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Comments of Draft Solicitation on RNG from Forest Biomass

Additional submitted attachment is included below.

Comments on Draft Solicitation: Demonstrating Innovative Solutions to Convert California's Residual Forest Biomass Resources into Renewable Natural Gas

Commenter: Matt Summers, COO, West Biofuels

8/24/2018

West Biofuels is pleased that the California Energy Commission is releasing a new solicitation on this critical topic for improving our California forests while addressing our energy needs and carbon footprint. We are grateful for the opportunity to give input and respond to the questions in hopes that our feedback helps craft a final solicitation that will invite a broad range of creative applications

1. Are the technical targets for the pilot demonstration clear and reasonable? Should they be narrowed further? If not, why not? Please identify the specific targets that should be changed and the recommended change.

All of the research targets are reasonable except the "scale of pilot demonstration". We have shared with the Energy Commission before that solicitations with prescriptive size targets are problematic because they force applicants to propose projects just to meet the size target rather than let the applicant propose the most appropriate and cost-effective size to achieve the research and demonstration objectives. At the scale proposed, our 6 ton per day biomass gasifier would not produce enough syngas to make the required amount of RNG. Therefore our $5M dollar piece of equipment investment (that has been accepted as a commercial pilot scale process unit) would not qualify to be used for this project. There is not sufficient funding in this grant for us to rebuild that process unit to a slightly larger size. In addition, the cost of building the RNG back-end at the scale requested is unreasonable for the allotted budget. This is based on other well publicized demonstrations in Europe which would put that cost in the $10M range and not $2M just to construct the equipment. Additionally, there would be substantial amount of operating costs because the plant would require as much staffing, rent, etc. as a commercial facility without having any commercial revenue to pay for these costs.

We suggest the modest amount of funding being provided be focused on improvement of key process steps at a more reasonable scale. The applicants should be allowed to operate some process units at a smaller scale as long as the applicant can show that it is equivalent to the commercial scale process unit and that their demonstration of 500 hours is translatable in chemical engineering terms to a larger sized system. So maybe some process steps could be in the 25-100 scf/min RNG range while others could be in the 1-25 scf/min range allowing applicants to be more creative with the funds allotted while still achieving the objectives of the CEC solicitation.

2. Are the target cost and technical specifications for a commercially-mature system clear and reasonable? Should they be narrowed further? If not, why not? Please identify the specific targets that should be changed and the recommended change.

The target costs for a commercially-mature system appear to be reasonable. Costs are currently high because of capital costs, labor costs, and feedstock (including transport) costs. There is potential to reduce all three costs, by improving technologies, improving automation, and subsidizing dead-tree

removal from forests. In addition, it is unclear if the costs can be reduced by carbon credits, RINS or other incentives to achieve the <$21/mmBTU target (Investment Tax Credit, Fire Prevention Subsidies, etc.) Payback should be defined as there are a number of ways to calculate this. System lifetime of 15 years seems low, chemical process plant should be built to last 20-30 years unless system lifetime is supposed to signify the amount of time to payback lenders/investors. Again, these terms need to be better defined so that all applicants are addressing the appropriate targets.

Other technical targets could be considered like size of facility (e.g. 10-100 MW RNG, 34-340 mmBTU/hr), energy efficiency from biomass to RNG (e.g. 50-70%), or carbon intensity of the fuel (compared with other fossil CARB transportation fuel pathways). Feedstock moisture could also be specified and if it will be dried by the supplier or if the commercial plant needs to have a dryer (potentially further reducing the energy efficiency). We suggest 45% moisture on a wet basis for forest feedstock. Feedstock size of >2" is also common in forest residue material so a commercial plant should be able to handle this as a target.

3. Will a technology that achieves these targets have the characteristics required for a commercially-viable woody biomass to RNG system? What targets are missing that would help improve commercial viability?

The technical and cost targets for the commercially-mature system will allow for a commercially-viable woody biomass to RNG system if it includes the above suggestions. The proposed pilot equipment should accurately represent the process units in the proposed commercial-scale system.

4. Are the feedstock requirements clear and reasonable?

Yes, the feedstock requirements for the pilot demonstration are clear and reasonable.

5. Are the correct technologies being focused on (conversion, cleanup, and upgrading systems)? Are there components that offer more opportunity for cost reduction?

Yes, these technologies do offer opportunities for cost reduction.

6. What is the best way to evaluate the levelized cost of methane presented by proposed projects? Would requiring a technical overview of the pathway, assumptions used, and economic estimates be sufficient?

It might be best for CEC to require all applicants to use the same feedstock cost and financial assumptions so that all applicants are on a level playing field. The evaluation is always dependent on technology proponents making reasonable estimates of capital and operating costs. In our experience, these assumptions should include actual costs from previous and similar projects, third-party engineering estimates and quotes, and industry standard scaling factors. New and uncertain technologies that do not have this information should also include higher contingencies on their estimates. Economic estimates should also include feedstock price and properties, subsidies and credits, plant size and locations. It will really depend on the reviewers to vet the credibility of the analysis based on requiring the above information and standardizing as many assumptions as possible.