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The State of the Bioeconomy in 2018

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At present, the bioeconomy continues to attract debt and equity interest. VCs, Private Equity Groups and Strategic Partners are providing equity at the technology holding company level in the form of private placements to develop a myriad of new technologies. Similarly, these same equity investors, including infrastructure funds and institutional equity, are investing into the project companies of these new bioeconomy technologies for first and subsequent project financings. Commercial lenders and institutional bond buyers are lending into these same projects using credit enhancement tools like government loan guarantees and technology insurance wraps.

Despite the current Administration's lack of diligence to the sector, renewable energy, chemicals and products (including those associated with the bioeconomy) are still sought by major companies at the request of shareholders demanding corporate sustainability and climate control. In fact, more than 60% of the Fortune 1000 companies, through their shareholders and officials, are requiring sustainability in the forms of using “green energy” and/or investing in sustainable energy, chemicals and products. The growing trends today among many US corporations, states, municipalities and other entities are pledges to become 100% “green” before 2045 in order to reduce GHG emissions at the earliest possible date.

In today's marketplace, biogas/renewable natural gas, bio jet, renewable diesel, green gasoline, renewable chemicals and bio-based products are the major developing industries. These each have their own attractiveness. Biogas or renewable natural gas produced from various animal, agricultural, food, landfill or other such wastes are converted through anaerobic digesters principally into clean transportation fuels due to the availability of additional RINs and LCFS credits added to the base fuel price in California and Oregon (and soon in Washington state). There are also good developments in these industries due to their use in electricity under strong RPS programs in various states. Bio jet production is driven by the largest fuel market in the world through annual consumptions of commercial, freight and military aviation worldwide. Airplanes of all types flying through the European Union must demonstrate reduction in GHG emissions by 2021 or face severe penalties. The biofuels do so. The initial EU program, over time, could expand throughout the world to address increasingly severe and a growing number of adverse climate events. Renewable diesel and green gasoline are sought to reduce GHG emissions and provide a hedge against future increases in petroleum prices. These have become more and competitive against petroleum-based fuels as they use the same pipeline infrastructure as petroleum fuels, thus reducing transportation costs. Renewable chemicals and bio-based products generally have an even higher value than many renewable fuels because they are sought by smaller, but more numerous, market segments which necessarily provide higher sales prices per unit. Also, they not subject to tax and regulatory incentives which ebb and flow based on whims of federal and state political policies like those generally faced by renewable energy. Last, but certainly not least, the move from fossil to renewable based energy, chemicals and products have strong national security considerations for the US.

At the other end, we are not seeing biodiesel, cellulosic ethanol and grain-based ethanol (representing 1st and 2nd generation biofuels) growing as significantly as they have in prior years. This is likely because unlike the third and fourth generation renewable fuels (bio jet, renewable diesel and green gasoline), they are not pipeline fungible and thus require more varied and expensive shipping mechanisms such as trucks, rail and marine transportation. The more varied and increasingly interested equity markets seem to have a greater appetite for the third and fourth generation biofuels, renewable chemicals and bio-based products. It is our belief that the next strong market for renewable fuels will be seen as renewable marine diesel is becoming more available for commercial and military ships and associated vessels.

The greatest obstacle in securing debt or equity funding is project risks. These risks principally revolve around the following:

1. The existence of strong and highly experienced/skilled management teams;
2. The technology risks resulting from inadequately developed technologies without strong operating data;
3. The construction risks in not having strong fixed price EPC agreements (from credit rated EPCs) providing full performance bonds/wraps and adequate availability of liquidated damages;
4. The commercial and operating risks such as strong long-term offtake agreements from credit rated purchasers providing fixed price floors that cover 100% of the required annual debt service payments;
5. The business and economic performance risks such as the ability to demonstrate the system's operational profitably over long periods; and
6. The policy risks such as tax and regulatory incentives being under attack or requiring extensions as expirations near.

A good approach to project funding often begins with the use of government loan guarantees from the USDA and DOE through various programs geared toward either first commercial or later commercially proven technology projects. These guarantees credit enhance project commercial bank loans or project company debt/bonds, enabling longer term and lower cost project financings. A growing alternative includes the use of various technology insurance wraps and performance bonds that principally protect against technology malfunctions and credit enhance project debt. To date, these have mainly involved municipal tax-exempt waste bonds but there is evolution into projects using commercial bank debt. Another area of funding is insurance or performance bonds that also protect project equity to some percentage. There is also an evolving use of other hybrid funding models such as technology protection funds in lieu of insurance wraps and 100% debt providing funds out of the institutional market or from family offices. Finally, there is a huge developing area emanating from the recent Tax Reform Act of 2017 revolving around the new Opportunity Zone Funds developed to fund businesses –such as private placement rounds for technology startups—and projects located in qualified areas. These use funds derived from otherwise capital gains derived events but enable these funds to exit after 10 years without exposure to the 20% capital gains tax.

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