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September 16, 2022

Krystal Beckham
Project Manager
Little Hoover Commission
925 L Street, Suite 805
Sacramento, CA 95814

Re: Little Hoover Commission Organic Waste Recycling Study

Dear Ms. Beckham:

True North Renewable Energy, LLC (TNRE) appreciates the opportunity to comment on the Little Hoover Commission's Organic Waste Recycling Study, which will assess how California's organics recycling law SB 1383 is implemented, examine what impact it has on the State's environmental goals, and provide recommendations to the Governor and Legislature on the topic. We, along with others, clearly acknowledge the need to do more to cut potent short-lived climate pollutant (SLCP) emissions, especially methane. A delay in the diversion of organics from landfills will have a dramatic and detrimental effect on air quality, public health and climate change. Ensuring the successful implementation of SB 1383 and other organics diversion measures will ensure we can avoid these effects.

The State is currently behind on its organic waste diversion targets, and we believe it can, and should, take additional steps to ensure that organic waste diversion from landfills occurs at a faster pace and at least in line with requirements in SB 1383. While diverting organics from landfills on a pace in line with SB 1383 is paramount, the use and disposition of diverted organics is equally important. Additional steps need to be taken to ensure the development of new, state-of-the-art composting and anaerobic digestion facilities, so that the infrastructure capacity exists to handle diverted organics on the timelines and volumes required. Anaerobic digestion, in particular, offers the most significant benefits and support for the State's climate goals, but it also needs the most policy and market support to ensure that it is a viable and competitive alternative to other technologies.

About True North Renewable Energy, LLC

TNRE develops, builds, and operates state-of-the-art organics-to-renewable energy facilities, including large scale, regional high-solids anaerobic digestion infrastructure. These facilities reuse and repurpose organic resources diverted from landfills to create beneficial, sustainable products, including biomethane and soil-amending compost. TNRE is focused on partnering with communities and their waste haulers in California to meet local and state requirements for diverting organic waste from landfills and cutting SLCP emissions, while generating renewable

natural gas and compost to help decarbonize other sectors of the economy and meet California's climate goals.

Market Challenges

TNRE is developing and permitting a number of sites in the State and has been building relationships with California jurisdictions since 2017. We would like to provide several observations as a developer of organics-to-energy facilities in California, which we hope will provide useful information to the Commission as you review SB 1383 implementation. We understand and acknowledge, as have several California agencies, and those that have testified in this study, that the State is behind in its efforts to divert 75% of organic waste from landfills by 2025. A number of reasons for delays and obstacles have already been discussed in the meetings, including:

- Education and awareness among residents may still be very low, apart from successful pilot programs in the some of the larger cities.
- Permitting new infrastructure in California is a tremendous challenge and the time to obtain permits is not predictable, which further challenges commitments related to new infrastructure development.
- Complexities with new collection practices can contribute to increased waste disposal rates in certain jurisdictions and may pose unique challenges in rural communities.
- SB 619 was signed last year, which allows jurisdictions to self-report non-compliance and, effectively, allows an additional two years to be compliant with SB 1383.
- A frequent perception among policymakers and the public is that the SB 1383 goals are not achievable, perpetuating the slower pace of diversion.

TNRE agrees with other key stakeholders that the above challenges hinder the implementation of SB 1383 and should be addressed on a priority basis. As an active market participant over the past several years, TNRE has additional observations to share. We strongly believe that addressing these challenges will spur the adoption of full-scale organics diversion and allow the State to meet its organics diversion goals in the cleanest, healthiest, and most sustainable fashion.

1. Policymakers and the market are not planning for increased food waste diversion.

Today, many jurisdictions are utilizing an organics processing solution, primarily existing windrow composting, suited for large amounts of green waste (grass clippings, yard trimmings, landscaping, etc.). Current collection practices for accommodating diversion of these waste streams have been effective in diverting growing quantities of waste from these sources. Many of these processing systems and associated facilities (e.g., windrow composting) are not designed or permitted to accommodate large volumes of food waste, however, and these facilities often have minimal emissions and nuisance controls. Accordingly, this existing infrastructure is not a viable solution for long-term, successful SB 1383 compliance, as they are not permitted to accept, nor capable of, processing, significant amounts of food waste.

As noted in the 2018 Statewide Waste Characterization Study conducted by Department of Resources Recycling and Recovery (CalRecycle), organic materials such as food

waste, yard waste, and lumber accounted for more than one-third of the statewide disposed waste stream (34 percent). Food – Not Donatable – Non-Meat was the most prevalent material type in the entire disposed waste stream (9.5 percent).¹ For the State to reach its diversion targets, high rates of food must be diverted and processed effectively, in line with the overall organics diversion targets. The diversion targets of the State will be unachievable if the food waste is not processed and recycled to the highest extent possible by new, state-of-the-art infrastructure.

2. Early and long-term commitments for organic waste material is required to develop new facilities.

Given the length of time needed for permitting and construction of large-scale regional, high solids anaerobic digestion facilities (24-36 months), early and long-term commitments for organic waste material will be required by the beginning of 2023 in order to support the development and construction of the necessary infrastructure to meet the 2025 SB 1383 requirements.

Early commitments do not require funding or established tip fees now, but only the commitment to future tip fees once the infrastructure is in place and operational. Note that a committed tip fee, from a jurisdiction and/or waste hauler to the anaerobic digester (or composting) project developer, is a function of providing a guarantee that there will be consistent feedstock to support development of a successful project. Long-term organic waste/feedstock contracts of up to 20 years in length will ensure that private industry can secure financing to build new infrastructure and will provide jurisdictions long-term price protection.

It is important to note that, at best, even with near-term feedstock commitments, facilities like those TNRE is developing will not become operational until early 2025. It is also crucial to acknowledge that obtaining early and long-term commitments for feedstock volumes (food waste, green waste, yard trimmings) requires a significant amount of time for jurisdictions/waste haulers to execute contracts with private industry. There are many entities involved in the collection, transportation and processing of the material and it takes time to negotiate volumetric and pricing terms among them.

3. Potential misalignment among California agencies and programs.

While state agencies have initiated a number of programs to support SB 1383 and utilization of diverted organic material, the programs often target different actors and aspects of a broader ecosystem, without explicit connections among them. For example, CalRecycle is focused primarily on diversion of organic material from landfills to promote greenhouse gas emissions reduction and has established regulatory requirements on jurisdictions to implement SB 1383. They are generally agnostic on the technologies used for processing of diverted material, and from an enforcement and implementation perspective, are primarily tracking volumes of organic waste going to landfills. Meanwhile, the California Air Resources Board (CARB) is looking for sources of

¹ <https://www2.calrecycle.ca.gov/Publications/Details/1666>

renewable natural gas to help decarbonize the transportation, industrial and other sectors, with regulatory requirements through the Low Carbon Fuel Standard and Cap-and-Trade programs that impact energy suppliers and users in those sectors. The California Public Utilities Commission (CPUC) recently adopted a Renewable Gas Standard, in line with SB 1383 requirements, to decarbonize natural gas for residential and small commercial ratepayers. Their rules require utilities to procure increasing volumes of renewable natural gas, including specific requirements for renewable natural gas from diverted organic waste.

While CARB and CPUC's efforts are certainly supportive of SB 1383 and anaerobic digestion, energy offtake is a small driver of the overall economics that determine whether an anaerobic digestion project can be successfully developed. The vast majority of project revenue comes from feedstock agreements. CARB and CPUC's efforts depend upon, but don't enable, jurisdictions, haulers, and project developers successfully and timely aligning on the offtake agreements referenced above in order for sufficient volumes of renewable natural gas to come to market to support the state's broader climate change goals.

4. Implicit, or explicit, bias for composting over anaerobic digestion.

State agencies routinely use the word "composting" as jargon that is meant to encompass anaerobic digestion, but that is rarely understood outside of CalRecycle and other state agency circles. Coupled with an explicit preference among some for composting, policies and public discourse often favor composting over anaerobic digestion, despite the clear need for renewable natural gas to help meet California's climate change goals, especially from anaerobic digestion of diverted organic waste.

However, an objective analysis of the benefits associated with organics waste utilization (identifying the "highest and best use," as many like to say) clearly points to anaerobic digestion, especially if it's coupled with composting like TNRE's projects, as more beneficial than composting alone. This is described further in **Attachment A**, which provides a review of the benefits of High Solids Anaerobic Digestion with Advanced Composting and the greenhouse gas quantification of this type of solution.

5. Despite promise, CPUC's Renewable Gas Standard alone will not deliver projects.

As described above, the CPUC has helpfully created a Renewable Gas Standard, which sets near-term requirements for gas companies to procure renewable natural gas, including from diverted organic waste in quantities that are specifically tied to the SB 1383 diversion targets. The Standard supports long-term, fixed price offtake contracts that can be very helpful in supporting development of new anaerobic digestion infrastructure to help meet the diversion requirements in SB 1383. However, utilities cannot purchase biogas if there is no infrastructure to produce it, and infrastructure to produce it will not develop if the State, jurisdictions, and haulers continue to prioritize existing composting infrastructure over developing new infrastructure.

There remains an actor problem, where utility compliance with the Renewable Gas

Standard and success of that program (as well as CARB's efforts) is dependent on others deciding to support development of new, anaerobic digestion infrastructure and moving quickly to implement and comply with the organic material diversion requirements in SB 1383. There also remains a disconnect at the state agency level, as just described, and among stakeholders – where some prioritize composting over anaerobic digestion.

6. Success requires development of new infrastructure.

Despite the tremendous promise of anaerobic digestion, and the need for increased anaerobic digestion capacity to meet CPUC's Renewable Gas Standard and deliver renewable gas for industrial decarbonization and other applications, infrastructure development remains a challenge. As described above, many jurisdictions and haulers are opting for current or short-term processing solutions that offer the lowest cost compliance options for infrastructure, which primarily includes existing composting facilities. While this is understandable from their perspective, it does not support the new infrastructure needed to meet the goals of SB 1383, CPUC's renewable gas requirement, or industrial decarbonization identified in the draft CARB Scoping Plan. We need jurisdictions, haulers, project developers and state agencies to work together to develop the scores of new composting and anaerobic digestion facilities that CalRecycle and CARB have identified will be needed to achieve the State's organic waste and climate change goals.

Recommended Solutions

We agree that diverting organic waste from landfills is the best way to reduce potent methane emissions from the waste sector, and there seems to be vast agreement on this point. To ensure success of this regulation and its necessary outcomes, TNRE suggests the Commission consider the following solutions:

1. Encourage agencies to develop or accelerate education and outreach campaigns to support California's households and businesses, many of which will begin sorting organic waste from other waste streams for the first time. While many households are already accustomed to separating yard waste, a targeted effort to ensure households separate food waste as well – which has a higher energy content than other organic waste streams, such as yard waste, and therefore tends to generate more methane in landfills than other organic waste streams – will deliver important, low-cost emissions benefits that will support compliance with CalRecycle's regulations and SB 1383.
2. Implement improved technologies and best management practices for composting and digestion operations to minimize criteria air pollutants and odors. Incentives for incorporating best management and control practices could be built into procurement requirements at CalRecycle, State incentive programs, and/or permit streamlining processes.
3. Develop an incentive program that at least ensures a level playing field between new compost and anaerobic digestion infrastructure, compared to existing infrastructure, and

potentially one that favors construction of new infrastructure that leads to better greenhouse gas and criteria air pollution outcomes.

4. Streamline permitting and siting for new compost and anaerobic digestion facilities that deploy best-in-class emissions control technologies and advance the State's goals.
5. Invest in and ensure long-term commitments by jurisdictions are made today, to ensure the infrastructure needed to support growth in organic recycling capacity will be available when needed.
6. Work with local jurisdictions to support and align the SB 1383 procurement requirements with development of new infrastructure, including anaerobic digestion.
7. To ensure the quantity of diverted organics-derived renewable natural gas required under SB 1440, and to ensure this type of biomethane is also available for procurement under SB 1383, we all recognize that new infrastructure must be built and placed in operation as quickly as possible. For this to happen, incentives could be developed to incentivize jurisdictions to commit to long-term organic waste/feedstock contracts of up to 20 years in length, which would allow private industry to secure financeable projects, and would provide jurisdictions with long-term price protection.

The State could support this through active engagement with stakeholders, new requirements in various programs, or direct investment/incentives on the feedstock side. For example, with an investment on par with recent state support for local jurisdictions' implementation of SB 1383 (e.g., \$180 million in Fiscal Year 2022/2023), the State could support a tip fee subsidy to jurisdictions of \$18/ton for 2,000,000 tons of diverted organic material for a period of five years to offset price increases for new infrastructure.

This would give jurisdictions a five-year period to budget appropriately for the required increased tip fees. This could be a very effective method (and one that has been successfully tested in other markets, such as Europe) to enable rapid, cost-effective infrastructure development. (Note –the State does not need to directly fund billions to develop necessary infrastructure, as was noted in a previous hearing, but rather just support the business case for developers to deploy capital to build projects.)

8. Develop policies and equitable market signals (similar to the Low Carbon Fuel Standard, for example, which creates a strong financial incentive to direct biomethane to the transportation sector) to direct biomethane to industry and other sectors that are difficult to decarbonize.
9. Consider further expanding the availability of biomethane and incentivize its use by expanding the Low Carbon Fuel Standard (LCFS) to cover other hard-to-abate sectors, including industry, power plants, and other gas end uses. As CARB turns its attention to additional hard-to-abate sectors, where renewable gases like biomethane or green hydrogen will be necessary to achieve deep decarbonization, it is a good time to expand the LCFS to stationary sources other than refineries. Even in its short lifetime, perhaps no

policy has done more to support technologies needed to decarbonize a wide array of industrial and gas end uses than the LCFS has.

In conclusion, TNRE encourages California to acknowledge and act on the challenges identified with SB 1383 implementation, and in particular – the challenges that must be overcome to enable the much-needed new infrastructure (anaerobic digestion and compost) to be developed, permitted, constructed and placed in service. We strongly believe that this will be required for the State to meet its goals and timelines for organic waste diversion, renewable gas procurement, and overall greenhouse gas reductions.

Thank you again for the opportunity to comment on the Little Hoover Commission Organic Waste Recycling Study. We appreciate your consideration of these comments and are committed to working with key stakeholders to assist with the implementation of SB 1383. If you have any questions regarding TNRE, these recommendations, or the status of the market for organics diversion, please do not hesitate to reach out to us.

Thank you,

A handwritten signature in black ink, appearing to read "Gary Aguinaga". The signature is fluid and cursive, with the first name "Gary" and last name "Aguinaga" clearly distinguishable.

Gary Aguinaga
President
True North Renewable Energy, LLC

Attachment A

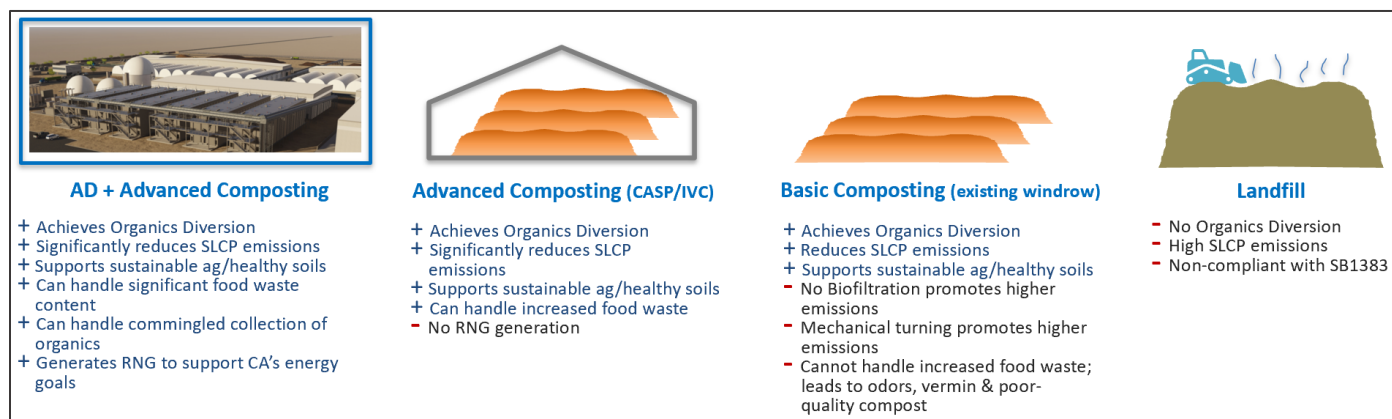
Background Information on the Benefits of High Solids Anaerobic Digestion with Advanced Composting as the Highest Value Organics Diversion Strategy

As California considers organics waste management, there is a clear hierarchy of value, as illustrated in the figure below and summarized here:

- Landfilling, of course, offers the lowest value. Landfilling is a source of SLCP emissions and other nuisances, although well-controlled landfills may provide renewable natural gas to help decarbonize hard-to-abate sectors.
- Composting is better, which supports SB 1383 goals and provides compost for healthy soils. Conventional windrow composting is not well-suited to managing food waste, however, and only offers a partial solution for achieving the diversion requirements under SB 1383.
- Anaerobic digestion provides a more flexible approach – which can accommodate high levels of food waste and produce renewable natural gas to meet the State’s Renewable Gas Standard under SB 1440 and help to decarbonize industry and other hard-to-abate sectors.

The highest value use of organics comes from anaerobic digestion with composting, like the systems TNRE develops. TNRE’s project can accommodate any mix of organics – with variable and high or low levels of food waste – and offers a complete solution to SB 1383’s organics diversion requirements, while also producing renewable natural gas and compost to decarbonize other sectors.

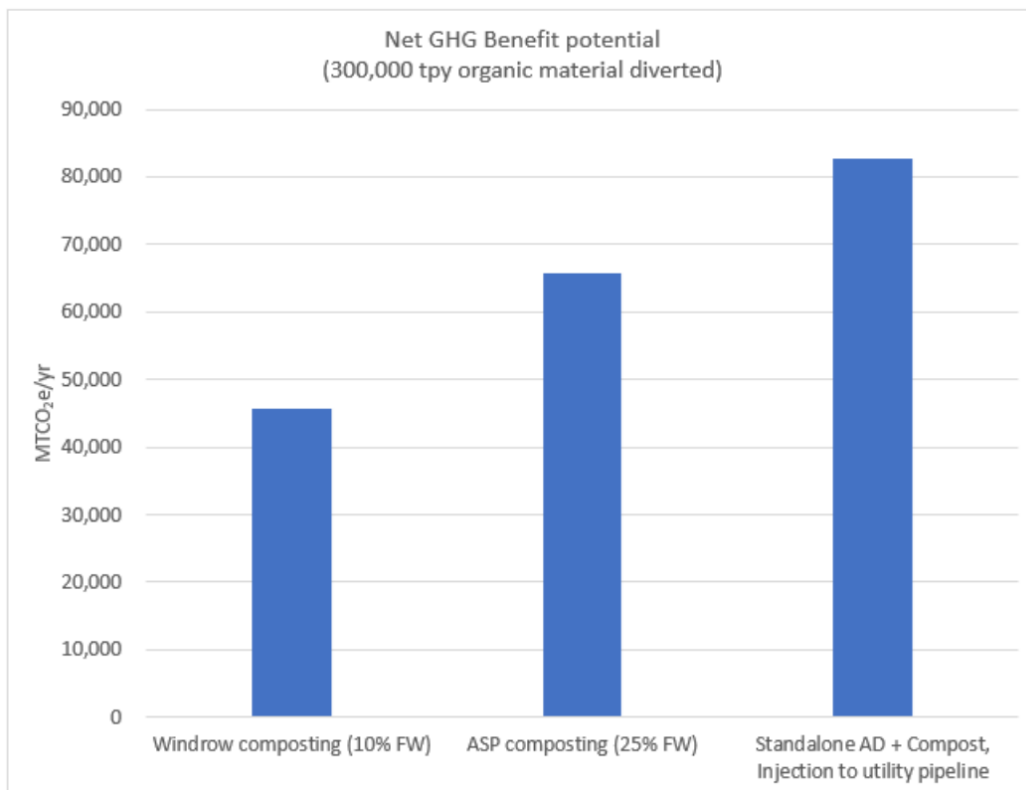
TNRE also develops large, enclosed projects with state-of-the-art emissions and odor controls. This supports economies of scale and means that the State could meet its SB 1383 goals with just about a dozen new facilities of the type TNRE develops, rather than the 50-100 identified in the SLCP Reduction Strategy.



Hierarchy of disposition and use of organic waste, from most preferred (left) to least preferred (right).

In order to better understand these differences, TNRE recently completed CARB’s greenhouse gas quantification calculator for the State’s organics programs. The results clearly demonstrate anaerobic digestion to provide the most beneficial greenhouse gas and criteria air pollutant outcomes among organics diversion strategies (see Figure below). For example, a project like TNRE’s that would produce renewable natural gas via anaerobic digestion of organic waste, inject the gas into the pipeline, and also produce soil amending compost would deliver nearly twice as much greenhouse gas (GHG) emission reduction as conventional windrow composting, according to CARB’s baseline assumptions. It would deliver about 30% greater GHG emission reductions than aerated static pile (ASP) composting, assuming practical food waste limitations with windrow composting and ASP composting.

What’s more, the anaerobic digestion solution would also deliver approximately 4-12 times greater NOx reductions than ASP or windrow composting, respectively. Even assuming similar amounts of food waste in each process (although composting may not be well suited for handling high amounts of food waste), anaerobic digestion performs better on these metrics.



This isn’t to say that composting isn’t an attractive climate solution, but anaerobic digestion delivers on a greater array of the State’s climate priorities and offers better emissions benefits.