

1. What are the environmental benefits of the BWEC GEM?

The BWEC GEM can divert a thousand tons of trash annually from landfills and turn it into usable energy, dramatically reducing emissions from decaying trash.

- The BWEC GEM reduces the need to haul trash to landfills, resulting in:
 - fewer trucks
 - lowered fuel use
 - less leaching of toxins into the groundwater
 - lower greenhouse gas emissions
- The BWEC GEM diverts and converts trash into heat and electrical energy, so it carries a negative carbon footprint while reducing reliance on costly external energy sources.

2. What makes the BWEC GEM unique?

The BWEC GEM is the first compact, mobile waste-to-energy conversion system that can be housed on-site at transfer stations and business facilities. The BWEC GEM processes a mixed waste stream of food, paper, plastic, wood (e. g. pallets), and agricultural waste, and converts it to clean electricity and/or heat.

3. What sort of facilities can make use of the BWEC GEM?

Any company, complex, or venue that produces two or more tons of trash per day after recycling can benefit from the BWEC GEM. The BWEC GEM is ideal for large venues including:

higher education campuses	malls	office complexes
hospitals	manufacturing plants	prisons
hotels	military bases	recreational parks or facilities
large apartment buildings	municipalities	supermarkets

4. What monetary advantages does it offer customers?

The BWEC GEM saves customers money from reduced “tipping” fees – hauling, disposal, and land fill management costs – and by operating as a clean, efficient, robust, and self-sustaining energy source.

5. How does the BWEC GEM produce energy?

Simply put, the BWEC GEM turns waste into pellets and converts those pellets into a clean synthetic gas. This gas is then sent to an electric generator which produces electric power or a boiler to produce steam. Trash is the perfect energy source because there is a never-ending supply and it is good for little else.

6. Will the BWEC GEM replace the need for household or commercial recycling programs?

Always Reduce, Reuse and Recycle first. If you can't recycle it, BWEC GEM it. The BWEC GEM can process post-consumer waste (including food, paper, plastic, wood and agricultural waste) but recycling programs have the added benefit of reducing the need for new raw materials. There's plenty of soiled and otherwise unrecyclable waste to feed the BWEC GEM!

7. Does the BWEC GEM produce emissions?

The BWEC GEM's downdraft gasifier operates under negative pressure so gases are not emitted during the gasification process. The BWEC GEM powers an electric generator or burner/boiler that meets current emission standards for NO_x, SO_x, and CO_x. The generator or boiler does release some carbon emissions, but this is offset by the carbon advantages of the BWEC GEM. Use of the BWEC GEM actually reduces carbon emissions as a result of the reduction in waste hauling, landfill, and fossil fuel consumption, saving 540 tons of greenhouse gas emissions annually: a net negative carbon impact.

8. How much noise does the BWEC GEM make?

- Noise Levels
- Solid Waste Preprocessor (SWP) = 65dB at (Pellet Mill Doors)
- Gasifier= 66dB (at GEM Container Corner)
- SWP + Gasifier+ Boiler = 68dB (next to GEM Container)
- SWP + Gasifier+ Generator = 75dB (23 feet from GEM)

9. What is downdraft gasification? Is it safe?

Downdraft gasification uses high heat to decompose trash in a controlled process. It is *not* incineration and is, in fact, much cleaner than incineration. It is smoke and odor-free and its many safety and technological advances have been tried and tested over the course of 150 years. The BWEC GEM was designed to meet the rigors of the U.S. Department of Defense, which dictated that it had to be easy and safe to use in a variety of rugged conditions. It has been proven to operate safely in an urban setting.

10. But isn't that the same as incineration or burning?

The BWEC GEM is not actually burning trash – it is thermally converting trash into energy. This is not just a matter of semantics. The BWEC GEM uses a controlled decomposition of materials through a high-heat reaction in an oxygen-starved environment. Incineration is only a waste disposal method – it is not an oxygen-controlled process and it doesn't produce energy. With incineration, the waste is simply put into a chamber and burned, which produces dangerous gases and chemicals.

11. How is downdraft gasification different from plasma, pyrolysis and fluidized bed gasification?

Plasma gasification involves pushing the waste through a plasma screen. While it is effective, plasma technology uses very high voltage, so it takes much more energy to generate energy – it is not self-sustaining like the BWEC GEM. In addition, plasma technology is best-suited for a large-scale operation.

Pyrolysis is similar to incineration and is most commonly used for organic materials. It often occurs spontaneously at high temperatures and is heavily used in the chemical industry.

The fluidized bed reactor, in the energy industry most often used for low-grade coal gasification and in nuclear power plants, also requires relatively high energy to operate, is more difficult to scale down to a container-size footprint, and can have high maintenance and upkeep costs.

12. Why is an on-site system (the BWEC GEM) better than shipping waste to an off-site plant to be converted into energy?

First, transporting waste – to a plant or landfill – has high costs both financially and environmentally. Companies need to pay for trucks to haul the garbage, and those trucks give off harmful emissions during the process. The BWEC GEM essentially takes waste disposal from two steps to one step, eliminating the need for transportation.

Second, large-scale waste-to-energy plants are very costly to build and are few and far between: there are only about 100 in the US. The most common implementation is combustion with energy capture – typically a retrofitted incinerator. While this is preferable to simple incineration, the captured gas is much less efficient at creating energy than the synthetic gas produced by the BWEC GEM.

13. Can the BWECGEM be used as two separate products, one dealing with waste management and another addressing energy needs? It sounds like there are two “pieces” to the BWECGEM: one that processes waste and another that creates energy. Can these pieces work independently of each other?

Utilizing the entire system is most beneficial both environmentally and financially. However, the BWEC GEM can certainly be used as two separate products, depending on the needs of the individual customer and that's something we are willing to explore.

- For venues that produce a lot of trash but don't use a lot of energy, it is financially beneficial to use the first half of the BWEC GEM to reduce the volume of trash that is transported.
- For venues that do not produce a lot of trash but consume a lot of energy, it may be beneficial to acquire the pellets the BWEC GEM produces and use the second half of the system to create clean energy at a lower cost.

14. What is the installation process? Is there additional work or cost involved on the customer's end?

The BWEC GEM will be delivered ready for easy integration and MSW Power will be there every step of the way to ensure a smooth installation process. There will be some site-prep necessary and we will work with you during the proposal and contract process to determine the extent and cost of all additional site-work.

15. Does the BWEC GEM require much maintenance?

The BWEC GEM requires about four hours of maintenance per week, primarily related to cleaning filters. The BWEC GEM has gone through extensive development and testing cycles to ensure that it functions optimally across a range of parameters. Every BWEC GEM will be remotely monitored by our engineers via an Internet connection, thus helping to assure that minor glitches do not become major problems.

16. What about permitting and regulatory issues?

Like any equipment with emissions, a permit is required to operate the BWEC GEM. Each state and municipality has its own permitting requirements and its own operation and emissions regulations. MSW Power is committed to assist each customer through the application process to obtain the required permitting. We are happy to report that the regulatory climate is already moving in our direction. Our first installation was in California, the state with the most stringent environmental regulations.

17. What is the BWEC GEM's expected lifetime?

We estimate that the BWEC GEM should operate for at least 15 years and that is factored into the payback equation. With proper maintenance, the life of the BWEC GEM is indefinite.

18. I understand the benefits, but why would a business *NOT* want a BWEC GEM?

The BWEC GEM is designed for venues that produce at least 2 tons of trash per day. Given the demonstrated ROI, we think that the BWEC GEM has tremendous potential to help a variety of customers save money while improving the environmental sustainability of their operations.

19. When was MSW Power founded and where did it receive its funding in today's difficult economy?

MSW Power was founded in August of 2012. The BWEC GEM's downdraft gasification technology was initially developed by its predecessor corporations under federal government funding beginning in 2005. Since then, a great deal of time and money has been spent on product development - resulting in a commercially viable product available today. The current MSW Power team includes key managers, engineers, and technicians involved with the BWEC GEM since 2005.

20. How will you work with waste management and utility companies? Do they view MSW Power as competition and a threat to their bottom line?

The waste management and energy industries are changing and moving towards energy independence, cleaner solutions, and financial responsibility. The BWEC GEM addresses all three of these trends and creates an opportunity for MSW Power to work with waste-management and utility companies to create a new and better model moving forward.

21. Due to volatility in energy costs and usage, isn't it possible that the need/demand for the BWEC GEM is as likely to decrease as increase?

The important feature of the BWEC GEM is that it creates energy from trash. Since the removal, transportation, and disposal of waste is so expensive (and rising!) — and since trash is not going away — BWEC GEM users can save a great deal of money simply by using the BWEC GEM as a waste disposal unit. Energy production is an added cost saving option, but it is not the only way the BWEC GEM saves users money. Since we will always have an abundance of trash and will always need energy, the BWEC GEM will continue to be a financially sound investment that also benefits the environment.

22. Why is now the right time for BWEC GEM technology? Why go to market now?

We are on the verge of a significant shift in the waste management and energy industries, and the BWEC GEM is at the forefront of this shift. Technologies such as the BWEC GEM can lead the way in changing how we think about and dispose of trash. The BWEC GEM can decrease the amount of waste dumped into landfills by 95 percent. Not only will that waste not be deposited into the earth's soil, but we won't have to transport it and we can actually turn it into something valuable – energy. By turning waste into energy, the BWEC GEM helps our customers become energy-independent while saving them significant sums of money.

23. Do you have plans to scale the BWEC GEM up for bigger venues or down for home use?

We would love to do both. Right now we're focused on launching the flagship BWEC GEM into the market but this is something we think would be worth exploring down the road.