

The Thermal Recovery Unit (TRU)

Technical Overview - 2013

The TRU continuously converts organic materials to syngas, steam and carbon char.

TRU - Technology Overview

- 20 years of engineering, testing and upgrades (US Patent 6,758,150)
- Meets all regulatory and performance standards set by US EPA under the “Clean Air Act”
- Proven compliance in converting a variety of organic materials to commercial products
- Version 5.0 available in 1000, 2000 & 4000 pound per hour systems (stationary and transportable)

TRU – Revenue Streams

- Tipping Fee – money paid to process material
- Biochar– valuable process by-product
- Steam – through waste heat recovery
- Electricity – from a steam turbine generator
- Carbon Credits – reduces greenhouse gases

Summary for the Next Economy

- TRU can be integrated into new or existing infrastructure to convert organic materials to syngas, steam and carbon char.
- TRU is a proven process to produce “Green Power”, high quality carbon and reduce greenhouse gases for global markets.
- Biochar serves as a long-term form of sequestered carbon.

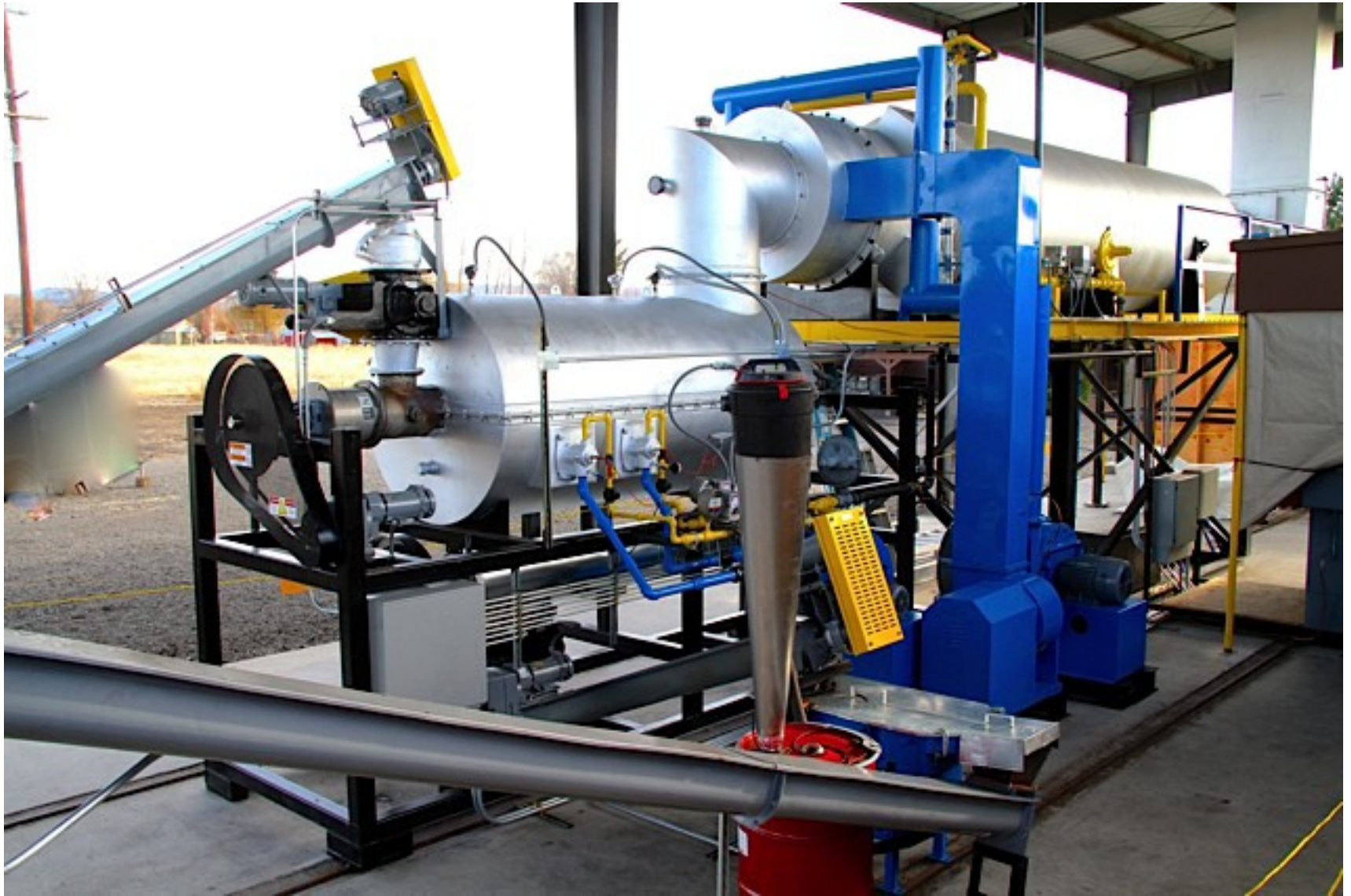
TRU – Wide Range of Applications

- Agricultural-Waste to energy and Biochar
- Process steam or compressed air for chillers and infrastructure
- Forest-Restoration (including mobile) final step in insect kill remediation and forest fire fuel processing
- Industrial waste/soil remediation
- CO₂ and Heat for Greenhouses
- Producing steam or electric power up to 2.7MW

TRU - Product Features

- Natural gas, fuel oil, or propane fires burners
(minimum 5 Btu recovered for each Btu of input)
- Syngas is immediately ignited versus condensed
- System use of standardized components means less down time for maintenance.
- “Carbon neutral” footprint

TRU - Prineville Oregon



TRU - Process Overview

- Continuously converts organic materials to syngas, steam and Biochar
- Automated control and sensors ensure optimum system performance
- Fully integrated safety interlocks on equipment
- Operator protection and system monitoring

Touch Screen PLC

TRU - Features & Benefits

Process Feature

- ✓ Feedstock Flexibility
Tires
- ✓ Waste Heat Recovery
- ✓ Biochar
- ✓ Carbon Credits
- ✓ Standardized
- ✓ Continuous Process No batch loading / unloading
- ✓ Highly Scalable

Benefit

- Process MSW, Ag Waste,
- Green Power production
- Long-term sequestration
- Cap-n-trade opportunities
- Shorter production lead times
- Meets changing needs

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