Stakeholder Analysis Report
Subtask 3.3 – CarbonSAFE Illinois East Sub-Basin

Topical Report 8

March 1, 2017 through May 30, 2019

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CARBONSAFE ILLINOIS EAST SUB-BASIN

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DISCLAIMER

Executive Summary

Effective stakeholder engagement has been proven to be a critical component in the success of numerous CCS activities and is essential if the technology is to be widely developed in the future. This report contains a stakeholder assessment and highlights some engagement activities conducted during the CarbonSAFE Illinois East Sub-Basin Prefeasibility study. This report is intended to lay the groundwork and provide recommendations for the Wabash CarbonSAFE Feasibility project, currently underway in conjunction with the Wabash Valley Resources ammonia plant retrofit taking place at the former Terre Haute US DOE integrated gasification combined cycle plant.

The analysis sets the stage for identifying and understanding the concerns of key stakeholders, describes actions currently underway, highlights perceptions of potential benefits and risks of project activities, and provides recommendations for short- and long-term forms of engagement. This study used social site characterization methods to better understand local and regional stakeholder positions and needs. The stakeholder engagement strategy will emphasize engagement with stakeholders that enable project development and those that are impacted by the project.

The stakeholder analysis process can be broken down into the four basic steps of: identifying, analyzing, mapping, and prioritizing. Various stakeholders were identified by literature search, and additionally by a group of approximately twenty Indiana University SPEA master's students via a stakeholder workshop. The stakeholder analysis and mapping process is used to help prioritize stakeholder engagement strategies; engagement strategies must be developed with particular stakeholder concerns in mind and messages tailored to those stakeholders' needs. The stakeholder map with engagement strategy developed for this analysis suggests state government, industry, federal government, and state education are predicted to have the highest interest and influence and should be a priority focus in engagement. Local media, local landowners, local government, and utilities are predicted to have high influence but low interest and may also be a high priority group to engage.

Environmental and economic impacts of activities that are considered to be important by stakeholders in the present day (key) or activities that have taken place in the past (legacy) can impact stakeholder perspectives and need to be considered when creating a stakeholder engagement strategy. The issue of environmental clean-up was identified in both the social media analysis and also through USEPA Environmental Justice analysis tools. Thus, it is clear this will be an important factor for consideration in any stakeholder engagement conducted in and around Terre Haute. Furthermore, stakeholder engagement education materials will need to emphasize that carbon dioxide is not a hazardous material, as well as address FAQs regarding CCS.

In addition, recommendations for consideration when developing the stakeholder engagement strategy for projects in the Illinois East Sub-Basin in general and related to the Wabash CarbonSAFE project specifically include: drawing clear lines of responsibility between Wabash Valley Resources and ISGS-led Wabash CarbonSAFE that allow the projects to manage integration and messaging; the need for ISGS and other partners to maintain objectivity and remain trusted sources of information; monitoring of social media and continuing to engage with key stakeholder groups; and providing support for key stakeholders to become sources of project information and project champions.

Introduction

Along with technical and economic considerations, an important challenge for successful carbon capture and storage (CCS) development is stakeholder and public engagement. This process builds awareness and understanding of the implications, both local and global, that deploying this technology entails. Effective stakeholder engagement has been proven to be a critical component in the success of numerous CCS activities and is essential if the technology is to be widely developed in the future. As an emerging technology, CCS may not be well understood by the general population and lack of public awareness can lead to fear or opposition. Such opposition can be a major non-technical barrier to the development and implementation of CCS projects, as was demonstrated in Greenville, Ohio, and elsewhere. Several examples of successful stakeholder engagement can be seen in North America at projects including Boundary Dam, Quest, Illinois Basin – Decatur Project (IBDP), Illinois Industrial Sources CCS (IL-ICCS), and other demonstration projects through the US Department of Energy Regional Carbon Sequestration Partnerships. The Midwest Geological Sequestration Consortium (MGSC), through its STEP (Sequestration Training and Education Program) activities, continues to maintain ongoing and effective stakeholder engagement for IBDP and the IL-ICCS projects near Decatur, Illinois using best practices for project stakeholder engagement outlined in *Best Practices: Public Outreach and Education for Geologic Storage Projects* (USDOE, 2017) and the World Resources Institute (2010) *Guidelines for Community Engagement in Carbon Dioxide Capture, Transport, and Storage Projects*.

Stakeholder engagement is a dynamic process that typically occurs at multiple levels at any one given time and engagement activities need to effectively accommodate and address stakeholder needs at each level. In the CarbonSAFE Illinois East Sub-Basin region, three main groups of stakeholders have been identified and will be considered: 1) influencers and decision-makers - stakeholders that enable project development, 2) impacted stakeholders – those directly impacted by a project, and 3) informed stakeholders – groups and individuals to keep informed. Engagement strategies must be developed with particular stakeholder concerns in mind and messages tailored to those stakeholders needs. It is important to note that any stakeholder can move from group to group or, occupy a position in multiple groups simultaneously. In addition to these stakeholder categories, stakeholder engagement for a given project must be tailored to the communities and culture in the area of that development.

Four main strategies facilitate development of a robust stakeholder engagement process:

1. Understanding current state of public perception of CCS and other energy technologies in the development area.
2. Conducting social characterization to identify stakeholders and stakeholder groups. Gain understanding on local and regional context, key issues and challenges, and stakeholder insights.
3. Developing strategies, messages, and messengers that frame CCUS as part of solution for a secure and environmentally responsible U.S. energy sector.
4. Committing to principled engagement that happens early, and is ongoing, transparent, multi-directional, and accommodates stakeholder needs.

This stakeholder analysis leverages the successful stakeholder engagement and outreach methods used by the MGSC and applies them to the CarbonSAFE Illinois East Sub-Basin (East Sub-Basin) Prefeasibility case study in the Terre Haute, Indiana, vicinity (Figure 1). The work is being undertaken by the MGSC/Illinois State Geological Survey and the O'Neill School of Public and Environmental Affairs (SPEA) at Indiana University and is the first step in developing an active stakeholder engagement strategy for the Feasibility study at the Wabash CarbonSAFE project located in the same area.

The analysis will set the stage for identifying and understanding the concerns of key stakeholders, describe actions currently underway, highlight perceptions of potential benefits and risks of project activities, as well as provide recommendations for short and long-term forms of engagement. The analysis uses social site characterization methods to better understand local and regional stakeholder positions and needs. The stakeholder engagement strategy will emphasize engagement with stakeholders that enable project development and those impacted by the project. In addition, every effort will be made to define opportunities for general informational outreach.

This report contains a stakeholder assessment and highlights some engagement activities conducted during the East Sub-Basin Prefeasibility study. This report is intended to lay the ground work and provide recommendations for the Wabash CarbonSAFE Feasibility project, currently underway in conjunction with the Wabash Valley Resources ammonia plant retrofit taking place at the former Terre Haute US DOE integrated gasification combined cycle plant. Regional considerations will be focused on East Sub-Basin. Additionally, project-driven focus will be directed at the area near the Wabash CarbonSAFE project.

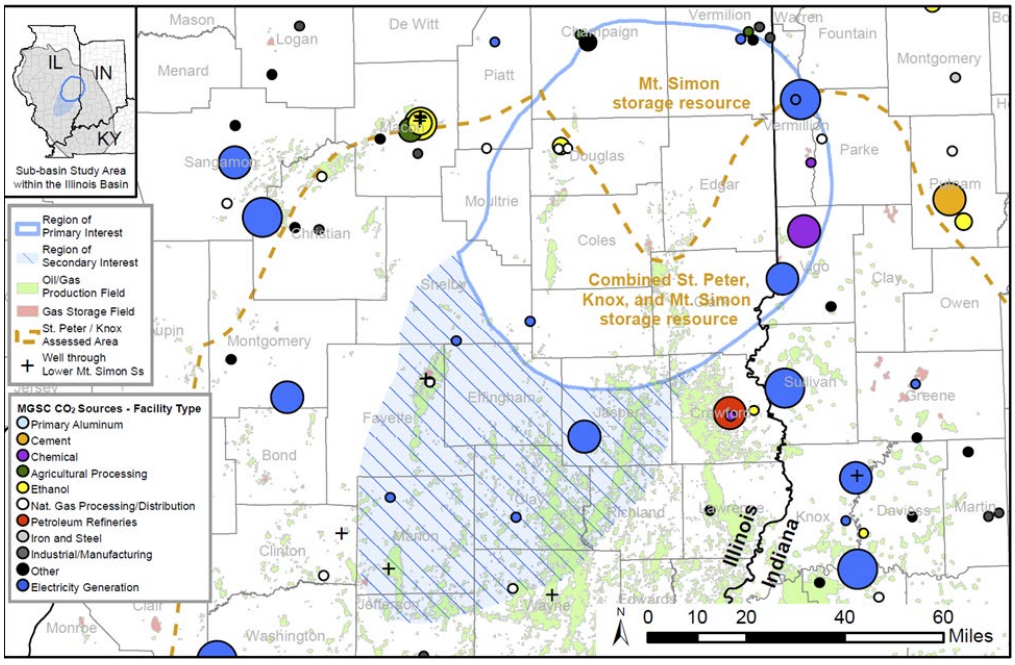

Figure 1. Portion of the Illinois Basin geologic region with the East Sub-Basin denoted.

Prefeasibility Site Information

The Illinois Basin is a regional geologic feature that underlies Illinois, Indiana, and Kentucky. The Pre-Cambrian subsurface structure is filled with thick deposits of sedimentary rocks highly suitable for the storage of carbon dioxide. The CarbonSAFE Illinois East Sub-Basin is a broad area extending through east-central Illinois and west-central Indiana, generally trending from Marion and Fayette Counties (IL) in the southwest part of the study area through Vigo and Vermillion Counties (IN) in the northeast (Figure 1).

Within the East Sub-Basin region, there is the potential to develop several carbon capture and/or storage projects. One such project site, the Wabash CarbonSAFE site, is located just north of the municipality of Terre Haute (population ~61,000) in northern Vigo County, Indiana. Vigo County is largely rural with mixed agricultural and woodland areas but dominated by the centrally-located city of Terre Haute (Figs. 2-5) which lies on the east side of the Wabash River.

Terre Haute and the surrounding region has a long history of industrial development and subsurface natural resource activities, both of which are technologically-related. It has been an industrial and manufacturing hub for many years and has a long legacy of underground coal mining and oil and gas production. Consequently, the populous is accustomed to the application of new technologies, including specifically drilling and injection. There are a number of active oil and gas production operations and storage fields in the county. Additionally, the county contains many rail lines, electrical transmission lines and numerous large, high volume oil and gas pipelines. At the intersection of an interstate highway, a major US highway corridor and numerous state roads, the population is familiar with heavy truck traffic and associated commercial and transportation elements.

Demographic Information

There are an estimated 107,516 people in Vigo County (2017), with a median age of 36.1 years and median household income of $42, 030 (US Census Bureau). The county has an unemployment rate of 4.6% (Nov 2018), which ranged from 3.6% to 4.8% through Jan-Nov 2018 (U.S. Bureau of Labor Statistics).

The top five employment sectors (2017) in the county are:

1) Health Care and Social Assistance (17.6%);
2) Federal, State, & Local Govt. (15.4%);
3) Manufacturing (13.3%);
4) Retail Trade Health Care and Social Assistance (13.3%); and
5) Accommodation and Food Service (11.2%).

In the five years spanning 2013-2017, the fastest growing employment sectors included:

1) Agriculture, Forestry, Fishing, and Hunting;
2) Arts, Entertainment, and Recreation; and
3) Real Estate, Rental, and Leasing.

The same years saw significant declines in Utility and Mining sector employment in the county (Indiana Department of Workforce Development, 2017).

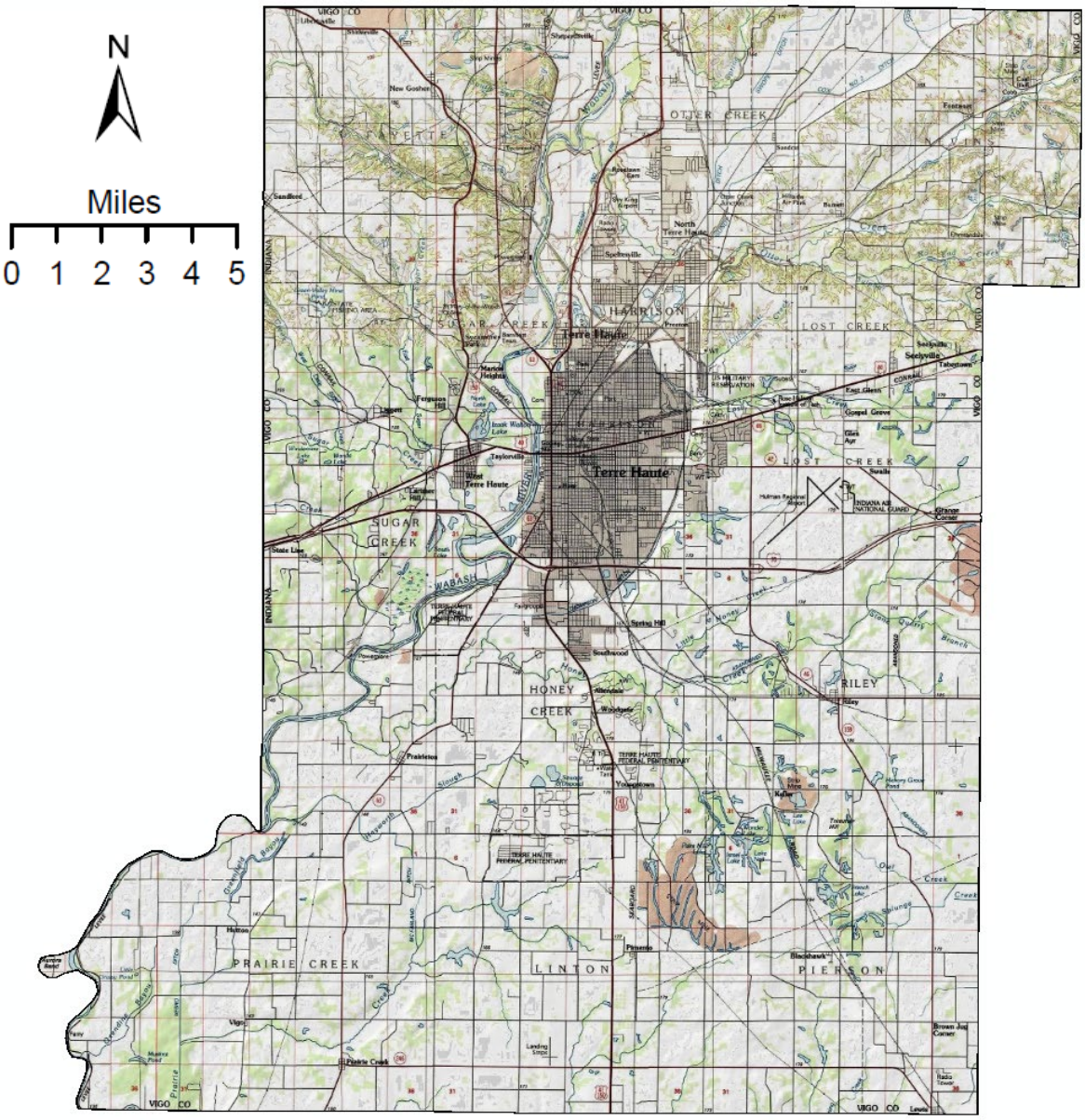

Figure 2. Topographic map base for Vigo County, Indiana (source Esri).

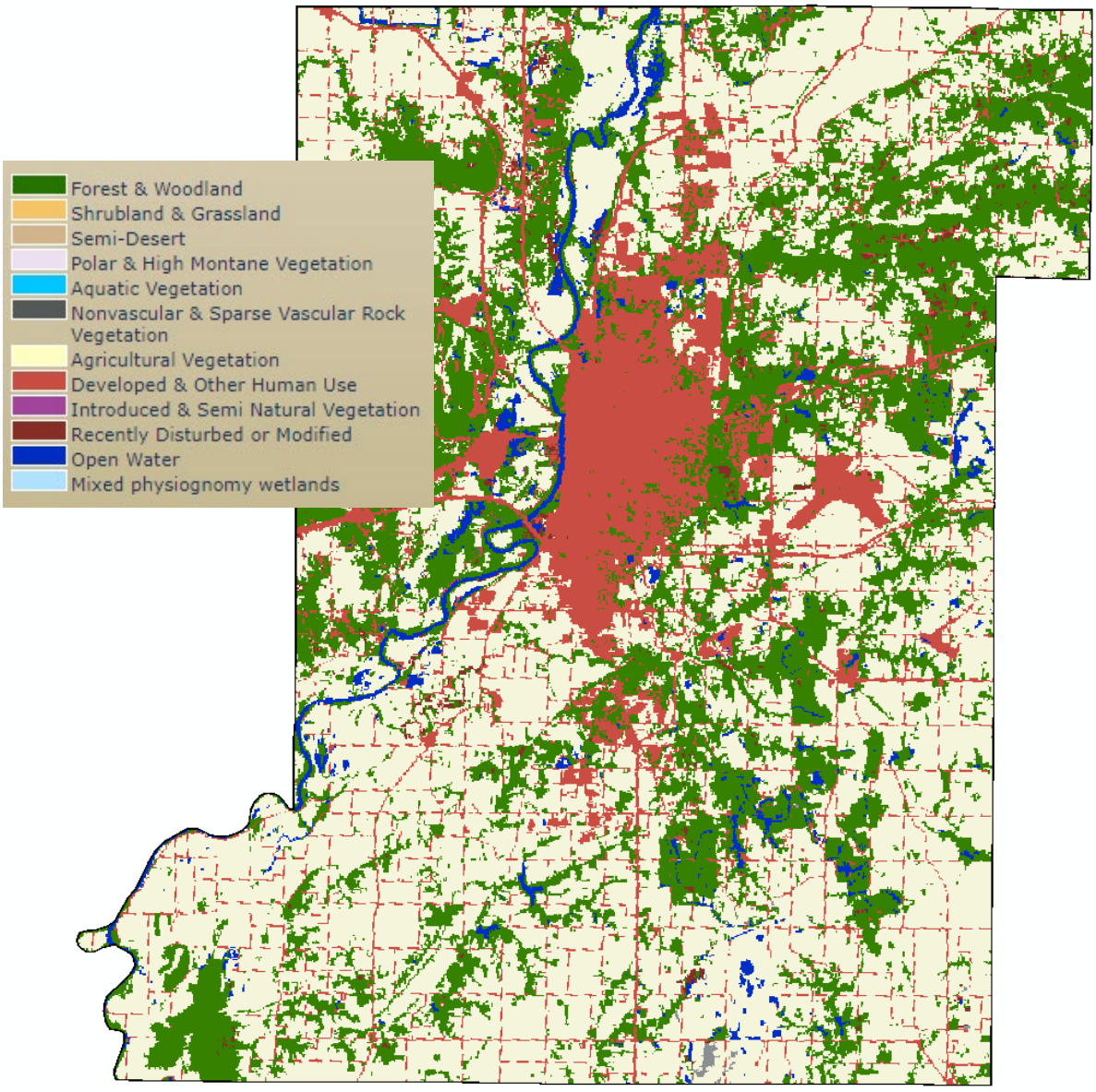

Figure 3. Map showing land use/land cover data for Vigo County, Indiana (source, US Geological Survey, National Gap Analysis Program).

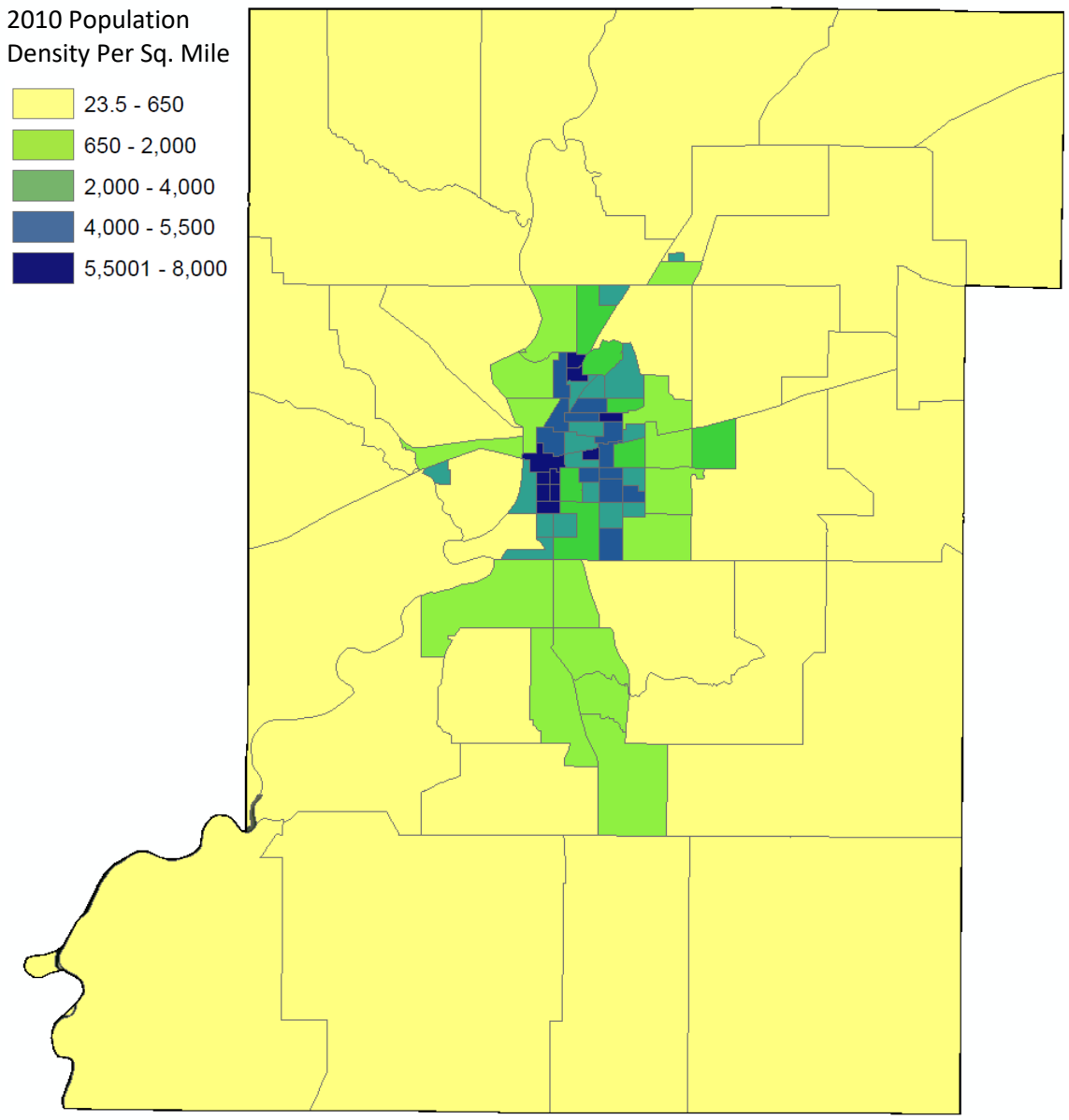

Figure 4. Map showing population density data for Vigo County, Indiana (source US Census Bureau, 2010 Census Block Group Data).

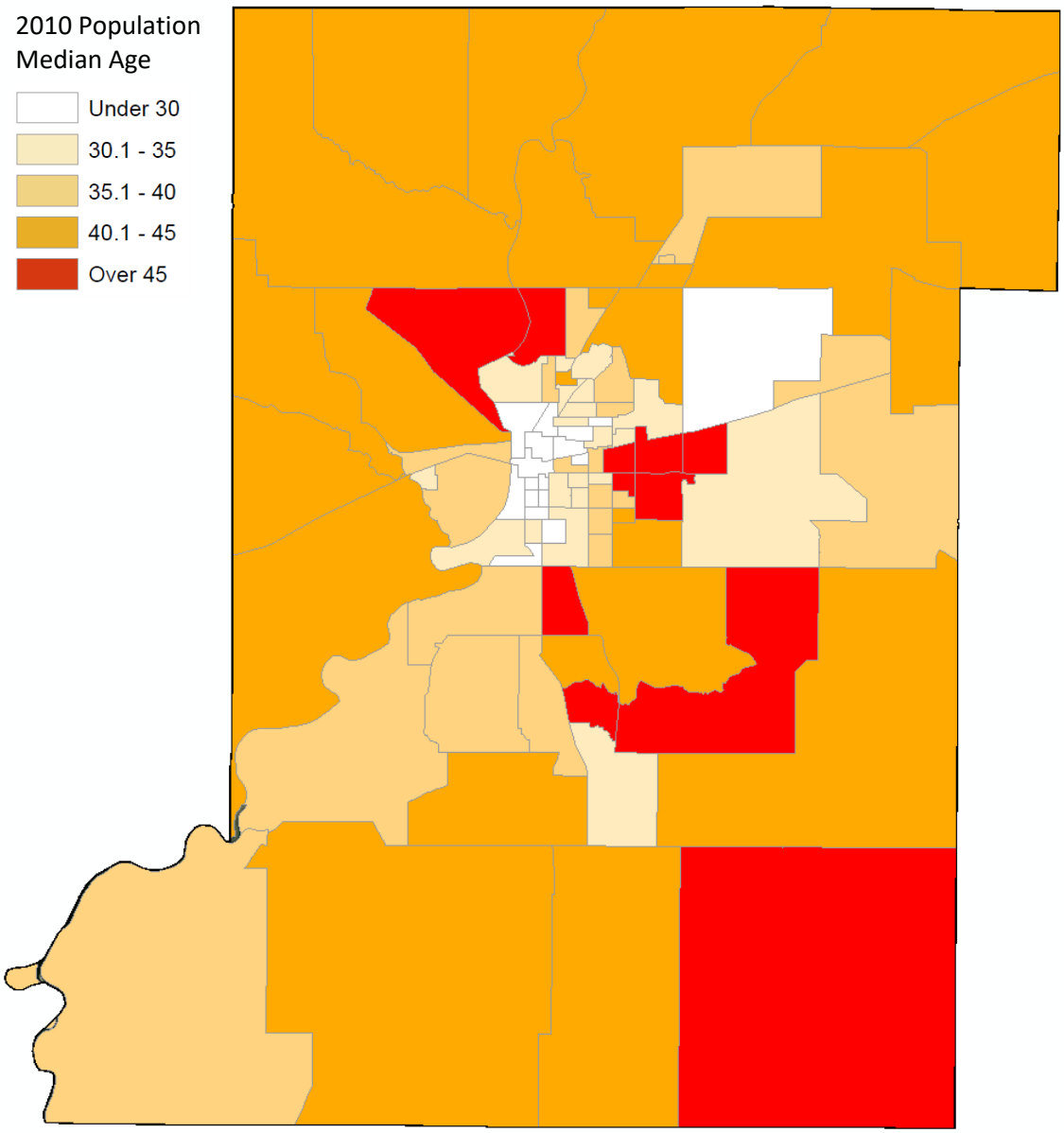

Figure 5. Map showing population median age data for Vigo County, Indiana (source US Census Bureau, 2010 Census Block Group Data).

Familiarity with CCS

Citizens in the Terre Haute area have not had significant exposure to the concept of CCS but are familiar with similar industrial activities. Many residents are employed by local industry and are familiar with oil and gas and industrial operations. Activities such as characterization, construction, and site operation may have limited impact on these communities as a function of existing industrial activities, which sometimes include trucking and rail transport and other major construction activities. However, other unfamiliar geologic characterization activities, such as conducting 2-D seismic surveys, that impact local landowners will likely require specific engagement activities. Stakeholders in direct proximity will require extra consideration because project activities may impact land use activities, and access – and may also result in temporary property damage. Local stakeholder concerns should be considered and funds should be available in order to ensure landowner access and resolution of damage issues.

Stakeholder Identification

The stakeholder analysis process can be broken down into four basic steps: 1) identifying, 2) analyzing, 3) mapping, and 4) prioritizing (BSR, 2011). Various stakeholders in the study region were initially identified from lists of stakeholder types from the general and CCS stakeholder engagement literature, government websites, and news articles. Additional stakeholders were identified by a group of approximately twenty Indiana University SPEA master's students in a stakeholder workshop in which they learned about CCS, the stakeholder engagement process, and some general information about the Wabash CarbonSAFE project. After listening to presentations on these topics, the workshop participants were given blank worksheets with the group headings and the levels of those stakeholder groups (local, state, and federal) and asked to brainstorm additional groups at each level.

This assessment identified several primary stakeholder organizations including, but not limited to (see Table 1 for complete list of stakeholders identified to-date):

- Government bodies
- Educational organizations
- Conservation and environmental groups
- Agricultural community
- General population throughout region and Indiana (not included on stakeholder list).

Workshop participants identified additional stakeholders in many of the groups that were missing in the initial tabulation. The additional stakeholders identified were community groups such as religious organizations. Additional research after the workshop yielded some specific organizations. For example, in the case of religious organizations, names of specific churches, synagogues, and mosques were not listed by the workshop participants. The aggregated list below includes all stakeholders that were identified by the authors and the workshop participants. Stakeholders were placed in eight different groups based on shared attributes and those groups are divided by their proximity to the project.

Table 1. Aggregated List of Stakeholders from the Authors and the Stakeholder Workshop

Group	Local	State	Federal
Government (Agencies, Offices, Politicians)	• Terre Haute City Council • Vigo County Commission • Vigo County Health Department • WorkOne Western Indiana, Region 7 Vigo County • Vigo County Area Planning Department • Vigo County Solid Waste Management • Vigo County Environmental Health • Vigo County Department of Redevelopment • Terre Haute Economic Development Department • Vigo County Plan Commission • Terre Haute Board of Public Works	• Indiana Department of Environmental Management (Office of Energy Development) • Indiana National Guard • Indiana Governor • Indiana Department of Transportation • Indiana Department of Natural Resources • Indiana State Legislature • Indiana Geological Survey • Indiana Integrated Public Safety Commission • Indiana Department of Natural Resources	• U.S. Department of Energy (Office of Fossil Energy) • National Energy Technology Laboratory • U.S. Environmental Protection Agency (Region 5 Underground Injection and Control Program) • U.S. Congress • U.S. Department of Justice • U.S. Internal Revenue Service • U.S. Federal Energy Regulatory Commission • U.S. Department of Agriculture
Community Groups	• Terre Haute Chamber of Commerce • Citizens Action Coalition • Wabash Valley Community Foundation • Terre Haute Economic Development Corporation • Wabash Valley Chapter of the Indiana AFL CIO • Terre Haute Rotary Club • Home Owners Associations (get from Planning Commission)		
Environmental Groups	• Indiana State University Sycamore Environmental Action Club • Wabash River Conservation Area • Wabash Valley Audubon Society • Ouabache Land Conservancy	• Hoosier Environmental Council • Central Indiana Land Trust • The Sierra Club Hoosier Chapter	• The Sierra Club • The Nature Conservancy

Group	Local	State	Federal
	• Vigo County Soil and Water Conservation District		
Religious Organizations	• Terre Haute First Baptist Church • Maryland Community Church • Faith Wesleyan Church • Vigo County YMCA • St. George Orthodox Church • United Methodist Church • St. Patrick Catholic Church • Immanuel Lutheran Church • St. Benedict Catholic Church • New Life Community Church • First Congressional Church • St. Joseph University Parish Catholic Church • Centenary United Methodist Church • St. Stephen's Episcopal Church • Foursquare Gospel Church • Grace Baptist Church • Church of Christ • Terre Haute Reformed Presbyterian Church • Eighth Avenue Baptist Church • United Hebrew Congregation • Temple Israel • Islamic Center of Terre Haute		
Industry (Pipelines, Mining Industry, Local Manufacturers)	• Countrymark Energy Resources, LLC • CDG Operations, LLC • Eric Emrick • Leaning Oak LLC • Pinnacle Exploration Corp. • Pioneer Oil Co., Inc. • Bernard Podolsky	• Indiana Farm Bureau • Sunrise Coal	

Group	Local	State	Federal
	• Templeton Coal Co., Inc. • Local Manufacturers[1]		
Local Landowners	• Private Homeowners • Residents • Terre Haute Regional Hospital • Farmers • Business Landowners • Union Hospital • Local Health Insurance		
Education (K-12, Colleges, etc.)	• St. Mary of the Woods College • Saint Patrick School • Vigo County Public Library • Vigo County School System • Vigo County Extension Service	• Rose Hulman Institute of Technology • Ivy Tech Terre Haute • Indiana State University • Indiana University • Purdue University • University of Notre Dame	
Utilities	• Terre Haute Wastewater Utility • WIN Energy REMC • Indiana-American Water Company • Nustar Pipeline Operating Partnership • Midwest Gas Transmission Co. • Buckeye Partners L.P. • Boardwalk Pipeline Partners • BP • Marathon • Meridian Brick	• Duke Energy • Vectren Corp. • Indianapolis Power and Light	• Midcontinent Independent System Operator
Media (Television, Radio, Newspapers)	• Tribune-Star • News 10 – WTHI-TV • WTWO-TV WAWV-TV • W250BZ (WIBQ-AM)	• Indy Star • 13 WTHR Indianapolis • Rtv6 or WRTV • Fox 59	

[1] http://terrehauteedc.com/economy-a-demographics-terre-haute-indiana/top-manufacturing-companies-terre-haute-vigo-county. Accessed March 11, 2019.

Stakeholder Mapping

Stakeholder mapping is a collaborative process that draws from multiple perspectives and generates a list of key stakeholders across a wide spectrum. Stakeholder mapping provides generalizations about groups based on qualitative factors such as belief systems and the purpose of a group (e.g. utilities work to provide energy at the lowest cost). It is important to know that the stakeholder list will be in flux throughout a project and needs to be managed regularly to consider updates based on perspectives on issues, new stakeholder potential, and feedback from existing stakeholders (BSR, 2011). The stakeholder mapping process is used to help prioritize stakeholder engagement strategies.

For this report, a three-step process was used to map stakeholders in the East Sub-Basin with a focus on the Wabash CarbonSAFE project area:

1. An initial stakeholder paper study identification process was done by considering potential stakeholders. Information from the paper study was used to create a "stakeholder map" plotting stakeholder interest versus stakeholder influence.
2. A workshop-based stakeholder map was created by graduate student workshop participants less familiar with CCS, but well-versed in environmental policy.
3. An aggregated stakeholder map was created integrating all stakeholder identification data (Figure 6).

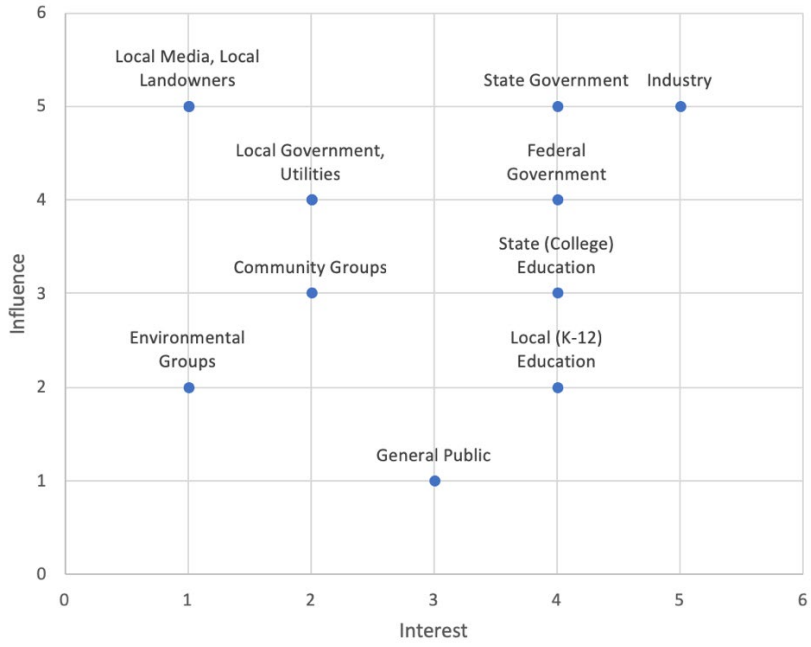

Figure 6. Qualitative stakeholder map showing stakeholder group as ranked by interest versus influence. The highest potential score of both interest and influence is a 5,5 while the lowest is 0,0.

Stakeholder Prioritization and Strategy

The stakeholder mapping exercise is intended to represent the average interest and influence of all of the individuals who participated in the exercise. Thus, it is critical to revisit the identification and mapping of stakeholders repeatedly throughout the project as new project partners and stakeholders emerge over time. The Wabash CarbonSAFE project could benefit from a new map with stakeholders ranked based on further research and familiarity with the Terre Haute area, literature, and information from engagement with stakeholders currently in progress.

Furthermore, the aggregated stakeholder map allows groups to be prioritized and considered when developing a stakeholder engagement strategy (Verzuh, 2005). The map can be defined by quadrants that help identify preliminary strategies (Figure 7), shown here as an overlay relating to stakeholder strategy development based on the integrated assessment of stakeholder influence and interest. This prioritization has roots in risk-based probability and impact scales (Verzuh, 2005). The quadrants help prioritize and weigh efforts devoted to each stakeholder group. The qualitative assessment quadrants provide an overall categorization of key stakeholders based on interest and influence, which helps to determine the level and intensity of stakeholder engagement (Figure 7).

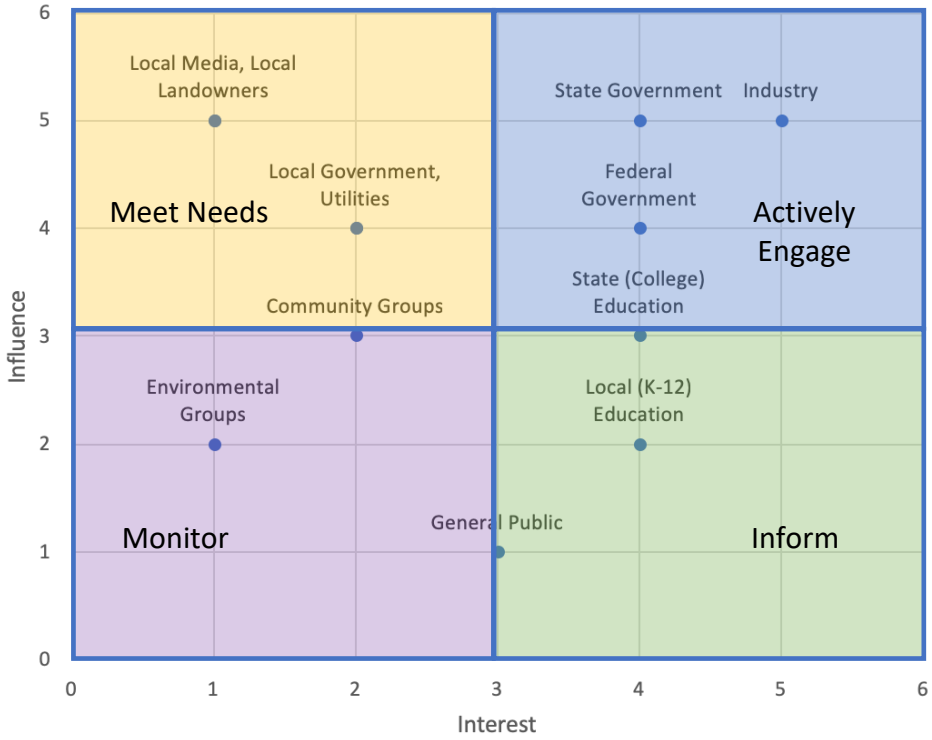

Figure 7. Qualitative stakeholder map showing stakeholder group as ranked by interest versus influence with stakeholder strategy overlay.

The stakeholder map with engagement strategy overlay suggests state government, industry, federal government, and state education are predicted to have the highest interest and influence and should be a priority focus in engagement. Local media, local landowners, local government, and utilities are predicted to have high influence but low interest and may also be a high priority group to engage. Other groups such as environmental groups are considered at a different priority level based on plot location of low influence and interest. Finally, community groups, local education, and the general public fall somewhere in between others.

Many considerations influence stakeholder roles and engagement strategy and it is important to consider how stakeholders interact. For example, the role of local and state government may be different as a project will be most visible to local constituents and placed within their area. Local governments controls things like zoning ordinances and city planning; whereas the state lawmakers could work with local government to enhance project development. On the other hand, the Indiana state legislature has the potential to impact CCS legislation in the state.

We are seeing the juxtaposition of local and state government play out with respect to the engagement strategy of Wabash Valley Resources (WVR) who initiated state-level engagement processes when they introduced a bill to create legislation for Indiana to take ownership of stored carbon dioxide at the Wabash Valley Resources Project site, where the Wabash CarbonSAFE project is co-located (SB 442).

WVR has engaged a lobbyist to work with them to educate lawmakers in the Indiana Senate and House of Representatives, conducted educational listening sessions, provided testimony, and engaged the Illinois State Geological Survey as experts to explain key geologic concepts about CCS. Local engagement has taken place, but may be limited in scope, which could result in challenging engagement in the future.

Currently, it is unknown how much influence community groups, such as organized religion, have in this community relative to new developments. This is a particular group that will need to be engaged and better understood.

Key and Legacy Issues

Environmental and economic impacts of activities that are considered to be important by stakeholders in the present day (key) or activities that have taken place in the past (legacy) can impact stakeholder perspectives and need to be considered when creating a stakeholder engagement strategy [reference].

To better understand potential environmental issues and concerns in the Terre Haute region, a social media search was done on Facebook and Twitter with the word *"environment"* and the location of Terre Haute. The major local environmental concerns focused on three main areas:

1. Environmental problems and clean up
2. Sustainability practices and environmental responsibility
3. Environmental zoning

Specifically, Facebook revealed a search result about *increased recycling* at Indiana State University. Twitter did not show any meaningful results. The Facebook pages of the area's environmental groups (Indiana State University Sycamore Environmental Action Club, Wabash Valley Audubon Society, and Ouabache Land Conservancy) did not have posts of specific events and instead discussed *general land management and sustainability practices.*

A news search on Google was also done for the terms *"environmental news Terre Haute."* This search revealed a positive article about increased recycling at Indiana State University and issues such as a *manufacturing site cleanup* at Hagen Manufacturing site (a former plastics laboratory), *cleanup of coal ash sites* owned by Duke energy, and a conflict surrounding *rezoning a potentially environmentally-sensitive* area to build a new jail. A search for *"environmental issues Terre Haute"* showed that Terre Haute also has a problem with their *Combined Sewer Overflow* leading to polluted waterways.

Environmental Justice and Stakeholder Engagement

Environmental Justice (EJ), as defined by the U.S. Environmental Protection Agency (USEPA), *"is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies"* (USEPA, 2019). EJ must be considered when federal funding is used for projects and will be considered upon application for a Class VI UIC permit.

This stakeholder analysis accessed the USEPA EJ tool, *EJ Screen,* to better understand the potential for EJ areas near Terre Haute (Figs. 8 and 9). *EJ Screen*, can be used to understand and map environmental and demographic characteristics for a specific location. *EJ Screen* provides reports and maps that can show each environmental indicator and demographic indicator one at a time. Using the EJ index feature allows one to understand how environmental indicators and demographics combine in a specific area (USEPA 2019). The environmental justice index combines demographic factors (e.g. minority or low-income populations) and a single environmental indicator (e.g. wastewater sites or sites reporting to USEPA). Each environmental indicator has its own EJ index and the EJ index is higher in areas with large numbers of low-income and/or minority residents with higher environmental indicator values. The local EJ index is then compared with the national average (USEPA, 2019).

These figures put into context potential demographic and environmental legacy issues. Further, they identify where these sites are concentrated in the Terre Haute area, which may indicate areas of particular environmental sensitivity. For example, the public could become interested in those sites if additional pollution occurs from existing sites, old sites leak, or new disturbances due to development occur. It is clear when comparing environmental issues such as waste water disposal and hazardous material that there is a direct correlation with low income population in the area.

Interestingly, the issue of environmental clean-up was identified in both the social media analysis and through the EJ too. Thus, it is clear this will be an important factor for consideration in any stakeholder engagement conducted in and around Terre Haute. Furthermore, stakeholder

engagement education materials will need to emphasize that carbon dioxide is not a hazardous material.

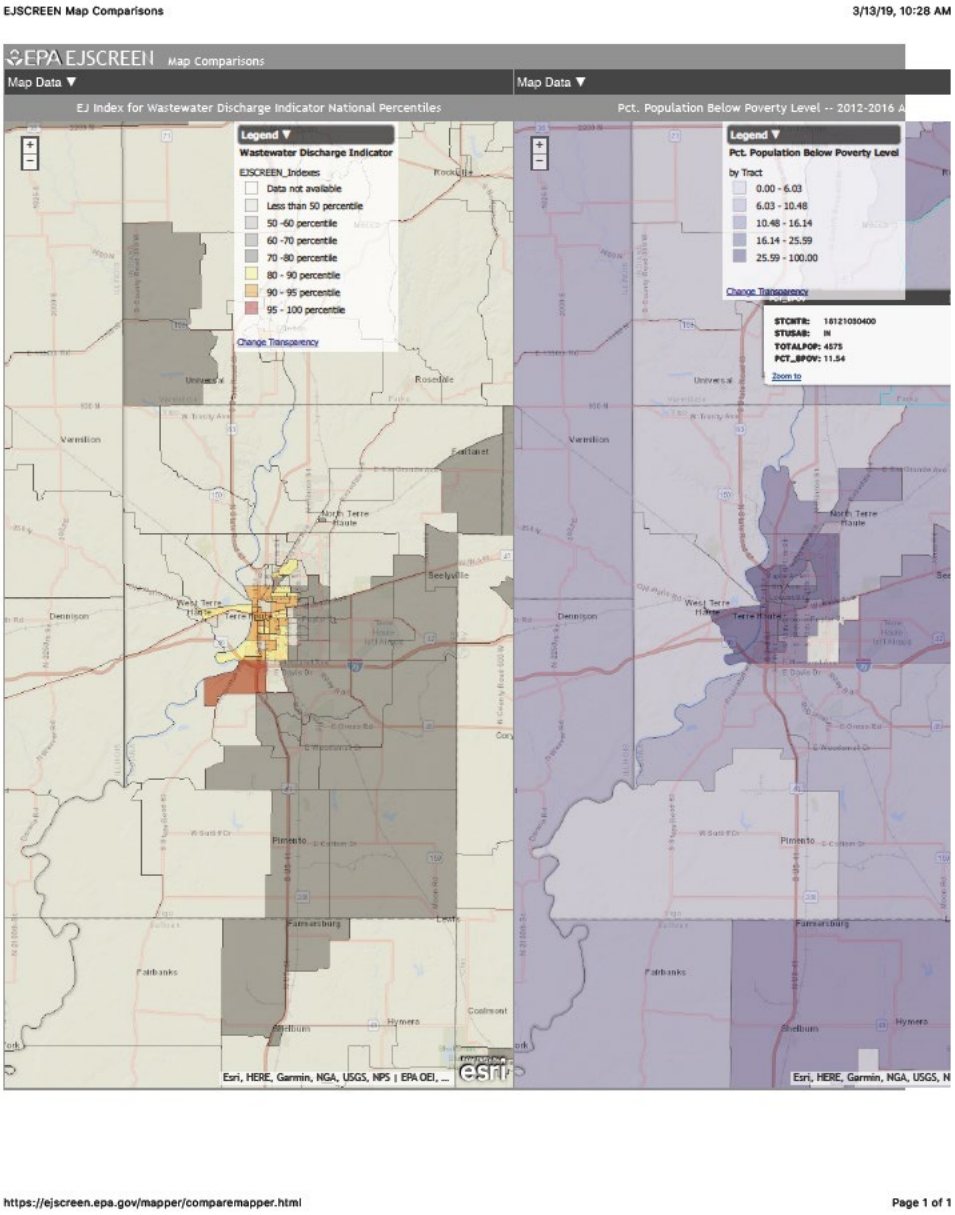

Figure 8. EJ Index for wastewater discharge versus percent population below poverty level.

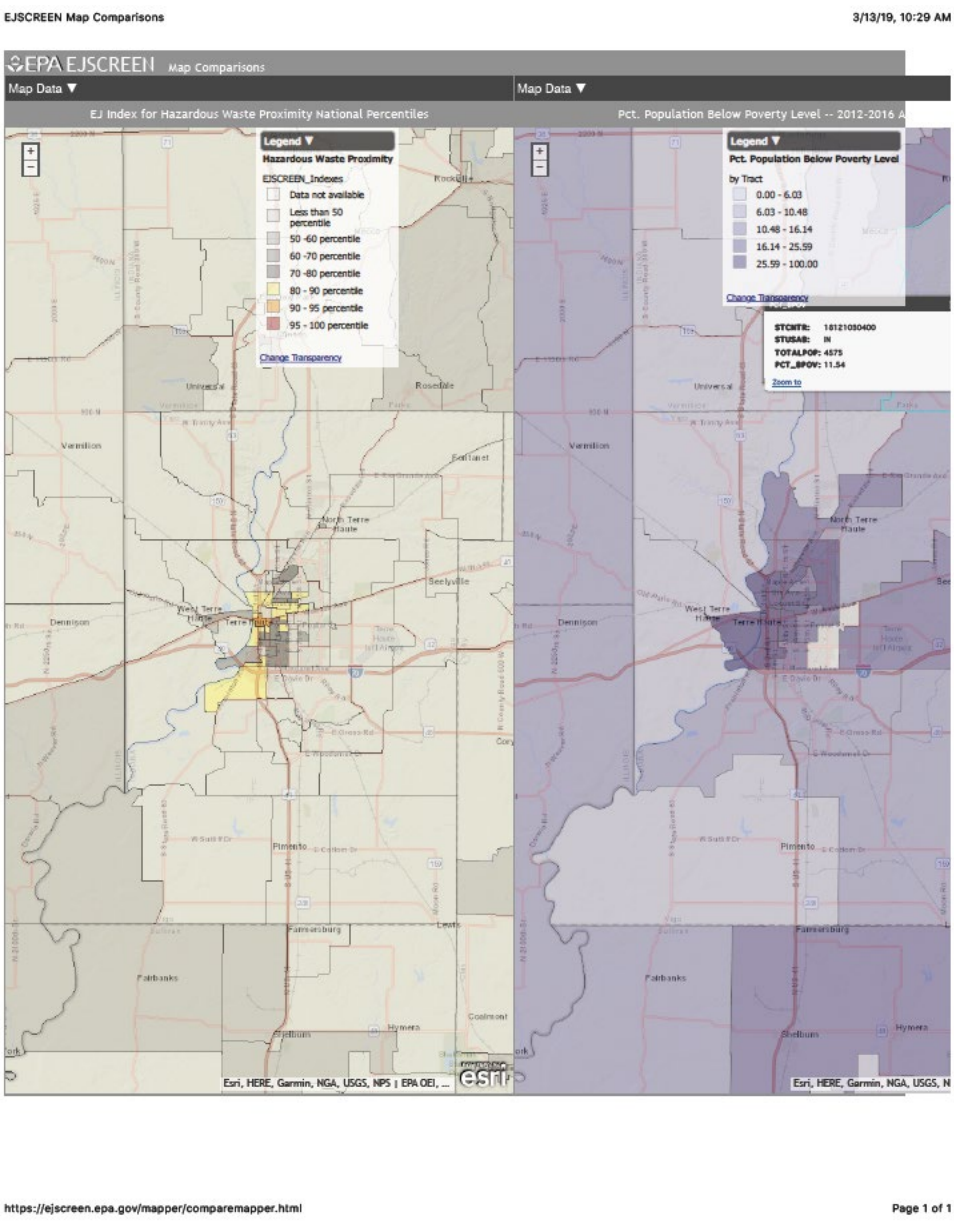

Figure 9. EJ Index for hazardous waste proximity versus percent population below poverty level.

Engagement Considerations

Educating stakeholders about CCS is critical as there is commonly confusion about the subsurface, especially when trying to distinguish among subsurface activities, such as between CCS, underground coal gasification (UCG), or hydraulic fracturing.

It is important to remember that CCS is an issue with many actual and perceived risks and benefits that may differ based on an individual's geographic proximity to a project or their role in setting policy or working at the project level.

The multitude of possible perspectives and opinions across stakeholder groups ensures that understanding popular attitudes must remain at the forefront of the stakeholder engagement process. Despite specific factors that may influence perception, experience has shown commonalities in the questions asked by stakeholders regarding CCS, including those listed here:

What is Carbon Capture and Storage?
How does it work?
What are the risks?
What are the benefits?
Will it impact my property value?
Who pays for it?
Who is responsible for CO_2 once stored?
Will it cause earthquakes?
What happens when you have an earthquake?
Will it damage my groundwater/drinking water?
Will it serve to continue the use fossil fuels at the expense of renewables?
Will it enhance the economy of our region, state or nation?
Does it enhance our energy security?

Thus, it is important to ensure that educational materials (presentations, brochures, websites, etc.) be designed to address these questions and other related topics that may arise when discussing project specifics or providing general information about CCS. Other topics that will likely be important to address and engage around include:

- Storage rights
- Long-term liability
- Surface and subsurface infrastructure (plant, pipeline, wells)
- Geology – sources and sinks, plume extent, Area of Review
- Permitting details and timeline
- Process of carbon storage
- Project details
- Project risks and benefits

Additional information relating to these topics and others identified through the stakeholder engagement process should be recorded and responded to by the appropriate members of the development team. Discussion of some of these issues is included herein:

Legal Considerations and Long-term Liability

The current Indiana Senate Bill (442) under consideration covers several of these topics and may bring considerable attention to the East Sub-Basin region and the Wabash CarbonSAFE site, although the bill focuses on the WVR project. Lines are easily blurred, and distinctions will not be made by local citizens, decision-makers, and other key stakeholders. The bill summary is included below (Indiana SB 442, 2019):

> Underground storage of carbon dioxide. Declares the underground storage of carbon dioxide to be a public use and service, in the public interest, and a benefit to the welfare and people of Indiana. Authorizes the establishment of a carbon sequestration pilot project (pilot project) that will store the carbon dioxide captured at a proposed ammonia production facility and will transport and inject the carbon dioxide into underground strata and formations pursuant to one or more federal permits as an alternative to releasing the carbon dioxide into the air. Provides that if the operator of the pilot project is not able to reach an agreement with an owner of property to acquire: (1) ownership of underground strata and formations located under the surface of the property for purposes of the underground storage of carbon dioxide; or (2) ownership of or other rights to surface areas of the property for purposes of establishing and operating monitoring facilities; the operator of the pilot project may use the power of eminent domain to acquire ownership of the strata and underground formations and ownership of or other rights to the surface areas. Provides that the state of Indiana, upon the recommendation of the director of the department of natural resources, may obtain ownership of: (1) the carbon dioxide stored in the underground strata and formations; and (2) the underground strata and formations in which the carbon dioxide is stored; from the operator of the pilot project. Urges the legislative council to assign to an appropriate interim study committee for the 2019 interim the task of studying the geologic storage of carbon dioxide.

The Underground Injection Control (UIC) Program Class VI Financial Responsibility Guidance report released by US Environmental Protection Agency emphasizes that the owner/operator of a sequestration site should demonstrate the financial capability to provide long term monitoring of a site post injection.

Any projects (WVR and/or Wabash CarbonSAFE) will need to identify the appropriate financial instrument (bond, trust, etc.) to demonstrate the capability to provide long term monitoring (should it occur).

Identification of Pore Space Owners and Surface Owners

Surface owners and subsurface rights owners are mainly known and can be readily contacted regarding surface or subsurface operations associated with the project. The project activities are largely within the property of an existing industrial plant where infrastructure development activities are common. Additionally, well drilling and routine oil and gas field activities have taken place within the modeled plume extent area. The surface owners of the drilling site are WVR, the source operator and partners in this project. At the WVR plant site, the current owner of the subsurface rights has extensive holdings and is known, but confidential at this time. In the broader region, pore space owners may need to be identified.

Furthermore, it is important to consider specific upcoming Wabash CarbonSAFE project activities for which the project team should be prepared to engage around. They include, but are not limited to:

- Seismic surveys
- Well drilling
- Site activities
- Project risks and benefits
- Legislative sessions
- WVR stakeholder activities

Securing Storage Rights

As in most states, Indiana has established legal and regulatory mechanisms to obtain rights for the subsurface mineral estate. This is expected to apply to the utilization of pore-space for CO_2 storage in an analogous manner to storage of natural gas, which is commonly practiced in Indiana.

WVR is the land owner at the proposed storage site adjacent their IGCC plant and will provide site access. The owner of the subsurface rights is an entity known to WVR, but confidential at this time.

Engaged Stakeholders to-Date:

Although no specific Wabash CarbonSAFE stakeholder engagement has taken place, there are engagement activities taking place at and around the region. For example, the Indiana Legislature has been engaged through with Wabash Valley Resources group in development of legislation that would have the State of Indiana accept liability for stored carbon dioxide at the WVR site. Legislative testimony and briefing sessions have been conducted by WVR with the support of ISGS personnel.

Future stakeholder engagement activities will need to be tracked and coordinated around project sites.

Recommendations

The following recommendations are provided for consideration when developing the stakeholder engagement strategy for projects in the Illinois East Sub-Basin in general and related to the Wabash CarbonSAFE project specifically (note these recommendations are not provided in order of priority):

Communications – Messages and Messengers:

1) Determine messaging (could include):
   a) CCS is a safe, demonstrated technology that works to mitigate climate change
   b) CCS will bring jobs [need analysis on jobs impact]

2) Hire PR/Communications firm to manage communications process with stakeholders. Work with scientists to create easy to read and understand materials
3) Create informational materials which include, but not limited to:
    a) Frequently Asked Questions (FAQ)
        i) List from report on page 20.
        ii) Be able to answer question of what happens if something goes wrong?
        iii) When does State take financial responsibility and how much cost to tax payers?
        iv) What is level of risk?
    b) Earthquake/seismic
    c) Coal mine legacy
    d) Financial responsibility
4) Issues may need to be prepared to address:
    a) Keeping boundaries around projects
    b) ISGS and other partners need mechanisms to maintain objectivity and remain trusted sources of information
5) Provide support for key stakeholders to become sources of project information and project champions
6) Need to be prepared to answer non-project related environmental issues such as coal ash problems

Stakeholder Engagement Strategy

1) Draw clear lines of responsibility between Wabash Valley Resources and ISGS-led Wabash CarbonSAFE that allow projects to manage integration and messaging
2) Continue to engage with key stakeholder groups, including but not limited to:
    a) Lawmakers, local and state government,
    b) Community groups
    c) Environmental groups
3) Engage individuals to be on Community action board or Citizen Task Force
4) Create a Community Liaison Officer position
5) Monitor social media
6) Create processes to minimize scope creep and surprises through strategic project and communications planning
7) Create a Stakeholder Engagement Plan that includes approach to stakeholder engagement, principles, policies, and sets context (Shell example).

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