

FEDERAL POLICY BLUEPRINT



CARBON CAPTURE
COALITION

Executive Summary

APRIL 2023



Image courtesy of Third Way.

The Carbon Capture Coalition (the Coalition) recognizes the essential role that the full suite of carbon management technologies must play in decarbonizing the American economy and the importance of federal policy support in enabling deployment of these technologies in key sectors including industry, power, and direct air capture.

A broad and growing group of bipartisan policymakers and a diverse set of stakeholders from industry, energy, and technology companies; energy and industrial labor unions; and conservation, environmental, and energy policy organizations support carbon management as an available and essential tool, among a growing set of solutions, to meet midcentury climate goals, strengthen and

The available U.S. policy framework is now recognized as the most comprehensive and robust federal policy support for carbon management technologies in the world. However, there is still much work to be done to ensure the historic investments made in carbon management throughout the 117th Congress translate to wide-scale deployment.

expand a high-wage jobs base, and support domestic manufacturing and energy production. Significant deployment of carbon management

technologies by 2030 is necessary, so that projects and infrastructure can deploy in timeframes that enable meeting net zero emissions targets and climate goals by midcentury. The Coalition's 2023 Policy Blueprint outlines a roadmap of

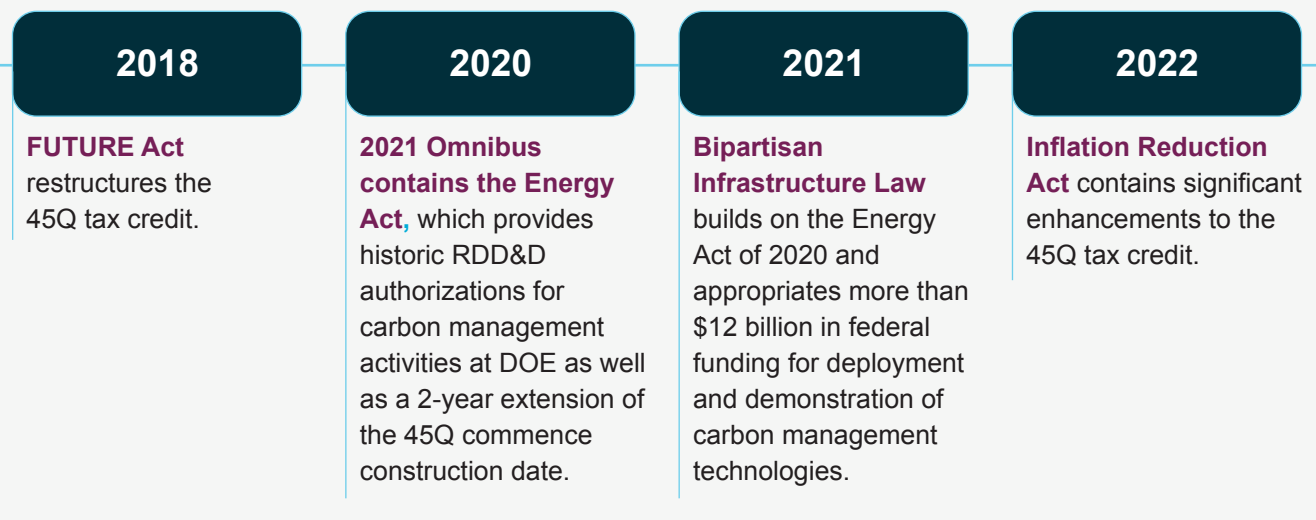
essential policy, regulatory, and implementation related activities for the 118th Congress and the administration as they support the responsible scale-up of the carbon management industry in the remainder of this decade.

The 118th Congress – An Opportunity to Reinforce U.S. Leadership

Thanks to robust and sustained bipartisan congressional support, the United States now provides the most forward-looking policies in the world for the deployment of carbon management technologies (see Figure 1). However, there is still much work to be done to ensure the historic investments made in carbon management throughout the previous Congress translate to widescale project deployment.

The 118th Congress has the opportunity to reinforce and grow the role of American leadership in the development and deployment of these technologies throughout the remainder of this decade. Therefore, it is essential that bipartisan legislation introduced this Congress include key Coalition recommendations advocated for in the blueprint.

Figure 1: Timeline of Relevant Carbon Management Laws

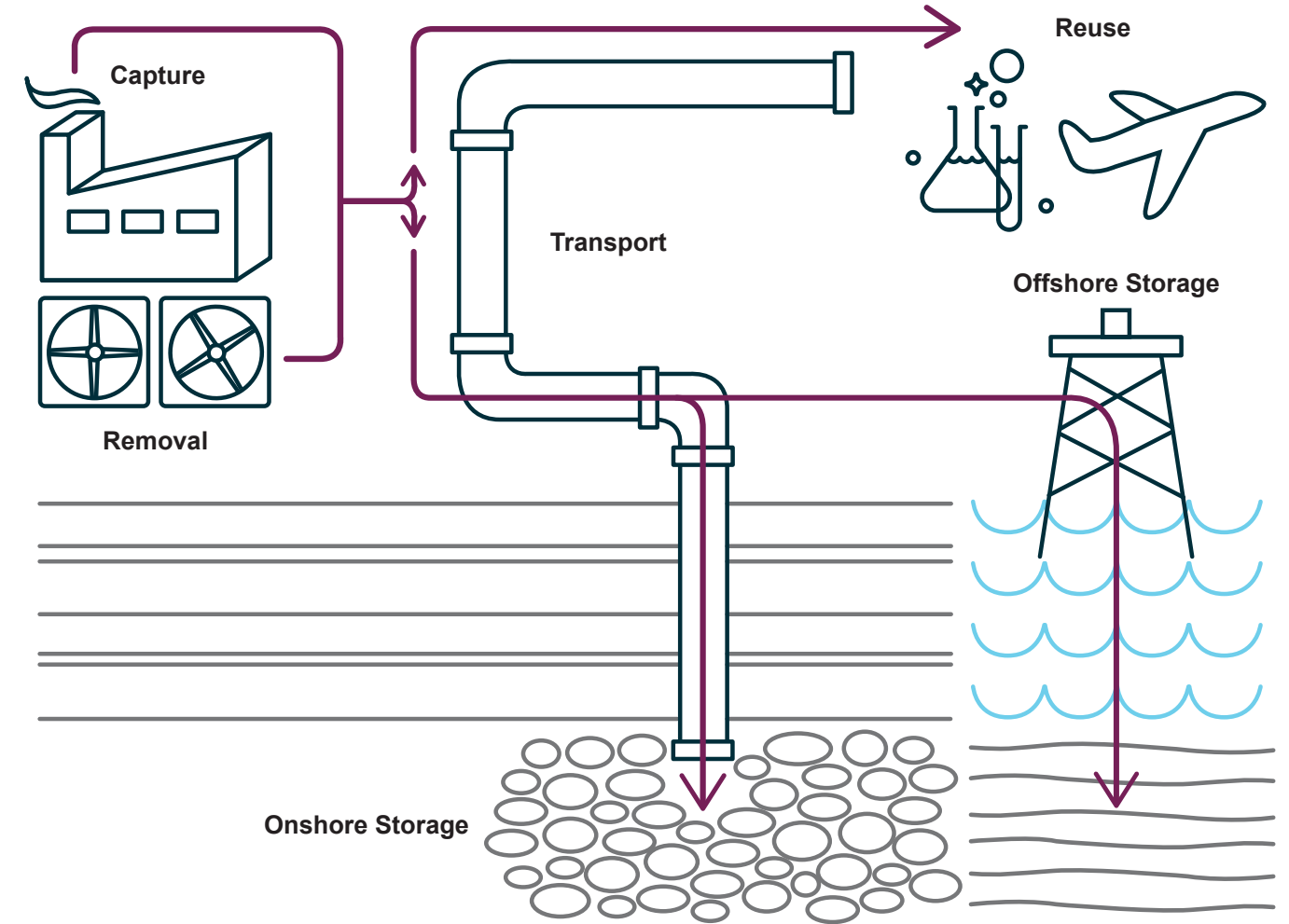


What is Carbon Management?

Carbon capture, removal, transport, reuse, and storage technologies, commonly referred to as carbon management, are a portfolio of safe, effective, and increasingly cost-effective emissions technologies to manage, abate, and remove CO₂

and CO emissions from industrial facilities, power plants, and directly from the air. Captured CO₂ or CO is then reused to make valuable products or transported to appropriate sites for geologic storage (see Figure 2).

Figure 2: The Carbon Management Value Chain



In decarbonizing the industry, energy and transportation sectors, carbon management will play an important and complementary role to other emissions reduction strategies. To decarbonize certain industries, such as steel and cement production, deployment of carbon management technologies is not optional.

The primary driver of carbon management project deployment is the federal section 45Q tax credit, which remains the key federal policy mechanism to

incentivize carbon management projects nationwide (See Figure 3). The 45Q tax credit is unique in that taxpayers must successfully demonstrate secure geologic storage of captured or utilized CO₂ to claim the tax credit. This occurs through robust and transparent monitoring, reporting, and verification, or life cycle analysis, of the reused carbon through processes established by the U.S. Department of the Treasury and the Internal Revenue Service and overseen by the U.S. Environmental Protection Agency and U.S. Department of Energy.

Figure 3: 45Q Tax Credit Structure and Eligibility Requirements as Amended by the Inflation Reduction Act of 2022

	Annual Carbon Capture Thresholds (metric tons of CO ₂ /CO per year)	Credit value for secure storage of CO ₂ in saline or other geologic formations	Credit value for carbon reuse projects to convert CO or CO ₂ into useful products (e.g., fuels, chemicals, products)	Credit value for secure geologic storage of CO ₂ in oil and gas fields
Direct Air Capture Facilities	1,000 or more	\$180 per ton	\$130 per ton	\$130 per ton
Industrial Facilities (e.g., ethanol, steel, cement, and chemicals)	12,500 or more	\$85 per ton	\$60 per ton	\$60 per ton
Electric Generating Units (e.g., coal, natural gas and biomass-fired powered plants)	18,750 or more	\$85 per ton	\$60 per ton	\$60 per ton

Timing: Projects must begin construction before January 1, 2033, and may claim the credit for up to 12 years after being placed in service.

Eligibility: Carbon capture and direct air capture projects that capture and reuse or geologically store carbon oxides (CO₂ or CO) are eligible to claim the

credit so long as they demonstrate amounts of CO₂ stored or utilized using existing EPA regulations.

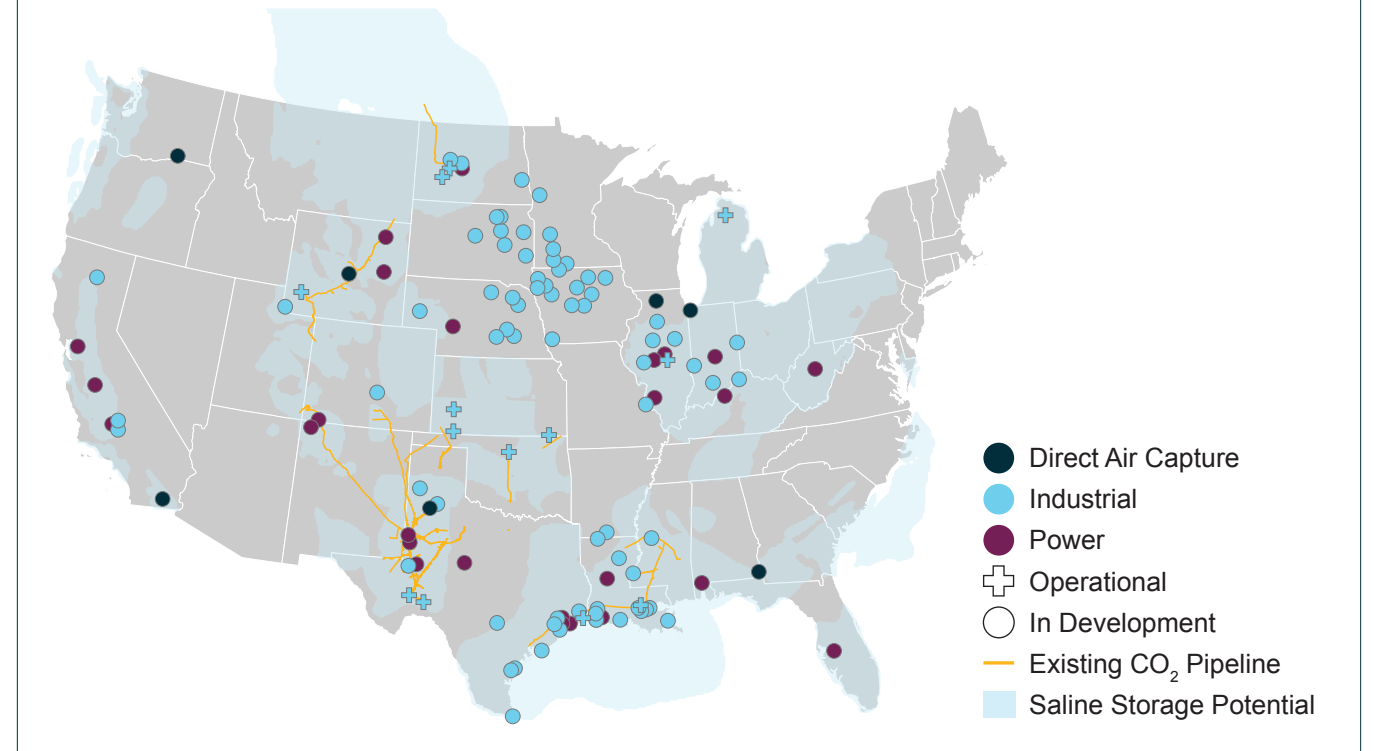
Project Wage and Labor Requirements: To claim the full credit level, project developers must comply with project wage and labor requirements as outlined by the U.S. Department of the Treasury and Internal Revenue Service.

Carbon Management as an Essential Suite of Net-Zero Technologies

Today, in the United States there are 14 commercial-scale facilities with the capacity to capture and store approximately 21.4 million metric tons of CO₂ per year, representing nearly half of the global deployment of the technology to-date. In direct reaction to the passage of the 2018 FUTURE Act, which restructured and significantly expanded the 45Q tax credit, there have been more than 120 projects announced in the United States, with 34 announced in the last year alone and more projects being announced each month (see Figure 4). Thanks to the enhancements made to 45Q in the last Congress, it is anticipated that the pace and number of project announcements will continue to increase.

As the U.S. continues to lead the charge on supportive policy levers to enable economywide deployment of these technologies, globally, the momentum and support for carbon management deployment is making similar strides. However, despite impressive advances in the sector over a short period of time, the current pace of development is not on track to meet economywide midcentury decarbonization. The IEA's *Net Zero Emissions by 2050 Scenario* estimates that the current slate of projects under development globally will be capturing and storing about 40 million tons of CO₂ in the next five years. That number must increase to 1.6 gigatons by 2030 and 7.6 gigatons by midcentury to reach net zero.

Figure 4: Publicly Announced Carbon Management Projects.
These projects span the development cycle from early stages of development to project construction.



While the remarkable progress achieved with the passage of legislation in the last Congress is an important start, we must continue building on this

momentum if we are to meet the goals consistent with 2050 climate targets.

Carbon Management's Role in Addressing Climate Change and Air Quality

Modeling done by the United Nations' Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) to assess pathways to achieve 2050 climate goals continues to reaffirm the essential role that economywide and dramatically accelerated commercial deployment of carbon management technologies must play in managing emissions from existing industrial facilities and power plants, balancing emissions from challenging-to-decarbonize sectors, and removing legacy CO₂ emissions from the atmosphere.

While the primary objective of carbon management is to reduce and abate CO₂ emissions, carbon capture and reuse at industrial facilities may also result in the significant reduction of conventional air pollutant emissions. Carbon capture retrofits at industry and power facilities should prioritize reducing not only greenhouse gases but also these harmful criteria air pollutants to provide tangible air quality benefits to communities in close proximity to these existing facilities.

Carbon Management’s Role in Preserving and Expanding a High-Wage Jobs Base

Widespread deployment of carbon management technologies at industrial, power, and large-scale direct air capture facilities economywide is an essential tool to preserving and expanding a high-wage jobs base in key sectors across almost every state in the nation. Among the broader suite of low- and zero-carbon technologies needed to reach net-zero emissions by 2050, the full suite of carbon management technologies is especially critical in helping to decarbonize and sustain our nation’s domestic energy, industrial, and manufacturing base, whose vital products and services we will continue to rely on for decades to come.

Rhodium Group found that carbon capture retrofit opportunities at industrial and electric power facilities across a 21-state region have the potential

We are now presented with the opportunity to place carbon management technologies at the heart of a national strategy for job creation and retention, workforce development and training, economic renewal, and climate stewardship.

to create 70,000 to 100,000 jobs per year over the next 15 years. Up to nearly 20,000 additional jobs would be created per year over this period by the buildout of a regional and national network of CO₂ transport and storage infrastructure, recently enabled by the enactment of critical policy levers included in the Bipartisan Infrastructure Law.

Ensuring Benefits from Project Deployment Flow to Affected Communities

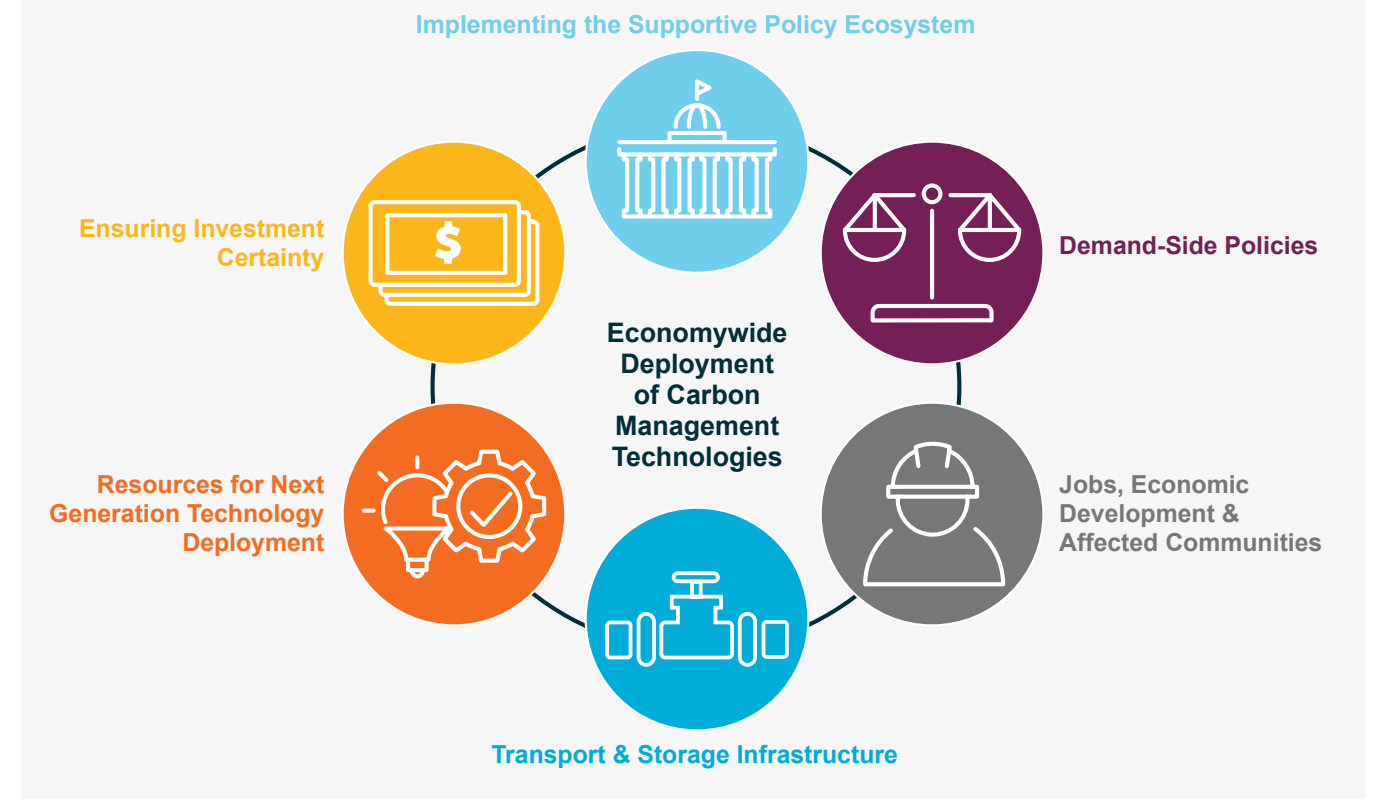
As the U.S. prepares to deploy carbon management technologies at scale, community considerations must be centered in the deployment of the full value chain of carbon management technologies to ensure that benefits—in jobs, economic development, as well as potential co-benefits of project development—flow to the communities and workers that will host and build these diverse projects. One potential local benefit of carbon capture retrofits at industrial and power facilities is the reduction of other kinds of pollution, in addition to CO₂, to protect communities from increases in cumulative pollution.

However, as projects across the carbon management value chain will be in different geographies of the United States, project developers cannot take a one-size-fits-all approach to community engagement. At the same time, communities near areas of industrial activity that are prime candidates for deploying these technologies have historically been overburdened by both the impacts of climate change and air pollutants.

The blueprint contains a comprehensive set of recommendations needed to rapidly deploy these technologies:

- **Ensure that the recently enacted supportive policy ecosystem for carbon management is properly implemented at the federal level.** Congress has made recent historic investments in carbon management with the enactment of the Bipartisan Infrastructure Law, the Inflation Reduction Act, and the CHIPS and Science Act to bolster federal investment in carbon management technologies and realize economies of scale. The Coalition looks forward to continuing to work with the U.S. Department of Energy, the Internal Revenue Service, and the U.S. Environmental Protection Agency to ensure that implementation of these programs is timely, transparent, and consistent with legislative intent, to allow for project deployment to make significant progress in the next several years and put the carbon management industries on a pathway to achieve 2030 deployment goals.

Figure 5: Coalition Vision for Economywide Deployment of Carbon Management Technologies



- **Policies and mechanisms to further ensure that benefits from project development flow to affected communities and workers** through coordinated federal actions. This includes developing stakeholder engagement best practices, as well as data and analysis to support planning, siting, and transparent reporting mechanisms, to support providing direct community benefits and minimize potential risks from project deployment.
- **Demand-side policies** to incentivize commercial production of products and services sourced from carbon management projects. This includes developing monitoring standards and common frameworks for measuring the life cycle emission reductions from services and products sourced from direct air capture and products sourced from carbon reuse.
- **Provide federal resources for developing less commercially mature and next generation**

carbon management technologies. Through long-term investments in carbon management technology innovation, the United States also has a once-in-a-generation opportunity to drive additional technological advancements, leading to a more efficient and effective carbon management sector that will further establish domestic leadership in affordable, reliable and exportable low- and zero-emissions technology development.

- **Complementary policies to existing laws and programs to strengthen the available portfolio of federal policy support,** to help close the cost gap between levels of financing available for project deployment and the necessary financing needed for first-of-a-kind projects or less commercially mature technologies.
- **Enable the appropriate transport and storage of CO₂ by swift and coordinated federal action.** Commercial-scale deployment of carbon management technologies requires a robust

and responsible buildout of an interconnected, nationwide network of carbon dioxide transport and storage infrastructure. This buildout is

multifaceted and requires policy mechanisms for CO₂ transport, geologic storage, and carbon reuse.

About the Carbon Capture Coalition

The Carbon Capture Coalition is a nonpartisan collaboration of more than 100 industry, labor, conservation, environmental policy, and nonprofit organizations. Coalition members recognize that the economywide adoption of carbon management technologies is critical to achieving net-zero emissions to meet midcentury climate goals and to strengthening and decarbonizing domestic energy, industrial production and manufacturing, all while retaining and expanding a high-wage jobs base.

The Coalition's mission is to advance federal policies and actions that will accelerate commercial deployment of the full suite of carbon management technologies. Successful commercial deployment requires prioritizing meaningful engagement and consultation with local communities as well as associated workforce development. Members of the Coalition work together to advocate for the full portfolio of policies required to commercialize a domestic carbon management sector and inform policymakers as well as stakeholders on the essential role this suite of technologies must play in achieving these shared objectives.



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