



CORAL GABLES
THE CITY BEAUTIFUL

City of Coral Gables
Green Waste Diversion Solutions
Commission Meeting Presentation
8-26-25

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To reduce tipping fees and divert from the landfill what kind of waste can we dispose of?

In Florida, municipalities seeking to divert waste from landfills may manage and dispose of certain types of waste independently—without routing everything through the county—as long as they do not interfere with the county's disposal system or violate state law (see F.S. § 403.706).



Types of Waste Municipalities Can Dispose of Independently

- Recyclables
- **Green / Yard Waste**
- Construction & Demolition (C&D)
- Household Hazardous Waste (HHW)
- Organics for Composting or Food Waste Recovery
- Bulky Waste / White Goods
- Specialty Materials

Trash
Green
Yard Waste
Diversion
Benefits and
Solution
Options



Trash / Green / Yard Waste Solutions

- Also known as vegetative or "green matter" waste - accounts for 20% of the world's total waste.
- Once collected, yard waste is usually: composted or ground into mulch – *low return on investment value*.
- Open burning allows for **biochar**. Open burning is highly restricted in Florida.
- **Biochar** is a stable, carbon-rich product made by heating organic material (like yard waste) in a low-oxygen environment—a process called **pyrolysis**. It's used primarily as a **soil amendment** but also has environmental benefits.

20%

OF ALL WASTE IS WOOD
& VEGETATIVE

70M

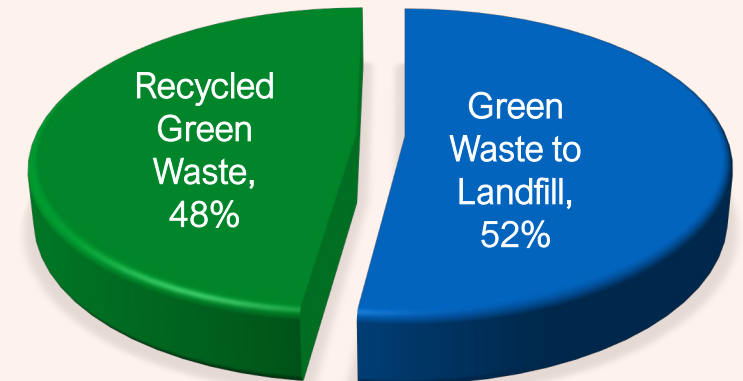
TONS OF WOOD WASTE
IS COLLECTED EACH
YEAR IN THE U.S.

ONLY

48%

OF ALL WOOD WASTE IS
RECYCLED IN THE U.S.

Urban Green Waste



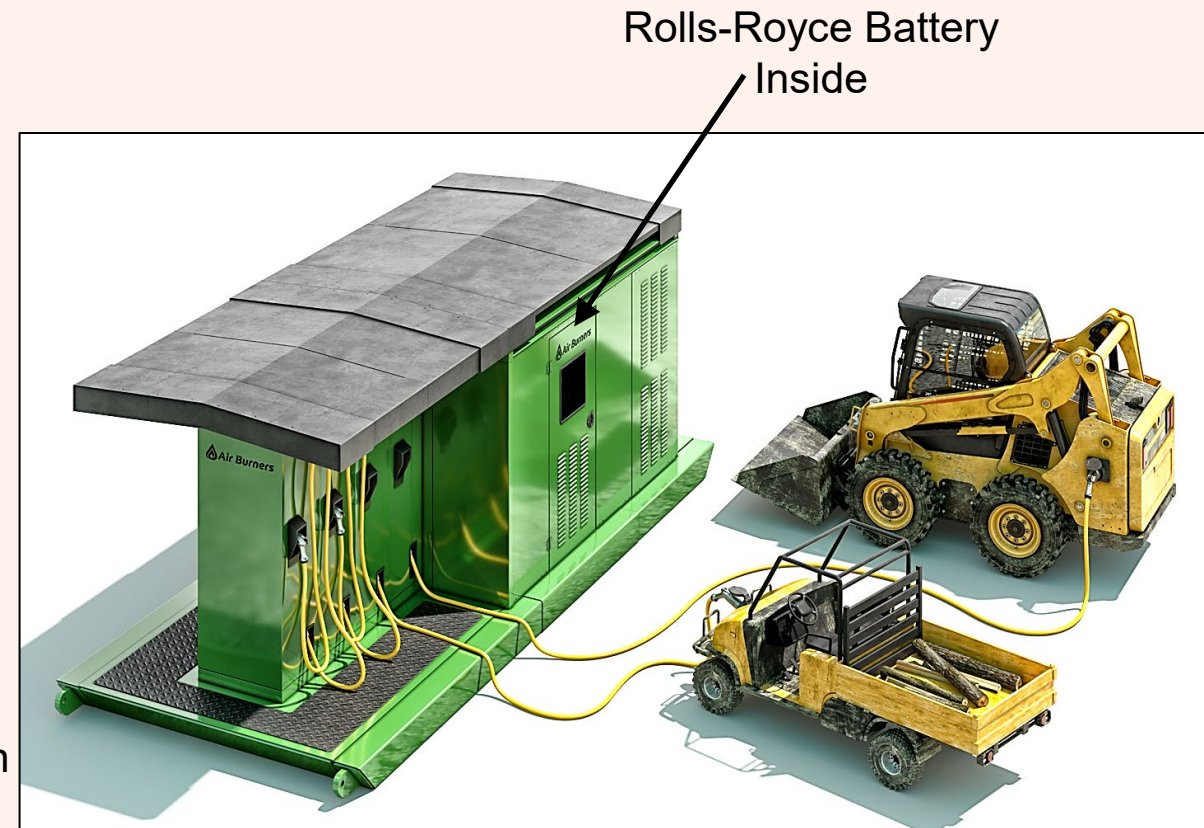
Trash / Green / Yard Waste Solutions

Coral Gables Solid Waste picks up approximately ~100 tons a day / five days a week accounting for ~500 tons per week / ~26,000 a year.

At a cost of \$49.81 per ton, the city pays approximately ~\$25,000 a week to Waste Management for trash/green matter disposal. This is a cost of ~\$1,300,000 each year.

Additional Revenue Opportunity from Landscapers: Dade County currently charges \$9.00 per cubic yard in addition to purchasing “visits” online that cost \$33 per visit for pickup trucks, vans and trailers six feet high, six feet wide and 10 feet long. Competitive disposal rate: ~\$50 per/ton

Waste to Energy Solution: The “Airburner” fire box eliminates up to 10 tons of clean wood and vegetative waste per hour with a bio charger battery storage capacity: 550 kWh, generating enough electricity to recharge at least four large heavy fleet equipment each night. Opportunity for on or off grid options.



72nd Ave Facility Sites for Consideration

Financial Impact Considerations:

- **West Transfer Station:** Loss of guaranteed recurring lease revenue:
~\$42,401.76
monthly
- **City Property:** One-time site remediation cost:
PH. 1: ~\$2,500,000
PH. 2: ~\$1,500,000



Trash / Green / Yard Waste Solutions

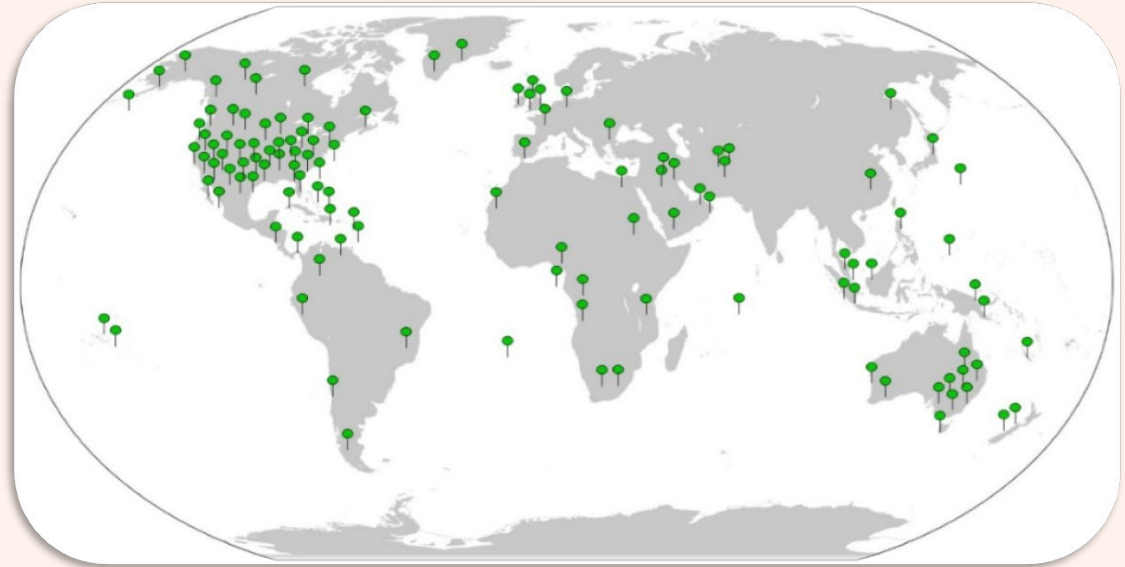


**Technology tested in Asia, Europe,
Canada, Australia and USA.**

**Air Burners, Inc. is a CRADA
partner with the USEPA and USFS.**

Made in USA

Local Office in Palm City



Trash / Green / Yard Waste Solutions

Open Burning
20 tons of wood waste

Actual Comparison Testing To Open Burning



Environment Canada

Air Curtain Burning
20 tons of wood waste

Trash / Green / Yard Waste Solutions

Air Curtain Burners
20 tons of wood waste
eliminated in **1 hour**

Open Burning
20 tons of wood waste
burning for **48 hours**

Environment Canada

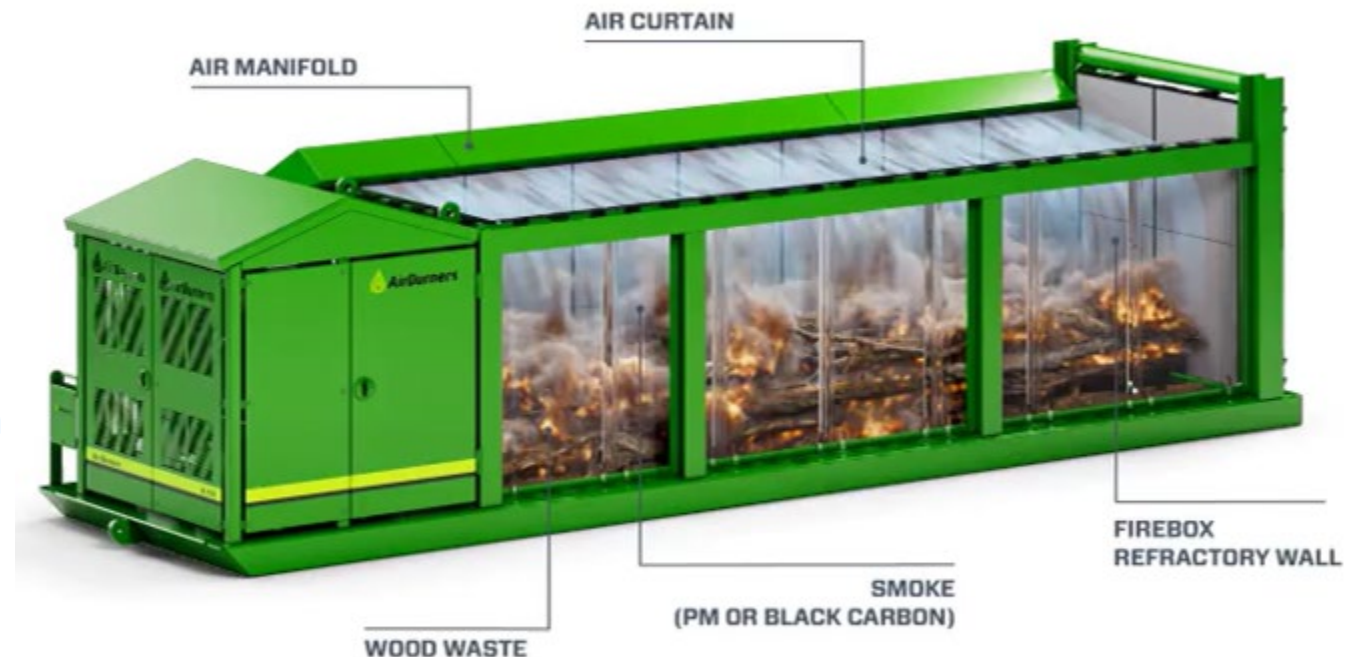
Particulate Matter release for 20 tons of wood waste

Air Burners - The Fire Box Using Curtain Technology

Burns unwanted wood waste 40x faster than an open burn and reduces smoke particulates by over 90%

OUR TECHNOLOGY

Air Burners has over 25 years of industry-leading experience developing innovative solutions to help businesses fight climate change. Performance tested by the U.S. Forest Service, U.S. Dept. of Energy, U.S. Armed Forces, and EPA, our patented air curtain technology burns unwanted wood waste 40x faster than an open burn and reduces smoke particulates by over 90%. Discover how Air Burners is putting advanced technology to work for you and our environment.



Air Burners On-Grid and Off-Grid Options

THE POWER SERIES

The PGFireBox is an easily movable system that connects with the local power grid to generate income and, if applicable, comply with requirements for landfill diversion credits. The BioCharger is an off grid portable unit that includes a Battery Storage Module (BSM). The BSM stores the energy created throughout the day and provides the charging station to recharge battery powered machines in the evening. Neither machine requires any permanent facilities and can be disconnected and moved in about 1 day.



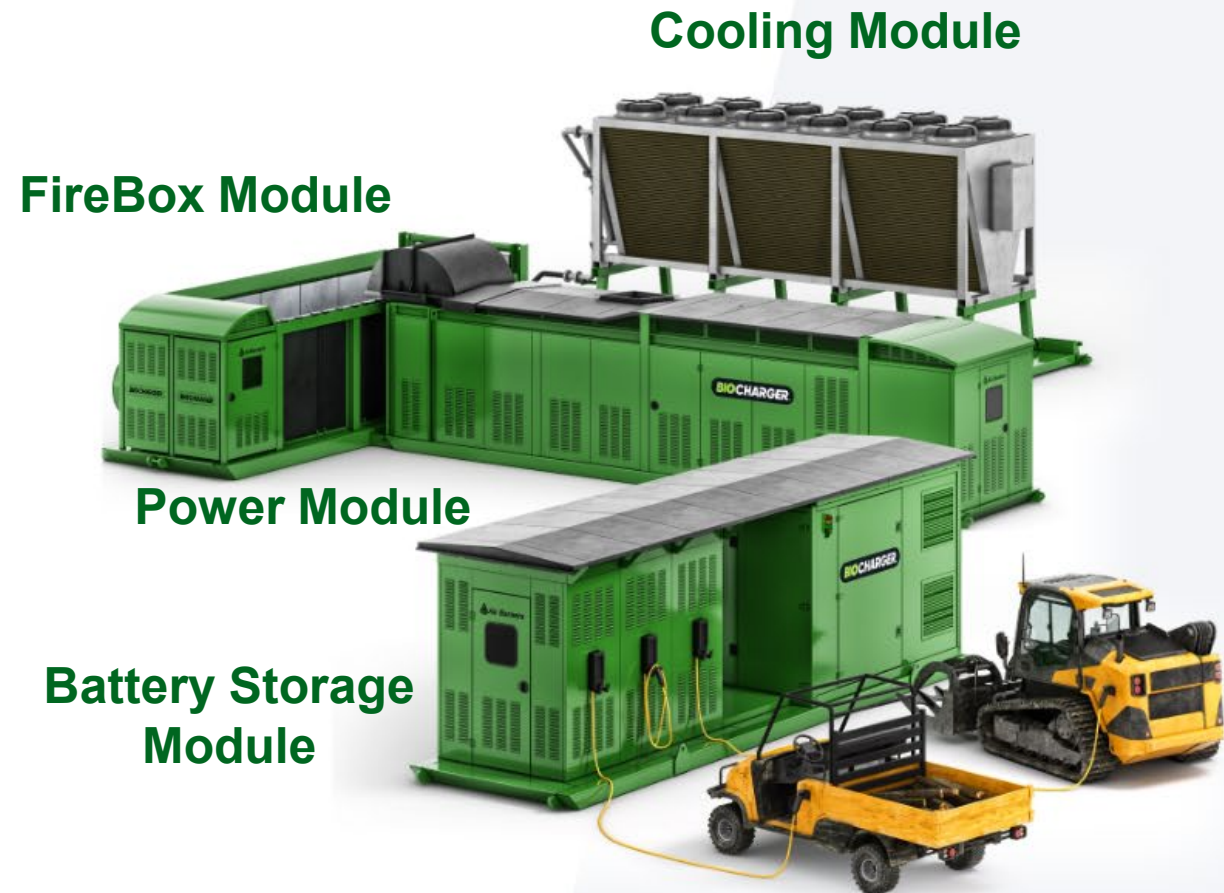
Eliminate
Wood



Distributed
Power



Self-
Contained



Storm Recovery Mobile Debris Disposal Solutions

THE BOSS SERIES

The BurnBoss, CharBoss, and TrackBoss are fully-assembled, self-contained, above-ground air curtain burners that eliminate wood waste. Our pollution control technology in all three machines reduces smoke to less than 10% opacity compared to open burning at 100% opacity. In the BurnBoss and the TrackBoss 98% of the vegetative waste is eliminated and 2% clean biochar and ash remain. In the CharBoss approximately 80% of the vegetative waste is eliminated and 20% is converted to Biochar as measured in tests by the US Forest Service. No matter how remote or rugged the terrain, the Boss Series has three easy-to-maneuver, cost-efficient, environmentally-friendly machines that can save your business some green and make our planet much healthier.

The average throughput is approximately 1 ton per hour.





Reduces Wood Waste By 98%

Ten tons of logs in -- gives you a couple hundred pounds of ash out. This ash and Biochar can be used for multiple purposes like agriculture, growers, and nurseries.



Captures Energy From The Wood Waste

It captures energy in wood waste and converts it to electricity to use in battery operated machinery saving the cost of diesel fuel.



Save Green, Make Green

The BioCharger eliminates wood and the need for grinding, hauling, diesel fuel, and landfill fees. It saves you money while making green energy from green waste.



Reduces Greenhouse Gas Emissions

It significantly reduces greenhouse gas emissions compared to the current methods of disposal : grinding and landfilling.



Easily Relocated

With the BioCharger, the system is simply disconnected and moved; no permanent structures are necessary.



Fully Self-contained and Ready to Use

Equipment can be purchased and delivered for less than the cost of a typical tub grinder.

72nd Ave Facility Site for Consideration

Publicly accessible drop-off, staging and disposal on the existing two sites using the Air Burners complete Power Series.

Site space allows for multiple fireboxes to increase tonnage disposal for phased volume increases from current city-wide residential collection, to that of additional waste from neighboring municipalities and private landscapers at a per tone disposal fee.



Dade County West Transfer Station
City of Coral Gables Property
Approx. 4.8 acres



City of Coral Gables Property
Requires Remediation of the Site
Approx. 1.75 acres



Storm Recovery Debris Volumes

Initial Investment Cost:
Normal operations with ability to increase disposal volume:
2 Bio Charger Units:
\$3,467,618
**Emergency debris removal will require four additional rental burners, and potential use of the mobile boss series for on-the-go disposal.*



Given the limited staging sites and the **additional three hours of round-trip travel (~146 extra miles) with the change from Pompano to Okeechobee** for mulched material disposal, it will be critical to ensure rapid and efficient onsite processing of collected yard waste, with the goal of completing disposal within **the first ten weeks following a storm.**

Storm Recovery Debris Volumes

Surviving Irma: The Coral Gables Story



During Irma the City of Coral Gables Collected 360,000 Cubic Yards of green waste debris.

Irma Volume:

360,000 cubic yards x .17 tons (conversion rate) = 62,347.85 tons

Storm Volume to Annual Tonnage:

62,347.85 tons ÷ 26,000 annual tons =
*~2.4 years worth of debris collected during
a single storm incident.*

Conversion Assumptions:

FY24 Total Tons: 25,664.80

Total # Trips: 4,234.00

Average Tons Per Trip: 6.06

Truck Capacity: 35 Cubic Yards

1 Cubic Yard = ~0.17 tons



Annual City Savings

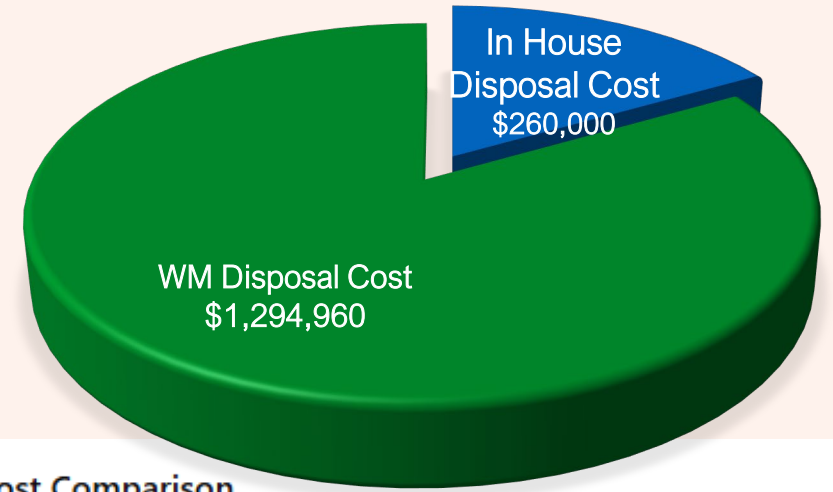


Assumptions on Annual Operational City Savings

- Weekly volume: ~500 tons
- Annual residential volume: ~500 tons/week
× 52 weeks = ~26,000 tons/year

Current tipping/disposal fee:

- West Transfer Rate: \$90.68/ton
- Medley/South Dade contract rate: \$74.40/ton
- Medley/South Dade Non-contract rate: \$113.19/ton
- WM current rate: \$49.81/ton
- Estimated in-house disposal cost: ~\$10/ton



Annual Disposal Cost Comparison

Disposal Option	Rate (\$/ton)	Annual Cost (\$)
West Transfer Rate	\$90.68	\$2,357,680
Medley/South Dade (Non-Contract Rate)	\$113.19	\$2,942,940
Medley/South Dade (Contract Rate)	\$74.40	\$1,934,400
Waste Management (WM) Current Rate	\$49.81	\$1,294,960
In-House Disposal (Estimated)	\$10.00	\$260,000



Estimated Savings vs. WM Current Rate

WM Current Annual Cost	In-House Annual Cost	Annual Savings
\$1,294,960	\$260,000	\$1,034,960



City Savings & Revenue Assumptions



Annual Recurring Savings and Revenues

Category	Annual Value (\$)	Notes
Savings vs. WM Current Rate	1,034,960	Based on \$49.81/ton vs. in-house disposal
Revenue from Commercial Drop-off	250,000 – 500,000	5,000–10,000 tons @ \$50/ton
Potential Byproduct Sales	25,000+	Estimated mulch/compost/biochar
Total Annual Net Benefit	1,309,960 – 1,559,960+	Range depending on commercial intake

Additional savings not calculated:

Reduced hauling – fuel and route efficiency savings


- **Grants** (e.g. FDEP, EPA) may help cover capital investment. FPL partnership opportunity.
- **Revenue opportunity:** Selling compost, mulch, or biochar (~\$50–\$150/ton). Collection services from commercial landscapers based on a conservative 5,000 – 10,000 tons/year at ~\$50 per/ton.
- **Environmental benefit:** Avoided landfill use and methane emissions may support Coral Gables' sustainability goals and earn landfill diversion and carbon credits.



Initial City Investment & ROI Analysis

Additional Cost and ROI Considerations:

- **Initial startup capital & infrastructure costs:** (equipment, site remediation and infrastructure set-up)
- **Equipment & Infrastructure:** ~3,500,000
- **Full Site Remediation:** ~\$4,000,000
 - PH. 1: ~\$2,500,000*
 - PH. 2: ~\$1,500,000*

 Capital Costs, ROI, and Payback Period – Scenario Comparison (Three Options)

Category	Equipment Only	Equipment + Phase 1 (Above Ground)	Equipment + Full Remediation (Above + Below)	Notes
Equipment	~3,500,000	~3,500,000	~3,500,000	2 Bio Charger Units and core infrastructure
Site Remediation – Phase 1 (Above Ground)	—	~2,500,000	~2,500,000	Above-ground removal, land prep, permitting, utilities
Site Remediation – Phase 2 (Below Ground)	—	—	~1,500,000	Below-ground removal, expansion, environmental compliance
Total Initial Capital Cost	~3,500,000	~6,000,000	~7,500,000	Equipment only vs. phased remediation options
Annual Net Benefit	1,559,960+	1,559,960+	1,559,960+	Recurring savings + additional revenue streams
ROI (Year 1)	~44.6%	~26.0%	~20.8%	Net benefit ÷ capital cost
Payback Period	~2.2 years	~3.8 years	~4.8 years	Time to recover investment
10-Year Net Benefit	~15,600,000+	~15,600,000+	~15,600,000+	Cumulative net benefit (savings + revenues over 10 years)



BioCharger Demonstration & Factory Tour



100th
ANNIVERSARY

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The End

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