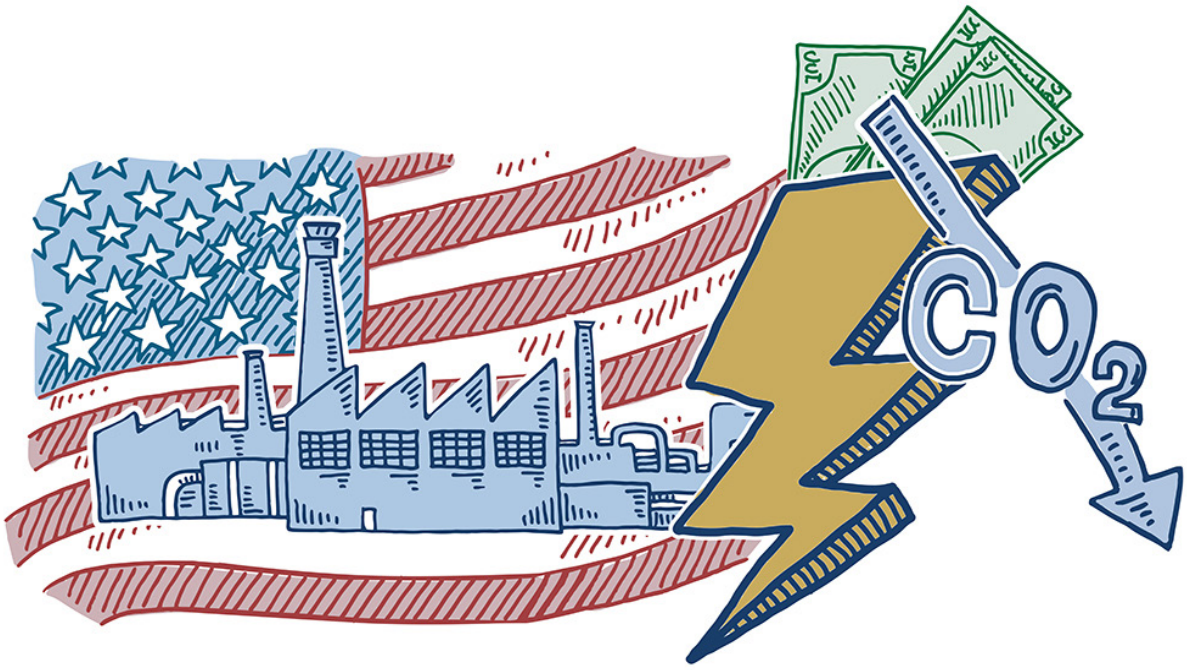

Recommendations for Implementing Clean Energy Tax Credit Provisions Related to "Energy Communities"

CLEARPATH

November 2022

Purpose

The purpose of this memo is to provide recommendations for the implementation provisions related to "energy communities" for certain clean energy tax credits. This memo includes original data collection and mapping to demonstrate reasonable statute interpretations.

ClearPath's mission is to develop and advance policies that accelerate breakthrough innovations to reduce emissions in the energy and industrial sectors. An entrepreneurial, strategic 501(c)(3) nonprofit, ClearPath collaborates with public and private sector stakeholders on nuclear energy, carbon capture, natural gas, hydropower, geothermal, energy storage, hydrogen, and heavy industry to enable private-sector deployment of critical technologies.

Based on the methodology applied below, Energy Communities could represent more than a third of the country's land mass, providing broad opportunities for new clean energy deployment eligible for these enhanced tax credits. The map below illustrates the areas identified as likely energy communities for the 2023 tax year.

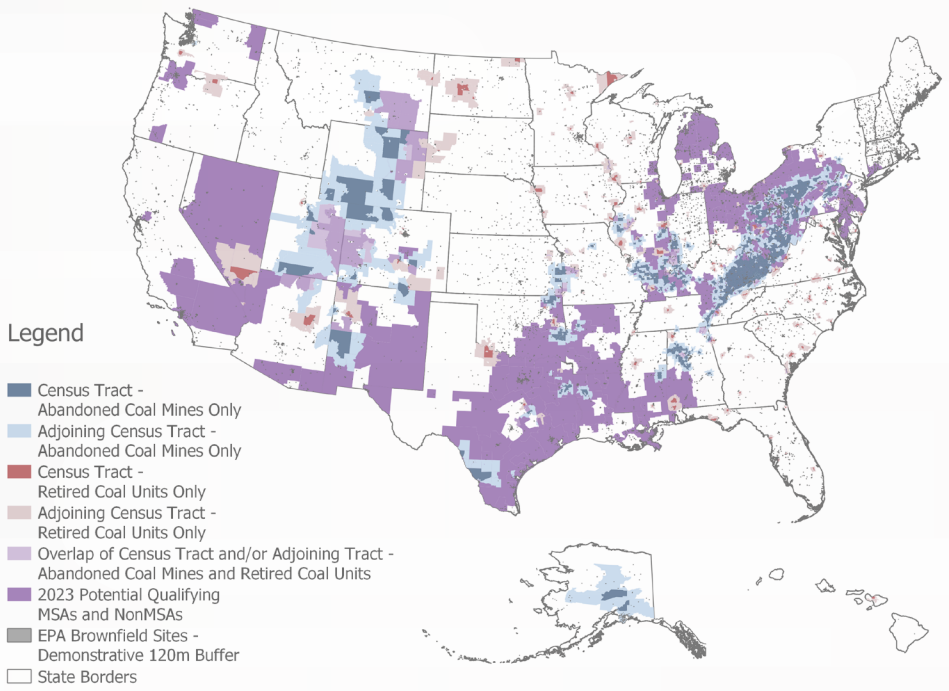

Figure 1: All areas potentially identifiable as Energy Communities in 2023 through ClearPath's analysis. This represents approximately 34% of land in the U.S.

Background

The Inflation Reduction Act of 2022 amended existing tax credits and established additional new credits for clean energy. The projects eligible for these tax credits are now eligible for a 10 percent increase in credit value if the facility is located in an energy community.

The implementation of the energy community provisions will have a significant impact on where projects will be located and the total reduction in revenue over the time period. The Congressional Budget Office (CBO) scored these sections of the bill at more than $250 billion in revenue reductions over 10 years. Adopting a more expansive view of the energy community language would lead to more generous incentives for clean energy development and result in greater than anticipated forgone tax revenues. The legislation gives considerable authority to the Secretary to determine which data sources to use and how to perform necessary calculations for certain eligibility metrics. The recommendations that follow are intended to ensure this credit structure is workable, fully complies with the statutory intent, and creates certainty for project developers.

Section 13101 of the bill amends section 45(d) of the Internal Revenue Code (26 U.S. Code § 45) to account for this increase in certain communities as:

> "(11) SPECIAL RULE FOR QUALIFIED FACILITY LOCATED IN ENERGY COMMUNITY.—
>
> "(A) IN GENERAL.—In the case of a qualified facility which is located in an energy community, the credit determined under subsection (a) (determined after the application of paragraphs (1) through (10), without the application of paragraph (9)) shall be increased by an amount equal to 10 percent of the amount so determined.
>
> "(B) ENERGY COMMUNITY.—For purposes of this paragraph, the term 'energy community' means—
>
> "(i) a brownfield site (as defined in subparagraphs (A), (B), and (D)(ii)(III) of section 101(39) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601(39))),
>
> "(ii) a metropolitan statistical area or non-metropolitan statistical area which—
> "(I) has (or, at any time during the period beginning after December 31, 2009, had) 0.17 percent or greater direct employment or 25 percent or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas (as determined by the Secretary), and
>
> "(II) has an unemployment rate at or above the national average unemployment rate for the previous year (as determined by the Secretary), or
>
> "(iii) a census tract—
>
> "(I) in which—
>
> "(aa) after December 31, 1999, a coal mine has closed, or

"(bb) after December 31, 2009, a coal-fired electric generating unit has been retired, or

"(II) which is directly adjoining to any census tract described in subclause (I).".

Geographic Definitions of Energy Communities

Brownfield Sites

The statute uses the pre-existing definition under 42 U.S.C. 9601(39) to define the term brownfield site. Based on that definition, a qualifying facility located on any part of the real property that meets the definition under this paragraph should be entitled to the elevated credit value.

Brownfield sites are highly clustered in urban areas. As a result, many brownfield sites have a small footprint that may make development difficult for the purposes of claiming a clean energy tax credit that is eligible for the credit enhancement.

Figure 1 below displays the spatial distribution of brownfields sites (not to scale). Figure 2 zooms in on southeastern Michigan to demonstrate the size of individual brownfield sites, using a buffer distance based on the average property size of brownfield sites using a nationally representative sample in (Haninger, Ma, & Timmins, 2017).[1]

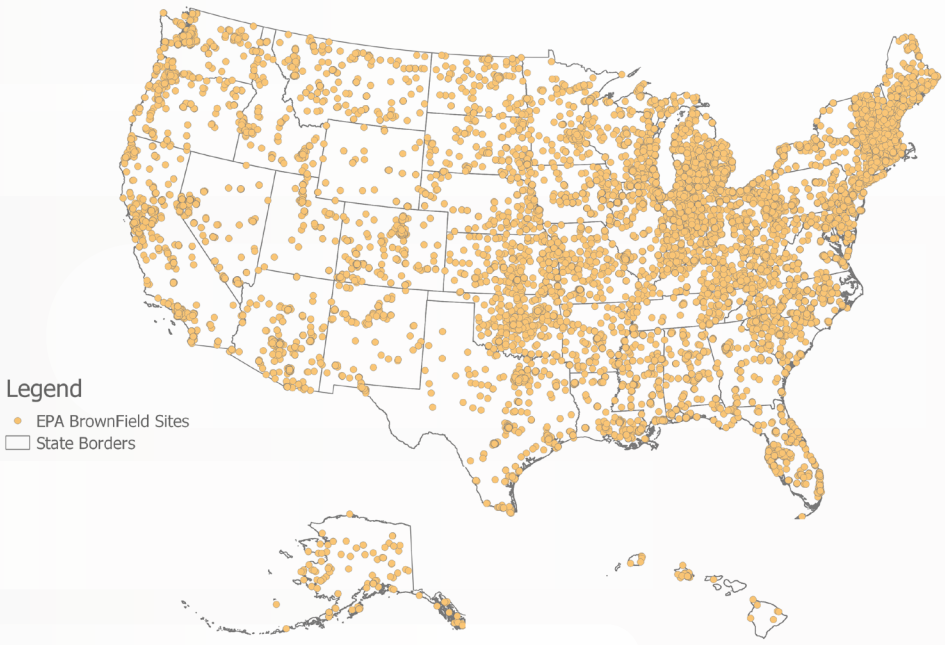

Figure 2: Environmental Protection Agency identified Brownfield Sites. Points do not represent spatial footprint of sites, only location. Nearly 37,000 brownfield sites are displayed, but the Government Accountability Office estimates that there are between 450,000 and 1 million brownfield sites in the U.S.[2]

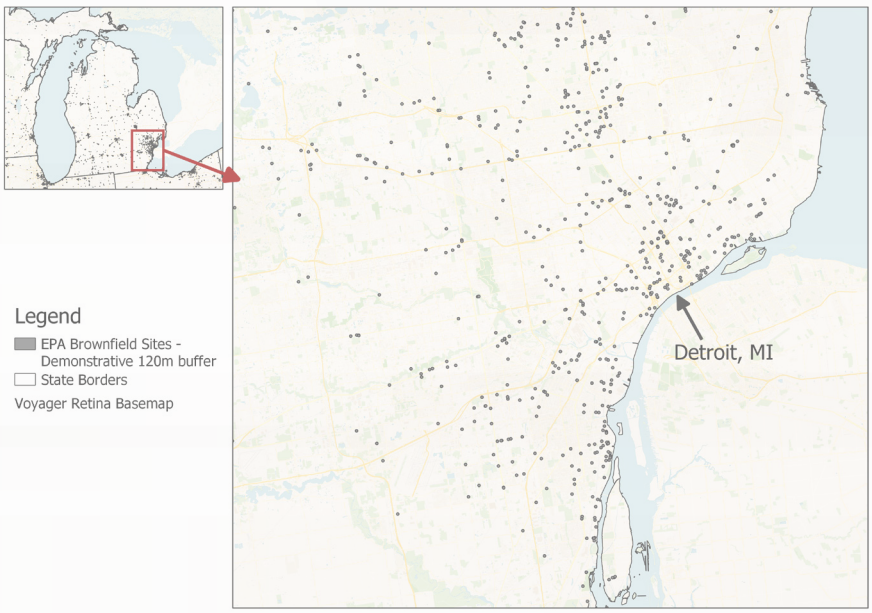

Figure 3: We applied a 120m buffer around EPA identified brownfield sites to provide a better visualization of their spatial footprint. We used a 120m buffer (roughly 11 acres) as this was found to be the average property size of brownfield sites using a nationally representative sample in (Haninger, Ma, & Timmins, 2017).

Qualified Direct Fossil Employment

A location may qualify as an energy community if it is part of a statistical area with both high employment levels or tax revenues directly attributable to fossil energy resources, and has a higher than average unemployment rate. The statutory definition for this provision is as follows:

> "(ii) a metropolitan statistical area or non-metropolitan statistical area which—
>
> "(I) has (or, at any time during the period beginning after December 31, 2009, had) 0.17 percent or greater direct employment or 25 percent or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas (as determined by the Secretary), and

In order to qualify as an energy community, the location must have met a 0.17 percent threshold for direct employment related to various occupations in any year beginning after December 31, 2009. Treasury should use the "194 Order Industry Sectoring Plan" provided by the Office of Occupational Statistics and Employment Projections, within the Bureau of Labor Statistics, or a similar document for employment categorization based on the 2017 North American Industry Classification System (NAICS) Manual.

Eligible occupations under this clause should include at least the following NAICS codes and descriptions: Oil and gas extraction (211), Coal mining (2121), Support activities for mining (213), natural gas distribution (2212), pipeline transportation (486), and petroleum and coal products manufacturing (324).

These NAICS codes can then be used to determine the share of qualifying employment on a county by county basis from each year during the period beginning after December 31, 2009 to the present using County Business Patterns data from the Census Bureau. The county level data can then be aggregated to the Metropolitan Statistical Areas (MSA) or Non-Metropolitan Statistical Area (non-MSA) level based on the area definitions provided by the Census Bureau.

Based on these definitions, a significant portion of nations' land mass is potentially eligible to meet the energy community definition. Regions are highly concentrated in states typically thought of as energy producers, including Texas, Louisiana, Pennsylvania, West Virginia, Oklahoma, Wyoming, and North Dakota, among others.

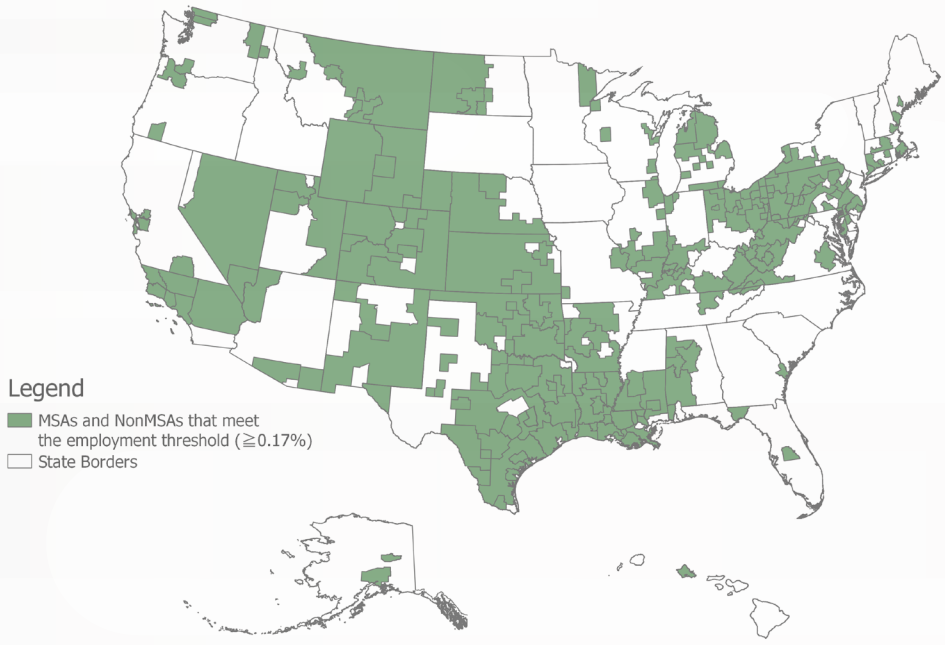

Figure 4: All MSAs and Non-MSAs that currently or have had employment in extraction, processing, transport, or storage of coal, oil, or natural gas that is ≧0.17% on an annual basis in the period beginning after December 31, 2009 to the present.

Current Regional Unemployment

The second requirement for this provision is based on a comparison between the current unemployment rate for a MSA or non-MSA region with the national average unemployment rate for the previous year.[3] This subclause, written in the present tense, implies that the metric should be interpreted as the current unemployment rate for the location. Unlike the preceding subclause, which uses a historical window from December 31, 2009 to the present, subclause (II) only accounts for the **current** unemployment rate in an MSA or non-MSA region. Furthermore, the word "average" does not appear in relation to the unemployment rate for the MSA or non-MSA region, it only appears in relation to the national unemployment rate for the previous year.

County-level unemployment rates are published by the Bureau of Labor and Statistics (BLS) on a monthly basis through the Local Area Unemployment Statistics program.[4] This county level data can then be aggregated into MSA and non-MSA regions to determine the region-wide current unemployment rate, similar to the process described above for the qualifying occupational employment.

National Unemployment for the previous year

The second part of subclause (II) requires the secretary to determine "national average unemployment rate for the previous year". The legislation does not prescribe any particular definition of the word "average", leaving it to the Secretary's discretion. Because the subclause uses the term "previous year", ClearPath recommends that the average is defined on a calendar year basis. In practice, this would mean using the annual average as calculated by the Bureau of Labor Statistics through the Labor Force Statistics from the Current Population Survey.[5] For calendar year 2021 the average national unemployment rate was 5.3 percent.

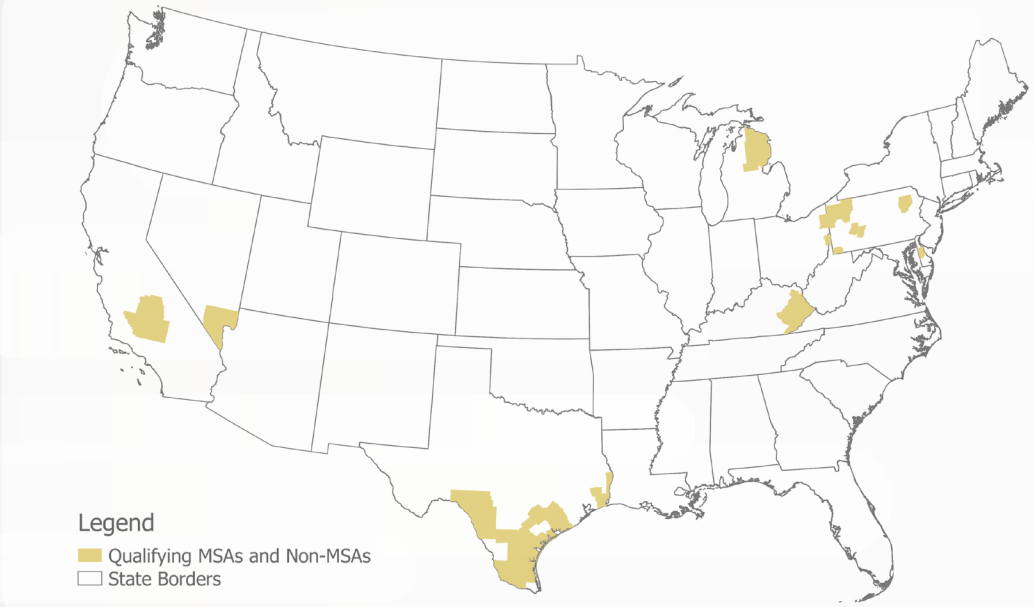

Figure 5: Qualifying MSAs and Non-MSAs identified via ClearPath's methodology outlined above for qualifying occupational employment and above average unemployment as of October 31, 2022 based on 2021 national average unemployment data.

Based on the 2021 employment rate, relatively few MSA and non-MSA regions would currently qualify as energy communities. This effect is largely attributable to the economic recovery from the pandemic, as the national unemployment rate has significantly decreased since 2021. Based on economic forecasts for the remainder of calendar year 2022, the map below in Figure 5 projects the MSA and non-MSA regions that are reasonably likely to qualify based on this definition for 2023.

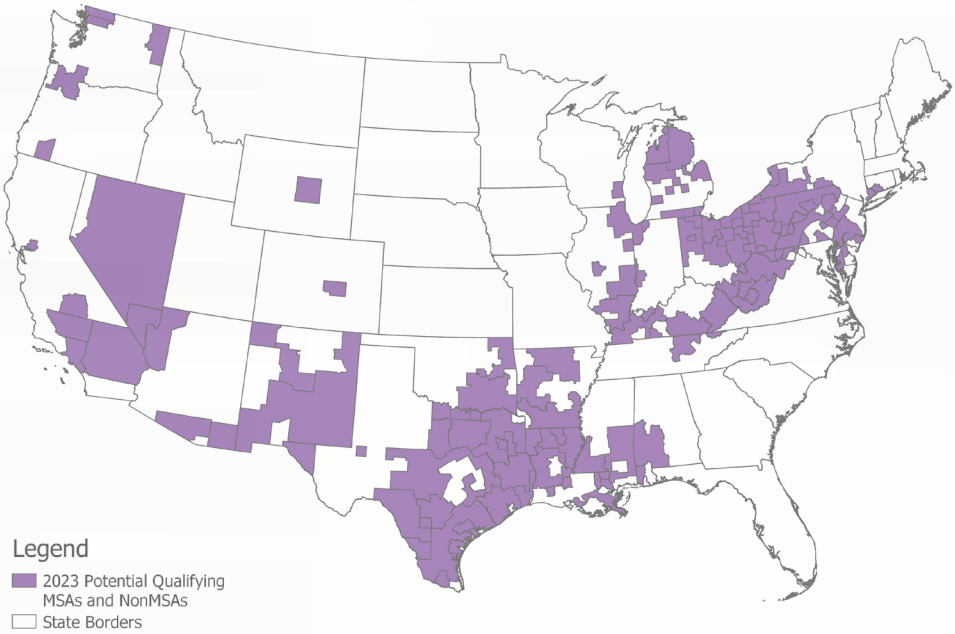

Figure 6: This map shows potential qualifying MSAs and NonMSAs for 2023 based on our methodology (once the "previous year" calculation updates from 2021 to 2022).

Local Tax Revenues

Another way for a location to qualify as an energy community is for an MSA or non-MSA region to have had 25 percent or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas in any year since December 31, 2009. MSAs are not taxing entities and are composed of potentially hundreds of independent taxing jurisdictions. Based on the statutory language, the entire MSA or non-MSA would need to meet or exceed this threshold in aggregate in order to qualify. Plainly, this data does not exist in a centralized location.

It is unlikely that the Treasury will be able to access reliable public data nationwide that will satisfy this provision. For the purposes of this provision, Treasury should account for tax revenues from

any county, municipality, and/or special district located within a MSA or non-MSA region. There may be hundreds of independent taxing jurisdictions located within a given MSA or non-MSA. While collection of these separate local tax records would be burdensome, the statute does not provide a release value for estimation or localization of the tax revenue requirement.

Treasury should consider the unlikelihood of this provision qualifying additional locations given that many MSAs or non-MSA regions that would satisfy the criteria for local tax revenues will also satisfy the criteria of the unemployment threshold in this section.

Closed Coal Mines

One way a location can meet the definition of an energy community is as a census tract (or directly adjoining census tract) where a coal mine has closed after December 31, 1999. There are well over 5000 mines that meet this criteria, but It is clear that there are significant data discrepancies about the precise location of these mines, as outlined below.

We retrieved Dataset 13: "Mines Data Set" from the Mine Safety and Health Administration's (MSHA). We filtered Dataset 13 to include only coal mines labeled 'Abandoned' or 'Abandoned and Sealed' after December 31, 1999. This resulted in 5,138 coal mines. Next, we used QGIS version 3.22.11 to identify mines whose coordinates placed them outside the U.S. or in states within the US that contradicted the state identification from Dataset 13. From this process, we identified 175 mines whose coordinates put them in a different state than other record data stated and 129 mines whose coordinates placed them outside the U.S.. This reflects a 6% error rate in qualifying coal mine locations.

We assessed all 304 incorrectly located coal mines and used additional information provided in the MSHA dataset, such as the nearest town and vehicle navigation directions, to determine the correct coordinates for each mine. We used Google Earth Pro and Google Maps for this process. There were only two mines' whose coordinates could not be corrected and were therefore excluded from the final dataset. When a mine could not be identified, coordinates for the nearest town were used. We used the resulting clean dataset to identify census tracts and adjoining census tracts that would qualify as energy communities.

It is critical that the Treasury Department and IRS work with the relevant Departments, Agencies, and Administrations to ensure that the datasets used to determine energy communities undergo quality control and assurance processes.

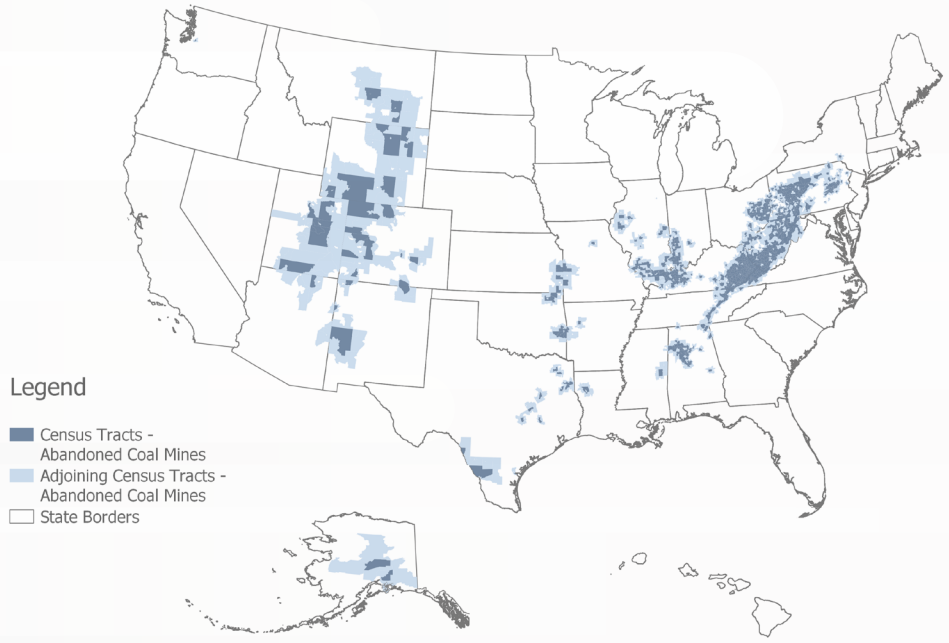

Figure 7: Census tracts with qualifying coal mines and adjoining tracts after accounting for incorrect coordinates.

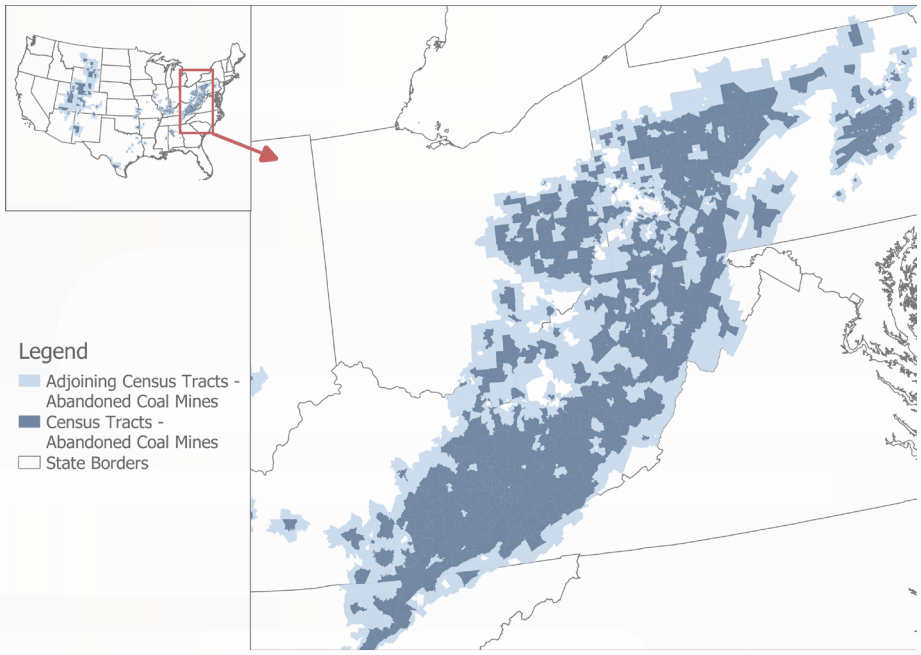

Figure 8: A zoom-in on census tracts with qualifying abandoned coal mines and adjoining tracts in Kentucky, West Virginia, Ohio and Pennsylvania.

Retired Coal-Fired Electric Generating Units

Another way a location can meet the definition of an energy community is as a census tract (or directly adjoining census tract) where a coal-fired electric generating unit has been retired after December 21, 2009.

An electric generation plant consists of one or more electric generating units. In some cases, each unit may operate using a different fuel source, such as biomass or natural gas. The statutory construction reflects that generating units at a single plant may initially come online or be retired at different times. Meeting the requirements of an energy community by statute requires only that a single coal-fired electric generating unit has been retired, even if other units at the same plant continue to operate using coal or alternative feedstocks. Similarly, the legislation requires no minimum size for a retired coal-fired electric generating unit to qualify the census tract as an energy community.

This follows the current practice for other tax credits that are applicable based on a single electric generation unit at a facility where multiple units are in operation. While this subclause does not refer to the distinction between an electric generating unit and an "electric generating facility" or "electric generation station", had the legislation intended to apply this at the facility level the statute would reflect that difference as appears in other subsections of the Internal Revenue Code.[6]

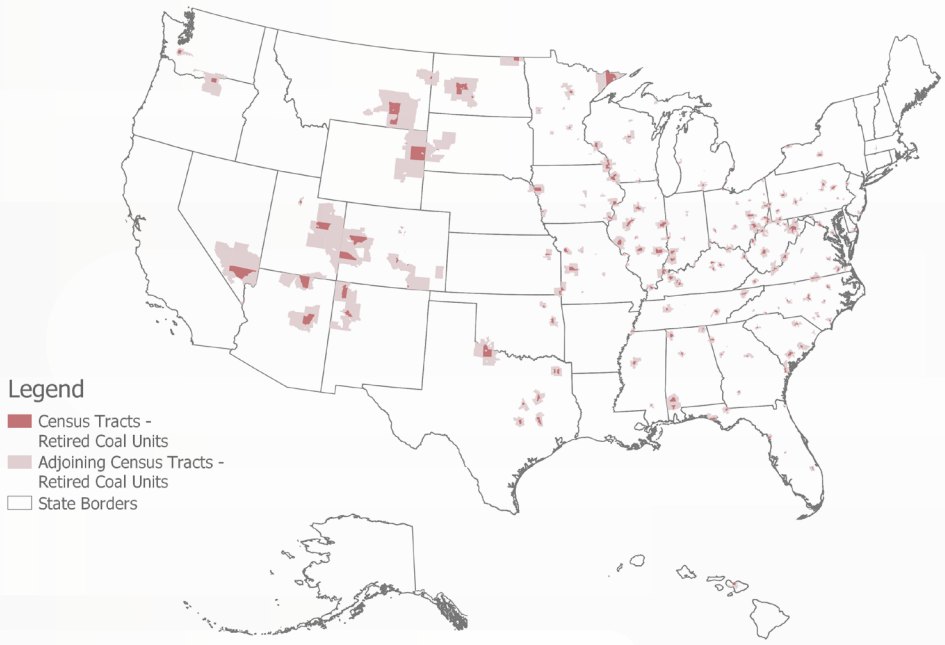

Figure 9: Census tracts with qualifying retired coal units and adjoining census tracts.

Recommendations

The recommendations below are focused on establishing a definition of "energy community" based on the legislative text enacted by Congress and signed by the president. Where there is uncertainty these recommendations attempt to provide the most natural reading of the law. The overarching goals of the recommendations are to establish a durable, reasonable, predictable structure for project developers.

Brownfield Sites

Projects that are partially located both on real property that is a brownfield site and other real property that is not a brownfield site should be determined to be located in an energy community for the purposes of this section.

Retired Coal-Fired Electric Generating Units

In the case of a dual fuel unit capable of firing coal and one or more alternative feedstocks, the Department should interpret the statute broadly to include any unit that had been used to fire coal to produce electricity prior to its retirement, based on the attestation of the operator or receipts of coal shipments.

In the case of an coal-fired electric generating unit that is replaced or repowered to run on an alternative feedstock than coal, such projects should be considered as a coal retirement. According to documents published by the Environmental Protection Agency (EPA) retirement is the first phase of coal power plant decommissioning. At this phase there is no requirement or expectation to remove existing equipment or demolish buildings, only to "announce retirement and cease power production."[7] For a unit that is to be repowered using an alternative feedstock such as natural gas or nuclear power, this should constitute a "retirement" for the purposes of this paragraph as the unit is no longer a coal-fired electric generating unit and the number of coal-fired electric generating units in the census tract has been permanently altered as a result of repowerment.

Unemployment Metrics

In the interest of providing legal certainty for project developers, energy communities need to be established in a predictable manner. Using a rolling 12-month average would create more volatility on a monthly basis than a static average of the previous calendar year updated annually by the Secretary. Using metrics that provide clear and predictable signals will allow developers to seek out project locations consistent with the intent of congress, rather than merely rewarding projects in certain locations that would have been developed with or without the enhanced credit incentive. This approach will create a more predictable environment for taxpayers as opposed to other definitions of "average", such as a rolling average of the last 12 months.

The statutory construction of this section creates an inherent mismatch between using the current unemployment rate for the MSA region compared to a previous nationwide rate. Unemployment

rates are a volatile indicator on a yearly basis. During periods where the economy is weakening and unemployment rates increase, more MSA and non-MSA regions will likely qualify as an energy community given that their current unemployment rate will surpass the national average for the prior year. The reverse will also be true during periods where the economy strengthens and unemployment rates fall, as fewer MSA and non-MSA regions will likely qualify, Figure 3 illustrates this circumstance as the unemployment rate strengthened considerably in 2022 compared to 2021.

Periodic Review

The legislation does not establish a predetermined cadence to review and update the status of areas designated as an energy community.[8]

Given that the incentive will exist over the lifetime of the various credits, it is reasonable for the Secretary to periodically revise energy communities to remain in compliance with the intent of the statute. The most natural cadence of review would be on an annual basis in alignment with the taxable year that a qualified facility seeks the credit.

While the statute does not explicitly require the Secretary to update the list of energy communities, the term "previous year" in subclause (II) indicates that the "national average unemployment rate" metric should be revised periodically as the legislation does not specifically denote a year or date in this clause. This is a departure from other components of this section that do specifically refer to a fixed date (such as in subclause (iii)(I) or items (aa) and (bb) under subclause (iii)(I), all of which denote specific dates).

Depending on how a location is qualified as an energy community, the status of the location may change over time. One natural example would be the closure of a coal mine after the effective date of legislation in a census tract that is not currently qualified as an energy community. The legislation clearly considers this likelihood as it sets only a fixed starting point in clause (iii) and does not include a fixed end date.

Another example is for a location where the metropolitan statistical area (or non-metropolitan statistical area) has reached the required employment threshold under subclause (ii)(I) at one or more points during the period from 2009 to the present, but no longer has an employment rate above the national average for the previous year as required under subclause (ii)(II), and therefore would no longer meet the qualifications of an energy community under that clause.

The same would also apply for location that is an energy community by way of a brownfield site as the locations that meet the existing definition cited by clause (11)(B)(i) will change over time as sites meet one or more aspects of the exclusionary list under 42 U.S.C. 9601(39)(B).

These circumstances would suggest that locations that qualify as energy communities should be subject to a periodic review based on the latest available data. For consistency, the Secretary should publish a revised list of energy communities on an annual basis in line with the taxable year that a qualified facility seeks the credits. While this would introduce a degree of lag between the closure

of a coal mine or coal plant and the location obtaining energy community status, it would allow the various qualification methods to all move in unison each year, providing clarity to project developers and allowing for better implementation and compliance with this section.

Safe Harbor

If the Secretary does determine that energy communities should be periodically reviewed, the legislation does not address the status of the enhanced credit value if the location ceases to qualify as an energy community. Therefore, the Secretary should promulgate guidance that includes a safe harbor provision so that a qualifying facility located in an energy community at the beginning of construction and subsequently claims a tax credit eligible for the energy community enhancement will retain the enhanced credit value attributable to the energy community provision for the duration of the underlying tax incentive.

Pre-existing Facilities

The legislation does not consider how to treat a qualified facility that first claimed a credit prior to the enactment of this paragraph. ClearPath recommends that such facilities be granted the elevated credit value for any year where the qualified facility is located in an energy community, but such facilities should not be guaranteed this elevated rate should the location cease to be an energy community in future taxable years.

Expansion of a Facility

The legislation does not explicitly consider how to treat the expansion of a qualified facility under the paragraph establishing energy communities. ClearPath recommends that for the purposes of this paragraph, the expansion of a qualified facility located in an energy community during the taxable year be granted safe harbor to receive the increased credit value for the duration of the credit, but only to the extent of the increased investment value, or amount of electricity produced at the facility by reason of such new unit. This is consistent with the long-standing requirements for expansions under subsection (d).

Under this approach, and consistent with the recommendations under "pre-existing facilities" section above, an expansion of a facility located in an energy community at the time it is placed in service would receive the elevated credit rate for the lifetime of the credit. Conversely, the portion of the qualified facility that was placed in service prior to the effective date of paragraph (12) would only receive the elevated credit value in taxable years where the location qualifies as an energy community.

Adequate and Transparent Data

As discussed previously, there is a significant opportunity to address several data challenges to assist the private sector in determining the locations that qualify as an energy community. The three major areas were the lack of a centralized databank of local tax revenues related to fossil fuel

resources, the lack of a comprehensive national inventory of brownfield sites and the real property associated with each, and incorrect geographic coordinates for coal mines from the National Mine Safety Administration dataset.

Conclusion

The industrial investments in the IIJA provide the opportunity to demonstrate a portfolio of technologies to reduce industrial emissions. By prioritizing the aforementioned recommendations, with particular emphasis on sector-specific and technology-inclusive solutions, DOE can maximize the benefits of its industrial demonstration program to drive deep decarbonization across the industrial sector. Based on the methodology described above, 34% of the country's land mass would meet the criteria as an energy community, providing a broad opportunity to develop new clean energy projects eligible to receive the enhanced credit value.

Sources

1. Kevin Haninger & Lala Ma & Christopher Timmins, 2017. "The Value of Brownfield Remediation," Journal of the Association of Environmental and Resource Economists, University of Chicago Press, vol. 4(1), pages 197-241.
2. https://www.gao.gov/assets/gao-05-94.pdf
3. "(II) has an unemployment rate at or above the national average unemployment rate for the previous year (as determined by the Secretary)
4. For more, see the LAUCNTYCUR14 report available at https://www.bls.gov/lau/
5. See Local Area Unemployment Series Id LNU04000000.
6. The distinction between units and facilities is specifically drawn elsewhere in the IRC. For example, see 26 U.S.C. 204(a)(15) "Certain electric generating stations.—The amendments made by section 201 shall not apply to a project located in New Mexico consisting of a coal-fired electric generating station (including multiple generating units, coal mine equipment, and transmission facilities)...
7. Environmental Protection Agency, . "Plant Decommissioning, Remediation, and Redevelopment" EPA Publication #560-F-16-003. https://www.epa.gov/sites/default/files/2016-06/documents/4783_plant_decommissioning_remediation_and_redevelopment_508.pdf
8. (12) Regulations and guidance – "The Secretary shall issue such regulations or other guidance as the Secretary determines necessary to carry out the purposes of this subsection, including regulations or other guidance which provides for requirements for recordkeeping or information reporting for purposes of administering the requirements of this subsection."