



# A Global Leader in Clean Upgrading Coal Technology





# EMISSIONS INCREASED PROFITABILITY



# **CONTENTS**

**FOUR - MANAGEMENT** 

SEVEN - COMPETITIVE ADVANTAGE

**EIGHT - TECHNOLOGY** 

TEN - MARKET

**ELEVEN - RECENT ACHIEVEMENTS** 

TWELVE - CATALYSTS FOR GROWTH

THIRTEEN - VALUE PROPOSITION

SIXTEEN-PUBLIC COMPANY STRUCTURE

**EIGHTEEN-CONTACT US** 

# **CORE BUSINESS**



• a 100% owned subsidiary of MicroCoal Technologies Inc., a publicly traded company whose shares are traded on the Canadian National Stock Exchange. CNSX: MTI

"Because the World Can't Replace Coal....

We Created a Better Way To Process It"



## MANAGEMENT



#### Steve E. Sears, MBA, B.Sc., Chief Executive Officer

- 31 years of knowledge and experience in the coal industry
- Formerly Vice-President of Massey Energy Company
- Innovator throughout his tenure at Massey
- Significantly increased revenues during his 25-year tenure
- He concurrently held senior level positions in several Massey subsidiaries
- President of Massey Coal Sales and Coal Handling Solutions Inc., grew to revenues in excess of \$250-million per year
- Holds an MBA from Averett University, Virginia and a B.Sc. in business administration from Virginia Commonwealth University.

"I am very pleased to be appointed as chief executive officer of MicroCoal International and to the company's advisory board. I have known the MicroCoal and the Carbon Friendly team for a long time and have watched with keen interest as the team has achieved significant technical and engineering milestones. Carbon Friendly is ready to commercialize this technology, and I am excited to be a part of the global marketing rollout."





## MANAGEMENT

#### Larry Palmer, CMA, MBA, Finance Director



- A coal industry professional for over 32 years;
- Focused on financial, legal and tax aspects of coal transactions.
- Past vice-president of taxation for Massey Energy Company until 2011.
- In that role he was also responsible for major transactions in excess of \$100-million.
- Massey was America's fourth largest producer of coal in the United States until May of 2011, when it was acquired by Apha Natural Resources.
- He served in a transitional position at Alpha until March of 2012, assisting in the successful integration of Massey into Alpha. He is a certified management accountant (CMA), and has an MBA from Indiana University of Pennsylvania

"This is a timely technology for making coal more affordable and less polluting. A key element in successful international marketing and sales of MicroCoal  $^{\text{TM}}$  is proper financing and tax planning. I look forward to helping MicroCoal  $^{\text{TM}}$  achieve its objective to quickly deploy this technology at U.S and international locations around the world."





# MANAGEMENT

# Randall Johnson, P.Eng: Senior Project Manager:



- Previously V.P. of operations and chief engineer at Massey Energy's Martin County Coal Corp.
- Previously V.P. at Coal Handling Solutions LLC, a joint venture between Massey Energy and Penn Virginia; involved in major U.S. and international projects, from start to completion, some of which had 15 year terms.
- Responsible for construction and design of projects in Canada, Texas, Florida, Wisconsin, North Dakota, Kentucky, Tennessee, Virginia and Brazil.
- After Alpha Natural Resources, America's 3<sup>RD</sup> largest coal company by revenue, acquired Massey in June, 2011, he worked at Alpha as a business unit project manager.; responsible for preliminary design and layout of proposed surface and underground operations,; oversaw construction designs; managed construction from start of project to finish,; managed budgets, and day-to-day operation for major projects and environmental issues.

"I am excited to be a part of the MicroCoal team, which consists of some of the leading international coal experts, as MCI moves forward on its international projects this year. I look forward to helping manage the construction and completion of the first MicroCoal commercial facilities this year."





# **COMPETATIVE ADVANTAGE**

The MicroCoal™ process is a significant power plant upgrade technology.



Utilities are **guaranteed** to generate \$Millions in savings by switching to low rank coals



LOW

 Increased efficiency in utility's pulverizer due to reduced moisture



Utilities have the unique ability to store unused off-peak power and re-sell during peak power periods



 Increased efficiency of boilers by reducing ash content



**Improves compliance** under the provisions of the USA Clean Air Act



 Minimize workload for scrubbers by reducing sulphur content



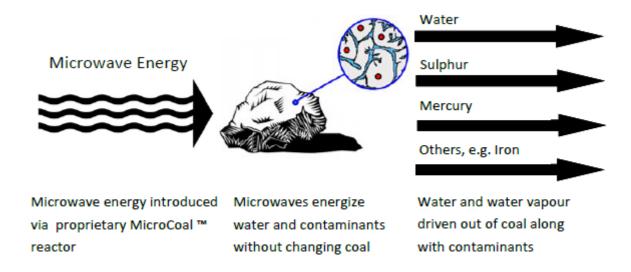




# **TECHNOLOGY**

Microwaving of raw coal in a MicroCoal ™ vertical reactor, where the coal being microwaved is in free fall, has been continuously proven and independently verified.

- Reduces moisture content from 45% to less than 10%
- Can increase the calorific value from 4200 Kcal to over 11,000 Kcal
- Produces chemical reactions that reduce SOx, NOx and other impurities







# **TECHNOLOGY**

- Over \$10.0 Million invested in technology development and commercialization;
  - Co-developed by Orica Ltd., an \$8 billion market cap conglomerate
- ★ Technology secured by multiple process patents;
  - for onsite use at the power utilities prior to combustion.
- Vertical configuration, small footprint;
- Designed for intermittent on-off operation to allow for effective load balancing.
- **★** Low capital cost, quick amortization







# **MARKET**

# MicroCoal<sup>™</sup> has representative offices strategically positioned in:

- USA (North America)
- Poland (Europe)
- Indonesia (Asia)

#### **United States of America**

- 1,436 coal fired power installations
- Potential Market Value: \$3.4 Billion

#### **Poland**

- 50 coal fired power plants
- Potential Market Value: \$310 Million

"Coal provides fuel for 42 per cent of U.S. electricity generation in 2011. In some key states such as Ohio, the figure is more like 80 per cent."



- 50 coal fired power plants
- Potential Market Value: \$170 Million







# RECENT ACHIEVEMENTS

- Completed construction and testing of a modular processing facility for full demonstration of the MicroCoal™ process at Hazen Research Ltd in Golden, Colorado.
- Currently undertaking evaluation discussions with several key North American utilities.
- **★ Completed finalization of agreements** to build the first of two MicroCoal<sup>™</sup> plants in Asia;
- ★ Successfully completed coal testing for the **Indonesian** coal projects;
- Completed the pre-approval for a grant to establish a European test facility in Poland;
- ★ Granted a **trademark registration** on "MicroCoal™" by the U.S. Patent and Trademark Office;
- ★ Successfully recruited key senior management with over 60 years of coal company experience to oversee deployment of MicroCoal™ plants in USA and elsewhere.





Slawek Smulewicz, CEO MicroCoal Technologies inspecting future site at Indonesian utility





# NEAR TERM CATALYSTS FOR GROWTH

Within the next 120 days the Company expects to achieve the following:

- ★ Start construction of Asia's first MicroCoal installation at the PT Wijaya Tri Utama power plant, located at the Banjarmasin, the capital of South Kalimantan, Indonesia; (May 28, 2013 signed LOI for Construction and Installation)
- ★ Initiate the engineering and design of North Americas first MicroCoal installation for a major utility at their Michigan facility. (informal agreements completed, final agreement pending);
- ★ Complete a second feasibility study in Asia for a MicroCoal installation for PT PLN Batubara, a division of the largest State owned power utility in Indonesia. (detailed MOU being prepared by PLN as of June 14, 2013).
- ★ In talks with the second largest power utility in Poland (E.U.). MOU expected shortly.
- ★ Complete a \$1 \$2 million equity offering







# BENEFITS OF THE TECHNOLOGY



- ★ Utility saves millions of dollars by switching to low-rank coal;
- ★ Able to store unused off peak power and sell during peak power periods;
- ★ Greater efficiencies in plant maintenance and performance once moisture and impurities are reduced during the combustion process.

#### Step One:

MicroCoal™ converts **low-rank coal into high-rank coal** during off peak times using excess electricity.

#### **Step Two:**

This higher energy coal, when combusted during peak hours, returns the electricity used to upgrade the coal onto the grid (effectively stored energy).

#### **Step Three:**

Pollutants are greatly reduced, ash is minimized, boiler and related **efficiencies are improved overall.** 

#### **Step Four:**

Utility monetizes the electricity usually lost during off-peak periods along with saving money when purchasing low-rank coal and obtaining all the financial benefits that impact the bottom line in Step Three above.





# VALUE PROPOSITION FOR THE UTILITY



- ★ Utility saves millions of dollars by switching to low-rank coal;
- ★ Able to store unused off peak power and sell during peak power periods;
- ★ Greater efficiencies in plant maintenance and performance once moisture and impurities are reduced during the combustion process.

#### Step One:

MicroCoal™ converts **low-rank coal into high-rank coal** during off peak times using excess electricity.

#### **Step Two:**

This high energy coal, when combusted during peak hours, returns the electricity used to upgrade the coal (**stored energy**) onto the grid.

#### **Step Three:**

Utility monetizes the electricity usually lost during off-peak periods.





# THE BOTTOM LINE

# Example of Potential Cost Benefit to 1,000 MW Coal Fired Power Plant (Capital Cost of MicroCoal™ installation +/- \$40 Million)

1. Savings by switching to low rank coal:- +/- \$20 Million per year

2. Added revenue from electricity generation:- +/- \$10 Million per year

3. Cost savings gained by improvementsin efficiencies:- +/- \$5 Million per year

Estimated savings to utility over a 10 year period:

+/- \$350 Million





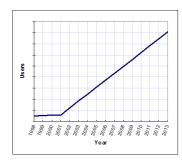


# VALUE PROPOSITION TO OUR SHAREHOLDERS

# Why Are We Investors?



Realistic, near term, potential for **hockey stick** type returns on investment;





Management with a track record of significant achievement; over 60 years of proven experience in coal production, coal handling and profitable business management;



**Coal powered utilities need our technology** as most of today's coalfired power generation plants are based on 50-100 year-old technology;



**Reduced investment risk:** even in times of economic turmoil, utilities can be a good investment.



**Minimal technology risk**; microwave energy has been in use in materials processing for over 60 years;



**Sales curve achieving significant traction;** evidenced by recently signed contracts and solicitations from interested parties in North America, Asia and Europe.





# PUBLIC COMPANY STRUCTURE

MicroCoal™ is 100% owned subsidiary of MicroCoal Technologies Inc., a publicly traded Canadian company. **CNSX: MTI** 

MicroCoal Technologies Inc. recently changed its name from Carbon Friendly Solutions Inc.

#### As at March 31, 2013

•	Shares Issued and O/S	69.79 MM
•	Fully diluted O/S	106.8 MM
•	Ave Volume	43,700
•	52 wk. range	\$0.080 - \$0.425
•	Recent range	\$0.20 - \$0.27
•	Current mkt. cap @ \$0.20	\$21.36 MM





# FORWARD LOOKING STATEMENT



#### **Forward Looking Statement**

Certain statements or projections contained in this document are forward-looking statements, including those that discuss strategies, goals, outlook or other non-historical matters; or project revenues, income, returns or other financial measures.

These forward-looking statements speak only as of the date on which they are made, and Carbon Friendly Solutions., or any of their subsidiaries undertakes no obligation to update or revise any forward-looking statements. These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those contained in the statements.





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