

Sunshine to Energy By Mackenzie Robbins

Mackenzie Robbins submitted the winning essay for Lime Energy's 'How Does Trash Become Electricity?' Contest for Charlotte County Elementary Schools. Mackenzie and her teacher, Carson Sheets, won a gift card and their school received the prestigious "Kids for Clean Energy" award. The essay contest was held in conjunction with the commencement of renewable power generation at the Zemel Road Landfill in Charlotte County, FL.

What do you get when you cross the sun with trash? Energy of course! I have a grand idea of how to eliminate trash while at the same time producing energy. Please, allow me to elaborate.

Imagine, if you will for a second, a waste disposal plant so green it reeks of daisies. Reeks is a strong word. More like radiates. My concept begins with a solar powered conveyer belt delivering trash to an enormous pressure cooker. The trash I am suggesting is of the biomass variety. Once the container is full, a glass magnification lid is lowered and sealed using a hydraulic closure system. Next, an even larger adjustable mirror is positioned to reflect and focus the sun's rays on the container's glass lid. This will create enormous heat within the container. As a side note, solar cells affixed to the top of the mirror will collect the sun's energy and send them to solar batteries which will be used to power the conveyor belt. To continue, before long the biomass waste will be reduced to ash from the extreme heat. Simultaneously, heat steam pressure within the container will be funneled into a conduit containing a series of turbines connected to a generator and transformers. Finally, high voltage electricity can be delivered to the community by way of high voltage power lines. Biogas, a bi-product produced from the incineration process, will be collected and stored to produce combustible energy.

Now, how will the ash be processed? Large ash removal panels will rise around the bottom circumference of the container. The floor is solar powered and centrifugal. So, when activated, the floor will spin at ultra high speeds. This will result in ash dumped into an ash collector system consisting of tubes and another solar powered conveyor belt. The belt will carry the ash to waiting trucks. In the end, the ash is used to fertilize farms and such. And the trucks can run on the previously collected methane. The lower ash removal panels of the container lower once again and the whole process repeats itself.

To recap, we have biomass reduced to fertilizer, methane biogas, and electricity. This is all accomplished thanks to the sun. All this and the waste disposal plant is energy autonomous. Thank you for your time.

