

# South Tahoe Refuse Researches New Clean Energy Technology to Offset Fossil Fuels

## Net Metered Gasifiers Generate Heat & Electricity, Offering 24/7 “Always-On” Renewable Energy Using Local Wood Waste

### WHAT

South Tahoe Refuse (STR) is exploring the installation of a 125kW wood waste gasifier at its South Lake Tahoe facility. Gasification has been around since the early 1800's - instead of burning, chemical reactions turn the green waste into a gas that is a cleaner substitute for fossil fuels. If installed, the net metering system would offset the majority of grid electricity and natural gas used at the STR site by using 10% of the wood waste currently collected by STR, and reduce traffic and emissions from transporting waste material out of the Basin by over 70 truckloads each year.



*Figure 1: Waste woody material is currently collected, processed, and stored at STR until it is transported to Nevada for disposal. Material is sourced from defensible space thinning and C&D waste.*



*Figure 2: Wood energy gasifier systems offer an alternative to disposing of waste wood, and are common in mountain towns throughout Europe. Pictured is a 135kW biomass gasifier system in the South Tyrol region of Italy, near the Dolomites.*

### WHEN

To consider moving forward with the project, STR is seeking approval from the Tahoe Regional Planning Agency (TRPA) to allow for a permitting application to be submitted as a pilot project for the area. STR has prepared an environmental and safety assessment, and will be presenting results to the TRPA Forest Health Committee on November 16th, 2022. Should the assessment be accepted, TRPA will allow STR to submit a formal permitting application and follow the regular permitting process to seek project approval.

## WHY

Woody biomass material is currently being generated in the Tahoe Basin from fuel reduction treatments and defensible space thinnings meant to reduce the risk and impacts of wildfire. A portion of that material is already collected at the STR facility, processed into wood chips, and transported 50 miles roundtrip out of the Basin to Nevada for disposal as compost. A net metered biomass system at STR would use about 10% of the woody material STR currently collects and processes, offsetting over 70 truckloads of wood chips out of the Basin each year. This will reduce truck traffic and associated greenhouse gas emissions. In addition, as a renewable energy resource that is available 24/7, the gasifier will provide increased energy resilience for STR operations.

## HOW

Gasifiers act like a conventional generator, but use wood gas instead of fossil fuels. Gasification is not combustion - instead, biomass is “baked” in the absence of oxygen to create syngas, which is passed through a filter to reduce particulates before entering a generator and producing electricity and heat. Systems have very low particulate emissions and no visible smoke from the stack, with some amount of NO<sub>x</sub> similar to other generators. No water is required, and waste byproducts include a small amount of ash and tar.

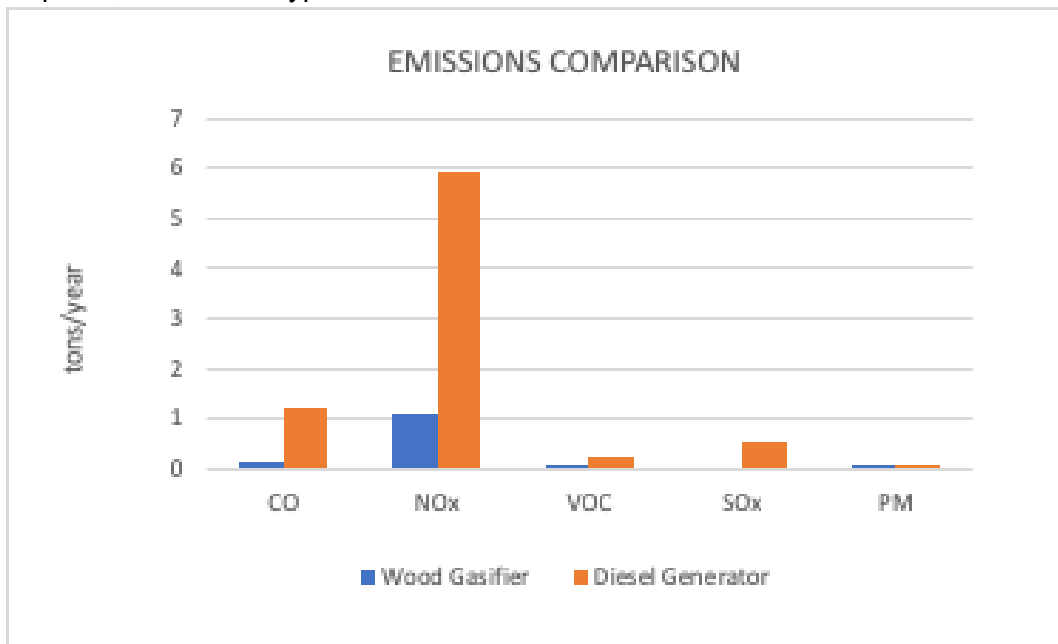
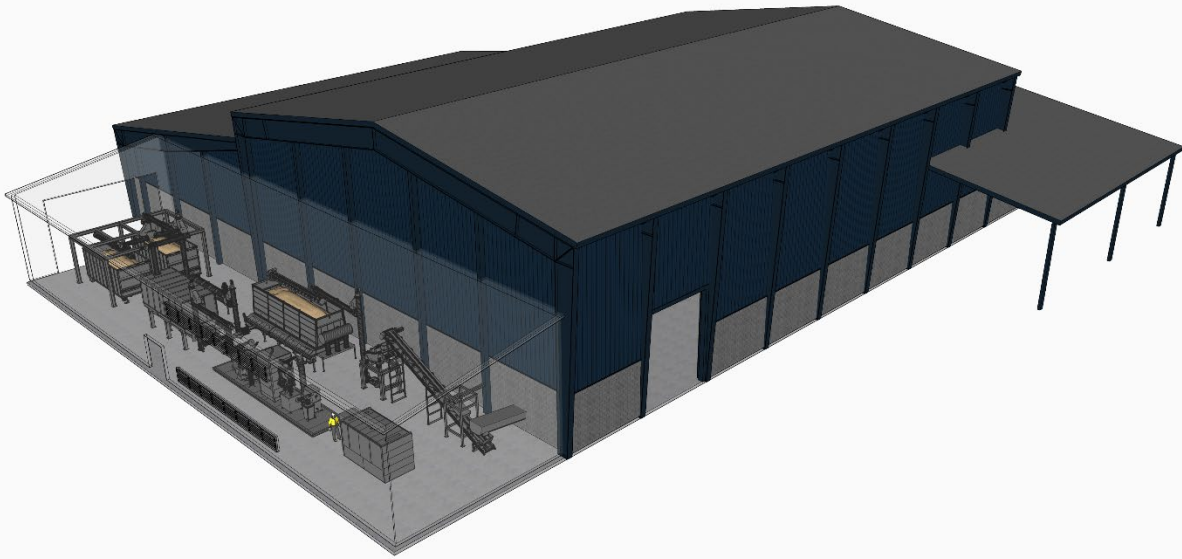


Figure 3: Comparison of annual criteria pollutant emissions between a 125kW waste wood gasifier and a representative Tier 3 125kW diesel generator.

## WHERE

Net metered wood energy systems can be located wherever there is a moderate energy load and at least 1/10th of an acre is available for equipment. STR is an ideal location to pilot such a system in the Tahoe Basin, since woody material is already collected at the STR facility, processed into wood chips, and transported 50 miles roundtrip out of the Basin.



*Figure 4: Preliminary designs show the proposed gasifier system located adjacent to the existing STR organics facility, and will cause no increase to the property footprint.*

### **What this project is NOT:**

- It will not increase truck traffic; in fact, it will decrease the number of waste hauling trucks traveling out of South Lake Tahoe by 72 per year, eliminating 3,600 roundtrip miles annually.
- It will not release visible smoke into the air. See a video of a similar system operating full blast in South Tyrol, Italy, [here](#).
- It will not increase STR's property footprint. At this point in the design, the system is planned to be located directly adjacent to the existing Resource Recovery Facility on STR's private property.
- It will not cause an increase in daytime noise levels in the neighborhood. In addition, STR will work with project engineers to ensure that appropriate enclosures are designed for the system to minimize noise in daytime as well as evening hours.