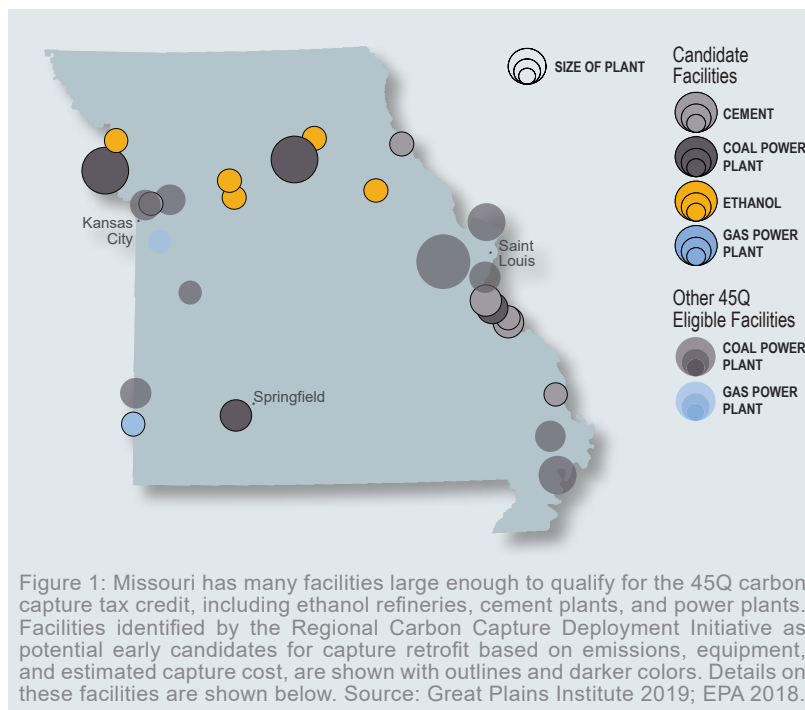


Missouri holds significant potential for carbon capture in multiple industrial sectors and power sources with 27 facilities in the state qualifying for the recently extended and revised federal 45Q tax credit. Although Missouri does not yet provide comprehensive regulation or guidance legislation on carbon capture technology, there has been general support for carbon capture. In 2015, the State Energy plan recognized carbon capture as an avenue for decarbonization, giving the state an opportunity to offset carbon emissions while sustaining economically vital and job creating industries like ethanol, coal, and cement.

The **Regional Carbon Capture Deployment Initiative** brings together state officials with diverse industry, NGO, labor, and other stakeholders to promote broad scale deployment of infrastructure for carbon capture, CO<sub>2</sub> pipelines, enhanced oil recovery (EOR), other forms of geologic storage, and beneficial utilization of CO<sub>2</sub> in the Western and Midwest regions of the country.

The Initiative is staffed by the Great Plains Institute (GPI), a nonpartisan, nonprofit working to transform the energy system to benefit the economy and environment. For more information on this effort, go to [carboncaptureready.org](http://carboncaptureready.org) or contact Patrice Lahlum at [plahlum@gpisd.net](mailto:plahlum@gpisd.net).

### SOURCES BY INDUSTRY & VOLUME



### POTENTIAL CANDIDATE FACILITIES FOR CAPTURE BY CAPTURE TARGET AND COST

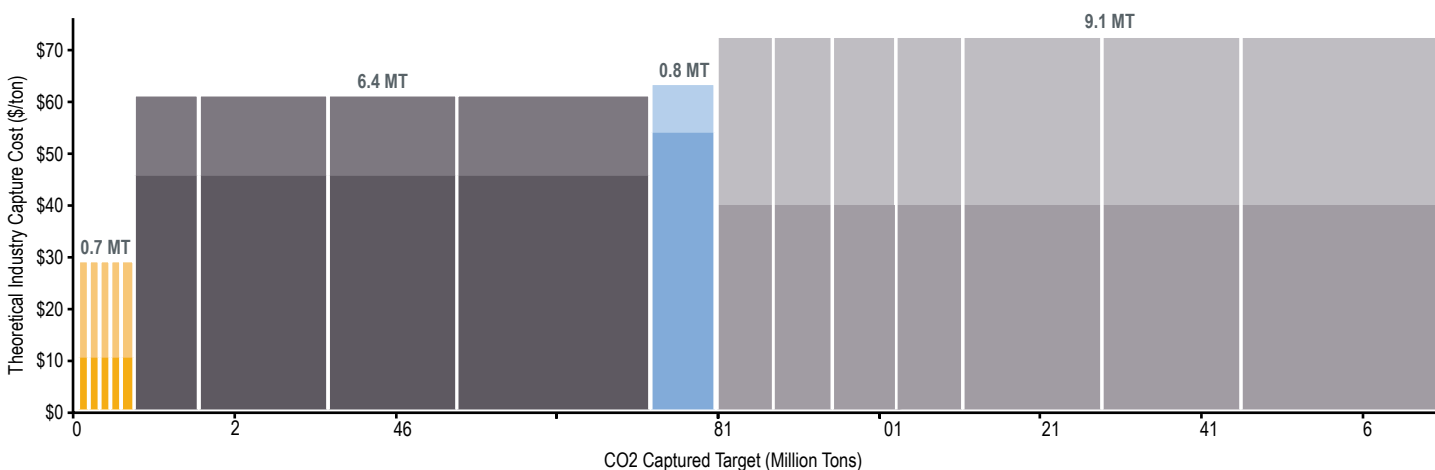


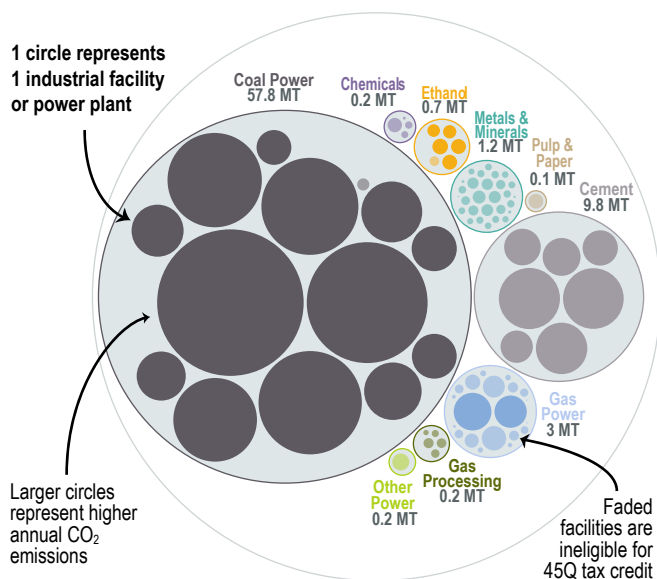
Figure 2: The Regional Carbon Capture Deployment Initiative estimated theoretical facility capture costs based on published capture equipment costs, facility-specific operational patterns, existing equipment, and level of emissions. Most states have a large number of facilities eligible for 45Q. Of those facilities, the above graph depicts likely economically feasible candidates based on estimated capture cost. The facilities represented in this graph is not meant to be definitive. Commercial decisions by participating companies, and policy and regulatory decisions by state governments, will ultimately determine if a project is feasible for carbon capture. CO<sub>2</sub> Captured Target refers to the amount of carbon dioxide that can be expected to be captured at a facility considering relevant technological and economic constraints. Source: GPI 2019; EPA 2018.

## LEGISLATIVE CONTEXT

As opportunities continue to arise for clean energy, a crucial point of innovation lies in carbon capture technology. With enhanced legislation to help regulate and create accessibility, carbon capture technologies present a solution that confronts potential risks to public and environmental health from fossil energy by lowering emissions, while also helping to sustain a thriving industrial and power sector. Missouri is a member of the Plains CO<sub>2</sub> Reduction Partnership, which recently concluded the existence of favorable geologic formations for carbon capture and storage in the state and region. Expanding on this finding, the Missouri Carbon Sequestration Project, a federally supported research project, is currently assessing the feasibility of carbon sequestration at Missouri power plants throughout the state. With multiple areas of research indicating the feasibility of carbon capture and storage within the state, Missouri can now capitalize on CO<sub>2</sub> reduction in the already established industrial and power sectors through currently established federal programs and incentives like the 45Q tax credit.

Missouri has the opportunity to become a leader for legislation in the context of carbon capture, and in turn, to see the economic benefits of carbon capture projects. With support for carbon capture established through participation in collaborative groups and encouraged in the state energy plan, Missouri is currently situated to capitalize on the economic opportunities presented by carbon capture if comprehensive policy is formed to work alongside federal incentives.

## FACILITIES AND EMISSIONS BY INDUSTRY



MT: Million metric tons CO<sub>2</sub>

Figure 4: This bubble diagram visualizes the number of facilities and corresponding annual CO<sub>2</sub> emissions for each industry in Missouri. The darker large bubbles are eligible for the 45Q carbon capture tax credit, while the faded bubbles are too small to be eligible. The total amount of CO<sub>2</sub> emissions in Missouri is listed for each industry. Source: GPI 2019; EPA 2018.

## REGIONAL CAPTURE OPPORTUNITIES

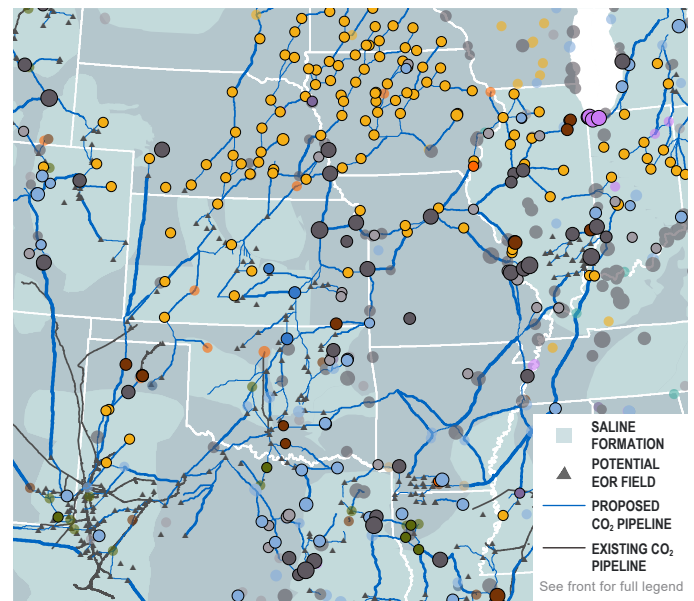


Figure 3: Potential regional CO<sub>2</sub> sources and pipeline corridors for transportation to utilization and storage sites as modeled by the Regional Carbon Capture Deployment Initiative.

## CAPTURE POTENTIAL

As of 2016, 27 facilities in Missouri qualify for the reformed and extended federal 45Q tax credit (Figures 1 & 4) if retrofitted with carbon capture technology. Given Missouri's leadership in ethanol production (12th in the nation as of 2012), this sector is pivotal in Missouri's economy and holds the potential to capture nearly 700,000 of CO<sub>2</sub> annually. Ethanol plants with carbon capture can drive competition with the potential to also qualify for new low-carbon fuel markets. Missouri's cement industry, another vital industry for Missouri, also boasts potential for carbon capture. Missouri is the third largest cement producing state in the US, provides over \$1.9 billion in economic contributions to the state, and holds the opportunity to capture over 9 million MT of CO<sub>2</sub> per year from 45Q-qualifying facilities. From the power sector, a number of coal power plants are also eligible under the 45Q tax credit reform in Missouri. Certain industries, such as the sectors mentioned above, are low hanging fruit for economically feasible carbon capture projects due to estimated capture costs and public data on facility operations. However, as shown in Figure 1, there are additional eligible industrial areas that qualify for the 45Q tax credit and stand as potentially feasible carbon capture candidates within the state.

Economic investment and job growth can also transpire within the construction and operation of CO<sub>2</sub> pipelines required to transport the captured carbon to where it will be used and/or stored. Expanding regional CO<sub>2</sub> pipelines enables more facilities to capture carbon and receive the 45Q tax credit within Missouri. Future regional pipeline initiatives rely on Missouri, with several regional-based modeling scenarios showcasing Missouri within the route of multiple CO<sub>2</sub> pipelines delivering the product to markets with high CO<sub>2</sub> demand such as the Permian basin in Texas or the Gulf Coast (Figure 3).