



Economics of producing biochar

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ABOUT US

At GECA, we help 360 degrees project developers to **accelerate, derisk, and increase their profitability** through strategic thinking. We work to clean the planet by supporting those transforming wastes into valuable products such as biochar, biocoal, biooil using thermal processes.

PROBLEM



INDUSTRY GAP

Businesses need new investment opportunities but have difficulties making biochar projects profitable and attractive

CUSTOMERS

Not easy to change, must have a product that is usable as the other products they are used to, must have proof of efficiency

PROFITS

High OPEX: Often high feedstock price, too much labor, too high CAPEX with interest rates

EDUCATION

Potential buyers not aware of the product
Investors think it is risky projects.

PROBLEM

Examples



WASTE MANAGEMENT SITE, TURKEY

Receive **tipping fees** to manage wastes from cities, landfill, composting, sludge treatment facilities, need to **get rid of sludge** and other products

SLUDGE GENERATOR, FRANCE

Receive **tipping fees** to treat wastewater and other liquids, generate large quantity of sludge, need to get rid of sludge

FOREST MANAGEMENT, ARGENTINA

Pay to access forest wastes, far from the buyers, no land acquired nor equipment on site, want to generate renewable products and protect forest industry

FINE BROWN COAL PRODUCTS, CANADA

Buy coal, transform, sell fine coal products to mining industry on demand, need to incorporate renewable products into their product line

FINANCIALS



	Waste, Turkey	Forest, Argentina	Sludge, France	Coal, Canada
Income				
Infeed tonnage	40 k t/yr	100 k t/yr	100 kt/yr	100 kt/yr
Biochar/biocoal sales	300 \$/t	300-550 \$/t	400 \$/t	800 \$/t
Carbon credits price	125 \$/t CO2	150 \$/t CO2	130 \$/t CO2	NA
Others: Energy, liquids	Recycle in situ	Recycle heat in situ	Recycle heat in situ	Bioil sold, recycle energy
Expenses				
CAPEX	10 M\$	10 M\$	25 M\$	50 M\$
Feedstock (% of expenses)	-10%	25%	5%	40%
Labor (% of expenses)	20%	15%	15%	20%
Optimized biochar production cost	325\$/t	425\$/t	275 \$/t	675\$/t
Profits	no	no	50%	20%

Waste management site, Turkey

Sell their sludge for concrete production, easy and cheap to condition.

Could take more wastes but need more output for their sludge and other products.

Sludge generator, France

Good profit in treating liquid wastes but need to compensate their carbon footprint.

Must find solution for sludge since they will be producing a lot more in the future and produce a lot of carbon credits.

Forest management, Argentina

Large tonnage of forest wastes available, but not cheap.

Would help forest industry to grow if more markets for their products.

No markets for biochar.

Fine brown coal products, Canada

Need to make mixtures of biocoal and fossil coal for their clients.

Prefer making themselves biocoal or with partnership than buying to control pricing and supply.

Can sell biooil in their market.

DECISIONS

WASTE MANAGEMENT TURKEY

No apparent profit
Decides to continue
Why?
Other strategic
opportunities for
wastes with cities

Relatively easy to finance
Well established
Increase overall
profitability

FOREST MANAGEMENT ARGENTINA

No Profit
Decide to continue, Why?
Believe in it, but may stop,
Must find ways to lower
feedstock cost, transport,
obtain better carbon
credits,
develop markets

Difficult to finance
Will have to work on
several aspects

SLUDGE GENERATOR FRANCE

Good profits
No sure to continue.
Why?
Wants more profits,
needs more carbon
credit revenue for
their green image and
compensation

Easy to finance but
investors in this company
are hungry for return

BROWN COAL PRODUCTS, CANADA

Small profits
Even if no profits
would continue, Why?
Strategic positioning
to keep their market
(metallurgy) requiring
green providers, helps
increase their tonnage

Relatively easy to finance.
Their consumers willing to
co-invest

What to learn for profitable projects

Making profits doing biochar/biocoal

Obtain tipping fees for at least part of your feedstock (feedstock less than 50\$/t average)

Decrease transport and labor in NA and Europe

Interests for loans can kill your profits, get investors if good conditions

Other opportunities of the business

Important to exploit your network to sell

Look at other opportunities within your business

Combine opportunities with partners

Make it easy for your clients to use it

Sell all your products

Biochar alone is not sufficient to generate profits

Biochar carbon credits is often needed

Sell heat/energy/gas

Sell liquids if you have or exploit your co-products on site to decrease other costs



MORE SOLUTIONS

CLOSE THE GAP

Look at different ways of doing, integrate all of your activities as much as possible.

Exploit your network to combine activities/find partners

TARGET AUDIENCE

Select the right markets, markets you know and your good at.

Higher specialists to make your project is attractive to investors.

MAKE IT EASY FOR YOUR CLIENT

Customize your product and make it easy to use for your client.

MEET PART OF THE TEAM



Suzanne Allaire, PhD
CEO



Melissa Leung
Co-owner, Carbon Director



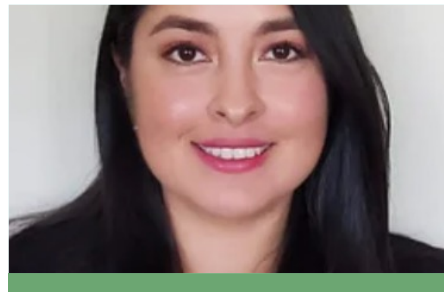
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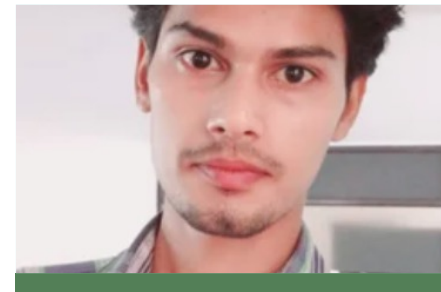
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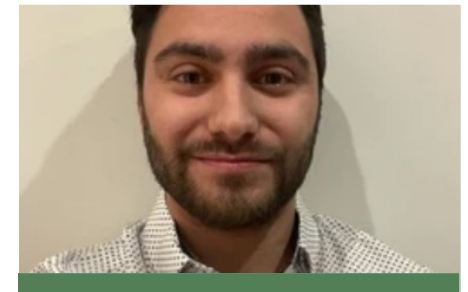
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THANK YOU

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