



Geologic Sequestration of Carbon Dioxide

Guidelines on Community
Engagement for Geologic
Sequestration Project Developers
and Class VI Permit Applicants

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Table of Contents

Background	1
Document organization	2
Performing Successful Community Engagement.....	3
Identify Decisions for Public Input	3
Identify Community/Stakeholders.....	4
Identify the Message and Messengers	8
Identify Outreach/Engagement Methods.....	9
Prepare Outreach Materials to Support Engagement	11
Considerations for Effective Communication	11
Implement, Engage, Follow-Up, and Reporting.....	12

Attachments

Attachment 1: Resources to Support Community Engagement Planning

Attachment 2: How to Use EJScreen

Attachment 3: Examples of Questions about GS/Injection Technology

Attachment 4: Example Community Engagement Summary Report

Guidelines on Community Engagement for Geologic Sequestration Project Developers and Class VI Permit Applicants

Background

Community engagement refers to the full range of activities used to meaningfully¹ include all affected populations in decision-making that supports any endeavor, including carbon dioxide (CO₂) geologic sequestration (GS) project development and eventual Class VI permit application submittal. It is a process of working collaboratively with groups of people affiliated by geographic proximity, special interest, or similar situations to identify and address issues affecting the wellbeing of those people. Effective early community engagement can help establish open lines of communication between project developers and a host community, ensure social equity by fostering inclusion, and build lasting relationships and trust. Community engagement for a CO₂ GS/Class VI project often includes outreach to inform an affected community about the proposed project and any potential effects on the community to empower their participation in project development.

Community engagement offers several benefits to CO₂ GS project developers, Class VI permit applicants and Class VI well owner/operators² and the host community, including:

- Fostering the development and maintenance of long-term mutually constructive relationships between Class VI project developers and host communities,
- General education to the nearby public about GS and the potential risks and benefits of a proposed Class VI injection project,
- Creating and enhancing open spaces to discuss/inform a project and to demonstrate a willingness to address community concerns,
- Enabling elected officials and community leaders to frame a Class VI project in context with their duties and responsibilities to their constituents,
- Helping to ensure a Class VI project profits local economies while valuing the surrounding ecosystem and respecting the people in the affected community,
- Improving community and business brand image, financial success, and cohesion,
- Reducing the potential risks that could hinder current and future planned projects, increase costs, or delay the issuance of project permits,
- Anticipating concerns that may be raised during the Class VI permitting process via the required public comment process, and
- Contributing to federal environmental justice³ and equity goals.

¹ The EPA's definition of *meaningful engagement*: <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice#definitions>

² CO₂ GS project developers may become Class VI permit applicants and then permitted Class VI injection well operators subject to the EPA's review and approval of a Class VI permit in accordance with the Safe Drinking Water Act and EPA's UIC program regulations. Thus, *Class VI project*, *Class VI project developer*, and *Class VI permit applicant* will be used in this document interchangeably to refer generally to CO₂ GS projects and their owners/developers.

³ The federal definition of "environmental justice" can be found in, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, (Executive Order 14096, April 21, 2023)

- Providing insights into community perceptions of GS, the proposed project, the information on which the Class VI application and permit are based, and the surrounding facility and infrastructure.

The EPA encourages broad community engagement by Class VI project developers before, during, and after project conception, Class VI permit application submittal, site development, and Class VI injection well operation. Engagement fosters the building of community relationships, creates meaningful participation, and demonstrates willingness to integrate public input. This approach can generate local and larger public buy-in for a Class VI project and lay the foundation for future projects.

The engagement discussion and recommendations in this document are separate from and broader than the federal requirements for public notice of and collection of comment on a draft Class VI permit decision defined under 40 CFR 124. None of the recommendations below are required under the federal Class VI regulations to obtain a Class VI permit from the EPA or to operate a Class VI well after receiving a permit. The required public notice and comment process for a Class VI permit is initiated by the Class VI permitting authority not by a CO₂ GS project developer/Class VI permit applicant. Effective community engagement surrounding a CO₂ GS project considers a larger scope than what is commented on by the public under a federal Class VI permit. CO₂ GS project engagement is inclusive of a wider suite of considerations and should start well before a permit application is ready for submittal to the Class VI permitting authority (i.e., during project planning and development).

Document organization

This guide provides Class VI project developers/applicants with recommendations for an organized approach to pursue meaningful community engagement. It describes how to engage with local residents, leaders, community-based organizations, and others representing a diversity of needs and interests in support of a Class VI project. This guide outlines the following steps of implementing community engagement, which are depicted in the flow chart below:

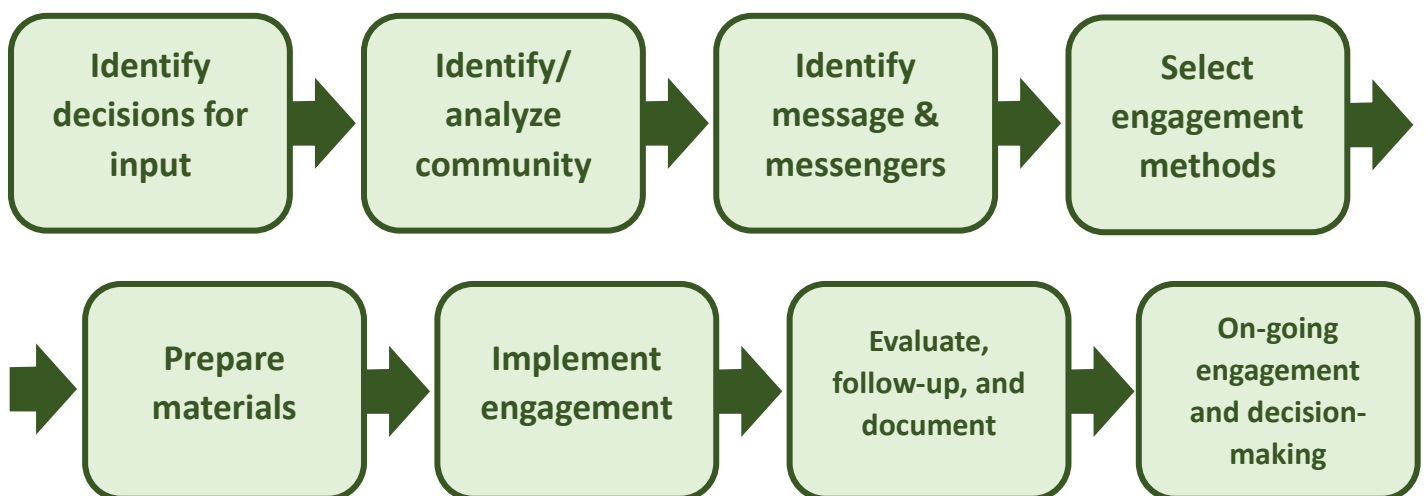


Figure 1: Flow chart of the community engagement process.

- Identify project decisions that may benefit from public input,
- Identify the communities and stakeholders to engage, and conduct a social characterization analysis,
- Identify the information to be communicated and the messengers who will deliver it,
- Select appropriate community engagement methods, such as open public meetings, direct work with organizations, tours and demonstrations, and website or media outreach,
- Prepare materials that accommodate the needs of the community,
- Implement the plan and follow up by assessing receipt of the message, addressing identified concerns, and documenting outcomes, and
- Continue ongoing communications and community engagement in support of project decision-making.

This document is intended to provide an overview of the community engagement process and highlight specific considerations for community engagement related to Class VI projects. However, it does not provide step-by-step instructions for performing the steps identified above. Attachment 1 provides a list of resources that are available to assist in developing a community engagement plan.

Performing Successful Community Engagement

Identify Decisions for Public Input

The foundation of community engagement and the basis of a community engagement plan is determining how the public can influence the decision-making process in project planning, outcomes, and operations. Since such decisions are made throughout the development and operation of a Class VI project, it is important to identify opportunities where public input is valuable and meaningfully influences decisions. Some of these decisions will be straightforward (e.g., hours of operation, anticipated traffic patterns, etc.). Other decisions will be more complex (e.g., construction details, compliance monitoring, well plugging plans, etc.) and may benefit from iterative interaction with community stakeholders.

It is also important for Class VI project developers to identify the constraints of public input. If there is little opportunity for the public to meaningfully influence decisions, then it is reasonable to focus on tailored outreach/communications plans to provide accessible and helpful information to your primary audience.

Areas where public input may be beneficial include:

- **Public health and safety** – Ensure safe and secure design, construction, and operation of a Class VI project facility; development of emergency preparedness and response protocols in collaboration with local emergency services.
- **Environmental responsibility** – Account for potential effects of Class VI project construction and operation on the natural environment as well as nearby infrastructure (homes, businesses, community centers, etc.).
- **Environmental and economic equity** – Ensure facility construction and operations bring benefits to the surrounding community (including recruiting/training community members for facility positions), provide resources to mitigate past injustices, and evaluate how the community will weigh in on potential opportunities and risks of the facility operations.

- **Transparency and accountability** – Plan and implement a process to ensure the facility operator is open to public input throughout the project, including transparent decision-making, environmental, social, health effect monitoring, readily available monitoring and testing data, systems for the community to report concerns or compliance issues, and rapid communication with the community if safety issues arise.
- **Other impacts** – Facility design, management, and monitoring to account for site and community traffic/transport, dust, stormwater run-off, emissions, or noise/vibration.

The EPA recommends that Class VI project developers do an internal assessment of how public input can shape decisions. The assessment should address the following questions:

- Are the decision-makers committed to considering meaningful public input on the project?
- Where can public input inform crucial decisions or specific aspects of the project?
- How could the public help make decisions and/or establish project details (e.g., on facility operations, project planning, project implementation, Class VI permit conditions, etc.)?
- How technically complex are the decisions on which input is being sought? What level of education is needed for the public to understand the key technical, legal, and scientific issues and better engage?
- What data is needed for the decision? How can community members assist in data development, if needed?
- Would the outcome of such decisions be controversial or received poorly? Are there outrage factors that will complicate risk perception?

Identify Community/Stakeholders

Communities are often made up of groups of people with diverse backgrounds who may have a variety of opinions and concerns about any proposed development in their area, including a Class VI project. The people of a community may have differing needs and preferences that influence how they best receive and comprehend information. A social characterization analysis (SCA) prior to engaging with a community or communities surrounding a project can help a Class VI project developer understand these needs and preferences. A SCA supports proactive, inclusive engagement by helping to identify community stakeholders who are not often included in traditional project supply chains and decision-making processes. This helps ensure that all community members are effectively receiving information and are thus given an opportunity to participate in decisions that affect them. An SCA provides information that helps a Class VI project developer plan events that are accessible to all people, prepare an understandable message, develop materials in the most appropriate languages and formats, and anticipate questions.

Identify the communities to engage and conduct a social characterization analysis

The goals of the SCA are to understand:

- Community demographics, particularly as they relate to the challenges that people may face in accessing information or participating in the process based on English literacy

levels, internet service availability, work/childcare needs, etc.

- People's understanding of GS/carbon capture, utilization, and storage (CCUS); their history or experience with oil and gas or other industrial projects; and the level of trust between the community, government, industry, and other sectors.
- Physical and social conditions that may increase the effects of environmental pollution (or "stressors") on disadvantaged, underserved, and overburdened communities.
- Which stakeholder or advocacy groups represent the community's needs, and their perceptions and concerns about a potential Class VI project.
- How members of the community typically receive and consume information and the strength of the local media.

The community or communities must be clearly identified to achieve the goals of the SCA. Generally, the first step of an SCA is to identify the geographic area where people may be affected by or interested in the project. If known by the project developer, the SCA should, at a minimum, focus on communities within and near the preliminarily delineated area of review (AoR) for the Class VI project (i.e., the lateral extent that the CO₂ plume is expected to encompass). A "buffer" around the AoR is recommended when defining the area for the SCA because the AoR may change as a project nears finalization (e.g., in response to pre-operational data collection).

While the physical scope of a Class VI project (i.e., the wells and associated surface facilities) may be limited, consider including areas that may be affected by other aspects of the project as part of the SCA. These relevant project aspects may include CO₂ capture facilities, pipelines, roads that will receive truck traffic, and/or construction operations.

After identifying a geographic area on which to focus, the Class VI project developer and the Class VI permit applicant gather data to help characterize the social context of the community within which a project is planned.

An SCA may employ a variety of methods to provide social context for the affected area. The EPA recommends beginning the SCA with a screening-level demographic evaluation of the project area. Available tools for such an evaluation include the EPA's EJScreen, the Agency for Toxic Substances and Disease Registry's Environmental Justice Index Explorer, the Department of Energy's Energy Justice Dashboard, and the White House Council on Environmental Quality Climate and Economic Justice Screening Tool. One or more of these tools used in combination can be used to establish robust demographic data. The data screening should be followed by in-depth research through stakeholder interviews, media analyses, or surveys.

EJScreen

EJScreen is an online interactive mapping tool that integrates numerous demographic, socioeconomic, and environmental data sets. With an understanding of these characteristics, a Class VI project developer can pursue effective community engagement. EJScreen provides data that should be incorporated into engagement planning, including:

- The percentage of people who primarily speak languages other than English or have limited English proficiency (LEP). Areas with large LEP⁴ populations may require specific information materials, translation services, and partnerships to ensure engagement.
- The relative prosperity and income of the community. An area with large low-income populations or high unemployment rates may limit time availability and/or access to transportation.
- The education level of the community. A population with a high percentage of people having a high school education or less may require the development of materials and approaches that are different than in an area with higher levels of post high school degree achievement.
- Information access. Online engagement may be less effective in communities without nearby libraries and/or lower rates of household broadband access/subscription.
- Population age. Communities with a significant elderly percentage of the population (over age 64) may encounter challenges attending in-person events because of accessibility or health issues or difficulties using social media. Communities with a large population under 5 may have childcare as a barrier to attending in-person events.
- Other industrial or environmental sites or hazards, about which people may have negative experiences or perceptions.

In addition to socioeconomic information, EJScreen contains data on environmental justice indexes (e.g., related to exposures to particulate matter, lead paint, etc.), health disparities, climate change, and critical service gaps. While some of this information may not be directly relevant to developing a community engagement approach/plan, applicants should be aware that these are on people's minds and be prepared to answer questions. For example, constructing and operating a CO₂ storage project is unlikely to increase lead exposure, but people may ask about it.

Information about EJScreen and a link to the tool are available at www.epa.gov/ejscreen. Attachment 2 provides information about how to use EJScreen and the information it contains.

⁴ For information on how the Federal government handles LEP please see: <https://www.lep.gov/>

Additional research

The results of the EJScreen (or other) evaluation may be used to guide an in-depth analysis, gain a more complete understanding of the community's demographics, and anticipate their questions or concerns. Specific research goals are presented in the box to the right.

For a thorough SCA, a variety of methods should be used to gain a full understanding of the community and the issues that people consider to be important. For example:

- Research local and regional news media and social media archives to understand how other CO₂ injection or industrial projects in the area were perceived.
- Review census data to understand the full range of languages spoken. For example, if EJScreen indicates that a high percentage of people speak languages other than English, do follow-up research to understand what languages are spoken.
- Conduct public opinion surveys to understand the level of knowledge and perceptions of GS. Oversample minority or historically underrepresented populations.
- Meet with civic and environmental groups, community gatekeepers, and stakeholders who represent the business interests of the community.
- Drive around the project site to identify proximate neighboring private and commercial presences.
- Meet with representatives or researchers at local colleges and universities to help them understand the project and associated technologies.
- Identify whether any Tribes or indigenous people live in the area, the location of tribal/cultural resources, and the names of tribal leaders.
- Research municipal and county government websites and archives.

Research performed as part of a SCA can help a project developer understand:

- Community knowledge and perceptions of GS and CCUS, environmental and climate change topics, and the energy industry.
- How and where people get their information, and who they trust and view as unbiased sources of information.
- How decisions that affect the community are made.
- Whether the community is experiencing or has experienced environmental harm in the past.
- Whether Native American cultural properties or resources are present.

Identify key stakeholders

Stakeholders are broadly defined for the purposes of this document as parties who are interested in and/or may be affected by environmental decisions. Key stakeholders are parties that have authority and influence that may shape the development and implementation of a given project. These stakeholders may be identified via the research performed for the SCA. Key stakeholders associated with a Class VI project may include:

- Local elected officials or decision-makers, community planning groups/representatives, and tribal leaders who understand the needs and aspirations of the community and need to communicate information to their constituencies.

- Non-governmental organizations such as environmental groups; advocates for/representatives of disadvantaged communities; faith-based groups and philanthropic organizations; and business representatives, worker organizations, and farming association members.
- Educators, local universities, and technical experts who may be interested in the project or to whom the public may reach out with questions.
- Tribal groups who would understand the tangible and intangible cultural resources of spiritual, religious, and historic importance to the community.
- First responders, public health and safety officials, public water system operators, and operators of nearby industrial facilities or businesses who may need to know about the project to perform their duties.

In addition to a SCA, other sources of information about potential key stakeholders include state and local government websites; county assessor records (to identify property owners and businesses); and community meeting minutes (to identify organizations that routinely attend meetings).

Early and regular communication with key stakeholders may help Class VI project developers engage the broader community. Key stakeholders can help establish an understanding of community concerns and interests, what formats/timing are best to reach people, and what information should be communicated so that people feel that their safety is being protected. One-on-one discussions can provide key stakeholders with the information they need to answer questions that the community may ask them. Collaborative engagement of a community through key stakeholders may help applicants more effectively gather and incorporate input on decisions where public input is sought. Such proactive engagement can bolster project planning and eventual permit approval by avoiding/mitigating project opposition and save time spent reacting to concerns further along in the development process.

Identify the Message and Messengers

Early community engagement for a proposed Class VI project is aimed at reaching and educating stakeholders to establish a firm understanding of the basic concepts of GS, the technologies involved, and general project information. Ideally, through such engagement, the project developer and the surrounding community both obtain a mutual understanding of the benefits and risks to each party and can use that information to navigate any project hurdles. Proposed project information to communicate early includes: the location and description of the project (the injection wells and associated facilities), the source and volume of CO₂, the anticipated duration of the project, potentially affected resources, and environmentally protective/safety measures. The Class VI project developer should also explain the status of any project information collection and the permit application development, and clearly outline the project timeline and status in context with the Class VI permitting process.

While the focus of the communication and engagement should be the proposed Class VI project, carbon capture and CO₂ GS are technically complex and are associated with advanced science related to climate change, geology, and other fields of study. Thus, it is important to be prepared to respond to ancillary issues raised by the community during the community engagement process. Related topics that are not within the scope of the Class VI project but may be raised include: local economic and job creation opportunities, water quality or quantity changes, associated technologies, or land use rights. Participants may raise questions or comments related to any of these issues during public events, and the applicant should be prepared to address these questions. Examples of questions that may arise are presented in Attachment 3.

As part of communication planning, it is often helpful to designate one or more project staff members to serve as representative(s) to interact with the community. Representatives should be knowledgeable about the project, be able to follow up/answer questions, and be trained or skilled at communications. They should also be available throughout the community engagement process to provide continuity as the project moves forward to the permitting and early operational phases. If outreach is to be provided by a team, be clear about roles so that nothing could be perceived as contradictory or indicate disorganization.

Identify Outreach/Engagement Methods

Effective community engagement will employ more than one communication method to accommodate the needs of various members of the community (see the box at right). The use of multiple formats (and languages where needed) to share information promotes inclusivity and provides flexibility to meet the audience's demographics, needs, and interests.

Below are descriptions of community engagement methods, including public meetings/information sessions, interaction with stakeholder organizations, tours, open houses, and demonstrations, traditional and social media outreach, and written communications. Following these descriptions are considerations for adapting or combining these methods to reach as many people as possible.

The benefits of using multiple community engagement formats

People have multiple opportunities to access information.

People may need to receive information more than once and in multiple formats to gain a complete understanding.

Not everyone uses social media, reads the newspaper, or can attend in-person events.

People respond differently to various types of information.

Meetings/information sessions

Public or town hall meetings provide Class VI project developers an opportunity to disseminate information as well as interact with the community through a question-and-answer based approach. These meetings often have a specific agenda set by the organizer and are held in a public facility with easy accessibility for the community. Class VI project developers can provide a presentation that is preceded or followed by a “mingle” session where members of the community can talk one-on-one with project representatives and ask questions.

Open houses or information sessions allow Class VI project developers to broadcast information and interact with a community in a less structured setting. Sometimes these events include informational booths with posters or exhibits to communicate specific aspects of the project. These events may also include structured opportunities for public input by using a “comment wall” or other methods of generating ideas or recommendations. With new technology in communities where people can access it, virtual open house meetings can also be successful.

Working meetings or focus groups typically involve small groups who meet once or periodically for in-depth discussions. Focus groups often enable Class VI project developers to gather community input in greater detail owing to group size and direction. These groups should represent diverse interests to give their findings credibility. A neutral facilitator can assist in keeping the discussion on track and ensuring that diverse viewpoints are heard. Because these groups are typically small and can be viewed as exclusionary, it is important to communicate publicly who the members are, what they discussed, and their findings.

Interaction with stakeholder organizations and advocacy groups

Targeted engagement can include presentations to and/or conversations with local businesses, representatives of non-profits, community-based associations, environmental advocacy groups, etc. This can help the project developer understand the specific needs, concerns, and interests of such organizations and use that knowledge to build relationships. A project developer may host an informal discussion or roundtable or ask to be a guest speaker at a meeting of a local interest group. **One-on-one meetings** with leaders of environmental or advocacy groups can be valuable for understanding the concerns of a specific group. While small-group meetings provide an opportunity for an open discussion that is focused on one or two topics, applicants should take care to make information about any meetings (including what was discussed and when) available to the broader community. If these targeted discussions involve technical conversations, it is important the material presented is understandable to the general public.

Tabling, tours, and demonstrations

Tabling or a booth at a community event or in a community provides a Class VI project developer with opportunities to communicate information and engage in the community. Tables can be set up at a community fair, neighborhood event, or even in a neighborhood. Offering interactive opportunities (spin the wheel or public voting on a topic) can spur interest in the information.

Site visits or tours of the proposed Class VI project facility can show the community what is involved in a GS project, illustrate the scope of the project, and provide opportunities for informal discussions with project staff.

Class VI project developers can also utilize **posters and/or hands-on demonstrations** to explain complex concepts to the public and provide an opportunity for conversations between technical experts and the community. For example, rock/core samples or three-dimensional models can help people visualize geology, the depth of injection zones and their separation from water supplies, or how CO₂ moves in the subsurface.

Demonstrations may be presented at targeted meetings held as part of the community engagement effort. Some Class VI project developers have set up information centers at libraries, shopping malls, farmer's markets, or other spaces that are frequently visited by the public.

Media outreach

Media outreach can involve working with traditional media or social media. **Traditional media** outlets include local television, radio, daily newspapers, and alternative/specialty newspapers. Class VI project developers can provide information to the media through direct communication, print advertisements, or press releases. They can write content for or be interviewed by local reporters, such as the reporter covering a newspaper's "science beat." Project developers could also broadcast or air recordings of public events on local public access channels. Media outlets have the advantage of reaching large numbers of people but offer only one-way communication. It can be difficult to gather the input needed for effective community engagement using media outlets alone. In addition, the public's perception of the available media outlets may shape how it perceives the information provided through these channels and thus influence their views on a Class VI project.

Internet- and mobile-based **social media tools** include blogs, social networks, podcasts, and webcasts. Social media can help provide accessibility to community audience segments that do not look to traditional media for information or are unable to attend in-person events. However, social media would not be appropriate as an exclusive method of communication in communities where there is limited broadband access.

Prepare Outreach Materials to Support Engagement

Written materials help reinforce verbal messages and give people something to take home and think about. They can also provide information to people who cannot attend events. Examples include press releases, fliers, fact sheets, and newsletters. In addition, non-written materials, such as short videos or recorded presentations, can be used to communicate key concepts outside of an engagement event.

The materials should be developed in a style that is suitable to the intended audience. Materials for the general public should be easy to read and understand with limited technical terminology or jargon. The text should be accompanied by illustrations that explain technical concepts with which the public may not be familiar, such as geology or injection well design.

Technical details should be available upon request for those who want more detailed information. Materials developed for more technical audiences can be complex and use technical language but should communicate the same information as what is distributed to the general public.

Materials can be distributed in a variety of ways. For example, print materials can be provided at meetings or other in-person events or directly mailed to nearby community members. Other methods to disseminate materials include advertisements in local newspapers, posting the materials on a project website, sharing materials through social media, and emailing materials to a listserv developed to include interested people or organizations. Additionally, informational posters can be posted around the community with QR codes or URLs for people to find project information. Class VI project developers may also partner with stakeholder organizations to distribute engagement materials to their membership.

Considerations for Effective Communication

Reflection on the results of the SCA described above (e.g., the information generated by EJSscreen) will help ensure that engagement activities accommodate the needs of the community. While not a step listed in the flowchart above, this section describes important actions for Class VI project owners to be aware of in support of successful community engagement. Below are examples of considerations, accommodations, or modifications that may be needed to enable the widest possible range of involvement and understanding.

- **Translate** written materials or provide interpreters at live or online events if there are large populations whose first language is not English. Ensure translation services address all languages spoken in the community. Provide sign-language interpretation at in-person events or closed-captioning of recorded events.

Ensuring environmental justice and equity depends on communication that reaches and is understood by everyone.

- **Use non-technical language⁵ and graphics** if a high percentage of people in the community have less than a high school education. If stakeholders include educators, provide the educators with copies of low-literacy materials along with more technical information so they have the information they need to answer questions about low-literacy materials.
- **Plan events in the evening/on weekends** or plan multiple events to accommodate work, life, and childcare schedules to ensure people are able to attend. Childcare at meetings and remote (online or public television) access to the sessions can also help people find time to participate.
- **Hold meetings at central locations and accessible venues** where transportation is limited and to accommodate the needs of people with limited mobility (e.g., participants who need wheelchairs or canes).
- **Account for community-wide schedules** and events to facilitate meeting attendance. Make sure events do not conflict with religious holidays or cultural events (e.g., planting or harvest periods in farming communities). Consider coordinating meetings to occur with other significant community gatherings.
- **Provide printed information** in communities with low rates of household broadband subscription. Mail printed materials to all residents or make copies available at libraries, government centers, schools, senior centers, or other frequently visited places.
- **Consider the ability of older and younger communities to access information.** Communities where a large percent of the population is identified as over 64 in EJScreen may have difficulty traveling to in-person events or be less likely to use social media. Provide childcare at meetings if a large percent of the population is under 5; alternatively, live stream, broadcast, or make recordings available so community members can participate remotely.

Consider engaging specialists or consultants with expertise in environmental justice and communication to various groups. They can develop or review materials or provide input on the robustness and validity of the information that is provided during outreach events. Ask community representatives or stakeholders to review the materials before distributing them widely to the community.

Implement, Engage, Follow-Up, and Reporting

This section combines the last three steps listed in the above flowchart as all three involve the formal execution of engagement activities with the community and key stakeholders.

Deliver the message

Effective, consistent, and confidently presented information can enhance a community's understanding and acceptance of the message. Rehearse presentations before the events and (as noted above) be sure the person who presents the information is knowledgeable about the project and can anticipate and answer questions.

Listen to what people have to say and respond to questions or comments at the event or commit to responding as soon as possible. Designate someone with the responsibility to follow up on those

⁵ EPA follows the Federal plain language guidelines for communications:
<https://www.plainlanguage.gov/guidelines/>

questions that cannot be answered on the spot. Responses should be publicly available to all members of the community. Take notes of the questions people ask and the answers provided.

Make sure people know where updated or new information about the project will be available. This information may include the completed permit application, information about the application review, and ongoing technical reports that will be submitted throughout the project.

Evaluate the process

Follow-up evaluation can help assess whether the message was received as intended, that target audiences understand the relevant issues, and if/how community input can inform decisions on which public input is sought. The results of such an analysis can also inform future community engagement efforts. Available methods for collecting insight include:

- Monitoring media coverage of, or public opinion about, the project or community engagement events to determine whether people understood the information that was presented or identify any misconceptions.
- Tracking requests for information about the project to gauge interest in the project or comprehension of the message.
- Conducting surveys to assess what information about the proposed Class VI project was absorbed and to determine if any community concerns about the environment, health, and economic well-being persist.
- Holding targeted follow-up discussions with stakeholders who appeared to be very engaged and those who seemed less engaged.
- Soliciting feedback from stakeholders regarding whether they feel their views were heard and addressed and if the engagement mechanisms were useful to them. Take care to not overburden or appear to intrude on stakeholder groups or the public.

If the evaluation or any feedback on the engagement itself indicates widespread misconceptions or concerns about the project, it may be necessary to revisit the engagement efforts done thus far with the community to improve methods and eventual outcomes.

Work collaboratively to address identified concerns and incorporate input into decisions

If one or more concerns (environmental or other) are identified and/or significant opposition is encountered, the Class VI project developer should work with the community to identify solutions that enable the project to proceed while incorporating community contributions and addressing community concerns.

Examples of measures that could reduce or mitigate concerns about or the effects of a proposed Class VI project may include:

- Implementing engineering or operational changes to reduce adverse impacts from well construction and operational activities.
- Considering multiple/alternate locations for well and facility siting.
- Enhanced monitoring near communities/neighborhoods that may be affected by the project to provide assurance that no CO₂ is leaking and there are no groundwater quality changes.
- Improving environmental amenities for affected communities (e.g., providing resources for clean-up of degraded public areas).

- Enhanced emergency and remedial response planning in coordination with the community.
- Advertising potential employment opportunities or committing to hire from within the community.

These measures should be developed in coordination and consultation with community stakeholders to ensure that their concerns are addressed.

A collaborative approach for integrating community involvement into the decisions on which it is sought and for addressing community concerns should focus on setting concrete steps to documented actions. A Class VI project developer can achieve consensus on project decisions and concerns by encouraging all participating stakeholders to seek common ground and derive mutual gains. The agreed-upon resolutions could be documented in action plans or memoranda of understanding between the project operator and the community. Attachment 1 includes resource materials that can specifically direct Class VI project developers through a community engagement process.

Document the community engagement process

It is important for Class VI project developers to document the community engagement process they follow and the resulting outcomes. Documentation through a report or action plan may provide a useful reference for both the developer/owner and the community over the long periods of time typically associated with Class VI projects. Such a record can be used to re-visit project decisions as necessary, inform future endeavors, and support the Class VI permit application process which includes a public participation component directed by the permitting authority. The documentation of community engagement should describe the following:

- The decisions on which the Class VI project developer sought input from the community,
- The findings of the SCA, including the information generated by EJSscreen,
- The community engagement activities performed and the materials that were developed,
- Reactions, concerns, recommendations, and questions (i.e., input) raised during and after community engagement events, and
- Any community agreements that address community concerns or describe local benefits of the project (e.g., jobs).

The documentation should include copies of all materials developed, along with notes or summaries of all engagement events. An example of a community engagement summary report is provided in Attachment 4.

Continue communicating throughout the project

Continued engagement with the local community and key stakeholders is important given the long-term nature of Class VI projects. A commitment to and achievement of ongoing communication can increase the acceptance of future changes to operations and other Class VI projects.

Outreach to support community engagement should occur at regular intervals, such as in annual meetings or public events or via periodic updates on social media or the operator's website or social media accounts. Engagement could also occur in coordination with various project milestones, such as the start of construction activities, before injection begins, prior to any activities that may necessitate bringing in equipment (e.g., seismic testing), following receipt of monitoring data/an AoR reevaluation, and at project closure. Regular communications keep the community informed and allow Class VI project developers/owners to continue to benefit from their engagement.

Project reporting

In addition to continued engagement through meetings and website/social media updates, it is beneficial to project owners and community members to have a common set of data that describes the Class VI project in a format that is understandable to the general public. The EPA has developed a Community Reporting Template that Class VI project owners can use to keep the local community and stakeholders apprised of injection operations, testing and monitoring results, and other on-goings at the site (<https://www.epa.gov/system/files/documents/2025-01/community-reporting-template-blank.pdf>). This report does not replace the required Testing and Monitoring reports that project owners must submit to the EPA. The consistent use of a standard report can facilitate ongoing communication to inform communities and alleviate concerns around long-term presence of the project. This record can also be drawn upon by the Class VI project owners to incorporate data-driven decision-making support from community members and stakeholders.

Attachment 1: Resources to Support Community Engagement Planning

The resources listed below were identified during a literature search used to support the development of this document. This list, like the rest of the guidelines document, is subject to change over time as the EPA becomes aware of new information and tools to foster and direct community engagement. The resources below provide step-by-step descriptions, data/resources, or considerations for pursuing effective community engagement. Some documents provide specific considerations for ensuring environmental justice goals are met. Resources available from the EPA, other federal agencies, and private organizations⁶ are listed separately.

United States Environmental Protection Agency (U.S. EPA) Resources

U.S. EPA. 2008. EPA's Environmental Justice Collaborative Problem-Solving Model. Available at: <https://www.epa.gov/sites/default/files/2015-04/documents/ejproblemcollaborativesolvingmodel.pdf>.

The Environmental Justice Collaborative Problem-Solving Model is a handbook about the basic tenets of the Collaborative Problem-Solving (CPS) Model. It describes how the CPS Model is used to address environmental and/or public health issues in distressed communities. It provides insights on how various parties can work together to use the CPS Model's techniques to address environmental and/or public health issues in local communities. The seven elements in the CPS Model address: issue identification and goal setting, capacity-building and leadership development, consensus building, multi-stakeholder partnerships, stakeholder engagement, management and implementation, evaluation, and replicating best practices.

U.S. EPA. 2010. Nationally Consistent Environmental Justice Screening Approaches: A Report of Advice and Recommendations. National Environmental Justice Advisory Council (NEJAC). Available at: <https://www.epa.gov/sites/default/files/2015-02/documents/ej-screening-approaches-rpt-2010.pdf>.

To address the concentration/dispersion of EJ indices and potential challenges faced by communities, the NEJAC study of EJ indicators describes how to create consistent statistical products to measure EJ needs across various regional contexts.

U.S. EPA. 2011. Geologic Sequestration of Carbon Dioxide—UIC Quick Reference Guide: Additional Tools for UIC Program Directors Incorporating Environmental Justice Considerations into the Class VI Injection Well Permitting Process. Available at: <https://www.epa.gov/sites/default/files/2015-07/documents/epa816r11002.pdf>.

This guide for UIC permitting authorities provides tools to incorporate EJ considerations into the Class VI permit application review and approval process. It describes seven steps for incorporating EJ considerations into permit application reviews.

⁶The EPA cannot attest to the accuracy of information on a non-EPA page. EPA and its employees do not endorse any non-federal entity on this list, nor their products, services, or enterprises. Providing links to a non-EPA website is for informational purposes only and EPA cannot attest to the accuracy of the other site or the information it contains. Also, be aware that the privacy protection provided on the EPA.gov domain (see [Privacy and Security Notice](#)) may not be available at the external link.

U.S. EPA. 2011. Geologic Sequestration of Carbon Dioxide—UIC Quick Reference Guide: Additional Considerations for UIC Program Directors on the Public Participation Requirements for Class VI Injection Wells. Available at: <https://www.epa.gov/uic/quick-reference-guides-class-vi-program-implementation>.

This guide on public engagement presents steps for achieving the public participation requirements of the Class VI rule. It also provides considerations for Class VI UIC permitting authorities when engaging in the Class VI permitting process.

U.S. EPA. 2015. Guidance on Considering Environmental Justice During the Development of Regulatory Actions. Available at: <https://www.epa.gov/sites/default/files/2015-06/documents/considering-ej-in-rulemaking-guide-final.pdf>.

EPA guidance on incorporating EJ considerations during the development of an action or rule. The guide promotes attaining meaningful involvement from community members and fair treatment of all affected persons in rule development, so that rules and other actions are inclusive of those communities.

U.S. EPA. EJScreen. Available at: <https://ejscreen.epa.gov/mapper/>.

EPA's interactive mapping tool integrates demographic, socioeconomic, and environmental data layers to provide users with an at-a-glance summary of community conditions and EJ-relevant indexed values for potential contamination sources.

U.S. EPA. Environmental Justice Homepage. Available at: <https://www.epa.gov/environmentaljustice>.

Home page for EPA's EJ efforts and information relating to programming and education offered by the Agency. It provides links to information on grants, resources, and technical assistance, strategic planning resources, and collaborative partnerships.

U.S. EPA. No date. The CARE Roadmap: 10-Step Plan to Improve Community Environment and Health. Available at: https://www.epa.gov/sites/default/files/2018-11/documents/the_care_roadmap_updateda.pdf.

The Community Action for a Renewed Environment (CARE) Roadmap describes a process to organize partnerships, collect the information needed to understand community impacts and risks, identify options for reducing risks, mobilize the community to take action, and evaluate the work/measure progress.

U.S. EPA. No date. Environmental Justice for Tribes and Indigenous Peoples. Available at: <https://www.epa.gov/environmentaljustice/environmental-justice-tribes-and-indigenous-peoples>.

Web page with information and resources relating to EJ considerations in tribal areas and meeting the needs of indigenous people. Contains links to information generated at webinars with tribal entities, guidance on administrative procedures, and contact information for national and regional EPA offices to assist in assessing EJ risks and concerns.

Resources from Other Federal Agencies

Agency for Toxic Substances and Disease Registry (ATSDR). No date. Environmental Justice Index (EJI). Available at: <https://www.atsdr.cdc.gov/placeandhealth/eji/index.html>.

The EJ index ranks the cumulative impacts of environmental injustice on health by scoring census tracts using a percentile ranking that represents the proportion of tracts that experience cumulative impacts of environmental burden and injustice equal to or lower than a tract of interest. The EJ index ranks each tract on 36 environmental, social, and health factors and groups them into three overarching modules and ten different domains. It is based on data from the U.S. Census Bureau, the EPA, the U.S. Mine Safety and Health Administration, and the U.S. Centers for Disease Control and Prevention.

National Atmospheric and Oceanic Administration (NOAA). 2014. National Marine Protected Areas Center. Tribal and Indigenous Community Toolkit. Available at: <https://marineprotectedareas.noaa.gov/toolkit/tribal-indigenous-communities.html>.

Web page on indigenous collaboration to enhance the effective management of marine resources. The page stresses engagement and consultation with indigenous communities, even when not required by statute or regulation, as a matter of promoting human rights, building rapport, and enhancing collaboration. The page includes links to a Cultural Resources Toolkit and additional resources to support tribal engagement.

U.S. Department of Energy (DOE), National Energy Technology Laboratory. 2017. Public Outreach and Education for Carbon Storage Projects. DOE/NETL-2017/1845. Available at: https://www.netl.doe.gov/technologies/carbon_seq/refshelf/BPM_PublicOutreach.pdf.

This outreach guidance for GS project operators describes how to develop a dialogue and gain mutual understanding and consent with community members and leaders.

U.S. DOE, Office of Fossil Energy and Carbon Management. 2022. Creating a Community and Stakeholder Engagement Plan. Available at: https://www.energy.gov/sites/default/files/2022-08/Creating%20a%20Community%20and%20Stakeholder%20Engagement%20Plan_8.2.22.pdf.

The U.S. Department of Energy (DOE)'s blueprint for engagement and planning communications with marginalized communities prioritizes ensuring that people feel that their concerns are being heard. It encourages engaging communities in a two-way dialogue regarding how best to incorporate their existing knowledge, concerns, and other information into DOE/government agency action.

U.S. DOE, Office of Fossil Energy and Carbon Management. No date. Energy Justice Dashboard (Beta). Available at: <https://www.energy.gov/diversity/energy-justice-dashboard-beta>.

DOE's EJ screening tool uses the same indicators as EPA's EJScreen, combined with data generated from DOE's Low-Income Energy Affordability Data (LEAD) tool. These overlays create data sets that can help DOE and other entities analyze and identify areas with certain EJ parameters (i.e., Justice40 prioritized zones), and implement measures appropriately.

U.S. DOE, Office of Fossil Energy and Carbon Management. No date. Justice & Engagement: Planning for Societal Considerations & Impacts in FECM projects. Available at: <https://www.energy.gov/fecm/justice-engagement-planning-societal-considerations-impacts-fecm-projects>.

This web page describes how DOE-funded project operators can develop plans to address community, tribal, and stakeholder engagement, diversity, equity, inclusion, and accessibility, environmental justice, and quality job creation. It provides guidance to ensure that historically

marginalized stakeholders are afforded a voice and includes links to available DOE resources on community and stakeholder engagement and energy and environmental justice.

U.S. Department of the Interior (DOI). Engagement Resources. Available at: <https://www.doi.gov/oepe/resources/environmental-justice/resources>.

DOI web page listing community engagement resources and guidance from federal, state, academic, and non-governmental organizations for agencies and organizations with environmental justice concerns and interests.

U.S. Department of Transportation (DOT). 2022. Promising Practices for Meaningful Public Involvement in Transportation Decision-Making. Available at: <https://www.transportation.gov/sites/dot.gov/files/2022-10/Promising%20Practices%20for%20Meaningful%20Public%20Involvement%20in%20Transportation%20Decision-making.pdf>.

This document provides recommendations for soliciting public involvement in decision-making for transportation projects. The recommendations include involving traditionally underserved populations and community representatives, developing and implementing a community participation plan, and metrics for measuring the success of public involvement strategies. Appendices to the guide include a list of existing policies and processes relevant to public involvement and a list of techniques and tools for informing the public and gathering input.

White House Council on Environmental Quality. Climate and Economic Justice Screening Tool (CEJST). Available at: <https://screeningtool.geoplatform.gov/en/#6.12/28.118/-102.611>

The tool has an interactive map and uses data sets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development.

White House Council on Environmental Quality. 2022. Draft Carbon Capture, Utilization, and Sequestration Guidance. Available at: <https://www.federalregister.gov/documents/2022/02/16/2022-03205/carbon-capture-utilization-and-sequestration-guidance>.

To facilitate reviews and promote the efficient, orderly, and responsible development of CCUS projects, this guidance recommends a transparent process and meaningful public engagement. In addition to developing robust tribal consultation and stakeholder engagement plans and conducting regular engagement, it recommends that agencies prioritize the development and application of environmental justice best practices for CCUS efforts.

Resources from Other Organizations

Climate Science Alliance. No date. Building Authentic Collaborations with Tribal Communities. Available at: <https://www.climatesciencealliance.org/info/meaningful-engagement>.

Resource guide for climate practitioners to support reaching out to and building relationships with tribal communities. Resources address tribal sovereignty, active listening, wisdom and reciprocity, partnerships and collaboration, and terminology.

Groundwork USA. No date. Best Practices for Meaningful Community Engagement. Tips for Engaging Historically Underrepresented Populations in Visioning and Planning. Available at: <https://groundworkusa.org/wp->

content/uploads/2019/06/GWUSA_Hard_Reach_Tips_v3.pdf#:~:text=Demonstrate%20you%20are%20willing%20to%20engage%20honestly%20and,capacities%20and%20limitations%2C%20especially%20time%20and%20financial%20constraints.

This document provides recommendations for building relationships and including wide community representation in project planning to allow meaningful community engagement. It provides recommendations for reaching as many people as possible, engaging and interacting with grassroots organizations, and listening and responding to people's concerns.

International Organization for Standardization (ISO). 2020. Environmental management—Environmental communication— Guidelines and examples ISO 14063:2020(en). Available at: <https://www.iso.org/obp/ui/#!iso:std:14063:en>.

This ISO standard procedure addresses environmental communication, defined as the procedure by which information is shared with all relevant parties to assist in the environmental decision-making process on environmental management projects. It presents a model for identifying community and stakeholder concerns and developing a communications strategy that stresses reciprocity.

National Environmental Justice Advisory Committee (NEJAC). 1996 (with updates in 2013). Model Guidelines for Public Participation. Available at: <https://www.epa.gov/environmentaljustice/model-guidelines-public-participation>.

This document is intended to guide federal agencies and other stakeholders who are engaged in public participation efforts. It provides a list of recommendations and encourages community engagement that is flexible and customized to the needs of the community. Appendices to the document include sample guidelines for developing a public participation plan and a public participation checklist.

Sohn, J. et al. 2007. Development without Conflict: The Business Case for Informed Consent. Washington, DC: World Resources Institute. Available at: <https://www.wri.org/publication/development-without-conflict>.

Document on developing energy projects that incorporate sovereign or tribal community input within a local context. It prioritizes minimizing friction between the operator and community early and incorporating external input into the internal procedure as opportunities arise.

The European Commission, European Union (EU). 2002. General Manual for the Application of the ESTEEM Tool. Available at: <https://www.esteem-tool.eu/fileadmin/esteem-tool/docs/ESTEEMmanual.pdf>.

This is an overview of the ESTEEM (Engaging Stakeholders through a Systematic Toolbox to Manage New Energy Projects) methodology, which is part of the European Union's Create Acceptance project. This manual describes a framework for communicating about new energy infrastructure projects in a community context, prioritizing social support, disseminating information, and ensuring that educational efforts reach intended audiences.

University of Arizona. No date. Relationships First and Always: A Guide to Collaborations with Indigenous Communities. Available at: <https://nnigovernance.arizona.edu/relationships-first-and-always-guide-collaborations-indigenous-communities>.

Database to support indigenous community collaborations. It offers guidelines on relationship-building across cultural contexts, respect for sovereignty, and assessing considerations for individual tribes.

United States Energy Association and the U.S. Department of Energy. December 2023. Building Understanding and Improving Engagement through Community Benefits Plans. Available at: <https://usea.org/event/building-understanding-and-improving-engagement-through-community-benefits-plans>.

A workshop to enhance the understanding of and the quality of Community Benefit Plans (CBP) developed for DOE Carbon Management projects. The results of this webinar aim to improve the quality of CBPs and advance responsible deployment of carbon management projects.

World Resources Institute. 2010. CCS and Community Engagement: Guidelines for Community Engagement in Carbon Dioxide Capture, Transport, and Storage Projects. Available at: <http://www.wri.org/publication/ccs-and-community-engagement>.

Guidance on community engagement for CCUS projects, recognizing the fact that GS involves new technology that is relatively unknown to the public. The document provides guidelines for regulators, project developers, and local decision-makers including steps for accomplishing community engagement and case studies and examples from prior projects.

Attachment 2: How to Use EJScreen

EJScreen is an online interactive mapping tool that integrates numerous demographic, socioeconomic, and environmental data sets. The tool allows users to visually assess the spatial relationship between neighborhoods with EJ characteristics that can support a social characterization analysis (SCA) and help the applicant design an effective community engagement plan. This attachment provides a brief overview of how to use EJScreen. Detailed instructions are available in the EJScreen User guide, which is available at https://ejscreen.epa.gov/mapper/help/ejscreen_help.pdf.

Access EJScreen at <https://ejscreen.epa.gov/mapper/>.

The initial view of the EJScreen tool (in Figure 1) provides the user a location search bar to select the area to review (i.e., the project area) and screening categories to filter data.

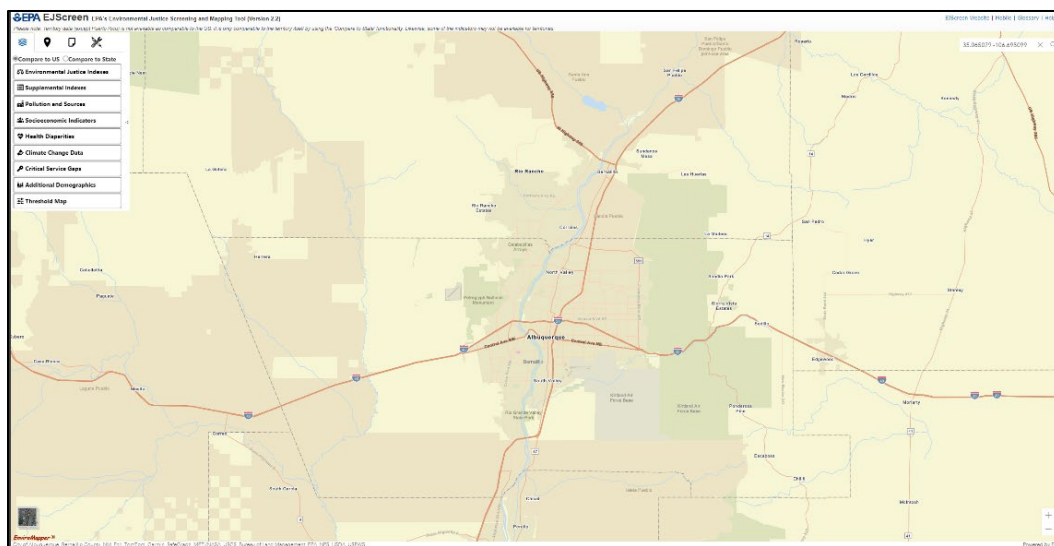


Figure 1: The initial user interface for the EJScreen tool.

Select the Area to Research

Use the scroll wheel on the mouse to zoom in or out to select the area of interest (i.e., near the project).

Select the area near the project by clicking the “Reports” icon, which is circled in Figure 2.

This menu allows a user to select the area by dropping a pin, drawing a path or an area of interest on the map, or selecting a block group, census tract, city, or county.

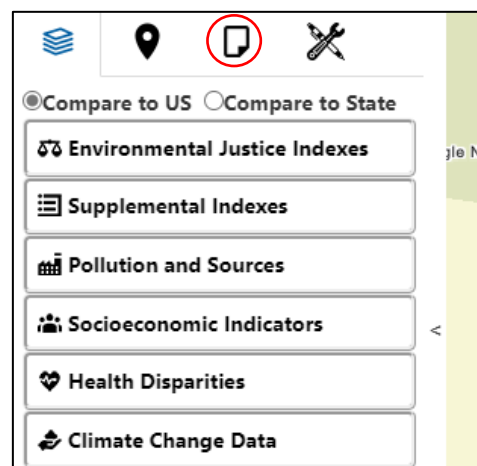


Figure 2: Selecting the area to research.

Select the Categories of Interest

Click on the “Maps” icon to see a drop-down menu of the types of data that EJScreen contains. Upon selecting a category, each menu expands to show data options that can be chosen by the user. Based on the selection, EJScreen then displays the data on the map. Utilizing U.S. Census & American Community Survey (ACS) tracts and data, the tool presents the result as percentile ranges, with various colors (e.g., reds, yellows, oranges, and grays) highlighting tracts with values above the national or state average. Figure 3 presents an example visualization of community access to broadband internet created by selecting “Broadband Gap” under “Critical Service Gaps.” Higher-intensity shading indicates higher percentiles of populations with service gaps. Table 1 at the end of this attachment presents the types of data available under each menu option.

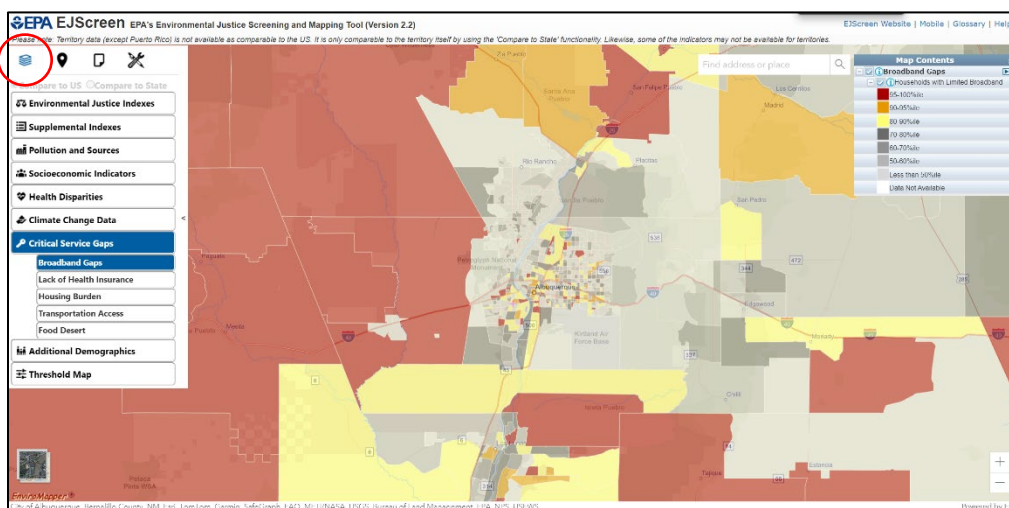


Figure 3: EJScreen visualization of “Broadband Gap” metric under the “Critical Service Gaps” subcategory, selected under the “Maps” icon (circled).

Multiple categories may be selected and overlain to provide a more thorough understanding of the overlapping factors present in selected communities. For example, in Figure 4, Selecting “Limited English Proficiency” under “Socioeconomic Indicators” and “Broadband Gap” under “Critical Service Gaps” identifies tracts by percentile of residents with a limited ability to speak English and limited broadband access. Selecting additional metrics from other categories enables the user to identify areas of further overlap between data sets.

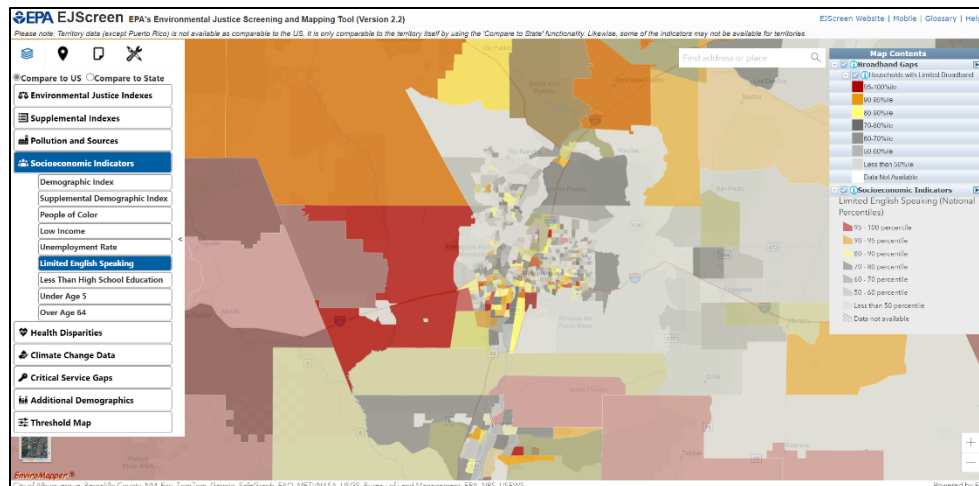


Figure 4: EJScreen visualization of “Limited English Proficiency” under “Socioeconomic Indicators” and “Broadband Gap” under “Critical Service Gaps” identifies the prevalence of residents with a limited ability to speak English who also may have limited access to high-speed internet.

Generate EJScreen Reports

After an area is selected or drawn, a pop-up menu to create a “Chart or Report” appears, as shown in the box in the center of Figure 5. (As described earlier, the EPA recommends that the SCA/EJScreen analysis focus on the delineated AoR plus a “buffer.”)

Click on “Explore Reports” to generate a statistical analysis of environmental justice indices, pollution and sources, or socioeconomic indicators based on the selected categories on the map. An example visualization is included in the upper left portion of Figure 5; click the tabs to see the various statistical analyses.

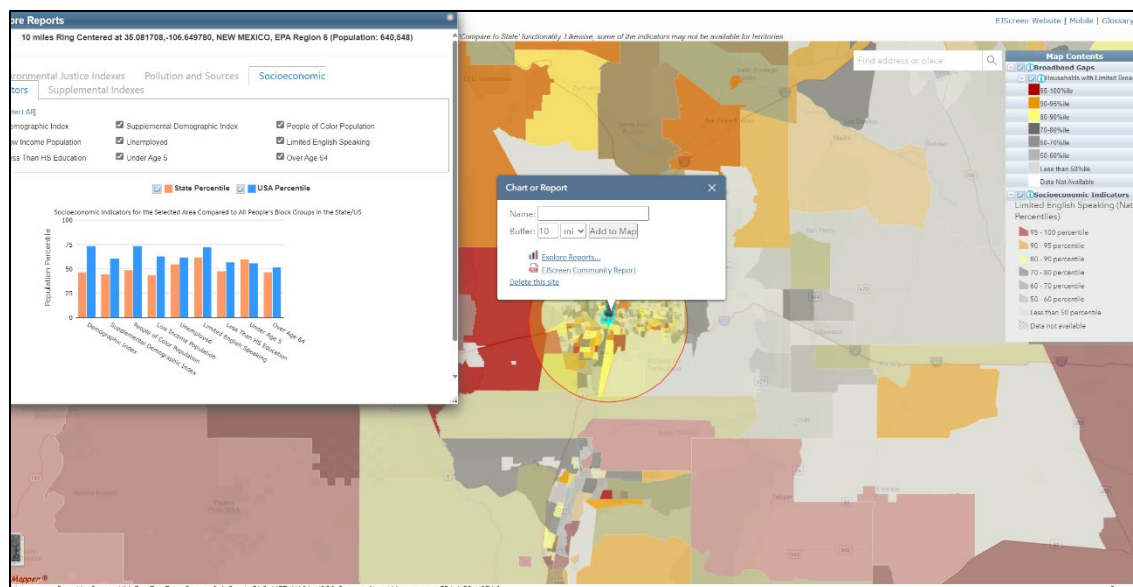


Figure 5: A sample EJScreen statistical report, which allows the user to compare state/national averages.

Alternatively, click on “EJScreen Community Report” and EJScreen will generate a report that presents maps and statistical data in charts and tables, including data from the ACS and the Centers for Disease Control (CDC). This can then be printed or converted to a .pdf. An example table of environmental and socioeconomic data from a report is shown in Figure 6.

EJScreen Environmental and Socioeconomic Indicators Data						
SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA	
POLLUTION AND SOURCES						
Particulate Matter (µg/m³)	6.02	5.16	77	8.08	8	
Ozone (ppb)	65.6	64.7	63	61.6	78	
Diesel Particulate Matter (µg/m³)	0.41	0.194	85	0.261	84	
Air Toxics Cancer Risk* (lifetime risk per million)	24	18	34	25	5	
Air Toxics Respiratory HI*	0.3	0.21	29	0.31	4	
Toxic Releases to Air	56	29	88	4,600	18	
Traffic Proximity (daily traffic count/distance to road)	180	84	86	210	71	
Lead Paint (% Pre-1960 Housing)	0.2	0.19	64	0.3	48	
Superfund Proximity (site count/km distance)	0.19	0.14	84	0.13	85	
RMP Facility Proximity (facility count/km distance)	0.29	0.15	86	0.43	66	
Hazardous Waste Proximity (facility count/km distance)	1.7	0.73	83	1.9	70	
Underground Storage Tanks (count/km²)	3.1	3.3	72	3.9	67	
Wastewater Discharge (toxicity-weighted concentration/m distance)	1	0.47	96	22	91	
SOCIOECONOMIC INDICATORS						
Demographic Index	50%	51%	47	35%	74	
Supplemental Demographic Index	15%	17%	45	14%	61	
People of Color	64%	62%	49	39%	74	
Low Income	35%	40%	44	31%	63	
Unemployment Rate	6%	7%	55	6%	62	
Limited English Speaking Households	4%	6%	62	5%	73	
Less Than High School Education	10%	14%	48	12%	57	
Under Age 5	5%	5%	60	6%	56	
Over Age 64	16%	19%	47	17%	52	
Low Life Expectancy	18%	19%	29	20%	33	
<small>*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/air-toxics-data-update.</small>						
Sites reporting to EPA within defined area:			Other community features within defined area:			
Superfund	3	Schools				201
Hazardous Waste, Treatment, Storage, and Disposal Facilities	28	Hospitals				27
Water Dischargers	2355	Places of Worship				382
Air Pollution	1372					
Brownfields	32					
Toxic Release Inventory	74					
			Other environmental data:			
			Air Non-attainment			No
			Impaired Waters			Yes

Figure 6: An excerpt from an EJScreen Community Report. Information presented under “Socioeconomic Indicators” can inform the design of a community engagement plan.

Table 1: Data Layers Available in EJScreen

The demographic, socioeconomic, and environmental data sets in EJScreen can help identify the potential challenges to effective and meaningful public participation and support a more inclusive community engagement plan. The data layers in EJScreen, which are organized into several categories/indices as shown on the menu under the “Maps” icon, are presented in the table.

Indicator	Description
ENVIRONMENTAL JUSTICE INDEXES – The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental factor. $EJ\ Index = (Environmental\ Indicator\ Percentile\ for\ Block\ Group) \times (Demographic\ Index\ for\ Block\ Group)$.	
Particulate Matter 2.5	Annual average of Particulate Matter 2.5 (PM 2.5) concentrations in the air.
Ozone	Average ozone concentrations over the summer.
Diesel Particulate Matter	Diesel particulate matter concentrations in the air.
Air Toxics Cancer Risk	The lifetime cancer risk from inhaling identified air toxics.
Air Toxics Respiratory (HI)	Air Toxics Respiratory Hazards Index (HI) indicates the sum of air toxin indices and exceedance of EPA standards.
Toxic Releases to Air	Average annual levels of certain chemicals in the air with consideration for how harmful each chemical is.
Traffic Proximity	Count of vehicles per day on major roads, divided by distance.
Lead Paint	Percent of housing units built pre-1960, as an indicator of potential lead paint exposure.
Superfund Proximity	Proximity to NPL (also known as Superfund) sites.
RMP Facility Proximity	Count of Risk Management Plan (RMP) facilities divided by distance.
Hazardous Waste Proximity	Proximity to hazardous waste management facilities within 5km, divided by distance.
Underground Storage Tanks	The number of Leaking Underground Storage Tanks (LUSTs) and Underground Storage Tanks (USTs) within a buffered distance.
Wastewater Discharge	Segments of streams identified via EPA’s Risk-Screening Environmental Indicators (RSEI) to have toxic concentrations, divided by distance.
SUPPLEMENTAL INDEXES – The supplemental indexes offer a different perspective on community level vulnerability. They combine data on percent low income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator. $Supplemental\ Index = (Environmental\ Indicator\ Percentile\ for\ Block\ Group) \times (Supplemental\ Demographic\ Index\ for\ Block\ Group)$.	
POLLUTION AND SOURCES – Environmental indicator data underlying “Environmental Justice Indexes” and “Supplemental Indexes” (i.e., related to particulate matter, ozone, air toxics, Superfund Proximity, etc.).	
SOCIOECONOMIC INDICATORS – Demographic indicator data underlying both “Environmental Justice Indexes” and “Supplemental Indexes.” Select indicators from this category form a component of analysis within the “Demographic Index” and “Supplemental Demographic Index.”	
Demographic Index	An average of the “Low Income” and “People of Color” indices.
Supplemental Demographic Index	An average of the “Low Income,” “Unemployment,” “Less Than High School Education,” “Limited English Speaking,” and “Low Life Expectancy” indices.
People of Color	Percentage of community tracts identified as people of color.

Indicator	Description
Low Income	Percentage of residents within tracts whose income is less than or equal to two times the federal poverty level.
Unemployment Rate	Percentage of residents unemployed and searching for work.
Limited English Speaking	Percentage of households in which all members ages 14 years and over speak a non-English language at home and speak English less than “very well.”
Less Than High School Education	Percentage of the population that is age 25 or older in a block group who have not graduated high school.
Under Age 5	Percentage of the population that is under the age of five years old.
Over Age 64	Percentage of the population that is age 65 and older.
HEALTH DISPARITIES – Noted health disparities across a select number of categories when compared against the American average.	
Low Life Expectancy	Tracts identified as having low life expectancy, compared to the U.S. average.
Heart Disease	Communities by the concentration of residents identified as having some form of heart disease.
Asthma	Communities by the concentration of residents identified as having asthma in adults 18 or older within a tract.
Cancer	Communities by the concentration of residents identified as having cancer in adults 18 or older within a tract.
Persons with Disabilities	Communities by the concentration of residents identified as having disabilities within a tract.
CLIMATE CHANGE DATA – Collection of resiliency-oriented data sets.	
Flood Risk	Probabilistic flooding model, running down percentage and likelihood of flooding events occurring. Measures rainfall, riverine, and coastal surge methods of inundation.
Wildfire Risk	Wildfire risk derived from both current and future climate conditions and trends in development.
100 Year Floodplain	FEMA 100-year floodplain data from 2016.
Sea Level Rise (NOAA)	Layer showing seal level rise at ranges of 1-6 feet, generated by the National Oceanic and Atmospheric Administration (NOAA).
CRITICAL SERVICE GAPS – Chronically underserved blocks or areas.	
Broadband Gaps	Blocks identified by the rate of household broadband subscription.
Lack of Health Insurance	Percent of all persons in an area without Health Insurance Coverage.
Housing Burden	Percentage of households that are earning less than 80% of the U.S. Department of Housing and Urban Development’s Area Median Family Income and are spending more than 30% of their income on housing costs.
Transportation Access	An average of the Transportation Cost Burden, National Walkability Index, Percentage of Households with No Vehicle Available, and Mean Commute Time to Work percentiles from the Department of Transportation.
Food Desert	Low-income/low-access areas as measured by proximity to full-service grocery stores. Measured as 1 mile for urban areas, and 10 miles for rural areas.

Indicator	Description
	ADDITIONAL DEMOGRAPHICS - American Community Survey (ACS) 5-year estimates of a series of factors that comprise the categories listed. Data categories include: education, employment, health, housing, income/poverty, language, population, and technology.
	THRESHOLD MAP – Statistical analysis tool that visualizes overlapping factors within specified tracts. The user can select up to twelve indexes from the “EJ Indexes” or “Supplemental Indexes” sections. The widget then identifies all tracts that have values within a percentile range specified by the user.

Attachment 3: Examples of Questions about GS/Injection Technology

Because CO₂ storage is technically complex and involves advanced science related to climate change, geology, and other fields of study, it is important to clearly explain the process. Class VI wells, while narrowly regulated, exist within a larger facility in a community that may be exposed to several sources of pollution. Therefore, permit applicants should be aware of this larger context and be prepared to receive other questions during the community engagement process. Applicants should ask community members what their concerns are and be prepared to address questions related to:

Questions about the Project

- How deep will the CO₂ be injected?
- How are you defining the area where CO₂ may endanger drinking water?
- How do you know the CO₂ will remain in the injection zone/away from water supplies?
- Could CO₂ injection cause an earthquake? How do you know this?
- What would happen to stored CO₂ in the event of an earthquake? Would my water be safe to drink?
- What studies have been done to understand the safety, capacity, or behavior of the project?
- Where does the groundwater go when the CO₂ is injected?
- What is the composition of the CO₂ that will be injected? Will it contain hazardous materials?
- Under what conditions would the well be closed?
- Will the formation that receives the CO₂ ever get full?
- How is the Class VI well constructed? Who will make sure it is not leaking or damaged?
- Who is responsible for safely plugging the injection well?
- Have the cumulative impacts of the facility been evaluated, particularly as they relate to effects on communities with environmental justice concerns? How will the civil rights of people in these communities be protected?
- How will the applicant demonstrate that this will not increase harm/pollution in areas that are already overburdened?

Questions about Safety

- How do you know injecting CO₂ is safe?
- How will the site be monitored? How can the community access monitoring data?
- What is the risk associated with CO₂ injection? Have contingency measures been identified for each of the identified risks?
- Given the buoyancy of the gas, could the CO₂ escape or explode?
- What safety measures will be taken to reduce the possibility of CO₂ leakage?
- Are there risks associated with transporting liquified/supercritical CO₂?
- Is the community's emergency response capacity adequate to the risks posed by the project?
- What emergency response equipment do local firefighters need?
- Is any emergency response equipment needed for families within the AoR or near the project?
- Do residents need CO₂ sensors in their homes?

Environmental Concerns

- Will the project affect wildlife or any threatened or endangered species in the project area?
- How will storing the CO₂ help avoid climate change?
- What is the benefit of sequestering the planned volume of CO₂ (i.e., by offsetting the emissions of a certain number of cars or planting a specified number of trees)?
- How would leakage of CO₂ to the atmosphere be detected?
- Will this give us cleaner air and how will air quality effects be measured?
- How much water will be needed to construct and operate the project?
- How much energy does it take to operate the well relative to the reduced CO₂ emissions? How will this be demonstrated?

Other Considerations

- How will the project benefit the community? Will it bring new jobs, higher property values, educational benefits to local students, or increased economic activity?
- Will there be increased levels of dust, noise, or vibration during construction and/or operation of the project?
- What happens if the operator leaves town?
- How will landowners be compensated for the use of or any damage to their property?
- Who would be responsible for compensation of any damages?
- Will any new infrastructure be built for the CCUS project?

Attachment 4: Example Community Engagement Summary Report

Documentation of Community Engagement Process for the Brooke Energy Class VI Project

To inform local residents about the planned Brooke Energy Carbon Dioxide Injection Project and learn about their concerns, Brooke Energy worked with community leaders in the nearby Town of Springfield to: identify whether any disadvantaged communities live near the project area, design a community engagement plan and meet with local residents to understand their concerns, and develop a draft Community Benefits Agreement.

This report documents the community engagement process and its outcomes.

Decisions for Input

While Brooke Energy recognizes that acceptance of a Class VI project necessitates the public's understanding and support for all aspects of the project's design and operation, it focused the community engagement process on gaining input on community concerns about the following aspects of the proposed Class VI project:

- *Safety*: Does the public believe that the project will be designed, constructed, and operated to ensure their safety? Are people confident that emergency preparedness and response protocols will address any unforeseen events?
- *Environmental responsibility*: What are the public's concerns about the potential impacts of Class VI project construction and operation on the natural environment and nearby infrastructure?
- *Environmental and economic equity*: What benefits can the project bring to the community?

Social Characterization Analysis

Brooke Energy performed a social characterization analysis (SCA) to understand: community demographics, current public understanding of GS, current physical and social stressors on local underserved and overburdened communities, who the key stakeholders are, and how the community typically receives news and other information.

Brooke performed the following steps:

- Used EPA's EJScreen Tool to identify languages spoken in the community, income and educational levels, access to broadband, the age distribution of the population, and the presence of industrial sites or other environmental hazards.
- Using the EJScreen results as a starting point, conducted additional research, including reviewing census data and the notes of recent town hall meetings and other local information posted on the town's website.
- Met with the Springfield Environmental Club, several local religious organizations, and leaders of the local "Business Boosters" group.

Based on this research, Brooke Energy determined that:

- Approximately 75 percent of the population speaks English as a primary language or is fluent in English, and the remaining population speaks Spanish (particularly among older residents).

- 5 percent lives below the state-defined poverty level, and 25 percent hold at least two jobs.
- 85 percent of the population has access to broadband/internet.
- 80 percent of the population graduated high school, 17 percent did not graduate from high school, and 3 percent have at least some college education/graduated from college.
- Most people get their news and information from social media. The local community college is another trusted source of information.
- About 35 percent of the population is aware of the proposed project.
- No large industrial sites, Superfund sites, hazardous waste disposal sites, or underground storage tanks are located in the town limits.

Community Engagement Activities

Based on the results of the SCA, Brooke Energy initiated the following community engagement activities. These activities were selected and materials were developed to maximize the receipt and understanding of information about the project.

- Held three town meetings, including two on weeknights and one on a Saturday afternoon to accommodate work schedules. At each meeting, representatives gave a brief presentation about GS and the project, followed by an open question and answer session. Before each meeting, representatives were available to talk one-on-one with community members. A Spanish translator was present. The meetings were held in the town hall building (which is on the bus route) and at a local church. Snacks were provided and babysitting services were available. A total of 100 people attended the three meetings. One meeting was recorded and broadcast on the local cable access channel.
- Created a fact sheet that described the project, including the planned construction dates, the areal extent of the project, and planned safety measures including how the project will comply with UIC requirements. The fact sheet was written at an 8th-grade reading level, contained several graphics, and was translated into Spanish. Copies were distributed at the three town meetings.
- Provided multiple copies of the fact sheet to the library, mayor's office, and the local university so that they could make them available at their locations. Also provided electronic copies of this information and asked the mayor's office to post it on their social media site; following this, Brooke Energy staff monitored the responses to the posts by community members.
- Met with faculty of the community college to explain the more technical aspects of the project and provided them a list of questions that community members may ask and the associated responses.

Community Concerns

During the meetings, in follow-up conversations, and based on social media conversations, Brooke Energy determined that the community has the following concerns about the project:

- Construction will create excessive noise and cause traffic disruptions to the community.
- Injection will cause earthquakes.
- The local first responders are not equipped to handle emergencies related to carbon dioxide leakage.

- The community does not see how the project will benefit them or address their general life concerns, including those related to income or joblessness.

Community Benefits Agreement

To address the community's concerns and provide ongoing benefits to the community, Brooke Energy began to develop a Community Benefits Agreement that outlines the following activities that it plans to implement:

- Limit construction activities that have the potential to make excessive noise at the surface to the hours of 8 am to 4 pm.
- Avoid heavy truck traffic during the morning and afternoon rush hour.
- Expand the seismic monitoring network and make all seismic data available to the public.
- Provide training to first responders on responding to carbon dioxide leakage and working in environments where carbon dioxide is present. Purchase personal protective equipment (e.g., respirators and hazmat suits) for the local fire department.
- Reserve at least 10 percent of construction and applicable facility operations hires for local residents.

The agreement is still in draft form, but Brooke Energy plans to share the plan with community members, revise it as needed to address their input, make the agreement publicly available, and update it as needed throughout construction and operation of the project.