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Bioforcetech Corporation Comments on the Draft 2025 Integrated Energy Policy Report â€" Inclusion of Biosolids Thermal Conversion

See attachment.

Additional submitted attachment is included below.

Bioforcetech Corporation

938 Linden Avenue

South San Francisco, CA 94080

www.bioforcetech.com | www.ourcarbon.co

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California Energy Commission

Docket Unit, MS-4

Docket No. 25-IEPR-01

715 P Street

Sacramento, CA 95814

Re: Bioforcetech Corporation Comments on the Draft 2025 Integrated Energy Policy Report — Inclusion of Biosolids Thermal Conversion in Bioenergy and Firm Zero-Carbon Resource Assessment

Dear Lead Commissioner Hochschild and Members of the Committee:

Bioforcetech Corporation (BFT) appreciates the opportunity to comment on the Draft 2025 Integrated Energy Policy Report (Draft 2025 IEPR), released April 23, 2026. BFT is a California-headquartered cleantech company (South San Francisco) that designs and operates modular thermal conversion systems for municipal biosolids at wastewater treatment plants (WWTPs). Our technology is in commercial operation at Silicon Valley Clean Water (Redwood City) since 2017 and at the City of Redding, and has been third-party validated by Brown & Caldwell and the U.S. Environmental Protection Agency.

We respectfully submit the following comments in support of expanding the Draft 2025 IEPR's treatment of bioenergy and firm zero-carbon resources to recognize the role of biosolids thermal conversion in California's energy system.

1. The Draft 2025 IEPR Does Not Reflect the Energy Significance of Biosolids

Appendix B, Bioenergy (pp. B-12–B-15) characterizes California's bioenergy feedstocks as "dairy and landfill methane, wastewater biogas, and woody biomass drawn from wildfire-prone areas." Biosolids — the residual solids from wastewater treatment — are not mentioned in this list, nor anywhere in the Draft 2025 IEPR. We respectfully suggest this is a significant omission for three reasons:

- **Scale.** California produces approximately 750,000 dry tons of biosolids per year . These are an existing, distributed, in-state organic feedstock with substantial embedded energy content (~7,000–8,000 BTU/lb dry basis).
- **WWTP electricity load.** WWTPs are among the largest municipal electricity consumers in California. Conventional biosolids handling — particularly thermal drying with natural gas or electricity — represents a significant share of that load. Energy-efficient biosolids processing is therefore both a supply-side opportunity (recoverable thermal energy) and a demand-side opportunity (electricity load reduction at WWTPs) that fits squarely within the IEPR's mandate under Pub. Res. Code § 25301.
- **Regulatory pressure forcing transition.** PFAS contamination of biosolids, tightening land-application restrictions, and rising landfill tipping fees are driving California utilities to seek thermal conversion alternatives. The CEC's demand and supply assessments would benefit from modeling this transition.

2. The Draft 2025 IEPR's Treatment of Pyrolysis Is Incomplete

Chapter 4 and Appendix B reference pyrolysis exclusively in the context of methane pyrolysis for hydrogen production. The Draft does not address pyrolysis of solid organic feedstocks — including biosolids — which produces biochar as a co-product alongside recoverable thermal energy and, optionally, syngas.

Biosolids pyrolysis offers attributes directly relevant to the firm zero-carbon resources framework developed under SB 423:

- **Carbon-negative pathway without geologic sequestration.** The biochar co-product (marketed by BFT as OurCarbon®, for example) provides durable carbon storage in concrete, asphalt, polymers, and other long-lived materials — sequestering carbon for centuries without requiring CO_2 injection infrastructure. Each ton of OurCarbon removes over 1 ton of CO2 emissions and avoids significant methane emissions depending on the business as usual management scenario.
- **PFAS destruction.** BFT's Sigma Pyrolysis system removes/destroys PFAS at >99.98% efficiency, directly addressing a major regulatory liability for California WWTPs. The system has been directly studied and published internally, by the US EPA, and recently by third party engineers in ever increasing scrutiny with more precise methods each time as they develop.
- **Volume reduction.** Approximately 90% volume reduction relative to dewatered biosolids, reducing transportation energy and downstream disposal demand.

- **Distributed, modular deployment.** Right-sized for the ~80% of California utilities that lack scale for centralized solutions. Installs directly at the WWTP, eliminating biosolids hauling.

3. California Operating Data Available to Support CEC Analysis

BFT operates the only continuously running biosolids pyrolysis system in California and North America, at Silicon Valley Clean Water (SVCW) in Redwood City, in service since 2017. A second installation is operating at the City of Redding. Both systems follow the Biforcetech BioDryer, a low energy thermal drying unit that leverages bacterial heat generation to offset 70% of energy demand compared to conventional drying. We offer the following operational data points (subject to internal review prior to formal submission) for inclusion in CEC's bioenergy and firm-zero-carbon analyses:

- **BioDryer thermal energy reduction:** approximately 70% lower energy intensity than conventional thermal drying by integrating thermophilic biological drying, 100% reduction achieved with recovered pyrolysis heat looped back to aid in drying.
- **SVCW throughput:** approximately 3,000 wet tons biosolids/year input, producing approximately 250 tons OurCarbon®/year.
- **Net energy balance:** Sigma Pyrolysis Unit recovers process heat sufficient to run the upstream BioDryer, reducing net facility electricity and gas demand.

We would welcome the opportunity to provide additional facility-level energy data, including kWh/wet-ton and natural-gas-displacement figures, to support CEC staff's modeling work.

4. Recommendations for the Final 2025 IEPR

In the spirit of the Appendix B Findings (p. B-16) — which call for continued public investment in demonstration and early deployment of firm zero-carbon technologies and improved permitting coordination — BFT respectfully recommends:

- **Recommendation 1:** Expand the Bioenergy section of Appendix B (p. B-14) to include biosolids as a distinct organic feedstock alongside dairy, landfill, wastewater biogas, and forest biomass.
- **Recommendation 2:** Recognize solid-feedstock pyrolysis (in addition to methane pyrolysis) within the thermochemical conversion pathways described in Appendix B and Chapter 4, noting biochar co-production as a carbon-negative attribute that does not depend on geologic sequestration infrastructure.
- **Recommendation 3:** In the next IEPR cycle, include biosolids handling within the WWTP electricity load characterization in the demand forecast methodology, and assess the load-reduction potential of energy-efficient biosolids processing technologies operating in California.
- **Recommendation 4:** Through CEC's R&D and demonstration funding programs, support continued early-stage deployment of distributed biosolids thermal conversion at California WWTPs —

particularly installations sited in or serving disadvantaged communities — consistent with the Findings on p. B-16.

5. Conclusion

BFT thanks the Commission for its leadership on California's clean energy transition. We are committed to providing the CEC with operational data, site visit opportunities at SVCW and Redding, and technical input as the 2025 IEPR proceeds to adoption and as the 2026 IEPR Update develops. We would welcome the opportunity to brief staff on California-specific findings from our installations.

Please direct any follow-up to the contact below.

Respectfully submitted,

Garrett Benisch, Chief Development Officer

Bioforcetech Corporation

g.benisch@bioforcetech.com | +1 650 262 1120