

The **Net Zero** Partnerships Report 2021



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Making the switch

The role of energy transition and incentives in achieving Net Zero



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The energy industry is in the midst of a significant transformation. Dubbed the “energy transition”, the recent focus on alternative energy sources, reflected in capital and consumer preferences, is driving discussions and decisions toward “cleaner energy” and achieving Net Zero. Traditional energy companies are evaluating whether to pivot or expand with the changing tide. As discussed below, these companies can play a meaningful and substantial role in this transition.

A confluence of factors is driving this transition, which we’re seeing culminate in real time. With the global economy focusing on lower-carbon sources of energy and the renewed emphasis on environmental, social and governance issues, marginal capital is flowing into energy transition projects. This, coupled

with financial and economic incentives, can supercharge already-evolving energy policies, resulting in a transition far sooner than planned.

Against this backdrop, the role of tax credits and other financial incentives cannot be understated, as they drive behavior, make potential uneconomic projects economical, and fund research and development in the critical areas of energy transition. Over 170 countries have developed targets in relation to renewable energy, with more robust plans continually evolving.

Traditional natural resource-based energy sources will continue to play a key role in the world’s overall energy mix well into the future. And traditional fuels can fit within a Net Zero strategy if produced in a cleaner, more efficient manner,



together with emissions being reduced by methods such as carbon capture use and sequestration (CCUS).

Further, traditional mining companies will play an essential role in the expansion of traditional renewable energy, as the minerals and components in renewable power sources are extracted from the earth. Stated differently, the transition to a new energy paradigm does not necessarily mean an outright abandonment of traditional energy sources; in fact, traditional energy sources can materially contribute to the transition (through activities such as CCUS, hydrogen, renewable natural gas (RNG), biofuels, geothermal and others).

Carbon Capture & Storage

Although CCUS projects can be structured in a wide variety of ways, these projects effectively involve capturing carbon oxides that would otherwise be released into (or otherwise exist in) the atmosphere. To aid in the development of CCUS projects, Section 45Q of the Internal Revenue Code of 1986, as amended, provides for a tax credit for the capture and sequestration of qualified carbon oxides, as well as in other situations (dependent on the source and use of captured carbon oxides).

To qualify for the Section 45Q tax credit, qualified carbon oxide must be captured from an industrial source or directly from the air using carbon capture equipment that is placed in service at a qualified facility and either:

- (a) disposed of in secure geological storage (and not used in an enhanced oil or natural gas recovery project); (b) used as a tertiary injectant in a qualified EOR project and disposed of in secure geological storage; or
- (c) "utilized" in certain approved commercial or chemical applications.

“Traditional energy sources can materially contribute to the transition”

With the infrastructure and downhole knowledge required, energy companies of many types can drive the emerging market on the capture side of the value chain; traditional natural resource midstream companies can leverage existing assets, know-how and experience to drive value in the transportation and movement of the captured oxides, and traditional natural resource-based companies that have a history of upstream projects are perfectly positioned to become the market leaders in the sequestration (and certain other upstream uses) of carbon oxides.

The addition of the substantial US federal income tax credit - which was clarified earlier this year - has driven substantial market discussions and spurred projects that are in various stages of realization.

Further, many legislative proposals have been and are being advanced in the United States to make CCUS projects (in all areas of the value chain) more economical - with the goal to continue to drive additional projects and carbon capture.

Hydrogen

Hydrogen is a clean fuel that can be produced from multiple sources including natural gas, biomass, solar and wind and can be transported using the nation's existing midstream infrastructure (with certain retrofitting and upgrades). There are many "colors" of this colorless gas: the industry has assigned colors to hydrogen based on its source or origination or the method used to produce it. For example, blue hydrogen is produced from fossil-fuel and hydrocarbon resources, whereas green hydrogen is made from non-fossil resources.

Blue hydrogen: derived from hydrocarbons but carbon capture or similar technology is used

Green hydrogen: created by using non-carbon-based fuels

Recognizing the vast opportunity that hydrogen presents, many countries have national policies providing for hydrogen-related financial and economic incentives (including policies focused on production, storage and transportation, as well as general hydrogen-related innovations). Currently, there are a number of US legislative incentives being proposed related to the production of hydrogen to go along with a number of existing tax incentives that are designed to enhance, encourage and develop the domestic hydrogen economy.

Along with using financial and economic incentives, traditional energy companies (especially those with petrochemical experience) can leverage production expertise to grow and develop hydrogen at scale.

RNG (biomethane)

RNG is essentially a biogas that has been processed to certain purity standards, resulting in a pipeline-quality gas that can be largely interchangeable with traditionally produced, natural gas (RNG could, as an example, be used as a transportation fuel). Sources of RNG can vary, with the primary ones being livestock operations, landfills and wastewater treatment facilities.

Primary Sources of RNG:

Livestock operations

Landfill

Wastewater Treatment

The production, transportation and storage of RNG has many similarities to that of traditional natural gas, and, accordingly, traditional natural resource companies have an abundance of experience that can be leveraged, used and repurposed to develop the RNG economy.

Additionally, various domestic legislative efforts, as well as various state-level incentives, have been discussed and proposed to promote and encourage the production, transportation and storage of RNG.

Traditional renewable energy sources

Power generation from wind and solar is expected to continue on its sizeable growth trajectory for the foreseeable future. Traditional energy companies of all kinds have evaluated, invested in and installed wind and solar projects over the past years (from repurposing idled infrastructure assets to placing wind and solar on topside land associated with mineral production).

Further, certain economic and financial barriers that once existed are no longer problematic in the United States due in large part to the successful operation of the investment tax credit and the production tax credit.

“Minerals are building blocks of clean energy technologies”

The role of critical minerals

In addition to policies and incentives that will be needed to drive alternative sources of energy, a similar focus ought to be placed on the transition of critical minerals. Minerals are building blocks of clean energy technologies, used in wind turbines, hydrogen electrolyzers, batteries and solar panels (with clean energy technologies being more mineral-intensive than fossil-fuel based technologies). Solar panels, as an example, use a high amount of copper and aluminum, and wind turbines require significant amounts of copper, zinc and potential rare earth minerals.

The strong growth in clean energy technologies will fuel reciprocal demand growth for critical minerals needed to sustain that growth, and achieving Net Zero goals through the use of renewable and alternative energy sources will require a material increase in critical mineral development and production. Governments have a vital role to play through policies and incentives to encourage sufficient mineral production, while balancing the other energy transition policy goals.

Overall, the market recognizes that the energy landscape is clearly evolving and that all companies in the energy value chain will need to respond to the changing imperatives. To that end, a critical assessment of how and to what extent the traditional hydrocarbon-based economy can be reimagined to more effectively address climate change is underway.

Maximizing efficiency and reducing carbon emissions are hallmarks of today's "energy transition." Traditional energy companies and financial and economic incentives will play an outsized role in shaping and transforming the energy industry in the years to come - with the hope of ultimately achieving Net Zero goals.

CCUS, hydrogen, RNG, and traditional renewable sources are only a few of the aspects of energy transition, which will require combining expertise across sectors to reimagine carbon-based activities to address climate change. Traditional natural resource companies, as well as industrial and power generating companies, are uniquely positioned to capitalize on this emerging market and to aid in achieving the desired long-term, Net Zero outcomes.

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