

State Best Practices Guide

for Decarbonizing the Industrial Sector

December 2022

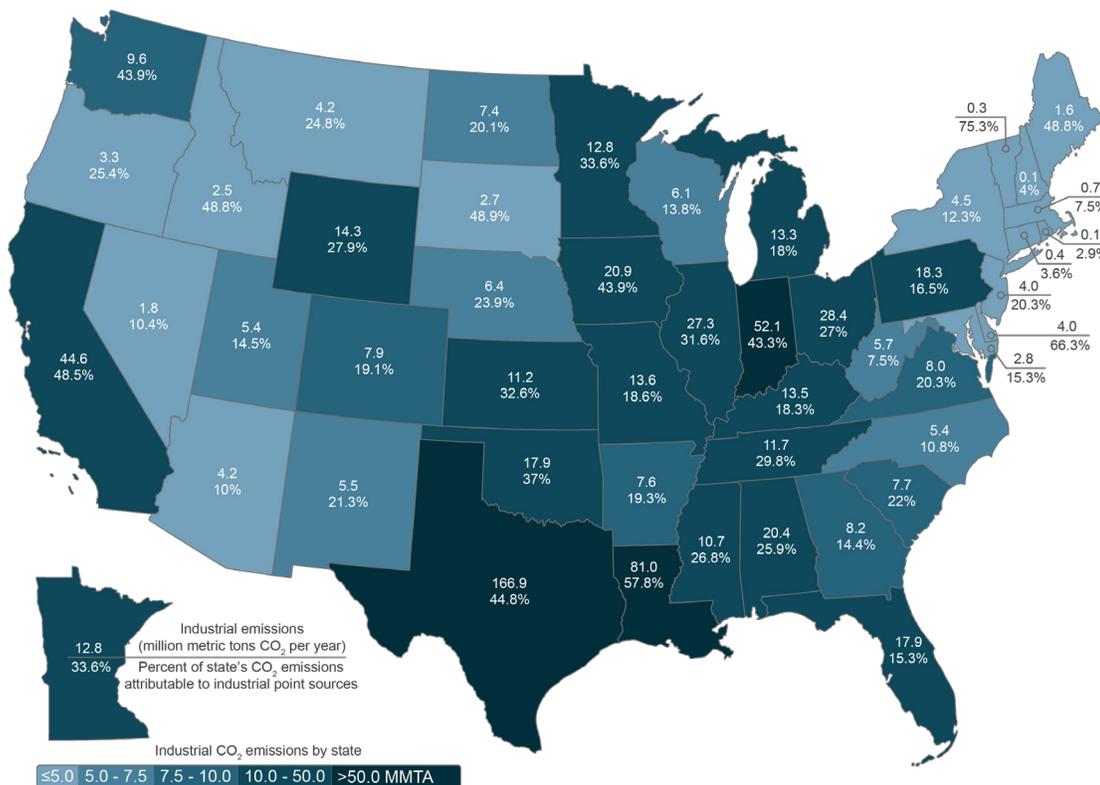


Industrial Innovation Initiative

States will play a critical role in reducing US industrial emissions. Supported by the recent influx of federal funding, states can create a regulatory and policy landscape that spurs local implementation, drives private investments, and complements federal incentives.

Industrial decarbonization is a challenge that will only be overcome should states support a full suite of policy solutions. The challenge is multifaceted. Facilities in different sectors and regions have unique needs when decarbonizing. Figure 1 shows the relative proportion of US industrial emissions on a state-by-state basis.

Figure 1. Industrial Emissions by State as a Percentage of Total State Emissions



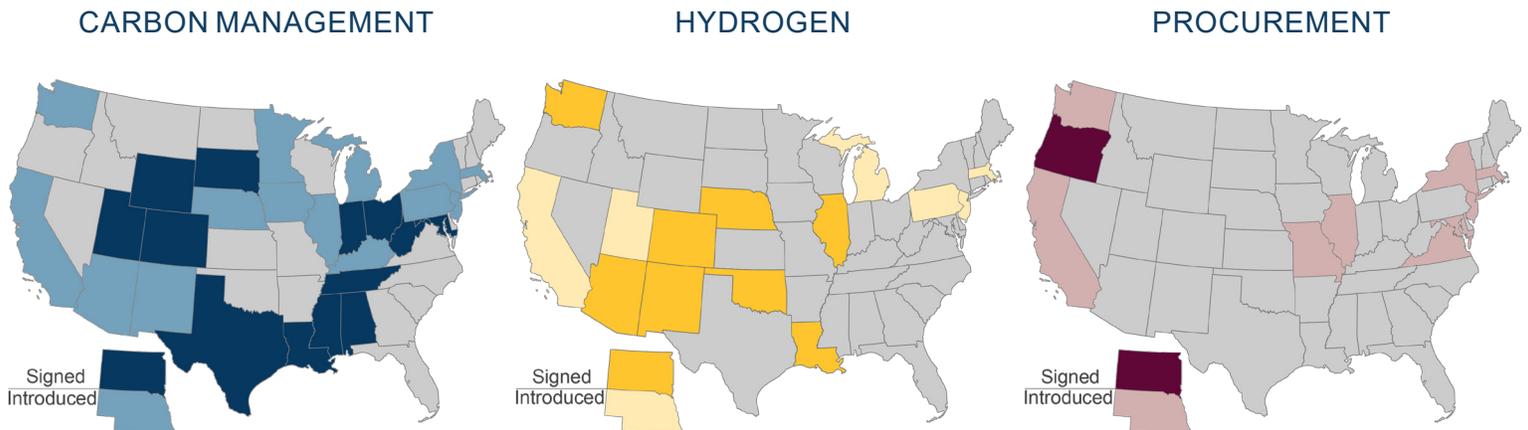
While there is no one-size-fits-all solution, carbon management, clean hydrogen, low-carbon procurement, electrification, and efficiency policies cut across industrial sectors and can be mixed and matched to greatly reduce a state's industrial emissions. Regardless of the state's available resources or emissions profile, cross-cutting statewide planning and workforce development will also be critical considerations for equitable decarbonization.

Note: Each state in the US has a unique emissions profile. While some states may have a larger share of emissions from the industrial sector, every state will need to consider these emissions when planning for statewide decarbonization.

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Figure 2. 2022 Legislation in States by Key Topic Areas



Source: Great Plains Institute analysis based on data from Industrial Innovation Initiative, July 2022 [Legislative Digest](#) (December 2022).

Note: Over the course of 2022 legislative sessions, states made progress in three key policy areas critical to advancing industrial decarbonization: carbon management, hydrogen, and procurement. While electrification and efficiency, statewide planning, and workforce development policies are more difficult to track, they are no less important to the overall progress that has been made to advance industrial decarbonization on a state-by-state basis.

The approaches described in this guide outline state policy options and current best practices that can help scale up industrial decarbonization solutions and positively affect local communities throughout the value chain. From retrofits to fuel switching, industrial decarbonization will have far-reaching upstream and downstream impacts on local jobs, health, and economies.

How to Use This Guide

The following fact sheets provide a starting point for decision makers and advocates seeking to develop an industrial decarbonization policy framework. Each state must tailor its policies to best suit the unique assets and needs of its region; however, many lessons may be learned from looking to states which have already passed decarbonization legislation.

This publication pairs high-level policy considerations with examples to demonstrate the kinds of policy language and regulatory structures in use or under consideration across the United States. The topics covered herein are not in order of priority nor exhaustive but should be viewed as a menu of options from which a state may mix and match to suit its needs.

Industrial Innovation Initiative (I³) staff developed this resource with input from I³ participants. I³ is an ambitious coalition that aims to drive emissions reductions through policy change, supporting quality jobs and investment in key US industrial sectors. Co-convened by the Great Plains Institute and World Resources Institute, I³ builds on years of stakeholder engagement and work with state officials in the Midcontinent region, as well as extensive work advancing decarbonization solutions important to the industrial sector. For more information, visit industrialinnovation.org.

Carbon Management

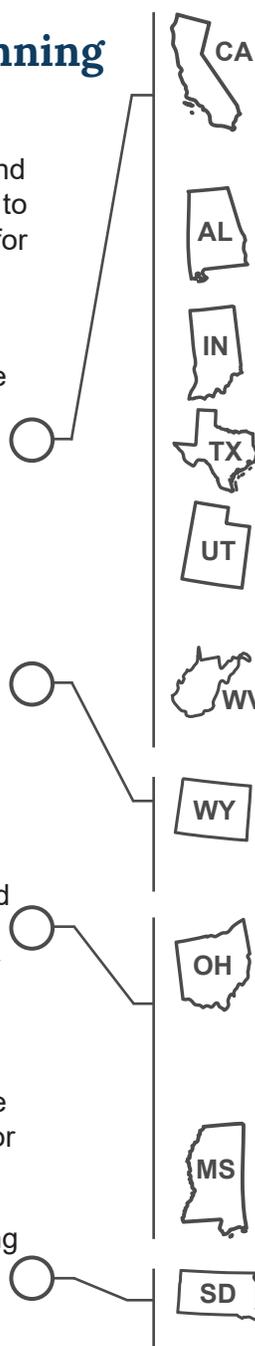


State policies play a critical role in helping individual carbon capture, transport, utilization, and geologic storage projects achieve feasibility. Carbon management is a key solution for eliminating process emissions from heavy industry. As states consider carbon management projects, they should also consider opportunities to support the buildout of regional hubs. The policy approaches outlined below help a state provide investment certainty, enable cost reductions, and spur deployment for projects. For more detailed recommendations, see the Industrial Innovation Initiative’s [Carbon Management Policy Approaches and Best Practices](#).

Regulatory policies and planning

Clarify rules and regulations around carbon dioxide (CO₂) capture, transportation, and storage, including agency responsibilities and CO₂ ownership. Such policies are essential to providing regulatory and financial certainty for project development.

- Clarify existing or establish new authorities and mechanisms responsible for regulating operations and ensuring the performance of duties relating to carbon management technologies and underground storage of carbon oxides, including monitoring, reporting, and verification.
- Clarify ownership of and responsibility for the injected CO₂ and pore space, including the percentage of landowners who need to agree to a project before it can proceed.
- Determine the capacity to administer a carbon storage program responsibly and whether to apply for Class VI primacy or maintain EPA regulatory oversight for geologic storage injection wells.
- Facilitate a predictable and timely permitting process for CO₂ infrastructure while providing clear safety standards for CO₂ capture, transport, and storage.
- Consider interstate and regional planning for CO₂ transportation and storage infrastructure.



Enacted [SB 905](#), establishing a carbon capture, removal, utilization, and storage program to evaluate the efficacy, safety, and viability of carbon management and carbon dioxide removal technologies and facilitate their implementation.

Enacted [SB 36](#), establishing the underground storage of carbon oxides (as well as ammonia and hydrogen) as in the public interest of the state.

Enacted [HB 1209](#), providing the mechanism for underground storage of CO₂ in the state.

Enacted [HB 1284](#), relating to the regulation of injection and geologic storage of CO₂.

Enacted [HB 244](#), authorizing regulations for geologic storage of carbon, and describing rules for oversight and jurisdiction over class VI injection wells.

Enacted [HB 4491](#), establishing requirements for CO₂ sequestration regulations for permitting, injection well drilling, and project completion, after which the state assumes liability.

Enacted [SF 47](#), clarifying ownership of CO₂ injected into geologic sequestration sites, specifically the transfer of title and liability of injected CO₂.

Enacted [HB 175](#), requiring the Ohio Department of Natural Resources to initiate the US Environmental Protection Agency (EPA) statewide Underground Injection Control (UIC) program for Class VI wells to obtain state primacy over those wells in the state.

Enacted [HB 1218](#), declaring CO₂ a valuable commodity and geologic storage in the interest of the state and establishing intent to seek primacy from the EPA for Class VI UIC wells.

Enacted [HB 1120](#), including carbon capture companies in pipeline taxation for any pipelines crossing counties of the state.

Carbon Management

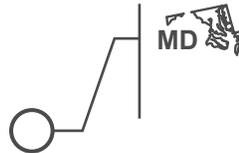


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Financial incentives

Tailor existing financial incentives to support carbon management.

- Develop a capital fund to facilitate tax equity markets and create commercial tax credits or direct payments for qualified decarbonization projects.
- Expand eligibility for clean product programs to include processes that capture carbon.
- Optimize state tax policies and expand eligibility for state financing programs.



Enacted [SB 528](#) to develop plans, adopt regulations, and implement programs that reduce statewide greenhouse gas emissions.

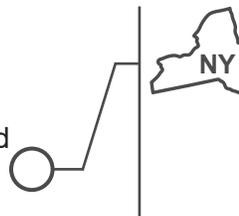
Market development

Build and support markets for captured CO₂ and low-carbon products.

- Support the designation of CO₂ as a valuable commodity.
- Establish a procurement program for products made with captured CO₂ or provide off-take agreements for low-carbon products.
- Establish a carbon removal credit program to aid in commercializing the carbon market through direct carbon removal credit procurement.



Enacted [HB 1218](#), declaring CO₂ as a valuable commodity, geologic storage in the interest of the state, and intent to seek primacy from EPA for Class VI UIC wells.



Introduced [S8 171](#) to enact the carbon dioxide removal leadership act, directing the state to procure carbon dioxide removal services in order to achieve statewide net-zero greenhouse gas emissions adherent to legally enforceable limits.

