3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

December 7, 2018

Dear Mr. McGarry and service list R.18-07-003,

Pursuant to the request for informal comments on the BioMAT Program Review and Staff Proposal filed the 30th of October 2018, Maas Energy Works Inc. respectfully submits the following comments.

I. INTRODUCTION

Maas Energy Works, Inc ("Maas Energy Works") is the largest developer-operator of dairy manure digesters in California (www.maasenergy.com). Maas Energy Works has developed new dairy digesters on 13 different sites, refurbished 2 more, and currently processes livestock manure from 25 different west coast dairy farms using onsite Biogas to fuel renewable electricity generation equipment or to create low carbon transportation fuel. Maas Energy Works is also the project developer of multiple California based cluster projects currently applying for the SB 1383 Pilot Program and proceeding through the traditional Southern California Gas and Pacific Gas & Electric Biomethane interconnect process.

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

II. Staff Proposal Questions and Maas Energy Works Response

1. Do you support the proposal to reduce the market depth requirement from five to three for unaffiliated applicants? Why or why not?

Response 1: Maas Energy Works does not support a transition from a market depth requirement of five to three unaffiliated applicants for price movement. The BioMAT market is currently under-saturated, as pointed out in the report. Moving from a required market depth of five applicants to three applicants would simply mean that the market required five applicants during the initial period when prices were low and rising, but now needs only three applicants when the prices are high and falling. In other words, the change would make it easier for prices to fall after the program was initially designed to make it hard for prices to rise. The goal of the program review should be to increase project attractiveness to existing and new developers to join this market. The prices should not adjust back down until the market density has grown again. Reducing the market depth requirement to three would cause prices to fall before a large market depth had been created, and that would de-incentivize new entrants in the market.

2. Do you support proposal 2 to revise when the BioMAT offer price moves up, moves down, and stays the same? Why or why not?

Response 2: As previously stated in response 1, Maas Energy Works believes the goal of the program review should be to increase program attractiveness to encourage more market entrants. The market is currently priced at attractive levels, specifically category 2 and 3, for developers and any increase in volatility would dissuade investors from attempting to incorporate the BioMAT program in their portfolio. Volatility in price will decrease the likelihood of favorable prices that make the multi-million-dollar investments viable. To avert this possibility and increase project attractiveness, Maas Energy Works proposes the

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

Category 2 and Category 3 prices be fixed. This will signifyingly increase the stability of the program and greatly assist in the solidification of project investments.

3. Should the Commission transition to a fixed price feed-in-tariff instead of the price adjusting mechanism? Why or why not?
    a. If so, how should the market price(s) be determined?
    b. If so, should the price(s) be periodically reviewed and revised? If yes, how should it be reviewed and how often should it be reviewed?

Response 3: See Response 2.

Response 3a and b: Market prices should be placed to attract new investment and development into the program queue. The current pricing formula accurate reflects the unwillingness of dairies and developers to supply dairy biogas electrical generation at any prices below $187 per MWh. The formula should not be changed to allow this price to drop more easily, since even fewer projects will enter the queue. Fixing the price at the current, high level could be helpful, but we do not believe price stability is the main impediment. The program pricing mechanism works adequately for the realities of the market. However if the program is to gain more participation, the only sure way to do so would be to remove the current $200 price cap and allow prices to rise to attract more investment, using the existing price adjustment rules. A higher cap will invite more market depth and restart the price adjustment mechanism up or down until a market price is reached.

4. Should the Commission transition to a renewable auction mechanism (RAM) instead of the price adjusting mechanism? Why or why not?
    a. If so, how much capacity should be offered in each RAM solicitation? Do you think there should be specific capacity targets for each BioMAT category? Please explain.

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

b. If so, do you agree that RAM solicitations should be held annually? If not annually, how often should RAM solicitations be held? Please explain.
c. If so, how should bids be evaluated?
d. If so, how should ratepayers be protected from high prices that could result from uncompetitive solicitations?

Response 4: Maas Energy Works does not support this proposal as a transition to the RAM system will again create instability in the program which will deter investment.

5. Should the Commission consider changes to the BioMAT definition of "unaffiliated applicants" to better ensure that projects with common developers count as affiliated for the purpose of determining market depth? Why or why not? a. If so, please explain what the changes should be.

Response 5: Maas Energy Works does not support this proposal. This market is complex and effectively implementing these projects takes experience. All unaffiliated applicants that are managed by common project developers remain independent decision makers via independent boards and entities. Consider for example how many solar projects are built by half a dozen very large solar developers. The shape of the market dictates a limited number of suppliers, but the project owners have ultimate authority. If the decisions on price acceptance and project finance as entirely controlled by the owner, with no project developer ownership stake, then the project developer should remain a non-factor in determining affiliation.

6. As noted in Staff's observations on page 7, BioMAT offer prices are now sufficiently high to encourage price acceptance and project development within each category. This raises a concern that even small price adjustments in the future could lead to ratepayer overpayment for projects willing to execute contracts at lower PPA prices and offer prices that are too low for other projects that need higher PPA prices. For example, a

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

project developer willing to execute a contract for an additional $4/MWh would receive an $8/MWh windfall if the offer price increases by $12/MWh. Should the Commission consider changes to simplify the price adjustment mechanism and allow for more granular pricing (e.g. revise the price adjustment amount to $4 per MWh, rather than the current system of $4, $8, and $12)? Please explain.

Response 6: No comment

7. Are there any other program *pricing* proposals that the Commission should consider? If so, explain the proposal and how it would be consistent with Public Utilities Code section 399.20.

Response 7: No comment.

8. Do you support proposal 3 to adopt BioMAT queue management procedures for the BioMAT program? Why or why not?

Response 8: Maas Energy Works does not support the unnecessary burden of application maintenance. If an applicant passes the initial PPR submission, the applicant will remain eligible. There is no reason to assume any information has changed. Additionally, all applicants will have to eventually satisfy all requirements of the PPA and while doing so are required to provide proof of completion. Thus, this proposal is redundant and creates unnecessary red tape for applicants to work through. This requirement only hurts applicants by creating another avenue for the utility to burden the BioMAT program.

9. Do you support the proposal to set a 30-day deadline to execute contracts after the program participant accepts the offered price and provides all necessary information to the IOU? Why or why not?

Response 9: Maas Energy works supports the 30-day deadline to execute contracts. This will insure that the IOU provides enough resources to move a project from price acceptance to

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

executed PPA in a timely matter, rather than unnecessarily prolonging project implementation. The goal of the program is to reach market transformation and any proposal to speed up project implementation is good for the program.

10. Do you support the proposal to extend the current program end date for an additional five years, from February 2021 to February 2026? Why or why not?

Response 10: Maas Energy works proposes the program be extended to either 2030, so it has optimal time to reach the states goals of GHG reduction or extend the program indefinitely until market transformation is reached. Projects seeking to participate in the BioMAT program take years to implement and its pivotal the program provides time for these initial projects to act as proof of concept to new industry investment. As projects comes online, new investors will take notice of the stability of the market and will invest in the states initiatives to reduce GHG reductions. Ending the program prematurely risks losing the value the initial proof of concepts will create for new projects in the future. As a market participant, we can report that currently there is large enthusiasm in the dairy industry for transportation vehicle fuel projects and this enthusiasm has siphoned projects away from BioMAT and towards vehicle fuel. However, that market may fade or transform over time, especially as the suitable projects are all built out. The BioMAT program is necessary to provide a more stable alternative so that the dairy digester market does not rely entirely on one market for its fuel.

11. Do you support the proposal to extend a project's Guaranteed Commercial Operation Date by 12 months if it fails to interconnect by the PPA's Guaranteed Commercial Operation Date due to delays beyond the Seller's reasonable control? Why or why not?

Response 11: Maas Energy Works supports this proposal. In the case of network upgrades, there is serious value in extending the Guaranteed Commercial Operation Date by 12 months because these upgrades can take 1 to 3 years to execute.

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

12. Do you support the proposal to remove the three MW cap on payments via BioMAT PPAs for facilities larger than three MW? Why or why not?

a. Do you believe that the Commission can implement this change under existing statutory authority, or would legislation be required to enable BioMAT PPAs for capacities greater than three MW?

Response 12: Maas Energy Works does not support changes that would require additional legislation but does support an increase in cap from 3 MW to 5 MW. Higher project capacity creates an opportunity for clustered projects to participate in the program. There are cases where clustering multiple smaller dairy entities into one project would create economics of scale that turn multiple none-competitive projects into one singular viable project. This proposal creates opportunities otherwise not available to the dairy industry.

13. Do you support the proposal to allow incremental generation from existing units to be eligible for the BioMAT program? Why or why not?

Response 13: - SB 1122 does not allow this. Therefore, Maas Energy Works does not support any proposals that would create additional legislation that could potentially delay the program.

14. Do you support the proposal to temporarily set an 80% HHZ fuel requirement for Category 3? Why or why not?

a. If not, how should the Commission ensure that the goals of the Governor's May 2018 Executive Order are met?

b. If not, would you support lowering the offer price for projects that do not commit to using at least 80% HHZ fuel? Please explain.

Response 14: No Comment

15. Should the Commission also consider a geographic component to the requirement that facilities be "strategically located" to better ensure that BioMAT projects are optimized to meet the state's wildfire and greenhouse gas reduction goals (e.g. require Category 3 projects to be located in areas of the state most in need of hazardous fuels treatment, with the highest levels of tree mortality, or located in areas of state that do not already have other nearby facilities that could utilize the wood)? Please explain.

Response 15: No additional barriers to entry should be implemented into the BioMAT program. There is already a shortage of projects in the program and adding new requirements will simply reduce participation. All completed and operational projects will assist in securing future project investment. Creating additional barriers of entry will only increase fears amidst developers and investors as they determine where to focus their resources.

16. Do you support the proposal to allocate BioMAT procurement costs through a non-bypassable charge to all California ratepayers? Justify your response with statutory or other legal reasoning.

a. a. If yes, how should BioMAT procurement costs be allocated? Provide explanation and justification for your proposal.
b. If no, please explain why not.
c. If no, do you have an alternative proposal to ensure that all California ratepayers pay for the benefits provided by the BioMAT program?

Response 16: No comment

17. As noted in Staff's observations on pages 11-12, BioMAT is connected to the policy efforts of other State and Federal agencies. How could the Commission coordinate more

closely with other agencies to streamline bioenergy development, increase consistency across related programs, and reduce costs for market participants and ratepayers?

a. What actions should the Commission take to better coordinate/maximize funding from federal agencies to support BioMAT program goals?

Response 17: No comment.

18. Achieving pollution and GHGs reductions was an original goal of BioMAT. However, whether or not individual projects reduce net lifecycle emissions depends on project-specific factors. Do you think that the Commission should establish a requirement that facilities reduce emissions as a condition for BioMAT eligibility? In your response, please explain how such a program requirement would complement or not complement the work of other state or local agencies that regulate or provide grants to BioMAT-eligible facilities.

a. Would you support a proposal requiring that in order to be eligible for BioMAT, a project must demonstrate that it will result in net GHG emissions reductions based on the GHG quantification methodologies and accompanying calculator tools developed by CARB that are discussed on pages 12-13, or a customized calculator tool developed by the CPUC? Please explain.

b. b. Are there other established emissions quantification tools or methodologies that the Commission should consider establishing that BioMAT projects will result in net emission reductions? Please explain.

Response 18: Maas Energy Works believes the environmental benefits for projects are implicit based on the energy generated and existing feedstock eligibility requirements in place. Maas Energy Works opposes this new requirement.

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

19. Are there additional actions the Commission should take to address program barriers and expand program participation? Please explain your proposal(s) and provide rationale.

Response 19: Maas Energy Works has three proposals for adjustments to the program.

19 a. Remove requirements for BioMAT projects to participate in the CAISO NRI process and utilize CAISO meters. The requirement to utilize CAISO meters forces projects to participate in a process that takes a minimum of 232 days, increases capital expenditure by $45,000 to $65,000, increases timeline uncertainty, and increases ongoing operational expenditures and operational complexity. Per CAISO's Business Practice Manual for Direct Telemetry, "conventional" projects, which include biogas generators, are specifically exempt from requirements to implement CAISO telemetering systems if under 10 MW's. Under its own rules, CAISO would only require CAISO Meters if projects are interconnecting via the FERC/CAISO interconnection process, which is not the case for nearly all BioMAT projects interconnecting directly to IOU's. Therefore, this requirement for CAISO meters and CAISO telemetering systems (Appendix E of the BioMAT PPA) is unnecessary under CAISO's own rules and rather is created by the BioMAT PPA only. The requirement creates no real value and instead is highly burdensome

19 b. Create more flexibility in the annual MWh production under the BioMAT PPA. Currently, a project can only set the annual PPA MWh deliverable amount at the time of contract execution (before the facility is even online in most cases). This requires the project developer to forecast the amount of biogas available and the efficiency of generation 20-23 years in advance. Once executed, the contracted production amount can only be lowered or raised once during the 20-year term. This limitation creates scenarios where a project could generate more electricity as the feedstock evolves over time but remains limited by the BioMAT PPA contract amount. On the

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

inverse, if the initial estimates for the next 20 years are over the eventual feedstock GHG production, the project will be penalized according to Appendix D for falling short of the initial estimate. It's impossible to perfectly estimate all potential gas production for the next 20 years—especially when using renewable feedstock. This inflexibility provides no meaningful benefit to the developer or the utility since both the developer and the utility must still build their facilities to accommodate the maximum instantaneous generation of the facility regardless of the annual delivery limit. The limit means that a project that incorrectly forecasts its power generation will pay large penalties or lose future revenue. Not only that, but projects have no ability to add more fuel sources, diversify their biogas end use, or otherwise adapt to market conditions within the BioMAT program, since they must generate no more, and no less, than forecasted. The BioMAT PPA should be modified to allow a change in the annual MWH production amount every two years.

19 c. Maas Energy Works requests that a "EV Charging Exhibit" to the BioMAT PPA be drafted whereby a generator and the purchasing utility could agree to sell all Carbon Intensity attributes of the power (including any avoided methane from manure management) to the purchasing utility, for use in the utility's electric vehicle charging stations. Utilities already own and operate these charging stations, and the generators already produce the power, so the business arrangement is ideal given recent changes to the Low Carbon Fuel Standard that enable the use of low CI and negative CI electricity for charging. However, the BioMAT PPA as currently drafted does not address this opportunity and leaves uncertainty as to which parties can claim the LCFS benefits, if at all, under a BioMAT contract. This uncertainty may lead generators to avoid the BioMAT PPA and instead seek alternative arrangements to participate in the LCFS EV market. There are numerous benefits to both the utility, generator, and state's environmental goals, in allowing the BioMAT program to serve

3711 Meadow View Dr.
Suite 100
Redding, CA 96002
www.maasenergy.com

as a conduit for low CI electricity to the utility's EV charging stations. The EV Charging Exhibit should:

1. Define ownership of LCFS credits from EV charging
2. Define procedures to cooperate to file an LCFS EV charging pathway
3. Establish a revenue sharing arrangement for LCFS income generated by EV charging

20. Do you anticipate any challenges transitioning from the existing BioMAT program to a program that incorporates any of the changes under consideration? Explain the challenge(s) and provide a proposal to address the challenge(s).

Response 20: No comment

III. CONCLUSION

Maas Energy Works, Inc respectfully requests that the Commission consider their comments above.

Respectfully Submitted,

/s/ Hudson Davis

Hudson Davis
Interconnection Project Manager
Maas Energy Works, Inc
3711 Meadow View Dr.
Redding, CA 96002
510-427-5831
Hudson@maasenergy.com

Dated: December 7, 2018