



Small-scale, decentralized biomass upgrading

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More than \$120 billion/year of biomass is burned





Current paradox

Biomass serves as the feedstock to many important industries

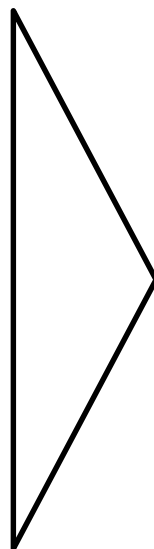
Forestry residues



Biomass



Agricultural residues



Renewable
energy

Activated
chemicals

Biofuels

Fertilizer

Plastic
additives

Logistical challenge

Biomass is loose, wet, bulky, and expensive to transport.



Our solution

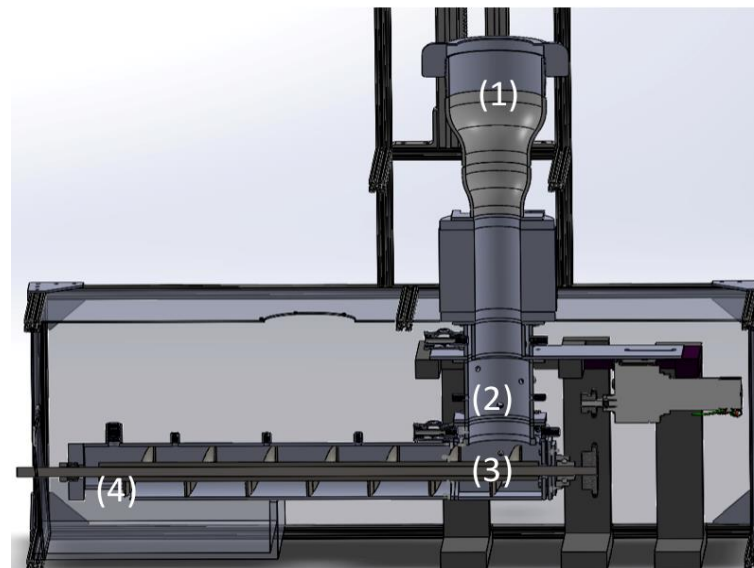
Low-cost, small-scale, portable systems to convert biomass at source



- Latched onto tractors, trailers, or shipping containers
- Requires no external heat/fuel (autothermal)

Raw Biomass	Densified Biomass
Loose and bulky	Volume reduction by 600%
Costly to transport	Reduces transport cost by 40%

(a) Cross-section rendering in SolidWorks



(b) Actual test reactor



Competitive advantage

Our design simplifies the reactor design and makes it flexible

Requirements	Competitors	Takachar system
Gas reactant	Heated special gases	Room temperature air
Gas handling	Scrubbing, drying	None

Building the bioeconomy

We serve biomass generators and consumers worldwide

Forestry residues

Mitigation of 500 million tons of CO₂ equivalent



Agricultural residues

Renewable
energy

\$2 trillion/year, 2% growth

\$3 billion/year (U.S.)

Fertilizer

Biofuels

Other
chemicals

\$168 billion/year, 5% growth

Supporters

cyclotronroad



Cal**SEED**



TATA CENTER
Technology + Design

J-WAFS





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