



FOR 2017 ENERGY TRANSITION STARTUP AWARD COMPETITION

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Awarded a Top 100 Energy Transition Startup

<http://www.startup-energy-transition.com/wp-content/uploads/2017/01/GET100.pdf>

SELECTIVE ANSWERS AS PART OF APPLICATION (most answers limited to 1500 words)

8. Name your competitors. Are you competing with other start-ups or large corporations? Status Quo? Changing impressions of local governments?

We have many waste industry competitors. While we are focused on small-scale target markets and small cities, it's important to recognize the biggest competitor, Status Quo.

Plus, we want to touch upon several competing waste processing technologies and their limited comparative strengths and major weaknesses.

[1] STATUS QUO

Like all industries confronting climate change, the global waste industry is evolving and adapting. In general, however, existing large waste operators are weary of waste startup wannabees who want to disrupt their industry and change how vendors –at all stages of waste collection to disposal - make money.

a) IN LARGER CITIES – BIG WASTE INTEGRATED OPERATORS DOMINATE

We need to stay away from selling to waste operators in large cities as they and status quo are formidable competitors. We, therefore, are not attempting to sell our combustor or SMRF to the large waste integrators in the world, like Waste Management in the US. As they offer vast integrated services within a city from waste collection to landfilling, and as they are paid at each segment in long-term municipal contracts, these firms have very little incentive to rock the boat, or deviate from a profitable operation where the client is not demanding immediate change.

Large municipalities are not much better. It is unlikely a large city's waste department, that already has established waste management services and vendors, will be interested.

In general, these cities have no incentive to be the guinea pigs and prefer proven solutions, and usually, they receive them at great prices. Why rock the boat.

The Status Quo for large cities, in sum, is very powerful.

Last, these large players (Waste Management, Veolia, Suez Environmental to name a few) are mostly focused on large densely-populated metropolitan areas where they can control the game due to the need for their expensive equipment and player-owned or operated landfills to deal with the mega-tons of waste produced each and every day.

They are not our target audience, and larger cities are not our initial target market. Nevertheless, it's very important to recognize their importance, influence, and reach.

b) STATUS QUO AS A COMPETITOR IN OUR TARGETED SMALL CITIES AND RURAL AREAS WITHIN THE DEVELOPING WORLD

For residents and businesses in small cities and rural areas, the status quo to dump or burn is strong, but vulnerable. While it's technically free for people and businesses (who usually have no other choice or potentially limited choices), the price is paid in bad air and water quality, and overall increased poorer health. Therefore, there exists the opportunity to present our SMRF solution to them as a new viable cost-effective alternative, especially when compared to their other choices in the market.

[2] TECHNOLOGY COMPETITORS

We have 3 competitive technologies in the small-scale space. All of them have experienced some traction within the waste industry world and with waste operators who operate, but none of them have really taken off in the market as a defacto solution.

Here's a very quick summary and synopsis based on several factors to consider: ease of use, scalability, environmental impact, and annual costs:

1) Other Mobile Combustors: As previous described in Question 4, they are uneconomical as additional fuel is required to operate – one competitor, for example, uses 20 diesel gallons each hour it operates –easily an extra \$50 per hour above initial costs and that's not even talking about removing ash or maintenance. Plus they produce larger amounts of ash, and their output isn't as clean.

2) Anaerobic Digestion and Batch Gasification: Mostly used for turning organic waste into syngas. These units have been used for many years. Bottom line, they require a lot of work to operate consistently to produce syngas. They've been known to also be unreliable, hard to operate, and hard to scale. Plus, they usually are not mobile and once installed, if they break, they can become useless.

Also, these gasification systems are very good for inorganic waste that would be the residual waste in a SMRF that we would destroy. We would consider introducing a gasification system into our SMRF process for organic waste, however, if there were local issues with excess composting or an inferior quality of compost (and fertilizer) that would be processed.

3) Pyrolysis: These units are still viewed, more or less as unproven technology. They also are more expensive, and are built for larger amounts of waste.