Bion 2018 Update and 2019 Outlook

Policy and Pennsylvania Legislation

In the fall of 2017, legislative sponsors for SB 799 and Growing Greener agreed to merge the competitive procurement bill with the Growing Greener III legislation to create a bipartisan coalition. This strategy was successful, resulting in the combined bills' passage in the Senate the following January in a bipartisan 47 to 2 vote. Shortly after, the Pennsylvania Supreme Court issued a ruling requiring new district lines to be drawn for the November election. After appeals were exhausted, several of the members, including the House Majority Leader, were redistricted. As a result, the Leader chose not to stand for re-election. The redistricting issue delayed SB 799 from being taken up in the session that ended in June.

In August, the House Environmental Committee held an informational meeting, where no opposition to the bill was raised. During the meeting, the Chesapeake Bay Commission, a critical Bay stakeholder, publicly endorsed competitive procurement for the first time. The Administration testified that they supported the bill, subject to clarifying language. They also stated that the innovative nature of the competitive bidding approach could qualify the program for federal cost-share funding from EPA. Subsequent meetings were held to clarify the language and it was submitted by the administration in mid-October, which, with the election in November, effectively marked the end of the 2018 session.

The election yielded no surprises in Pennsylvania. Republicans maintained control of both the House and Senate. Leadership elections will be held in January. We expect no major changes, except the new House Majority Leader is projected to be Representative Cutler, from Lancaster County. Lancaster County was recently identified as one of the largest sources of nitrogen to the Chesapeake Bay, as well as subject to widespread nitrate-contamination of its groundwater, including one-third of its public water sources.

We remain confident that SB 799 will be reintroduced once the legislature returns in January 2019, and then adopted sometime in the first half of 2019. Upon adoption in Pennsylvania, we anticipate federal cost-share funding will be provided in support of the competitive bidding approach. This innovative policy envelope, comprised of competitive bidding and federal cost-sharing, is consistent with EPA and USDA guidance. On December 4, USDA and US EPA made the following joint press release: EPA and USDA Encourage Use of Market-based and Other Collaborative Approaches to Address Excess Nutrients. The policy is supported by key national industry representatives, as well as national NGO's, and will be supported by Governor's nationwide who are searching for an affordable solution to federal mandates and local drinking water needs.

Patent Allowance and Technology Development

In 2014, Bion began the process of developing a technology platform that was focused on greatly reducing its dependence on nutrient credit revenues by generating multiple revenue streams with higher market values. The focus was on renewable natural gas, organic co-products and environmentally sustainable branding in addition to nutrient credits. The process development team included anaerobic

digestion, evaporation, distillation, crystallization, USDA branding certification and organic certification consultants. The technology platform was engineered to produce organic co-products derived from the manure waste stream without adding chemicals and utilizing processes that were already used in the production of approved organic fertilizers.

In 2015, the initial 3G platform was engineered to produce pipeline-quality renewable natural gas, a stable, highly-concentrated, readily-available *organic* nitrogen fertilizer, as well as an organic solids/ soil product, consisting of salts, minerals, irons and organic nutrients. Testing on the original 3G design was completed in 2016. Upon completion of testing, the consensus of Bion's team was that there were two major potential opportunities to reduce costs and complexity. By late summer of 2018, Bion had successfully completed testing to accomplish the first of these technology platform upgrades, and our economic models have been modified to reflect those efficiencies.

In 2015, Bion filed an initial patent application for a process to recover ammonia-nitrogen to produce ammonium bicarbonate – a unique water-soluble, readily-available nitrogen fertilizer that Bion believes will compete in high-value organic fertilizer markets (subject to OMRI and some state approvals). *In July 2018, a Notice of Allowance was received on the 2015 patent, putting a 'stake in the ground' for Bion's Next-Generation technology platform and its coproducts. Bion continues to file amendments to broaden its patent application.*

Over the last few months, Bion has been conducting simulations and trials for a further technology platform optimization opportunity, supported by data and knowledge developed in the prior iterations. Based upon computer simulation results and data from prior testing, Bion has contracted for a technology provider to engineer, assemble and operate the test unit as per the agreed protocols to determine if this second technology platform optimization is feasible. Testing is projected to be completed in the first quarter of 2019. Bion anticipates that the testing program will produce sufficient ammonium bicarbonate to file an initial application in the first quarter of 2019 with OMRI for the liquid product and potentially for the crystal product.

Upon completion of the testing, Bion will finalize the technology platform configuration for its initial commercial installation. Bion anticipates building a small commercial-scale skid-mounted system that can be transported and used to demonstrate the system efficiency on swine, beef cattle, egg laying and dairy facilities with existing anaerobic digestion systems. The objective is to develop real operating data to optimize future large-scale systems and develop a backlog of future projects; the pilot is also anticipated to produce ammonium bicarbonate in sufficient quantities to produce crystals to further support organic certification requirements, if required, as well as support university growth trials and organic grower trials for row crop, greenhouse, hydroponic, warehouse producers and the lawn and garden market.

Operating data from the initial commercial systems will also be used to complete applications to USDA's Technical Assessment program, which, if successful, can provide very large federal loan guarantees that can be used to finance projects. In 2014, Bion's 2G technology at Kreider Farms was reviewed and qualified by the USDA's Technical Assessment panel, which concluded in a letter issued to Bion that:

- "[Bion's] technology fits within the stated goals of USDA programs designed to capture renewable energy and generate valuable nutrient by-products while reducing the environmental impact of livestock operations."

- "Review of Bion's Kreider Farm Technical Assessment has familiarized the USDA and its Technical Review Panel with Bion's general waste treatment approach, potentially accelerating the review process for any future applications Bion submits."

- "This project is deemed to be functional, verifiable, and sufficiently advanced to qualify for USDA programmatic funding. An official full application is encouraged by USDA."

Commercial Pilots and Projects

Bion has an agreement in place with Kreider Farms to develop a 3G system to treat the waste and recover nutrients from up to 9 million chickens (egg layers), as well as their 1,600 dairy cows. As stated above, Bion is confident that SB 799 (or similar policy) will be adopted in PA in the first half of 2019 and that the Kreider Project will move forward with formal planning, permitting and financing in the second half of 2019. Bion and the Kreider team have ongoing update meetings regarding pre-development activities in anticipation of the successful adoption of SB 799 or other source of funding.

Over the last several months, Bion has been in ongoing discussions with various national and regional interests in the livestock industry. Bion anticipates a pilot will be initiated on a beef cattle facility in the first quarter of 2019, in anticipation of initiating development of the first large-scale installation in the beef industry in the second half of 2019. More recently, Bion has been in contact with representatives from the swine industry and we anticipate initiating a pilot on a swine facility in North Carolina in the first half of 2019. Along with Kreider's dairy and poultry, that will give us proven operating data and efficiencies on the four major livestock species.

Conclusion

The livestock industry, and especially the US dairy industry, supports the policy changes introduced by Bion in Pennsylvania and we anticipate their continued support, both in PA and nationally. Bion is finalizing the configuration of its 3G technology platform(s) while we anticipate adoption of policy changes that will facilitate project financing and development. We expect to move forward with initial projects in Pennsylvania, and nationally, in the second half of 2019. The livestock industry as a whole is demonstrating a growing understanding of the importance of their image with the consumer and the value of a sustainable brand. With our Next-Generation advanced technology, based on 25 years of proven solutions, we are in position to capture a significant portion of this large and inevitable opportunity.

This material includes forward-looking statements based on management's current reasonable business expectations. In this document, the words 'intend', 'expect', 'will (be)', and similar expressions identify certain forward-looking statements. These statements are made in reliance on the Private Securities

Litigation Reform Act, Section 27A of the Securities act of 1933, as amended. There are numerous risks and uncertainties that could result in actual results differing materially from expected outcomes.

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