THIRD WAY

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As Oil Retreats, Carbon Capture Must Advance

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Amidst the din of crashing oil prices and rising unemployment, new carbon capture, use, and storage (CCUS) projects whisper hope in fossil energy-producing states. While few in number, the CCUS facilities under development right now represent an opportunity for oil-producing regions to play to their strengths, pivot away from their reliance on volatile petroleum markets, develop a more sustainable and diversified economy, and advance climate technologies with national and global significance.

A Retreating Oil Industry

Oil is a small word making big news these days. In a recent New York Times article, three industry presidents described their companies' plight using the terms "bloodbath," "nightmare," and "terrible." Though oil prices are accustomed to boom and bust cycles, never have they turned negative as they did on April 20, 2020. And never has the short-term shock been coupled with such

a bleak long-term outlook. The U.S. oil industry is in for a bumpy and volatile ride for the long haul, due to market forces like global oversupply and a shift in demand toward cleaner alternatives.

It's true that a shift toward cleaner energy is vital for national climate goals, and some of the economic benefits will undoubtedly benefit oil-patch communities. But that's little comfort for the thousands of oil workers whose jobs are evaporating right now and may never return—especially those who have a hard time seeing how they fit into clean energy industries in which they have no experience. It begs the question what sort of clean energy jobs will come to states with abundant land, a low concentration of people, and an economy heavily invested in fossil fuel extraction. Clean energy jobs will also require fossil energy-producing states, which rely heavily on severance and sales tax revenue, to restructure their entire tax code.

An Advancing CCUS Industry

But not all the economic news coming out of the fossil energy-producing states is bad. A nascent but growing CCUS industry is reason for hope. In contrast to the daily barrage of headlines featuring closures, CCUS projects are opening in oil-dependent states like Wyoming, North Dakota, and Texas. These facilities alone won't be able to absorb the jobs and economic activity being lost in oil production, but they show an opportunity for these states to grow and diversify their economies in a sector where they have a distinct advantage over other parts of the country.

New CCUS projects will create real and immediate jobs in places where the fossil fuel workforce is reeling. In Wyoming, ExxonMobil's $86 million expansion of two industrial carbon capture facilities is set to commence construction this summer and would employ up to 388 workers. In North Dakota, Project Tundra will capture 90% of CO2 emissions from a coal-fired power plant near the town of Center and permanently sequester it more than a mile underneath the facility. At least 2,000 construction jobs will be created in the process.

And in Texas, Systems International is poised to begin construction of two 120 MW power generation plants near Houston that will use novel technology to capture 100% of their carbon dioxide emissions. A company representative estimated that approximately 500 workers will construct them and 150 more will run them. In the Permian Basin of West Texas, Carbon Engineering is partnering with Oxy Low Carbon Ventures to begin construction this year on the largest direct air capture (DAC) facility in the world to suck CO2 out of the atmosphere. In a recent webinar, Carbon Engineering said that this facility will create 1,000 construction jobs and over 100 permanent jobs in the state. While the 1,750 CCS jobs created in Texas would by no means replace the estimated 50,000 jobs lost to the Texas oil and natural gas industry in March, these projects are just tip of the iceberg when it comes to CCUS opportunities in this region of the country.

Situated for Success in CCUS

CCUS projects like the ones in Wyoming, North Dakota, and Texas are the vanguard of a new carbon economy, in which profit can be made by capturing, selling, using, and storing carbon molecules. Combatting climate change represents a $26 trillion global opportunity over the next decade, and one that fossil energy-producing states investing in CCUS projects will directly benefit from. If we listen to scientists who agree that it will be extremely difficult to keep global warming to 1.5 degrees Celsius without CCUS, the long-term prospects for more projects in fossil energy-producing states is high. States like Wyoming, North Dakota, and Texas have unique resources that can attract additional investment and replicate CCUS projects like the ones currently being developed.

An Easy Pivot from Oil to CCUS

There are real synergies between the oil and CCUS industries; the geology, infrastructure, and regulatory requirements for both are similar. This suggests that states which have excelled at extracting carbon from the subsurface might be able to develop a thriving industry putting it back underground. It also means that many well-paid employees in the oil industry should be able find a job in CCUS without having to uproot their lives by moving to a different part of the country or investing in a new career training program.

The depleted oil and natural gas reservoirs that underlie fossil energy states are prime places to store CO2. Geologists and engineers skilled at performing geologic characterization of oil fields can be employed to map underground storage sites. In addition, CO2 injection wells require some of the same components and specialized job training needed to develop oil wells, and carbon capture projects require an extensive pipeline system (like the vast oil and natural gas pipeline networks created by the fossil fuel industry) to transport CO2 to use and storage sites. Finally, fossil energy states are used to complying with the EPA's rigorous Underground Injection Control Program (UIC) that regulates underground injection wells used for oil as well as CCUS. North Dakota's state government has already been certified by the EPA to oversee and enforce the UIC program in its state (a process known as Primacy), and Wyoming has applied for the same authority. Acquiring the license to regulate underground storage means that these states will be able to set up underground storage sites more quickly than other states.

Public Support for the CCUS Sector

CCUS is among the *very* few climate solutions receiving strong political support in conservative, fossil-dependent states. CCUS has particularly robust backing from both the legislative and executive branches in Wyoming and North Dakota. Moreover, the University of Wyoming is home to the Carbon Management Institute, and the University of North Dakota hosts the Energy & Environmental Research Center – two premier CCUS research programs supported by taxpayer funding. The U.S. Department of Energy (DOE) recently announced a CCUS research collaboration with the University of Wyoming. Wyoming, North Dakota, and Texas are all hosting efforts by the federal CarbonSAFE program to commercialize underground storage sites, and North Dakota is home to one of the International Test Centers for CCUS. Climate change may not be a top priority

for leaders in these states, but they have clearly committed to advancing this set of uniquely important climate technologies.

The Role of the Federal Government in Supporting CCUS

The oil industry simply wants the government to help it return to business as usual. Too bad it's not that simple. The federal loan program expansion may keep some oil companies afloat in the short term, but it's unclear how effective it will be at actually keeping oil workers on the payroll. In fact, the loans will likely add to the industry's underlying structural weaknesses by increasing debt loads while failing to address massive global supply and demand imbalances. And it certainly won't fortify oil-dependent regions to handle the ups and downs of petroleum markets that will *always* be turbulent. Helping these workers and communities get off this rollercoaster will require support for new industries like CCUS that allow them to diversify.

There are nationwide rewards to getting the CCUS industry launched, too. Carbon capture is expected to play a critical role in fully decarbonizing the U.S. economy. As this industry expands, every region of the country will have a chance to benefit from the capture, sale, use or storage of carbon. For instance, DAC projects like the one Carbon Engineering is planning have no resource constraints; they can be constructed in rural Texas or New York City. And with more than 2,000 CCUS facilities needed globally by 2040 to meet emissions targets, America's early success in this industry could translate to a massive export opportunity.

Immediate Rescue Measures

In light of the economic destruction being wrought by COVID-19, the federal government must step in to ensure that the next wave of CCUS projects planned for Wyoming, North Dakota, Texas, and elsewhere are able to continue this year. Without rescue measures, it is likely they will not break ground this year, or perhaps ever. Congress can provide this emergency assistance by making two adjustments to the 45Q tax credit:

1. Allow 45Q to be converted into a direct pay incentive so companies can collect the value of the tax credit without having to rely on uncertain tax equity markets;

2. Grant a multi-year extension of 45Q beyond January 1, 2024, to prevent the cancellation of planned projects that will now be significantly delayed by COVID-19 market disruptions.

Near-term Recovery Measures

For multi-year recovery efforts aimed at growing the economy, supporting the common good, and creating jobs to replace some of those lost to COVID-19, Congress should pursue the following three policies:

1. Support the creation of large interstate trunk pipelines to transport CO2 from multiple capture projects at industrial facilities and power plants to utilization and geologic storage sites. These infrastructure projects will create thousands of jobs in multiple regions of the country;

2. Temporarily expand DOE cost-share program for commercial demonstrations of industrial CCUS and DAC projects. The government has funded CCUS demonstration projects for coal and ethanol, but not for heavy industrial projects such as cement and steel, nor have they funded DAC commercial demonstrations. These projects are necessary to expand the national CCUS industry;

3. Develop underground CO2 sequestration sites across the nation by fully funding the CarbonSAFE program to expedite carbon storage projects in multiple regions of the country.

The Future We Need

The CCUS projects popping up in Wyoming, Texas, and North Dakota are harbingers of an economic future we need. They are a much-needed weapon in the fight against climate change, particularly well-suited for fossil energy-producing states. They showcase the very real and tangible benefits of a new carbon economy to oil-producing regions and the country as a whole. They merge local interests and politics in historically conservative states with the national common good. Most importantly, they envision a United States united against climate change.

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