities.
- Tracking energy production and community impact of installed solar systems.

### **Project Risks:**

- Workforce availability: Rural Minnesota is home to several small-scale solar installers who can meet the needs of projects 100 kw and lower. However, all utility and commercial scale solar installers are based in the Twin Cities Metro area. Our implementation of 200 kw and larger projects may be delayed as workforce development occurs in our rural communities.
- Utility interconnection for larger projects: Rural Coop and Municipal utilities in Minnesota are in complex and long-term contracts that limit their ability to produce power locally.
- Some communities may struggle to come to an agreement with their power provider about the size of the system they are allowed to implement and the value of that electricity. For interested communities this will delay their installation but should not be a complete roadblock for the deployment of solar systems.
- Community education: In rural Minnesota there remains a lack of understanding and pervasive misinformation about the value and beneficial impacts of distributed solar generation. Although some community leaders will be interested, we will need to provide education and host community conversations to ensure that decision makers and community members are well informed about the process and feel comfortable with these installations in their community.

These risks at worst will lead to delays in implementation or will lead to the solar being installed in a community that is more prepared for local solar implementation. There will be no reduction in the total electricity produced or the ghg emissions reductions from these systems because of these risks.

### **Roles and Responsibilities:**

**Region Nine Development Commission** will act as the lead applicant for this coalition and the main organizer for the development of key deliverables and implementation of tactics. We will facilitate the development of the base RFP to be utilized by communities and will organize professional development opportunities for coalition members and community leaders. Region Nine will also act as the lead on tracking and reporting key project implementation metrics.

**Southwest Regional Development Commission** will act as the liaison for these funds to their community and will conduct the identification and readiness assessment of communities as well as disperse funds to solar installers and oversee the successful implementation of solar on public facilities for the communities they serve.

**Mid Minnesota Development Commission** will act as the liaison for these funds to their community and will conduct the identification and readiness assessment of communities as well as disperse funds to solar installers and oversee the successful implementation of solar on public facilities for the communities they serve.

**Upper Minnesota Valley Regional Development Commission** will act as the liaison for these funds to their community and will conduct the identification and readiness assessment of communities as well as disperse funds to solar installers and oversee the successful implementation of solar on public facilities for the communities they serve.

**West Central Initiative Foundation** will act as the liaison for these funds to their community and will conduct the identification and readiness assessment of communities as well as disperse funds to solar installers and oversee the successful implementation of solar on public facilities for the communities they serve.

## **b. Demonstration of Funding Need**

**Applicants must demonstrate a strong need for CPRG implementation funding that is unmet by other funding sources. Applicants should explain if and how they have explored the availability of other federal and state grants, tax incentives, and other funding sources to implement their GHG reduction measures and why these sources are not sufficient. The application should include a list of federal and non-federal funding sources (e.g., EPA's GHG Reduction Fund Solar for All program) that the applicant has applied for, secured, and/or will secure to implement the GHG reduction measures, if applicable. For GHG reduction measures for which the applicant has secured partial funding, which may include tax incentives, the applicant should explain why CPRG funds are also needed. Applicants should review funding opportunities on the White House BIL Guidebook and IRA websites prior to applying under this announcement.**

### **1. White House BIL Guidebook Initiatives:**

- Solar Energy Research and Development: This funding can support innovative research and development projects specifically tailored to address the needs and challenges of rural solar installations, such as optimizing solar panel efficiency in varying environmental conditions prevalent in rural areas.
- Solar Recycling Research and Development: While implementing solar projects, rural communities may lack resources for proper recycling and disposal of solar panels. This initiative can fund research into efficient and environmentally friendly methods for recycling solar panels, making solar energy more sustainable in rural areas.
- New Solar Research and Development: This can foster the development of new solar technologies suitable for rural settings, such as off-grid solutions or resilient systems capable of withstanding extreme weather events common in rural areas.
- Pumped Storage Hydropower Wind and Solar Integration and System Reliability Initiative: Many rural areas lack reliable energy infrastructure. This initiative can support projects aiming to integrate solar energy with other renewable sources, enhancing energy reliability and resilience in rural communities.

## 2. IRA Guidebook Incentives:

- PTC for Electricity from Renewable Energy: This can provide financial incentives for rural communities to invest in solar energy generation, making it more economically feasible for them.
- ITC for Energy Property: Rural communities can benefit from Investment Tax Credits (ITC) to offset the upfront costs of installing solar energy systems, thereby lowering the financial barrier to adoption.
- Increase in Energy Credit for Solar and Wind Facilities in Low-Income Communities: Rural communities often have lower-income demographics. Increasing energy credits for solar installations in these areas can make solar energy more accessible and affordable.
- Electric Loans for Renewable Energy: Access to affordable financing is a significant challenge for rural communities. Electric loans can provide them with the necessary capital to invest in solar installations.
- Rural Energy for America Program (REAP): REAP specifically targets rural communities by providing grants and loan guarantees for renewable energy projects, including solar installations.
- Residential Clean Energy Credit: This tax credit can significantly reduce installation costs for rural homeowners, encouraging them to adopt solar energy.

## 3. Minnesota Solar Programs:

- Solar on Public Buildings: Funding programs that encourage solar installations on public buildings can serve as a model for rural communities and help build local capacity for solar projects.
- Solar for All: Increase solar energy access for low-income households and underserved communities. Offers financial incentives and support for solar installations, along with technical assistance. Reduces energy bills for low-income households, promotes environmental sustainability.
- Solar for Schools: Install solar panels on K-12 schools to promote renewable energy education and reduce environmental impact. Provides funding, technical assistance, and educational resources for solar installations. Lowers energy costs for schools, offers hands-on learning opportunities for students in renewable energy.
- Community Solar Gardens: Community solar projects allow rural residents to collectively invest in and benefit from solar energy generation, even if they cannot install panels on their own properties.
- Minnesota Climate Innovation Finance Authority: This authority can provide financial assistance and expertise to rural communities for implementing innovative solar projects, addressing their specific needs and challenges.
- State Competitiveness Funds: These funds can be directed towards supporting solar initiatives in rural areas, promoting economic development and energy independence.

Despite the availability of these funding opportunities, rural communities often lack the necessary resources and expertise to navigate the application process effectively. To address this challenge, this

application seeks to provide rural communities with the upfront capital necessary for solar installations on public buildings. Additionally, the coalition partners will support project development and facilitation, acting as resources for technical assistance and extended capacity for communities to utilize.

## **c. Transformative Impact**

### **Opportunities for Transformative Impact**

Despite the challenges and barriers imposed on rural communities amid the clean energy transition, they are uniquely positioned to implement meaningful change in expedited fashion in comparison to the layers of bureaucracy existing in major metropolitan areas. Namely, there is more space to operate when considering project footprints and impact, and less public objection to deter and inhibit project implementation. However, the benefits of rural identity do not come without challenges and barriers of their own. Diminished financial resources and staff capacity pose striking limitations as communities seek to advance, and in many cases, sustain their economic development and growth priorities. With waning resources and legislative pressures to meet statewide climate goals by 2040, there has been a notable increase in urgency and a willingness to pursue clean energy solutions for rural communities across the state. However, many rural communities have neither the means to access nor the capacity to navigate the funding landscape to identify resources applicable to supporting these initiatives. The purpose of this application is to utilize regional development entities to serve as a vehicle of support through both a financial lens and as a local advocate to voice the needs of rural communities.

The scope of work identified in this application is to provide solar energy on public and municipal buildings for disadvantaged rural communities. Ubiquitous in nature, public buildings exist in nearly every community and function as key components of the local economy. Wastewater treatment plants, community centers, municipal liquor stores, and more all serve a purpose and require energy to maintain operation. For struggling communities, rising and volatile utility costs often hinder financial flexibility that could otherwise be reinvested back into the local economy.

With solar, rural communities would have a reliable and effective method of generating clean electricity from a source that requires little upkeep and provides greater energy independence from unstable utility costs. Additionally, disadvantaged communities tethered to fossil fuel derivatives will have an alternative and renewable source of energy, thus reducing their GHG emissions and advancing their progress to meet the clean energy standards set by federal and state legislature.

### **Replicable and Scalable Solutions**

Airing on the side of subtlety, community solar installations are often efficiently integrated and stoically produce electricity with little disruption to daily life. Preserving the rural character remains an utmost priority as we consider opportunities for socioeconomic growth. Through these principles, regional development organizations are able to establish trust with the communities they represent. While the proposed scope of work will be unable to electrify public buildings for every community we serve, our intention is to prioritize disadvantaged populations and instill a replicable solution that can be

implemented in neighboring communities. In essence, creating a domino effect that can be quantified and scaled to meet community needs.

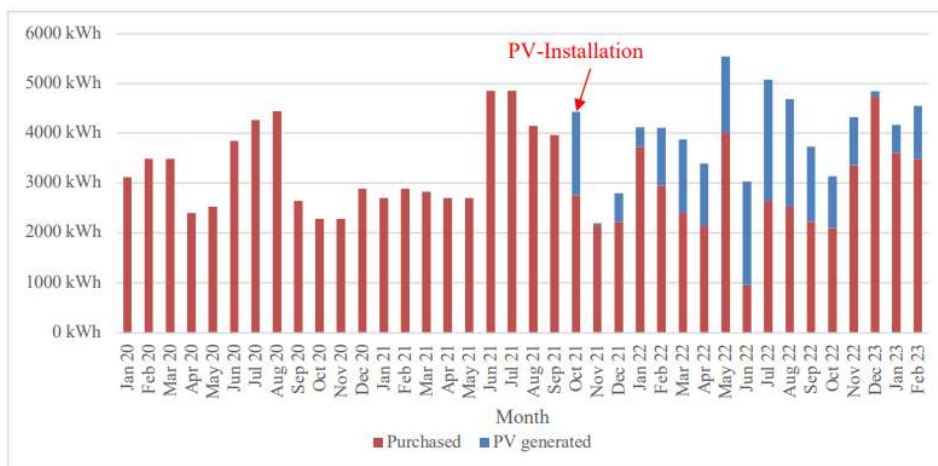
### Community Case Studies – Morris, MN

Combined throughout each regional development organization's area of representation, the proposed scope of work covers communities within 36 counties across the state of Minnesota. Each individual community is unique, posed with their own set of strengths, weaknesses, and opportunities for growth. For instance, the City of Morris, MN, has taken great strides as they prepare for the clean energy transformation. With a population of approximately 5,100, Morris has become a leader in clean energy, garnering national and statewide attention recognizing their achievements in implementing climate smart initiatives. Known as the Morris Model, a group of community partners came together to advance their shared sustainability aspirations. These partners include city and county leadership, academic representatives, regional development organizations, and the local research center. The Morris Model Team identified three primary goals for the city as they began developing the program.

1. Produce 80% of the energy consumed in the county by 2030.
2. Reduce energy consumption by 30% by 2023.
3. No landfilling of waste generated within the county by 2025.

In a more detailed discussion, the city created specific subgoals for the first goal in expanding solar generation to 50% of public buildings and 25% of privately owned homes.

Through this model, Morris was able to successfully install solar PV systems on four separate public buildings in the community: the community center, library, municipal liquor store, and the city hall. Performance measures were tracked focusing on the efficiency of peak performance, energy consumption and production, overproduction fed into the grid, solar radiation over the year, and several more analysis factors. Upon later examination, these installations were proven to reduce the dependence on utility power sources by approximately 30% and dramatically shift the total energy usage profile of each building.



*Electrical consumption (kWh) of the Morris Community Center per month. From January 2020 to February 2023. (Source: The City of Morris, 2023)*



This application seeks to follow a similar approach to the Morris Model, curating a robust network of partners and resources to support the installation of solar on public buildings for disadvantaged communities across rural Minnesota.

### **Comfrey, MN**

Comfrey, Minnesota is a small rural community located on the border of Brown and Cottonwood Counties. Despite their small population of less than 400, Comfrey has expressed a commitment towards bolstering their climate resilience and energy infrastructure by investing in long-term initiatives and community action planning. With the support of the Region Nine Development Commission, Comfrey was able to secure a planning grant through the Minnesota Pollution Control Agency. This plan focuses on climate resilience and emphasizes the importance of energy efficiency, sustainable infrastructure, and best practices for preparing the community for extreme weather events.

As part of the planning efforts, Comfrey examined the feasibility of installing a ground-mounted solar array to power their wastewater treatment plant. This process involved connecting with local solar installers, receiving cost estimates, and connecting with the local utility provider to fully ascertain the potential of this project. While community members are generally supportive of this project, the local utility expressed reluctance to collaborate and ultimately stalled the conversation. There is still a strong desire from Comfrey leadership to pursue this project, including the mayor, city council, and a community led climate resilience committee. Despite the intentions of moving forward with this project, Comfrey is hindered by the lack of capacity and available resources to support a solar installation for the wastewater treatment plant. These circumstances are not unique to Comfrey, in that there are many rural communities with individuals seeking to promote meaningful change yet remain discouraged and overwhelmed as they attempt to navigate the funding landscape applicable to supporting their initiatives. This application will serve to alleviate the concerns of capacity and resource requirements by providing the capital and staff time necessary to support these solar installation projects.

### **Projected Cost Savings and Energy Profile Modeling**

In collaboration with the SolSmart program, Region Nine used the National Renewable Energy Laboratory's SAM Model desktop application to define the projected cost savings and energy profile for proposed solar project implementation. This process identified five public buildings located in disadvantaged communities across each regional development organization's jurisdiction. Estimated kW usage and the existing utility provider served as the primary inputs when making these assumptions.

#### **Region 9 Solar Installation System Advisor Model (SAM) Modeling Results and Assumptions**

##### **Building electricity load assumptions (all based on national averages)**

1) 600 kW in City of Fairmont, Fairmont Public Utilities ground mounted at their wastewater treatment plant.

- **Proposed load: 1,355,245**
  - Calculations=  $1580 \times 2.35 \times 365$
  - Assumptions:
    - 1,200kWh/MG based on [NY State Analysis](#)

**Table 5**  
**Electric Energy Use by Design Capacity - Wastewater Treatment Systems**

Category/Design Capacity	Energy Use (kWh/MG)
National Average <sup>1</sup>	1,200
Statewide Average	1,480
- Less than 1 MGD	4,620
- 1 to 5 MGD	1,580
- 5 to 20 MGD	1,740
- 20 to 75 MGD	1,700
- Greater than 75 MGD	1,100

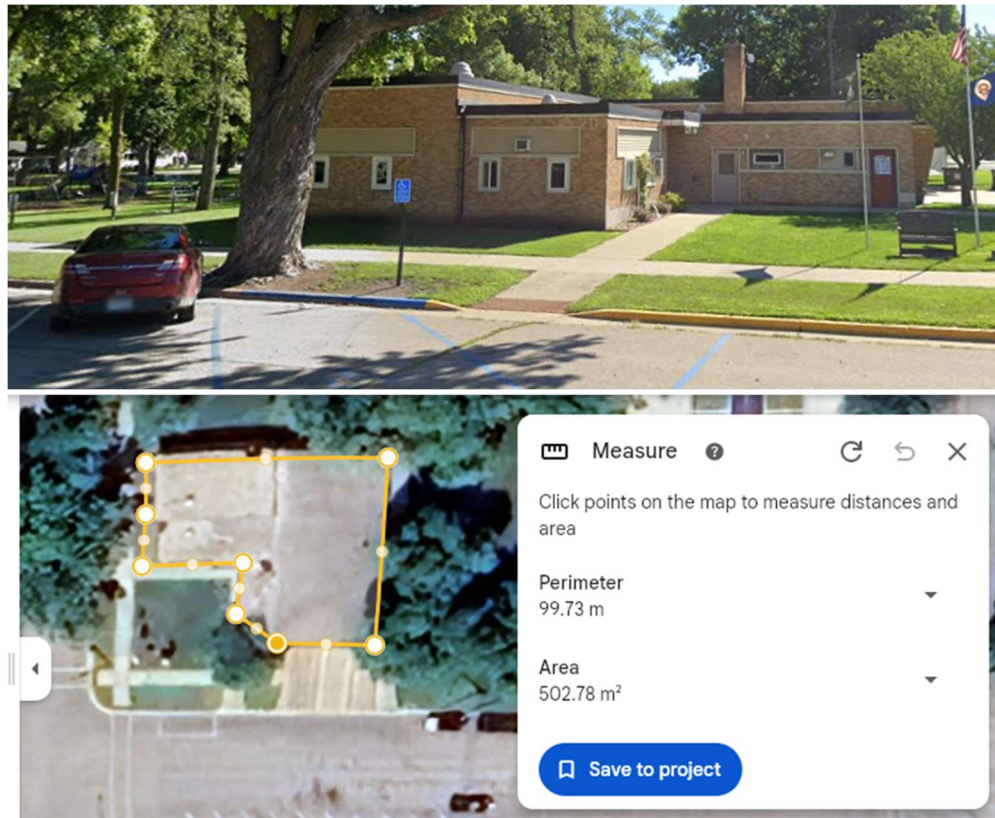
<sup>1</sup> National average energy use shown includes collection, conveyance and treatment.

<sup>2</sup> New York State average energy uses shown includes collection, conveyance, treatment and energy use by satellite systems served within each category.

- 2.35 MG per day average based on Fairmont plant resource
- 365 days/year
- ALTERNATE CALC: 10kBtu/gallon (per EPA resource) x 2,350,000 (the plant average per day) x 365 = 8,577,500,000kBtu/year or 2,513,817kWh/year
- SAM Results:
  - Estimated parameters:
    - Size: 600 kW
    - Tilt: 43 degrees
    - Total yearly system losses: 14.08%
    - Rate sources:
      - Retail rate for Industrial Service: 2024-Schedule-1.pdf (fairmont.org)
      - Avoided cost: 2024-Schedule-2.pdf (fairmont.org)
  - Estimated AC yearly generation in Year 1: 801,998 kWh
  - Estimated annual bill savings in Year 1: \$49,396

2) 10 kW in the City of Fulda in Nobles Cooperative Electric on the rooftop of the city's public works building

- Proposed load: **57,240**
  - Calculations= 5400sq ft\* 10.6kWh/sq ft
  - Assumptions:
    - 10.6 kWh/sq ft using EIA median data for “Office - Government”
    - Assumption of 5,400 sq ft. For the building (Google Earth)



- SAM Results:
  - Estimated parameters:
    - Size: 10 kW
    - Tilt: 20 degrees
    - Total yearly system losses: 14.08%
  - Estimated energy production: 13,613 kWh
- Note: Unable to calculate estimated bill savings due to electricity rates not being available from Nobles Electric Cooperative.

### 3) 100 kW in the City of Willmar in Willmar Municipal Utilities on the roof of their municipal airport

- Proposed load:
  - Main building w/o hangers: **132,000**
  - Main building w/ hangers:  $132,000 + 155,000 \times 3.5 = 674,500$
- Calculations:
  - Without hanger:  $11 \times 12,000$
  - With hangers:  $132,000 + 155,000 \times 3.5$
- Assumptions
  - Main building sq ft approx=12,000 based on Google earth; 11kWh/sqft based on "Office-Mixed-use" based on EIA median
  - Hangars/other:  $15,500 + 19,000 + 120,500 = 155,000$  based on Google earth; 3.5kWh/sqft for median "Warehouse - nonrefrigerated" based on EIA median

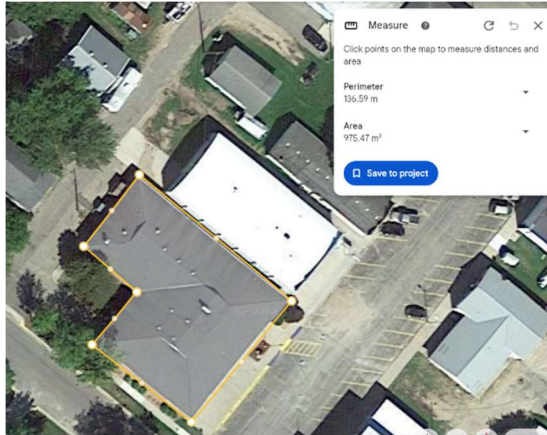
- SAM Results:
  - Estimated parameters:
    - Size: 100kW
    - Tilt: 20 degrees
    - Total yearly system losses: 14.08%
    - Rate Sources
      - Electric rate for Large Power between 25 kW and 500 kW: [Electric Services and Rates | Willmar Municipal Utilities](#)
      - Avoided energy cost estimates: [MN-Distributed-Generation-Workbook-V2.5-2023-12.pdf \(willmar.mn.us\)](#) - page 13
  - Estimated AC yearly generation in Year 1: 132,454 kWh
  - Estimated annual bill savings in Year 1: \$6,137

4) 200 kW in Benson Municipal Utility on the roof and parking lot of their public pool

- Proposed load: 48,720
  - Calculations:  $5600 \times 8.7$
  - Assumptions:
    - Sum of building sizes: 5,600sqft based on Google Earth
    - 8.7 kWh/sq ft based on [EIA median](#) for “Recreation” kWh/sq. Ft.
- SAM Results:
  - Estimated parameters:
    - Size: 200 kW
    - Tilt: 20 degrees
    - Total yearly system losses: 14.08%
    - Rates sources:
      - Commercial Service Rate: [20240201133618scan.pdf \(bensonmn.org\)](#)
      - Avoided energy cost estimates: [MN-Distributed-Generation-Workbook-V2.5-2023-12.pdf \(willmar.mn.us\)](#) - page 13
  - Estimated AC yearly generation in Year 1: 265,141 kWh
  - Estimated annual bill savings in Year 1: \$10,548

5) 40 kW in the City of Henning in Otter Tail Power Company on the roof of their Fire Station

- Proposed load: **144,900**
- Calculations:  $10,500 \times 13.8$ 
  - Assumptions:
    - Building size= 10,500 based on Google Earth
    - 13.8 kWh/sq ft based on [EIA median](#) for “Fire or Police station” kWh/sq. Ft.



- SAM Results:
  - Estimated parameters:
    - Size: 40 kW
    - Tilt: 20 degrees
    - Total yearly system losses: 14.08%
  - Annual AC energy produced in Year 1: 52,669 kWh
  - Year 1 net bill energy savings: \$2,273

## Section 2: Impact of GHG Reduction Measures

### a. Magnitude of GHG Reductions from 2025 through 2030

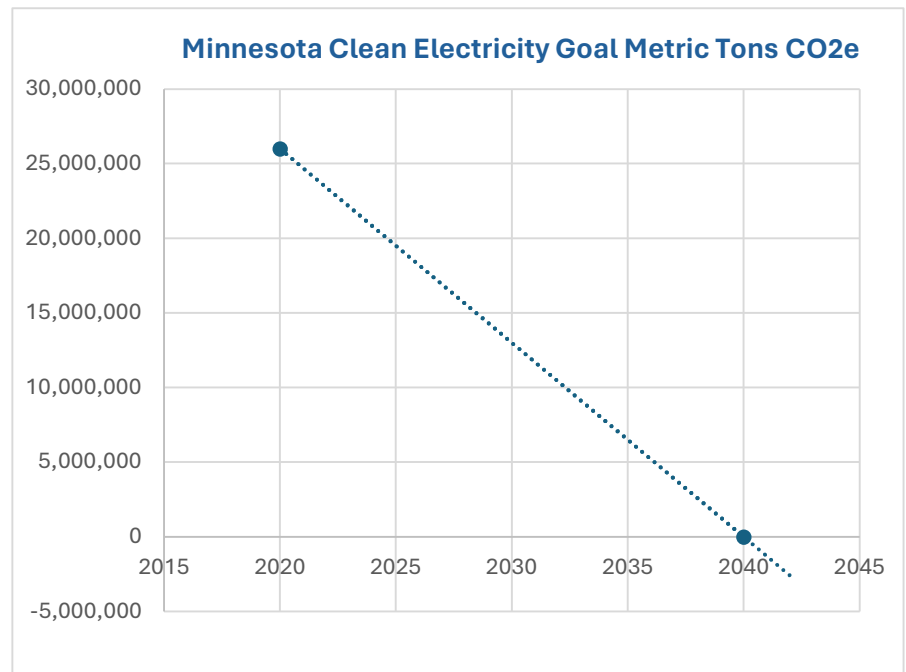
In 2023 the State of Minnesota passed legislation establishing a carbon-free electricity standard. With this legislation in place the electricity sector of Minnesota now has a goal of achieving 100% carbon free electricity by 2040. We have taken this into account while calculating the impact of our ghg emissions reduction measures.

#### Minnesota Emissions by Sector 2020 CO2-e tons

Transportation	Agriculture, forestry, land use	Electrical Generation	Industrial	Residential	Commercial	Waste
36 Million	48 Million	26 Million	20 Million	15 Million	10 Million	2.5 Million

Calculating the emission impacts of Renewable Energy on the electricity grid requires estimating the amount of fossil-fired generation and emissions being displaced by the renewable energy asset. Utilizing the EPA AVERT tool, we determined that a marginal emission factor is the best representation to estimate which fossil-fired units the new renewable energy is displacing across the fossil fleet. Our renewable energy will not be assumed to affect baseload power plants that run all the time, but rather marginal power plants that are brought online as necessary to meet demand.

Utilizing the EPA AVERT Tool we calculated the GHG emission reduction from implementing 3.6 MW of solar on public facilities will start at 5,914 Tons CO2 equivalent per year with an annual decrease of .5% annually **resulting in an avoided 36,624 Tons of CO2 equivalent for the years 2025 – 2030**. This emission factor is based on our state's remaining fossil fuel generation that is comprised of 60% coal and 40 % natural gas. As the economy decarbonizes our solar systems will continue to replace this fossil fuel generation as it is orders of magnitude lower than the total ghg emissions from the electricity sector.



#### **b. Magnitude of GHG Reductions from 2025 through 2050**

With Minnesota's goal of decarbonizing our electricity by 2040 and this grant's goal of representing this decarbonization of the economy in line with current goals we calculated that **this ghg reduction measure will result in the reduction of 95,267 Tons of CO<sub>2</sub>e from 2025 - 2050.**

These emissions reductions will be permanent as the burning of fossil fuels will have been avoided and not extracted from the earth to be combusted.

**Sum Total of Emissions Reductions 96,267.55 Tons of CO<sub>2</sub> equivalent**

#### **c. Cost Effectiveness of GHG Reductions**

Cost effectiveness of GHG reductions = (Requested CPRG funding) / (Sum of Quantified GHG reductions from CPRG funding from 2025-2030)

\$10,500,000/ 96,267 tons = \$109.0716 per ton

## **Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures**

### **a. Expected Outputs and Outcomes**

Expected outcomes as a result of project activities will come in the form of renewably sourced solar energy production, thus reducing the reliance on fossil fuels and other carbon emitting forms of energy. More specifically, deliverables will be captured by the number of buildings that transition to solar energy systems, amount of kilowatts per system installed, kilowatts of solar-generated electricity produced, and local cost savings reinvested into the communities served. These measurables are designed to capture not only the energy produced through solar generation, but also the compounding effects of transitioning from GHG emitting sources of energy. For example, communities that solely rely on coal to power their homes and buildings will instead have a cheaper and more efficient alternative option through solar energy. This not only grants them more autonomy over their energy production and use, but also offers a resilient and cost-effective source of energy over the next 20-30 years. For struggling communities faced with burdensome utility costs, the implementation of cost-free solar would create lasting impacts and grant increased financial flexibility to be reinvested into the community.

The standard GHG reduction metric this project will be monitoring focuses on the before and after comparison of energy production and usage for buildings that have implemented solar as their main source of energy. We anticipate the impact of GHG reduction measures to be most noticeable in low-income and disadvantaged communities for several reasons. Many disadvantaged communities do not have the resources or capital necessary to utilize clean energy alternatives over the standard and existing utility options. While the long-term benefits of owning one's own electricity are enticing, the upfront capital to install solar is discouraging for communities with limited resources, and often serves as the main inhibiting factor towards implementing these systems. With these limitations in place, there is little incentive to seek alternative sources of energy if it does not lead to immediate cost savings and built-in

capacity through external support. However, if funding is provided to bypass these upfront costs requirements, communities will be more receptive towards implementing solar as their primary source of energy to power their public buildings.

## **b. Performance Measures and Plan**

### **GHG Reduction Measures: Solar on Publicly Owned Properties**

#### **Performance Measure 1: Kilowatts of Solar Installed**

This measure is important to track the cost effectiveness of this solution and the scalability of our measure on a nationwide scale. Our initial goal is to install 3.6 megawatts of solar at public facilities in rural Minnesota. These amounts could change with additional incentives, local investments, and changes in the PV solar industry. This measure will be tracked through the collection of system designs and the name plate capacity of solar installed at the selected publicly owned facilities. Once the PV solar systems are installed, communities will submit their final contracts and system designs from the solar installers to their local RDO who will then pass the compiled information on to the Region Nine Development Commission.

#### **Performance Measure 2: Kilowatts of Electricity Produced and GHG emissions reductions.**

This measure is important to track because a critical aspect of our plan is to highlight how much electricity can be produced locally for local consumption in small rural communities and how we can also decarbonize rural communities and economies. To collect and measure this data, we will on an annual basis, collect 12 months of electricity bills for the sites where solar is installed. We will also collect data from the related system monitoring applications various installers utilize such as the Enphase App or similar industry standard applications. The setup and maintenance of these systems is industry standard but will be a requirement for local recipients of this funding. This data will be compiled into a spreadsheet where the GHG emissions reductions will be calculated in the same manner as it was in this application unless best practices change.

#### **Performance Measure 3: Value of Electricity Produced and local reinvestment.**

The third performance measure we hope to highlight with this project is that creating energy locally with local ownership creates local economic and social benefits. With data from the electricity bills and the system monitoring applications we will calculate the value of the energy produced at these public facilities. Communities will also be asked on an annual basis how they are reinvesting those savings in their community which could include increasing staff salaries, upgrading equipment, investing in new projects and many other valuable uses. We will also quantify and report on the local multiplier effect of these savings and their related investments.



## **c. Authorities, Implementation Timeline, and Milestones**

### **Greenhouse Gas Reduction Measure: Solar on Public Facilities**

For this greenhouse gas reduction measure there are multiple responsible parties throughout the process to ensure that the measure is implemented properly by relevant professionals while also encouraging meaningful community input, so the measure reflects local interests.

#### **Development of RFP and Community Selection Criteria: August 2024 – October 2024**

The parties in charge of developing the RFP and community selection criteria will be the coalition partners of Region Nine Development Commission, Southwest Regional Development Commission, Upper Minnesota River Valley Development Commission, Mid Minnesota Development Commission, and the West Central Initiative Foundation. These organizations have the authority to receive and disperse federal grant dollars to a wide range of partners including local governments, LLCs, and nonprofits. They will leverage existing funding for climate action work for staff time to develop the model RFP and community selection process.

#### **Selection of Communities: October 2024 – January 2025**

The parties in charge selecting communities and facilities for the solar systems will be the coalition partners of Region Nine Development Commission, Southwest Regional Development Commission, Upper Minnesota River Valley Development Commission, Mid Minnesota Development Commission, and the West Central Initiative Foundation. Each organization will form their own selection process that accurately represents their region and the goals of the CPRG funds. This may include developing a localized application process or identifying and connecting directly with disadvantaged communities to collaborate with them on this funding.

#### **Selection of Installers: January 2025 – March 2025**

The parties in charge of selecting the solar installers will be the local governments selected for this funding in partnership with their relevant coalition partner. The Regional Development Organizations and their staff will serve as the technical advisors to local governments as they review applications submitted to ensure that the application meets the grants requirements and that the system design and implementation are in the best interest of the community. It will be the local government's governing body's decision to select an installer and sign the contract as they have the authority to authorize construction activity on their properties.

#### **Installation of Solar Systems: April 2025 – July 2025**

The solar systems will be installed by qualified professionals who have either in the past installed PV solar systems or who have the relevant skills and are entering into the field as part of our workforce development goals.

#### **Reporting: 2025 - 2030**

The main party in charge of reporting for this grant program will be the lead applicant, the Region Nine Development Commission. There will also be a localized collection of report information from each coalition member for the solar systems that they selected and financed.

## Section 4: Low-Income and Disadvantaged Communities

### a. Community Benefits

This program will bring a wide array of direct and indirect benefits to our rural communities. These benefits will be related to the installation of solar and related ghg emissions reductions as well as the social and cultural benefits of including disadvantaged rural communities in the clean energy transition.

#### Direct Benefits

- Reduction in operating costs for local government
- Increase in locally generated electricity
- Reduction in money leaving the community through utility bills
- Increased resilience of local grid
- Reduction in need for utility to purchase electricity at peak costs during hot summer days
- Development of local community benefits plan for how to spend savings
- Increased understanding of renewable energy technologies
- Increased connection with Regional Development Organization and their suite of support offerings
- Employment of local solar installers and related workforces such as electricians

#### Indirect Benefits

- Reduction in ghg emissions from electrical grid
- Protect roofs of local infrastructure from weathering and ecosystem benefits of solar with pollinator habitat.
- A stronger supply chain for solar in disadvantaged rural communities.
- Increased connection between rural governments and federal funding availability and opportunities
- Reduction in costs for transmission upgrades
- Reduction in line loss or wasted energy during transmission and distribution of electricity

## **b. Community Engagement**

Equitable and meaningful community engagement will be a critical aspect of the implementation of our greenhouse gas reduction measure. Each coalition partner will conduct meaningful outreach to local governments located in disadvantaged census tracts they represent. These governments will be given priority to apply for and utilize these funds. We will begin by connecting with local officials such as city and county administrators, city clerks, and township boards.

Once the community expresses interest, we will host a community meeting to hear from residents and stakeholders about where they want the solar to be placed and what would make it most impactful for them. Through this process residents and local government will work collaboratively to select a location for the solar systems that will have the greatest impact for them. Once the location is selected the local government will then publish the RFP. The applications submitted by solar installers will then be reviewed by the relevant local governments and residents will also have an opportunity to review and comment on the bids to make sure final installation design benefits the community.

## **Section 5: Job Quality**

We will ensure high quality jobs and employment opportunities through our RFP selection process.

Our project bid rubric will provide the opportunity to get additional points for the following areas.

- What counties do the employees working on this project live in? Additional points will be awarded if employees live within rural communities served by this coalition.
- Where is your company located? Additional points will be awarded if the company is located within rural communities served by this coalition.
- What is the average hourly wage of employees at your organization? Additional points will be awarded if the hourly wage is at or higher than the area median hourly wage.
- Does your company have employees from disadvantaged communities? Additional points will be awarded to companies whose employees include disadvantaged individuals including but not limited to veterans, people of color, women, and other marginalized communities.

The additional points awarded for each of these priority areas will be determined by each local unit of government. By creating a system with additional points for these priority areas we will be able to incentivize and empower smaller local companies to compete with larger metro-based organizations without cost being the only relevant factor which will also encourage the development of good paying clean energy jobs in rural Minnesota.

## **Section 6: Programmatic Capability and Past Performance**

### **a. Past Performance**

#### **Manufacturing Resilience Plan: 2021-2022**

Number: 06-69-06263

ED23CHI3030022

Economic Development Administration – TA Grant

The purpose of this plan is to offer suggestions for the region’s manufacturing clusters as they continue to support prosperity as the backbone of the regional economy. The plan is in response to recent unprecedented events and is intended to augment existing strategies for sustaining economic growth, weathering business cycles, and supporting shared prosperity across the region, as identified in the Comprehensive Economic Development Strategies (CEDS: 2022-2026) and other plans and initiatives.

Contact: Darrin Fleener

#### **Economic Development District Annual Planning Grant: 2021-2024**

Number: ED21CHI302009

Economic Development Administration – TA Grant

As an EDA-designated Economic Development Districts, Region Nine Development Commission receives a Partnership Planning grant from the Federal Economic Development Administration (EDA) every year to conduct economic development planning activities within the district. The goal of the Partnership Planning grant is to facilitate the development, implementation, revision, or replacement of Comprehensive Economic Development Strategies (CEDS), which articulate and prioritize the strategic economic goals of recipients’ respective regions.

Contact: Michelle Velasquez

## **Support for Local Food Systems 2021 – 2024**

Number: NR216322XXXXC004

Natural Resources Conservation Service

This grant through the Natural Resources Conservation Service has the goal of supporting and growing local foods initiatives for emerging and beginning farmers as well as existing small sustainable farmers. Through the grant Region Nine has developed partnerships between farmers and restaurants, helped emerging farmers gain access to land, and increased community awareness of where to buy local foods.

Contact: Ryan Galbreath

### **b. Reporting Requirements**

#### **Economic Development District Annual Planning Grant: 2021-2024**

During the performance period Region Nine Development Commission submitted acceptable interim reports and final report of the regional Comprehensive Economic Development Strategy (CEDs) was approved by the Economic Development Administration.

#### **Manufacturing Resilience Plan: 2021-2022**

During the performance period Region Nine Development Commission submitted acceptable interim reports and the final report of the regional Manufacturing Resilience Plan. The document was reviewed by Darrin Fleener and approved as a final deliverable.

#### **Support for Local Food Systems 2021 – 2024**

During the performance period Region Nine Development Commission submitted acceptable interim reports and was invited by the NRCS to apply for an extension and additional funds to continue the project and its positive regional impacts.

### **c. Staff Expertise**

Region Nine Development Commission was founded in 1972 through state statute and boasts a team deeply rooted in the communities it serves. Our staff includes 6 Community Planners, a Loan Specialist, Finance Director, Communications Specialist, Executive Assistant, and Executive Director. Our team has decades of experience with meaningful community engagement and experience managing millions of dollars in grant funds, programs, and operating budgets. Over its history RNDC has worked with a wide range of partners both public and private on clean energy projects. Looking back to 2012, Region Nine coordinated a small wind turbine bulk buy program for individuals, small business, and agricultural enterprises to leverage their purchasing power to make small wind turbines more affordable, to begin the development of a local workforce trained to install and maintain these turbines, and to keep energy dollars local to build the rural economy. Programs such as these have led to further work which includes creating Climate Action Plans for our communities and a 2022 delegation of local community members and elected leaders to Germany. The goal of this delegation was to learn about innovative energy

development practices and emerging technologies such as hydrogen, renewable natural gas, and battery storage.

In the field of solar development, Region Nine is recognized as a SolSmart Silver organization for our work in identifying solar opportunities and reducing barriers for solar adoption for the communities we serve. Since becoming SolSmart certified, we have had 6 schools districts and 14 school sites in our region receive solar through the state of Minnesota's Solar for Schools program. Our staff also have additional opportunities to increase their ability to develop solar projects through our ongoing partnership with SolSmart who have offered to provide training on solar implementation for selected communities and our coalition partners.

## **Section 7: Budget Narrative**

### **a. Budget Detail**

#### **Budget Categories**

##### **Personnel \$- 0**

All staff time for this project will be funded through matching funds. The partners in this coalition have been fortunate to receive funds from the state of Minnesota as well as local foundations that allow us to support our rural communities with applying for and implementing renewable energy projects in the rural communities we serve.

##### **Fringe Benefits - \$0**

No fringe benefits are required for the implementation of this project.

##### **Travel - \$0**

Travel will be covered by our in-kind funds.

##### **Contractual - \$0**

##### **Subawards - \$10,500,000**

Through this coalition each partner will be sub awarded \$2,100,000 which will be used to identify communities and procure competitive contracts for the implementation of photovoltaic solar across our rural communities. Each identified community will release and conduct a competitive RFP process to identify qualified solar installers who also meet the goals of this grant such as creating high quality jobs and increasing the renewable energy workforce in rural areas. The contracts for the photovoltaic solar systems will be paid by the local coalition partners to allow for additional and valuable local input and control over the implementation of these funds. These subawards and the implementation of solar will be completed in accordance with the workplan attached to this document.

# Technical Appendix

## Calculation Assumptions

The EPA Avert Tool calculated 6,990 megawatt hours of avoided fossil fuel generation from 2.1 mw of Utility Scale and 1.5 mw of residential (3.6 mw total) of solar in Minnesota. EPA's Emissions and Generation Resource Integrated Database (eGRID), released in 2018 with 2016 data, shows that at the national level, natural gas units have an average emission rate of 898 pounds CO<sub>2</sub> per megawatt-hour (MWh), while coal units have an emissions rate of 2,180 pounds CO<sub>2</sub> per MWh. Utilizing MPCA data we found that Minnesota's remaining fossil fuel electricity generation is 60% coal and 40% natural gas. From this and the avoided MWh of emissions we calculated that starting in 2025 we would avoid 4,571.46 metric tons of CO<sub>2</sub> from coal emissions and 1,609.21 CO<sub>2</sub> equivalent metric tons from natural gas electricity generation. Thus, we would start at 6180.67 metric tons in the year 2025 and decrease by .5% annually based on diminishing solar production.

## References:

Global Warming Potential of Natural Gas: <https://www.epa.gov/system/files/documents/2024-02/ghg-emission-factors-hub-2024.pdf>

EPA Emission Profile of Generation Resources: [https://www.epa.gov/sites/default/files/2020-12/documents/power\\_plants\\_2017\\_industrial\\_profile\\_updated\\_2020.pdf](https://www.epa.gov/sites/default/files/2020-12/documents/power_plants_2017_industrial_profile_updated_2020.pdf)

## Energy Data:

<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>

<https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>