

This document describes the community engagement portion of the Montana Rural Solar Access Project and discusses how insights from this work can inform strategies for increasing access to, and development of, distributed solar in rural and low-to-moderate income communities across Montana.

Montana Rural Solar Access Project

Phase Two Report

Montana Renewable Energy Association

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Executive Summary

The Montana Rural Solar Access Project (MRSAP) aims to identify the opportunities and challenges to accessing and developing distributed solar in Montana's rural communities, with a specific emphasis on households with low to moderate incomes (LMI). The goal of MRSAP is to identify and implement projects and programs that can help expand upon these opportunities and overcome these challenges.

MRSAP has three phases. Phase One synthesized recent research and literature on the expansion of distributed solar into rural and LMI communities to understand what opportunities and challenges have been seen in other states and how organizations similar to the Montana Renewable Energy Association (MREA) have been able to provide support. In Phase Two, we focused on engaging with rural and LMI communities across Montana to understand what opportunities and challenges they experienced to accessing and developing distributed solar. To learn from communities, we used a variety of engagement methods including community discussions, end-of-meeting surveys, and interviews with key community members from local government, economic development organizations, universities, extension offices and more. Based on what we learned from Phase One, our engagement activities also included an educational component to share the benefits that distributed solar can provide community members and to describe the process for distributed solar development, such as how to find an installer, compare installation bids, and identify financing options.

Through our engagement efforts, we gained insight into the interests, concerns, and priorities of community members regarding distributed solar and identified opportunities where MREA could potentially provide greater support. The key interests shared from communities were: saving on energy costs; using solar plus storage to gain greater independence and/or resiliency; using solar on homes, businesses, and/or on agricultural operations; using renewable energy, generally; and creating jobs. Some of the key challenges that communities described were: the up-front cost of installation; the length of time to pay off that initial investment; concerns regarding panel durability and reliability in severe weather; concerns regarding the maintenance that arrays require; and a general lack of information on various aspects of the technology, from the types of panels to the process of installation and how to find installers. Communities also voiced concerns around how to dispose of panels after their useful life and concerns that misinformation around renewable energy may impede development in their communities.

As an organization, MREA has three main programmatic areas: education, advocacy, and industry engagement. From the insights we learned in communities across the state, we have identified ways within these programmatic areas that we could potentially respond to challenges and support communities in actualizing opportunities. For the final Phase Three of

MRSAP, it is our goal to refine these potential avenues of response and support and move them into implementation by advocating for policy changes, creating and adapting educational programs, and engaging with industry to develop a growing renewable energy workforce across the state.

Introduction

Phase Two of MRSAP is designed to ‘ground truth’ the research done in Phase One that compiled research and literature on the opportunities and challenges to expanding distributed solar to rural and LMI communities. In Phase One we learned what opportunities and challenges were encountered in other states, as well as gained insight into how organizations like ours were able to expand on opportunities and help overcome challenges. In Phase Two, we engaged with rural communities across the state to learn directly from Montanans about what opportunities and challenges they perceive to accessing and developing distributed solar. We used a variety of engagement methods including community meetings, end-of-meeting surveys of attendees at those meetings, and interviews with key community members in the area that worked in local government, economic development organizations, universities, extension offices, and more.

From our work in Phase One, we learned that a lack of information on distributed solar and the process for development had been a common challenge in rural areas. As we engaged with communities to learn from them, we also incorporated an educational component to our outreach.^{1,2} At the beginning of each community meeting, we shared a brief presentation on distributed solar and the resources available to support the installation process. These varied engagement activities were the main ways by which we aimed to achieve our three main goals: education, learning from communities, and building connections and relationships. These goals, and how our engagement activities were designed to achieve them, are described in detail below.

Education

Our research in Phase One indicated that education would likely be needed to support expansion of distributed solar into rural and LMI communities that may have little familiarity with this technology and its development. In communities where solar is currently not prevalent, the Low-Income Solar Policy Guide indicates that communities may perceive solar as inaccessible or unavailable.³ Additionally, potential customers can see distributed solar development as daunting when they are not familiar with installations or the financial opportunities that can help support the process.⁴ While we designed Phase Two primarily to learn from communities, we also shared the success stories of development in other states, described the benefits that distributed solar has brought other communities, and provided

¹ GRID Alternatives, Vote Solar, and Center for Social Inclusion, “Low-Income Solar Policy Guide,” 2016, https://www.lowincomesolar.org/wp-content/uploads/2016/03/Low-Income-Solar-Policy-Guide_3.11.16.pdf.

² National Rural Electric Cooperative Association, “A Solar Revolution in Rural America,” 2018.

³ GRID Alternatives, Vote Solar, and Center for Social Inclusion, “Low-Income Solar Policy Guide.”

⁴ Linda Irvine, Alexandra Sawyer, and Jennifer Grove, “THE SOLARIZE GUIDEBOOK: A Community Guide to Collective Purchasing of Residential PV Systems,” 2012.

information on the logistics of the installation process. This education element was also intended to set a baseline of shared knowledge for our community discussions to support more productive conversations.

Learning from Communities

While education can help address some challenges, there are obstacles to accessing and developing distributed solar in rural and LMI communities that education alone cannot overcome.^{5,6} To better understand the other types of challenges that may impede access to, or development of, distributed solar, we endeavored to learn directly from communities across Montana to identify these impediments and potential strategies for addressing them. To achieve this goal, we engaged with communities through community discussions, end-of-meeting surveys, and interviews with key community members.

Community Discussions

The discussions we facilitated with community members were based on focus group methods used in social science research and in market research especially.⁷ Focus groups are a type of facilitated discussion that can be used to learn about a topic for which there is limited existing information and allows a researcher to learn a breadth of information from multiple perspectives at once.⁸ While we researched the challenges encountered by rural and LMI communities through literature reviews and stakeholder engagement throughout Phase One, we lacked direct insights from the experiences of rural and LMI Montanans. Focus groups provided a flexible and economical way to glean these insights by enabling us to learn from multiple voices simultaneously.⁹ This method also aligns with the goals of Phase Two because it invites detailed discussion of community members' thoughts, feelings, and behaviors related to a topic, which in our case is the development of distributed solar.¹⁰ Focus groups can also provide valuable insights that are distinct from those that arise from individual interviews because they create the 'group affect,' which refers to the dynamic between participants as

⁵ GRID Alternatives, Vote Solar, and Center for Social Inclusion, "Low-Income Solar Policy Guide."

⁶ P. Shultzs, "Knowledge, Education, and Household Recycling: Examining the Knowledge-Deficit Model of Behavior Change.," in *New Tools for Environmental Protection*, ed. Thomas Dietz and Paul C. Stern, 2002, 67–82, <https://doi.org/10.17226/10401>.

⁷ Sharlene Nagy Hesse-Biber, *The Practice of Qualitative Research*, 3rd ed. (Thousand Oaks, California: SAGE Publications, Inc., 2017).

⁸ Hesse-Biber.

⁹ Sharlene Nagy Hesse-Biber and Patricia Leavy, *The Practice of Qualitative Research* (Thousand Oaks, California: Sage Publications, 2017).

¹⁰ T. Bristol and E. Fern, "Exploring the Atmosphere Created by Focus Groups Interviews: Comparing Consumers' Feelings across Qualitative Techniques," *Journal of the Market Research Society* 38, no. 2 (1996): 185–95.

they respond, query, and explain themselves to each other.^{11,12,13} This method to building understanding, compared to individual interviews, has also been particularly effective at encouraging engagement from more reluctant participants. The extent that rural and LMI community members may feel reluctant to discuss the challenges they encounter around accessing and developing distributed solar is unclear, but the strength of this method is that focus groups can create a comfortable environment for community members to talk about more challenging subjects, such as financial hardship for instance, because they may feel that the spotlight is not on them all the time.¹⁴ Throughout the practical implementation of programs such as Solarize, organizations have also observed that community meetings and discussions on developing local solar generation, especially those where trusted community organizations are involved, can foster community pride in the effort and can spur ‘community-based marketing’ whereby community members discuss solar development with one another.¹⁵ Each of these outcomes have been characterized as increasing the interest in, and implementation of, distributed solar projects and are another strength of this portion of the community engagement strategy.¹⁶

Interviews with Community Members

Interviews with key community members provide opportunities for participants to share rich, nuanced descriptions of their experiences and perspectives, in part because they enable the interviewer to ask for greater clarification or explanation.^{17,18} We intended for these rich, nuanced descriptions to help us understand the unique challenges and opportunities for distributed solar in a given community, and shed light on what strategies may be most effective going forward. In contrast to our community meetings, interviews with key community leaders focus on their perspectives and insights into the community at large, including political dispositions, systemic challenges, and the existing organizations and efforts currently at work. These interviews compliment community meetings by providing relevant, yet distinct types of insights into the opportunities and challenges that may exist to accessing and developing distributed solar in their communities.

¹¹ M. Carey, “Forms of Interviewing,” *Qualitative Health Research* 5, no. 4 (1994): 413–16.

¹² D. L. Morgan, “Focus Groups,” *Annual Review of Sociology* 22 (1996): (129-152).

¹³ D. L. Morgan and R. Kruger, “When to Use Focus Groups and Why,” in *Successful Focus Groups: Advancing the State of the Art*, 1993, 3–19.

¹⁴ Hesse-Biber and Leavy, *The Practice of Qualitative Research*.

¹⁵ Irvine, Sawyer, and Grove, “THE SOLARIZE GUIDEBOOK: A Community Guide to Collective Purchasing of Residential PV Systems.”

¹⁶ Irvine, Sawyer, and Grove.

¹⁷ Herbert J. Rubin and Irene S. Rubin, *Qualitative Interviewing The Art of Hearing Data*, Second (Thousand Oaks, California: Sage Publications, 2005).

¹⁸ Rubin and Rubin.

End-of-Meeting Surveys

Social surveys are used for a wide range of reasons by vastly different groups spanning academia, government agencies, private businesses, and nonprofit organizations.¹⁹ While some surveys can be used to obtain information that can be generalizable to a broader population,²⁰ our use of surveys in this project is as a reference to complement our community discussions. Our goal for the surveys is to capture the perspectives of the participants who attended each meeting in a format that is easily comparable between community members and between meetings, such that it provides a quick reference for the views presented.

Building Connections and Relationships

Through community discussions and interviews with key community members across the state, we worked to forge connections with individuals and organizations that can be potential partners throughout Phase Three: Implementation. By specifically reaching out to representatives of local government, economic development organizations, universities, extensions offices, and more we intended to begin creating a network of connections that we could work with to identify programs and projects for implementation and develop relationships with partners to bring that work to fruition.

Methods

The deliberate processes by which we implemented our community engagement strategies are described below. This characterization of our approach is intended to inform how we reached our findings and how other groups, similarly interested in engaging their rural and LMI communities, might learn from our experience.

Community Selection

Our process of community selection was iterative and involved several different parameters. In our first iteration, we focused on communities with median household incomes (MHI) near or below 80% of the surrounding county's MHI, which is the federal definition of low income. We narrowed down community selection with additional parameters such as population size, proximity to underserved communities such as Reservations, geographic diversity of communities across the state, and diversity of energy providers.

¹⁹ C. A. Moser and G. Kalton, *Survey Methods in Social Investigation* (Routledge, 2017).

²⁰ Tom W. Smith et al., "Social-Science Research and the General Social Surveys," *ZUMA Nachrichten* 29, no. 56 (2005): 68–77, https://www.ssoar.info/ssoar/bitstream/handle/document/20759/ssoar-zuma-2005-56-smith_et_al-social-science_research_and_the_general.pdf?sequence=1&isAllowed=y&Inkname=ssoar-zuma-2005-56-smith_et_al-social-science_research_and_the_general.pdf.

Our focus on communities with a MHI of 80% of the surrounding county's MHI weighted our selection towards communities with exceptionally high poverty rates. Almost all towns selected had poverty rates that were two, three, or four times the national average. The income for a one-person household at the poverty rate is \$12,500. This is less than the average estimated cost of a solar array installation, making it highly unlikely that these community members would have the interest or means to invest in solar. The intention of this project is to increase access to solar development in rural areas and particularly for low to moderate income (LMI) households. LMI can be defined by as much as two or three times the poverty level, depending on family size. LMI households are more likely to be able to invest in distributed solar at current prices and benefit from this investment through savings on energy costs over time. Our initial income parameter skewed our community selection to ones where we estimated a large portion of the community would not be able to access this technology at its current price without substantial assistance. We adapted our income parameters to focus on the LMI households that are more likely to have the interest and means to invest in solar.

After combining these filters, we decided to engage with the following communities: Columbia Falls, Dillon, Forsyth, Fort Benton, Glasgow, Hamilton, Havre, Red Lodge, Shelby, and White Sulphur Springs.



Community Meetings and Key Community Member interviews

Discussions with community members took place in two distinct formats. In each community, we held a community meeting that involved a brief presentation on distributed solar followed by a facilitated community discussion with meeting attendees. In each community, we also

contacted key community members to arrange interviews. Both types of discussions were semi-structured, meaning that they were conducted based on discussion and interview guides, but also with flexibility to allow the conversations to progress through additional topics and address the predetermined questions in whichever order best followed the flow of conversation.^{21,22,23} For the discussion guide used in community meetings, see Appendix A. For the interview guide used in discussions with key community members, see Appendix B. Community discussions were recorded when possible, and in some instances when recording did not occur, notes were compiled after the meeting to capture the interests, concerns, and priorities discussed. Interviews with key community members were not recorded, but notes were taken during each meeting. For each community meeting that was recorded, we listened to the recording and noted the interests, concerns, and priorities discussed by community members. Notes for community meetings and key community member interviews were analyzed for themes within and across communities, and the notes associated with each theme were organized accordingly.²⁴ This was an iterative process as the analysis continued across all communities.

End-of-Meeting Surveys

We used short, end-of-meeting surveys to record the perspectives of attendees at our community meetings. We devised our survey questions based on the common interests and concerns we learned in Phase One and from our own experience. We also included questions to capture how likely participants were to pursue distributed solar installation and what may be the biggest factor in their decision to move forward with installation. After our first four meetings in Fort Benton, Havre, White Sulphur Springs, and Red Lodge we adjusted the survey to include a question asking community members to indicate their energy provider. For copies of the initial and adjusted survey questions, see Appendix C. Surveys were distributed to attending community members near the end of each meeting and collected upon completion. Survey responses were collected from all communities except Dillon. The survey responses were recorded and totaled for each community and the combined results were summarized. For survey responses for each community, see Appendix D.

²¹ Hesse-Biber and Leavy, *The Practice of Qualitative Research*.

²² Michael E Patterson and Daniel R Williams, "Paradigms and Problems : The Practice of Social Science in Natural Resource Management," 1998, 279–95.

²³ Rubin and Rubin, *Qualitative Interviewing The Art of Hearing Data*.

²⁴ Rubin and Rubin.

Community Profiles

For each community, we organized a community meeting and arranged time to consult with key community members who worked for local government, economic development organizations, universities, extension offices, and more. During each community meeting, we endeavored to learn what the key interests, concerns, and priorities were of attendees, and to talk through those topics to alleviate concerns and answer questions if we were able. In our individual meetings with key community members, we focused on discussing existing renewable energy development in the area, community perceptions of renewables, and building relationships for future cooperation to move renewable energy development forward. The below profiles include key details of each community, summaries of our community meetings and insights, and a list of the main interests and concerns that emerged from community meeting discussions, survey responses, and interviews with key community members. Information on population, household income, and poverty rate are all from U.S. Census Bureau estimates as of 2019.^{25,26}

Fort Benton

County: Choteau

Population: 1,523

Town MHI: \$44,318

County MHI: \$42,298

Poverty rate: 2.50%

Geographic range: North Central

Primary energy providers: NorthWestern Energy, Hill County Electric Cooperative

Near Indigenous Nation: Fort Benton is a forty-five-minute drive from both the Little Shell Chippewa and Rocky Boy's Reservations, home to the Chippewa (Anishinaabe and Métis) as well as the Plains Cree (Ne-i-yah-wahk) Nations, respectively.

Meeting Summary and Community Insights

The Fort Benton meeting was attended by thirteen community members. All attendees were served by NorthWestern Energy. Several attendees expressed interest in community solar or other arrangements, such as solar plus storage, that would afford them control of their energy sources. The motivations for this independence were to reduce carbon emissions as well as to create a resilient local power system in the case of grid outages, such as from natural disasters. There was also interest in bringing renewable energy jobs to the area.

Interests:

- Storage in case of outages and/or to support off-grid living

²⁵ United States Census Bureau. 2019 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 10 December 2020.

²⁶ United States Census Bureau. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2019. U.S. Census Bureau, Population Division. Web. May 2020. <http://www.census.gov/>.

- Cost savings
- Job creation
- Emissions reductions
- Energy independence
- Using renewable energy
- Installing on homes, businesses, and agricultural operations.

Challenges

- Up-front cost
- Length of payback time
- Reliability of equipment over time or in severe weather
- Finding an installer
- Lack of technical information on panels and installation

Havre

County: Hill

Population: 9,786

Town MHI: \$48,294

County MHI: \$49,321

Poverty rate: 13.70%

Geographic area: North Central

Primary energy providers: NorthWestern Energy, Hill County Electric Cooperative

Near tribal communities: Havre is a thirty-minute drive from the Rocky Boy's Reservation, home to the Chippewa (Anishinaabe and Métis) as well as the Plains Cree (Ne-i-yah-wahk) Nations, respectively.

Meeting Summary and Community Insights

The Havre meeting was attended by seven community members. We did not record information on energy providers in Havre. Community members indicated that there had been limited development of distributed solar in the Havre area and that demonstration projects could be useful tools to introduce the community to the benefits of distributed solar. Many community members were concerned about whether solar would be economically feasible for them. Some community members indicated that farmers may not benefit from the existing federal tax credits because they often have low tax burdens. Other community members described that distributed solar could provide benefits to agricultural operations by powering water pumps for livestock wells or irrigation pumps. One community member had already installed solar on their property and shared some of the benefits they perceived with other community members, an example of the 'community-based marketing' that we had hoped to inspire. The local rural electric cooperative, Hill County Electric, described some concerns about the increase of solar among their members due to potential unintended impacts on their operations. They also acknowledged that distributed solar could provide some benefits, such as

helping to meet peak loads. Havre is far from existing solar installation businesses, and there is interest in spurring local workforce development to meet local demand.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Job creation
- Energy independence
- Using renewable energy
- Installing on homes, businesses, and agricultural operations.

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Misinformation about renewable energy

White Sulphur Springs

County: Meagher

Population: 1,012

Town MHI: \$41,458

County MHI: \$46,607

Poverty rate: 7.20%

Geographic region: Central

Primary energy providers: NorthWestern Energy, Park Electric Cooperative

Near Indigenous Nation: White Sulphur Springs is more than a one-hour drive from all federally recognized Reservations, home to some of the many Indigenous Nations that reside in Montana.

Meeting Summary and Community Insights

The White Sulphur Springs meeting was attended by ten community members. Three attendees were served by Northwester Energy, two by Fergus Electric Cooperative, two by Vigilante Electric Cooperative, and three did not indicate their energy provider. Community members in White Sulphur Springs expressed concern about the estimated length of time it would take to pay back their initial investment in solar with their savings on their energy bills. There was also interest in distributed solar to ensure power in the case of outages, especially given the recent wildfires that disrupted the grid and left community members without power for several days. Community members described interest in education programs or demonstration projects to

help share accurate information about the benefits that distributed solar could provide their community.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Energy independence
- Using renewable energy
- Installing on homes, businesses, and agricultural operations.

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Concerns about panel disposal at end of life
- Misinformation about renewable energy

Red Lodge

County: Carbon

Population: 2,212

Town MHI: \$48,311

County MHI: \$58,707

Poverty rate: 6.10%

Geographic range: South Central

Primary energy providers: NorthWestern Energy, Beartooth Electric Cooperative

Near Indigenous Nation: Red Lodge is a one-hour drive from the Crow Reservation, home to the Crow (Apsáalooke) Nation.

Meeting Summary and Community Insights

The Red Lodge meeting was attended by twenty-five community members. Attendees were served by Northwestern Energy or by Beartooth Electric Cooperative, however we did not record how many attendees were served by each. A representative of Beartooth Electric Cooperative attended the meeting and expressed support for solar development by cooperative members and indicated the cooperative's willingness to answer attendee questions. The attendees at the community meeting were very interested in distributed solar. Community members described that Red Lodge has a very high level of solar development, per capita, in part thanks to a previous Solarize campaign. The main economic industry in Red

Lodge is tourism, while the rest of the county's economy is dominated by agriculture and oil and gas development.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Emissions reductions
- Energy independence
- Using renewable energy
- Installing on homes, businesses, and agricultural operations.

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Concerns about panel disposal at end of life

Dillon

County: Beaverhead

Population: 4,261

Town MHI: \$32,833

County MHI: \$43,201

Poverty rate: 7.40%

Geographic Region: South West

Primary energy providers:

NorthWestern Energy, Vigilante Electric Cooperative

Near Indigenous Nation: Dillon is more than a one-hour drive from all federally recognized Reservations, home to some of the many Indigenous Nations that reside in Montana.

Meeting Summary and Community Insights

The Dillon meeting was attended by one community member. The very low turnout was the result of a variety of challenges, including an inaccurate address for the reserved meeting space. This undermined marketing and outreach efforts, as well as made it difficult for attendees to find the correct location on the day of the event. The Dillon area has also been the proposed site for large-scale solar developments in years past and was evaluating another proposal at the time of our community meeting. Key community members explained that the community has long opposed this large-scale development and indicated that there may be challenges to distinguishing large-scale from distributed solar development. Community members indicated that due to a lack of distributed solar development, and potential

misconceptions about the technology, that education programs and demonstration projects could be beneficial for showing the benefits that distributed solar can offer the community.

Interests:

[No Data Collected]

Challenges

- Misinformation about renewable energy (*Community Discussions*)

Hamilton

County: Ravalli

Population: 4,723

Town MHI: \$32,006

County MHI: \$53,054

Poverty Rate: 8.40%

Geographic area: West Central

Primary energy providers: NorthWestern Energy, Ravalli County Electric Cooperative

Near Indigenous Nation: Hamilton is more than a one-hour drive from all federally recognized Reservations, home to some the many Indigenous Nations that reside in Montana.

Meeting Summary and Community Insights

The Hamilton meeting was attended by five community members. Of those attendees, two were served by NorthWestern Energy and three were served by Ravalli County Electric Cooperative. One community member at the meeting had done research on how to install solar and shared their perspective on the benefits of distributed solar with other community members throughout the meeting, an example of the ‘community-based marketing’ that we had hoped to inspire. Community members indicated that there was some distributed solar development in the area, such as on the local water treatment plant and on the local Bitterroot Brewery building. The area is experiencing a lot of building right now, and some community members identified this expansion of building as a potential opportunity for incorporating distributed solar development.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Emissions reductions
- Energy independence
- Using renewable energy
- Installing on homes.

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Misinformation about renewable energy

Forsyth

County: Rosebud

Population: 1,495

Town MHI: \$41,328

County MHI: \$57,992

Poverty rate: 12.60%

Geographic region: South East

Primary energy providers: NorthWestern Energy, Mid-Yellowstone Electric Cooperative

Near Indigenous Nation: Forsyth is a one-hour drive from Northern Cheyenne Reservation, home to the Northern Cheyenne (Tsetsêhesêstâhase and So'taa'eo'o) Nation

Meeting Summary and Community Insights

The Forsyth meeting was attended by four community members. Of those attendees, one was served by NorthWestern Energy, one was served by Mid-Yellowstone Electric Cooperative, another by Tongue River Electric Cooperative, and one lived off-grid. At the community meeting, one of the attendees already had developed some distributed solar on their property and was able to describe the benefits they experienced to other attendees, an example of the 'community-based marketing' that we had hoped to inspire. Community members were interested in potential uses in agriculture, workforce development, and potential demonstration projects on public infrastructure.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Job creation
- Energy independence
- Using renewable energy
- Installing on homes

Challenges

- Up-front cost

- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Misinformation about renewable energy

Glasgow

County: Valley

Population: 3,344

Town MHI: \$53,235

County MHI: \$53,162

Poverty rate: 2.80%

Geographic rage: North East

Primary energy providers: NorthWestern Energy, Norval Electric Cooperative

Near Indigenous Nation: Glasgow is a forty-five-minute drive from the Fort Peck Reservation, home to the Assiniboine (Nokado/Nakona) and Sioux (Lakota/Dakota) Nations.

Meeting Summary

The Glasgow meeting was attended by seventeen community members. Of these attendees, three were served by NorthWestern Energy, seven were served by Norval Electric Cooperative, two by McCone Electric Cooperative, and five that did not respond to this question. Tourism and agriculture are the main economic industries in the Glasgow area. Community members did not seem to be aware of much solar development in the area, though several expressed interest in doing projects on their properties. Some community members had experience with solar panels and shared their insights with other attendees, an example of the ‘community-based marketing’ that we had hoped to inspire. One community member cautioned that the economic conditions for farmers have been especially difficult in the last year, and that debt load may already be quite high. Some community members were interested in educational programs or demonstration projects that might spread more information on the benefits of distributed solar and on how to move forward with the installation process.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Job creation
- Energy independence
- Using renewable energy
- Installing on homes, businesses, and agricultural operations.

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Concerns about panel disposal at end of life

Columbia Falls

County: Flathead

Population: 5,429

Town MHI: \$46,821

County MHI: \$56,182

Poverty rate: 7.80%

Geographic region: North West

Primary energy providers: NorthWestern Energy, Flathead Electric Cooperative

Near Indigenous Nation: Columbia Falls is a one-hour drive from the Flathead Reservation, home to the Salish (Sélish), Pend d'Oreille (Qíispé), and Kootenai (Ksanka) Nations.

Meeting Summary

The Columbia Falls meeting was attended by three community members. All three community members were served by the Flathead Electric Cooperative. A representative of the cooperative indicated they have been supportive of distributed solar development in the area while also acknowledging that energy costs are already quite low and a large amount of their energy supply comes from renewables. This indicates that some of benefits of installing distributed solar, such as saving on energy bills and using renewable energy, may already be enjoyed by community members with this energy provider.

Interests:

- Storage in case of outages and/or to support off-grid living
- Cost savings
- Job creation
- Energy independence
- Using renewable energy
- Installing on homes

Challenges

- Up-front cost
- Length of payback time
- Concerns about reliability of equipment over time or in severe weather
- Concerns about panel disposal at end of life

Shelby

County: Toole

Population: 3,078

Town MHI: \$44,740

County MHI: \$44,740

Poverty rate: 5.00%

Geographic region: North West

Primary energy providers: NorthWestern Energy, Marias River Electric Cooperative

Near Indigenous Nation: Shelby is a thirty-minute drive from the Blackfoot Reservation, home to the Blackfoot (Niitsitapi/Pikuni) Nation.

Meeting Summary

The Shelby meeting was attended by four community members. Three of the attendees were served by Marias River Electric Cooperative, while one community member was served by NorthWestern Energy at one of their properties and by Flathead Electric Cooperative at another. Community members indicated that there was not much solar development in the area. The region is dominated by the agricultural industry and some community members discussed the benefits solar may provide for agricultural operations. One community member, who had already installed solar on a water pump for a livestock well, described their success with this technology to the other attendees and expressed their interest in learning what else they could use solar for. This was an excellent example of the 'community-based marketing' that we had hoped to inspire throughout these community meetings.

Interests:

- Storage in case of outages and/or to support off-grid living
- Uses in agricultural operations
- Cost savings
- Energy independence
- Using renewable energy
- Installing on homes and agricultural operations

Challenges

- Up-front cost
- Length of payback time
- Lack of technical information on panels and installation
- Lack of information on how to find an installer
- Concerns about reliability of equipment over time or in severe weather
- Concerns about panel disposal at end of life

Key Findings

In this section, we share and discuss the results from our three types of community engagement activities: end-of-meeting surveys, community meeting discussions, and key community member interviews. An aspect of these engagement activities to highlight is that our insights from surveys and discussions only reflect what participating community members shared with us. A lack of input from community members on any topic does not necessarily indicate a lack of interest or concern regarding that topic. The survey data provides quantitative insights into the perspectives of meeting attendees and are generalizable only to that population. The community discussions and key community member interviews produce qualitative data that allows us to learn nuanced details about community members' experiences with accessing and developing distributed solar. These methods are not designed to characterize the dominant perspectives in each community, but rather to explore and explain the question of what opportunities, challenges, and potential solutions may exist for expanding access to, and development of, distributed solar in rural Montana.²⁷ We aim to present the most robust characterization of interests, challenges, and potential avenues for future action by synthesizing what we have learn from each of our community engagement activities. We begin by summarizing the combined survey results from all meetings, then follow with a summary of insights from both community meeting discussions and key community member interviews. Finally, we provide a combined summary that looks at these insights together.

Survey Responses

We received survey responses from each community, except Dillon, with a total of sixty-six responses and a response rate of 74%. These surveys supplement our community discussions by ensuring we were able to learn from as many community members at the meetings as possible. The results from survey responses are described below and discussed further, in conjunction with our insights from community members, in the Summary of Findings section below. To see the survey responses for individual communities, see Appendix D.

Survey Responses			
Fort Brenton	11	Hamilton	5
Havre	3	Forsyth	4
White Sulphur Springs	7	Glasgow	12
Red Lodge	17	Columbia Falls	3
Dillon	0	Shelby	4
Total survey responses		66	
Total meeting attendees		89	

²⁷ Hesse-Biber and Leavy, *The Practice of Qualitative Research*.

How interested are you in Installing small-scale solar?	
Level 1 interest (Not Interested)	2
Level 2 interest	4
Level 3 interest	28
Level 4 interest	21
Level 5 interest (Ready to Install)	11
What interests you about small-scale solar?	
Savings on energy bills	61
Energy independence	51
Resilience during outages	45
Using renewable energy	54
Other	5
Where are you interested in installing small-scale solar?	
Home	56
Business	14
Agricultural operation	16
Other	4
What are your concerns about small-scale solar?	
Finding a local installer	27
Reliability of the equipment	29
Payback time	45
Up-front cost	29
Other	8
What is the biggest factor affecting whether or not you decide to install small-scale solar?	
Cost	37
Savings	2
Payback time	6
Installer	3
Other	15

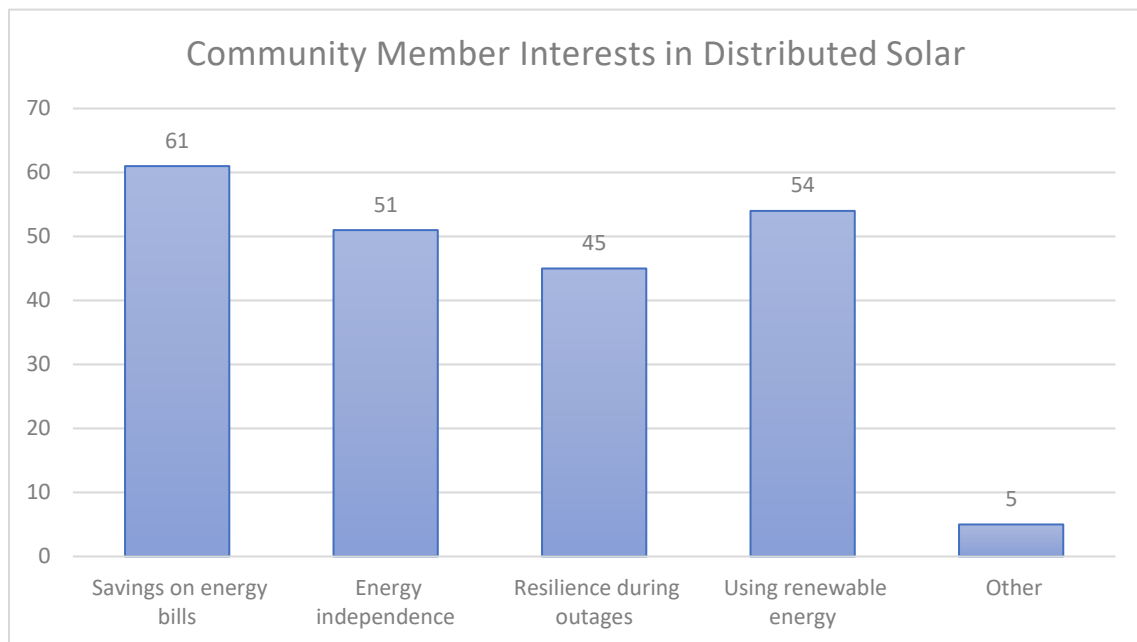
Survey Findings

Of the seven communities for which we have data, there is a nearly even split between attendees who had NorthWestern Energy as an energy provider and those that were served by a rural electric cooperative. Of the fifty-six community members at the meetings for which we have data, twenty-six had NorthWestern Energy and twenty-five had an electric cooperative, with five not answering this question.

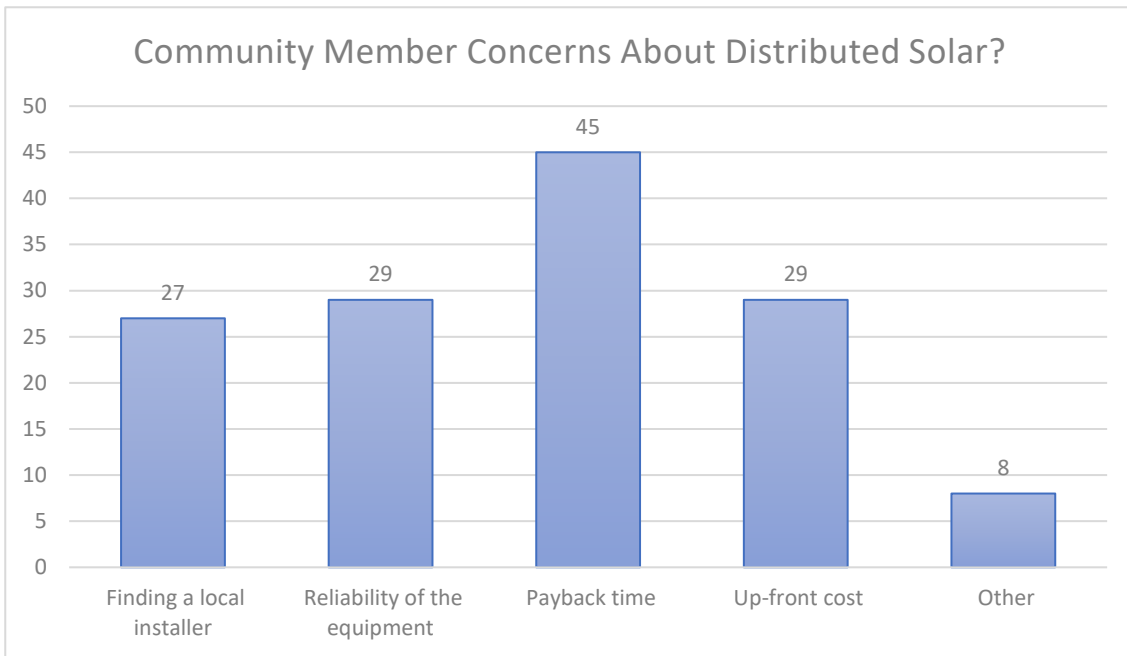
Across all communities, the majority of attendees at community meetings indicated a moderate to high level of interest in installing distributed solar (selecting interest levels “3” – “5”), with only six attendees indicating less interest. Of the sixty-six attendees who responded to our end-

of-meeting survey, 90% indicated a moderate to high level of interest. Of these responses, eleven indicated the highest interest, level “5”, which corresponded to the sentiment “ready to install”, while another twenty indicated an interest level of “4”, suggesting that they were close to that level of interest as well. The remaining twenty-eight responded with an interest level of “3”, a moderate choice midway within the range of responses. This high level of interest may be expected, given that those who chose to attend our meetings may already have been particularly interested in distributed solar development. Across all communities, most attendees indicated that they were interested in installing on their homes, while some indicated interest in installing on their business or agricultural operation.

The aspects of distributed solar that attendees indicated were interesting to them largely encompassed all four of the interests we asked about, with a fairly even split among all categories. Most responses indicated an interest in saving money on energy bills, followed closely by an interest in using renewable energy, energy independence, and lastly by an interest in having resilience during outages. While there is some variation, these responses indicate that most participants are interested in multiple benefits of distributed solar.



In identifying what concerned attendees about distributed solar, most indicated that there were multiple factors. The most common concern, noted in 68% of responses, was about the length of time it would require to pay back the initial investment with savings in energy costs. The three less common concerns, each noted in 41-43% of responses, were about finding a local installer, the reliability of the equipment, and the up-front cost of installation.



When we asked what factor most affected their decisions of whether or not to install, responses showed a much more distinct delineation. Across communities, cost was by far listed as the primary factor impacting attendees’ decisions of whether or not to install.

Insights from Community Discussions

In addition to our end-of-meeting surveys, we also learned from community members through discussions held during community meetings and from key community member interviews. In each community meeting we asked several questions about attendees’ interests, concerns, and priorities regarding distributed solar development. In our key community member interviews, we asked similar questions regarding the disposition of the community at large to solar development, what development had taken place, and what opportunities and challenges for development may exist in the community. Below we describe key themes that emerged from iterative analysis of these discussions with community members.

Interests in Distributed Solar

Several interests emerged from community meeting discussions and interviews with key community members. We have collated the key interests that emerged across multiple community meetings or key community member interviews in the following descriptions.

Interest in Pairing Solar with Storage

Energy storage was one of the most common interests that came up in communities, with community members showing interest in storage in seven of the communities we engaged with (*Fort Benton, Havre, White Sulphur Springs, Red Lodge, Hamilton, Forsyth, Shelby*). There was interest in storage for two primary reasons: resiliency in the case of grid outages, and off-grid living situations. For those interested in greater resiliency to outages, there was interest in how much battery storage they would need to support them in the case of an outage, and how long they could rely on that support. For off-grid living, a key concern was sizing battery systems appropriately for darker winter months and severe weather that may interfere with energy generation.

Interest in Agricultural Uses

Across the state, there was also interest in the benefits distributed solar could offer agricultural producers. Community members from five of the communities we visited described an interest in distributed solar applications on agricultural lands (*Havre, White Sulphur Springs, Forsyth, Glasgow, Shelby*). A common interest was in using solar to power stock well water pumps, where it would otherwise be extremely expensive to bring out a line from the grid. More generally, there was interest in the potential cost savings that solar could provide, and the possibilities of utilizing land for solar and ag operations simultaneously.

Interest in Cost Savings

The potential economic benefits of solar interested community members across the board. In four of the communities we visited, community members voiced their interest in long-term savings and in the financial incentives that make these savings more substantial (*Havre, White Sulphur Springs, Red Lodge, Hamilton*). In some of these communities, those that were interested in installing their own projects themselves suggested that their estimated cost and payback times would be substantially less than the estimates for working through an installer.

Interest in Job Creation

In five of the communities we visited, the projected increase in solar installations, and growth of the solar industry overall, was discussed as an exciting prospect (*Fort Benton, Havre, Forsyth, Columbia Falls, Glasgow*). Some of the communities explained their interest in bringing jobs back to the area and in training opportunities for a local workforce. In two instances, community members described how local colleges and universities could be potential partners in training future solar installers.

Interest in Emissions Reductions

Community members from two communities expressed interest in distributed solar for ecological reasons, citing the lower greenhouse gas emissions from renewable energy sources like solar compared to those of fossil fuels (*Fort Benton, Hamilton*). These community members described that their current energy providers used fuels with high greenhouse gas emissions and this was a motivation to produce their own clean energy.

Interest in Energy Independence

Community members from two communities also voiced interest in distributed solar to gain greater independence regarding their energy use (*Fort Benton, Havre*). In Fort Benton, the motivation for greater independence was driven by a desire to use renewable energy with lower carbon emissions. In Havre, community members were interested in the independence afforded to them by being able to power their homes in the case of an outage or power a cabin that is not connected to the grid.

Challenges to Access and Development

In addition to the interest in distributed solar that we heard in communities across the state, community members also had several concerns and questions about distributed solar and articulated some of the challenges they perceived to accessing and developing distributed solar in their communities.

Up-Front Cost

One of the primary concerns, which was identified in seven of the ten communities, was the upfront cost of installation (*Fort Benton, Havre, Red Lodge, Hamilton, Forsyth, Glasgow, Columbia Falls*). Several communities that noted the up-front cost as a challenge expressed interest in additional incentives that may bring down the cost in the future. One community member expressed dismay that other energy generation industries receive greater incentives than distributed solar. In two communities, community members expressed that the length of payback time specifically was a challenge (*Havre, White Sulphur Springs*). Some community members indicated that, due to their older age, the estimated payback time of thirteen to fifteen years seemed too long to wait to pay off the system. One community member explained that the payback time may be too long for business owners that might not plan to stay at one location for that duration.

Questions on Panels and Installation Process

In addition to concerns about cost, it was also common for community members to have several questions about distributed solar and the process for development. In eight of the

communities we visited, there were various technical questions about panels and installation, ranging from the size and wattage of panels to the optimal type of array one should install (*Fort Benton, Havre, White Sulphur Springs, Red Lodge, Hamilton, Forsyth, Glasgow, Shelby*). These questions indicated substantial interest, but also demonstrated that community members were in search of more information about this technology. This interest in more technical information was especially noteworthy for us as an educational organization because some of the topics were ones that we already address through our website, informational one-pagers, and other outreach methods. For instance, in six of the communities, there were questions about where one could find a list of installers, or installers nearby (*Fort Benton, Havre, Red Lodge, Hamilton, Glasgow, Shelby*). Community members in six communities also asked questions about net metering and how it works. We cover both of these topics on our website and on our other educational materials and we were happy to respond to those questions in-person and direct community members to those additional resources. It was also helpful to learn that these individuals, while interested in solar installation, had not yet found those resource on their own.

In three of the communities, there were also questions about permitting, how solar is covered in home insurance, or how solar array warranties transfer ownership (*Havre, White Sulphur Springs, Shelby*) and in two of the communities there were questions about how to do installations without a professional installer (*Hamilton, Glasgow*). These are questions that we do not currently address on our website or other educational materials and are worth noting as we consider how our educational resources can be designed to best meet the interests and needs of communities across the state.

Durability and Maintenance of Panels

The durability of panels and the maintenance required for them were also primary concerns that came up in communities across the state. In nine communities, there were questions about how the panels function in severe winter conditions such as strong winds and hail (*Fort Benton, Havre, White Sulphur Springs, Red Lodge, Hamilton, Forsyth, Glasgow, Columbia Falls*). There was often an assumption that hail and strong winds would cause damage to the panels, and questions about how much energy the panels would be able to generate during dark and snowy winter months. These are concerns that we do not address directly on our website and were prevalent enough that they are worth noting as key informational interests of community members.

Community members in five communities also voiced concerns about the level of maintenance required for the panels, primarily regarding whether they need to be cleaned regularly to ensure high energy generation (*Hamilton, Forsyth, Glasgow, Columbia Falls, Shelby*). Generally, panels do not need to be cleaned to ensure they continue to operate near optimal efficiency. However, some community members described their experience of cleaning off snow and leaf

litter residue and dramatically improving their energy generation. While circumstances when panels require cleaning are rare, it may be helpful to provide more information on what these exceptional circumstances are so it is clearer when and why it is, or is not, necessary.

Panel Disposal

While panels only degrade in efficiency very slowly, they do reach a point when owners of the array may be interested in replacing them. Community members in five communities were interested in what the disposal process was for panels (*White Sulphur Springs, Red Lodge, Glasgow, Columbia Falls, Shelby*). Some were concerned about whether they could be taken to a landfill or needed to be taken to special waste recovery locations. Others were concerned about whether the panels could be recycled.

Misinformation on Renewable Energy

Misinformation about distributed solar was discussed in five communities, with community members expressing concerns that misinformation may dissuade the community at large from looking into this technology (*Havre, White Sulphur Springs, Dillon, Hamilton, Forsyth*). For example, one community member in White Sulphur Springs described that misinformation circulates on social media regarding whether solar is really a ‘clean’ energy source and that there may be concerns that renewable energy will compete with, and jeopardize, historically well-paying fossil fuel industry jobs. Another example that a community member in Dillon shared is that the community has historically resisted large-scale solar development that would be located on public lands used for grazing, and that this aversion towards large-scale solar development may influence community members’ dispositions towards distributed development as well.

Potential Avenues for Increasing Access and Development

While learning what interests community members about distributed solar, and what challenges they foresee for accessing and developing this technology, we also discussed with community members about how we as an organization could provide support to expand on opportunities and overcome challenges.

Educational Programs

Community members from three communities recommended a variety of educational programs that they felt could support their communities in accessing and developing distributed solar (*White Sulphur Springs, Dillon, Glasgow*). One community member described their interest in having a local ‘clearing house’ for resources in their community, and that MREA

could potentially work with that entity to ensure any questions about distributed renewable energy development get directed toward us. Other community members recommended partnerships with local universities to connect students with renewable energy and potentially provide training opportunities for students who may be interested in entering the renewable energy industry. More broadly, some community members recommended educational efforts to share the benefits of distributed solar and provide guidance on the installation process.

Demonstration Projects

Community members from five communities also discussed how demonstration projects could be opportunities to inform their communities about the benefits of distributed solar and spur more community members to install on their own homes, businesses, or agricultural operations (*Havre, White Sulphur Springs, Dillon, Forsyth, Glasgow*). Some of the locations recommended were on schools or universities, community centers, and medical centers.

Summary of Findings

The combination of our survey responses and insights from our community meeting discussions can provide a more robust characterization of the most prevalent interests, concerns, and priorities regarding distributed solar. Perspectives and experiences of community members varied across the state, however, we summarize the combined insights from survey responses and community discussions to highlight the most common interests, concerns, and priorities as well as describe potential avenues for expanding access to, and development of, distributed solar based on these insights.

Interests

While community members in only four communities discussed cost savings as one of the benefits of distributed solar that they are interested in, sixty-one of the sixty-six attendees who filled out our end-of-meeting surveys indicated that this was an interest. Our survey responses also indicate interest in energy independence, as well as resiliency during outages, and our discussions with community members highlighted how storage, paired with solar, was particularly appealing for those reasons. What is also informative is that while most respondents were interested in installing on their homes, some were interested in installing on their business or agricultural operation, and we learned from community discussions in five communities that there was interest in using distributed solar in agriculture. While community members in only three communities discussed the benefit of reducing carbon emissions by using distributed solar, 54 survey responses indicated that using renewable energy was one of the aspects of distributed solar that interested them. In this case, it may be difficult to distinguish why those 54 respondents were interested in using renewable energy since there could potentially be several reasons, such as reduced carbon emissions, greater energy security,

etc. Lastly, community members in five communities were interested in job creation or workforce development associated with the growth of the distributed solar industry. We did not ask about job creation on our survey, so the information we gleaned from community discussions, while rich in detail, does not give us an indication of how many attendees were similarly interested in this benefit of distributed solar.

This description of attendee interests generally suggests that community members are interested in solar for a variety of reasons and helps us understand that there may be multiple motivations to pursuing distributed solar installation.

Concerns and Priorities

The picture is slightly different when we examine our findings about the challenges community members experience to accessing and developing distributed solar. While community members discussed a variety of concerns, we can see from survey data that the most common concern was the length of payback on their investment and the determining factor influencing whether they moved forward with installation was the upfront cost. This description of priorities helps us understand how we can direct our resources going forward to address attendees concerns more broadly but also focus on the practical considerations of financial feasibility that may be the deciding factor for many community members. As we consider how to respond to the concerns that community members describe, we think of how each concern fits within our own work as an organization.

Paths Forward Through Advocacy

When community members indicated in survey responses that their most common concern was the length of payback on investment, and that the biggest factor impacting their decision to install was cost, we are able to compare these data to what we learned from community discussions and understand that community members were interested in beginning to save on energy bills sooner after installation and that they were interested in financial incentives to offset the initial cost. Here in Montana, state level incentives for renewable energy are sparse, and one of the main financial incentives – an individual income tax credit – for distributed solar was repealed in the 2021 legislative session. Based on community discussions, we can envision a variety of advocacy strategies designed to increase financial incentives for installing distributed solar and adjust existing programs to ensure they are accessible to more Montanans.

Paths Forward Through Education

Another key challenge that we observed across communities was a general lack of information on distributed solar technology and development. Community members asked several questions about the most current technology, the types of panels, how long they last, etc., along with questions regarding the process for installation and how to find installers. Working to provide this kind of foundational information to communities is a key component of how we envision achieving our mission of expanding the use of renewable energy throughout our state. While some of this information is readily available on our website and synthesized in our other educational materials, some of this information is not. Our survey responses and community discussions indicate that there may be different kinds of information that interest community members than what we currently provide, and there may be a need to use new approaches to ensure our existing and new educational resources reach interested community members across the state.

Paths Forward Through Industry Engagement

Community members indicated through survey responses and in community discussions that they were concerned about finding a local installer or that they did not know how to locate an installer. These concerns, juxtaposed with community members' interest in job creation, suggest a variety of ways we can engage as an organization to address this challenge. We currently provide an installer directory on our website and it may be fruitful to examine how we ensure that information reaches communities, since it was clear that some community members had not found it on their own before the meeting. However, is it also true that for many community members concerned about finding a local installer, there may not be one. Installers across the state are often willing and able to serve the more rural areas, but the additional costs of travel, for staff and equipment, could impact the customer's ability to afford the installation. Expanding the solar installation workforce to support new installers in more rural communities could ensure these rural areas have local, less expensive access to distributed solar professionals and could also create new jobs, which was a key interest of community members.

Conclusion

From the variety of engagement methods we employed throughout Phase Two of MRSAP, we have been able to learn some of the interests, challenges, and priorities community members perceived to accessing and developing distributed solar. These insights indicate a variety of ways we can take action through our programmatic focuses of advocacy, education, and industry engagement to ensure rural and LMI communities across Montana can access the benefits of distributed solar. Phase Two has also helped us map the landscape of organizations,

businesses, and public entities that may provide synergistic opportunities for cooperation as we move MRSAP forward. We intend to synthesize these Phase Two insights with our initial research in Phase One to devise effective strategies for expanding access to and development of distributed solar in rural communities across our state. Our goal for the third and final phase of MRSAP is to move these strategies into action to create the changes that are needed to allow our distributed solar industry to grow, with equitable access and development across Montana.

Appendix A: Community Meeting Discussion Questions

This presentation has been my attempt to share the most recent information regarding solar technology and hopefully provide a good starting point for us to discuss this technology in more depth together.

I want to let everyone know that I'm turning on a recorder here for my personal use only so I can ensure I don't miss anything we talk about today.

First off, I'm wondering if anyone has specific questions that came up during the presentation that I can try to clarify?

1. Interest

- a. What interests you about small-scale solar?

Probe: Do you think it will benefit you, your household, your business?

Okay so we've talked a bit about interest, now let's turn toward concerns.

2. Concerns

- a. What aspects of small-scale solar are concerning for folks?

Probe: Do you think there are ways that it would not be beneficial?

3. Priorities

- a. Thinking about the different concerns folks have shared, and reasons folks are interested in small-scale solar, what are some of the most important considerations for folks? What is the main factor that makes you interested or concerned?

Probe: Why does it most interest you? What's your biggest concern?

4. Closing

- a. Alright, well those are all the topics I wanted to ensure we talked about today. Are there any thoughts that folks want to share or discuss that we haven't had a chance to talk through yet?
- b. For the last few minutes of the meeting I'm passing around this quick sheet of questions and it would be a huge help if you'd jot down your thoughts. This is to make sure we get a slice of everyone's perspectives that we can take home with us. It's anonymous, and we plan to use it to help us capture what you all find most interesting or concerning which will help us be a better resource for you going forward, and help us dedicate our efforts to things you care about.

When you're done feel free to drop your sheet off in this little basket here. If you have any questions, I'm happy to chat more with you.

Appendix B. Key Community Member Interview Guide

Hello, how are you doing today?

Thank you for taking the time to talk with me today. In addition to talking with the broader community at our meeting this week, I wanted to take the time to talk with you directly given your work here in [town].

[In our quick chat earlier this year you gave me a general description of solar energy in [town] and I wanted to follow up with you to talk about / I'm interested in hearing a bit about the current state of small-scale solar in (town) and discuss] future development and learn what opportunities there may be and what barriers may still remain.

First off though, do you have any questions for me?

Into

1. Could you tell me about any solar development you know of that already exists in [town]?
 - a. Do you know what the motivation for that individual/business was?
2. What's the general sentiment around small-scale solar among community members?
 - a. *Probe: Are they familiar with the technology and do you sense whether there's interest or not?*

Opportunities

3. Are their organizations or certain groups of individuals, like business owners for example, who you think would be particularly interested or who could especially benefit from small-scale solar?
 - a. *Probe: What about farmers or ranchers?*
 - b. *Why?*

Challenges/Barriers

4. What are the main challenges to increasing small-scale solar development in [Town]?
5. What could help overcome those challenges?

Closing

6. Would you and your organization be interested in future collaboration with MREA to overcome those challenges?

Appendix C. Survey Questions (Initial and Adjusted Versions)

Distributed Solar (Initial)

Our goal is to ensure that all Montana communities can access the independence, cost savings, and resiliency that distributed solar offers. To do this, we want to learn from you. The more we know, the better we can support Montanans in developing their own energy generation. **Please fill out this questionnaire and drop it off before leaving the meeting today. Thank you!**

How interested are you in installing distributed solar?

1 2 3 4 5

Not Interested

Ready to Install

What Interests you about distributed solar?

Savings on energy bills Yes | No

Energy independence Yes | No

Resilience during outages Yes | No

Using renewable energy Yes | No

Other _____ -

Please Specify

Where are you interested in installing distributed solar?
Please check all that apply.

Home Yes

Business Yes

Agricultural operation Yes

Other _____

Please Specify

What are your concerns about distributed solar?

Finding a local installer Yes | No

Reliability of the equipment Yes | No

Payback time Yes | No

Distributed Solar (Adjusted)

The more we know, the better we can support Montanans in developing their own energy generation. **Please fill out this questionnaire and drop it off before leaving the meeting today. Thank you!**

Who is your energy provider?

NorthWestern Energy Yes

Electric Cooperative Yes

_____ Please Specify

How interested are you in installing distributed solar?

1 2 3 4 5

Not Interested

Ready to Install

What Interests you about distributed solar?

Savings on energy bills Yes | No

Energy independence Yes | No

Resilience during outages Yes | No

Using renewable energy Yes | No

Other _____

_____ Please Specify

Where are you interested in installing distributed solar?
Please check all that apply.

Home Yes

Business Yes

Agricultural operation Yes

Other _____

_____ Please Specify

What are your concerns about distributed solar?

Finding a local installer Yes | No

Reliability of the equipment Yes | No

Payback time Yes | No

Up-front cost Yes | No

Other _____

_____ Please Specify

Up-front cost

Yes | No

What is the biggest factor affecting whether or not you decide to install distributed solar?

Other

Please Specify

Please Specify

What is the biggest factor affecting whether or not you decide to install distributed solar?

Please Specify

Appendix D. Survey Results by Community

COLUMBIA FALLS	
Meeting Attendees	3
Survey Responses	3
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	0
Energy Provider Electric Cooperative	3
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	0
Level 3 interest	3
Level 4 interest	0
Level 5 interest	0
What interests you about small-scale solar?	
Savings on energy bills	3
Energy independence	3
Resilience during outages	1
Using renewable energy	1
Other	0
Where are you interested in installing small-scale solar?	
Home	3
Business	0
Agricultural operation	0
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	0
Reliability of the equipment	0
Payback time	3
Up-front cost	1
Other	0

FORSYTH	
Meeting Attendees	4
Survey Responses	4
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	1
Energy Provider Electric Cooperative	2
How interested are you in Installing small-scale solar?	
Level 1 interest	1
Level 2 interest	0
Level 3 interest	1
Level 4 interest	1
Level 5 interest	1
What interests you about small-scale solar?	
Savings on energy bills	3
Energy independence	1
Resilience during outages	1
Using renewable energy	2
Other	0
Where are you interested in installing small-scale solar?	
Home	3
Business	0
Agricultural operation	0
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	1
Reliability of the equipment	2
Payback time	1
Up-front cost	2
Other	0

FORT BENTON	
Meeting Attendees	13
Survey Responses	11
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	13
Energy Provider Electric Cooperative	0
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	0
Level 3 interest	5
Level 4 interest	4
Level 5 interest	2
What interests you about small-scale solar?	
Savings on energy bills	11
Energy independence	11
Resilience during outages	10
Using renewable energy	11
Other	0
Where are you interested in installing small-scale solar?	
Home	10
Business	6
Agricultural operation	2
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	6
Reliability of the equipment	9
Payback time	8
Up-front cost	9
Other	1

GLASGOW	
Meeting Attendees	17
Survey Responses	12
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	3
Energy Provider Electric Cooperative	9
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	2
Level 3 interest	7
Level 4 interest	3
Level 5 interest	0
What interests you about small-scale solar?	
Savings on energy bills	10
Energy independence	8
Resilience during outages	7
Using renewable energy	8
Other	1
Where are you interested in installing small-scale solar?	
Home	9
Business	3
Agricultural operation	6
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	8
Reliability of the equipment	7
Payback time	7

Up-front cost	7
Other	2

Agricultural operation	0
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	1
Reliability of the equipment	1
Payback time	2
Up-front cost	1
Other	0

HAMILTON	
Meeting Attendees	5
Survey Responses	5
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	2
Energy Provider Electric Cooperative	3
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	0
Level 3 interest	1
Level 4 interest	4
Level 5 interest	0
What interests you about small-scale solar?	
Savings on energy bills	4
Energy independence	5
Resilience during outages	4
Using renewable energy	4
Other	0
Where are you interested in installing small-scale solar?	
Home	5
Business	0

HAVRE	
Meeting Attendees	7
Survey Responses	3
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	<i>No Data</i>
Energy Provider Electric Cooperative	<i>No Data</i>
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	0
Level 3 interest	2
Level 4 interest	0
Level 5 interest	1
What interests you about small-scale solar?	
Savings on energy bills	3
Energy independence	2
Resilience during outages	3
Using renewable energy	3
Other	0

Where are you interested in installing small-scale solar?	
Home	1
Business	1
Agricultural operation	1
Other	1
What are your concerns about small-scale solar?	
Finding a local installer	2
Reliability of the equipment	1
Payback time	3
Up-front cost	1
Other	0

Energy independence	14
Resilience during outages	12
Using renewable energy	17
Other	1
Where are you interested in installing small-scale solar?	
Home	14
Business	3
Agricultural operation	1
Other	2
What are your concerns about small-scale solar?	
Finding a local installer	5
Reliability of the equipment	6
Payback time	11
Up-front cost	6
Other	3

RED LODGE	
Meeting Attendees	25
Survey Responses	17
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	No Data
Energy Provider Electric Cooperative	No Data
How interested are you in Installing small-scale solar?	
Level 1 interest	1
Level 2 interest	0
Level 3 interest	5
Level 4 interest	7
Level 5 interest	4
What interests you about small-scale solar?	
Savings on energy bills	16

SHELBY	
Meeting Attendees	4
Survey Responses	4
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	1
Energy Provider Electric Cooperative	4
How interested are you in Installing small-scale solar?	
Level 1 interest	0
Level 2 interest	2
Level 3 interest	2
Level 4 interest	0

Level 5 interest	0
What interests you about small-scale solar?	
Savings on energy bills	4
Energy independence	1
Resilience during outages	1
Using renewable energy	2
Other	1
Where are you interested in installing small-scale solar?	
Home	4
Business	0
Agricultural operation	3
Other	0
What are your concerns about small-scale solar?	
Finding a local installer	1
Reliability of the equipment	1
Payback time	3
Up-front cost	1
Other	1

Level 2 interest	0
Level 3 interest	2
Level 4 interest	2
Level 5 interest	3
What interests you about small-scale solar?	
Savings on energy bills	7
Energy independence	6
Resilience during outages	6
Using renewable energy	6
Other	2
Where are you interested in installing small-scale solar?	
Home	7
Business	1
Agricultural operation	3
Other	1
What are your concerns about small-scale solar?	
Finding a local installer	3
Reliability of the equipment	2
Payback time	7
Up-front cost	2
Other	1

WHITE SULPHUR SPRINGS	
Meeting Attendees	10
Survey Responses	7
Who is your Energy Provider?	
Energy Provider NorthWestern Energy	3
Energy Provider Electric Cooperative	4
How interested are you in Installing small-scale solar?	
Level 1 interest	0

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