



SCRAP
TIRES



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We offer the best way to
dispose of tires and produce
a sizable profit!

Read on...



Tire Pyrolysis System Overview

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Company Profile

Innovative Ecology (IE) is the authorized distributor of the Jinan Eco-Energy (EE) tire pyrolysis equipment for North America.

IE has the experience and expertise to sell, install and service the most advanced tire pyrolysis equipment available in the international market. IE is owned and operated by engineers who have successfully started other profitable businesses. Now, the four engineers have joined together, bringing over 120 years of experience to form IE.

IE is comprised of a multi-national group knowledgeable in the cultures and business structures of most countries.

Please refer to the appendix for additional information.

EE has been developing this advanced tire pyrolysis technology and equipment for over 20 years, with international patents pending. We refer to the current equipment offering as the *3rd generation*.

The *1st generation* of equipment has been developed and installed in China over the past twenty years. Many of the facilities are still operating. The *2nd generation* was installed in the Kuala Lumpur, Malaysia area in 2003. In 2005, a *3rd generation* system was installed in Taiwan and has been in profitable operation since the startup.

Further enhancements have been applied to the *3rd generation* design so as to further improve the productivity.

In August, 2006, a showroom has been setup in the Jinan, China area to continue the research and development of our advanced tire pyrolysis technology and equipment. Our showroom is a fully functional facility. Many of the pictures in this booklet are of the actual equipment in our showroom.

We would be pleased to accommodate your visit to our showroom. Please e-mail inquiries to us.

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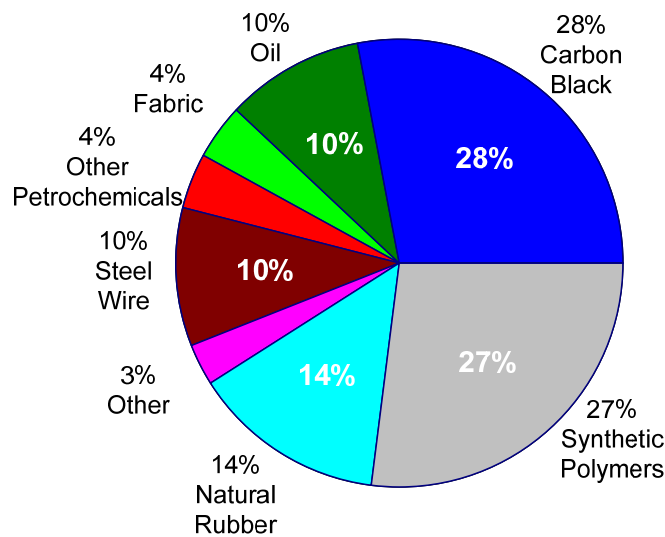
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What is Tire Pyrolysis?

Pyrolysis usually means the chemical decomposition of organic materials by heating in the absence of oxygen or any other reagents.

In regards to the pyrolysis of tires, the tires are reduced primarily into three products; carbon black, fuel oil (as a gas), steel (the steel belt in the tire) and other hydrocarbon gases.



Tire Components by % Weight

The carbon black, fuel oil and steel can be sold at a substantial profit. The hydrocarbon gases and the fuel oil can be used as a fuel for the heat source used in the pyrolysis process, reducing your production costs.

Our advanced system uses a patent pending catalyst which is added to the tires before they enter the reactor, which is where the pyrolytic reaction occurs. The catalyst improves the efficiency of the pyrolysis, so as to maximize your profits.

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Our Finished Products

Fuel Oil (43% ~ 48%)

The oil product generated by our system can be marketed directly to industrial clients.

Carbon Black (35 ~ 38%)

Carbon black is an essential ingredient in tires and other mechanical rubber goods. It improves product durability and overall performance. It also is used as a pigment in printing inks, paints and plastics

Steel Braid (10 ~ 12%)

The steel content inside tires ranges from 6% to 15% of total tire weight.

Hydrocarbon Gases (5%)

Non-condensable gases recovered from the pyrolysis process can be use as fuel source for the process furnace, reducing operating costs.

System Capacity

With 2 reactors, our system is capable of producing:

Quantity of Scrap Tire Recycled	30 tons/day
Fuel Oil Produced	14 tons/day
Carbon Black Produced	10 tons/day
Steel Wire Produced	4.5 tons/day

Our fuel oil is similar to grade 4.

The carbon black produced is similar to N330 and N660.

This booklet is divided into sections describing the equipment and the operation of our facility.

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Equipment Preface

The following details, descriptions, drawings and pictures of the tire pyrolysis system are subject to change.

We are constantly examining our system and continue to strive to offer the best system in the international market place.

Since we continue to work on improving our system, we retain the right to supply equipment from different manufacturers, different designs and part numbers.

The equipment supplied with the system is often enhanced to our specifications and hence, may resemble a “catalog product” but is not exactly the same. Some of the illustrations may show covers and enclosures as missing. Such missing parts in the illustrations are as such to show the interior of the device, only.

We work closely with our manufacturers and vendors so as to obtain the best equipment suited for your requirements.

Our enhanced equipment may bear different manufacturers’ part numbers or be listed under our internal company part numbers.

Some of the pictures and drawings may not show the required safety features that may be required by the authorities in various countries. Our commitment to safety is a number one priority and upon installation of our equipment, we will work to assure compliance with the regulating agencies.

The functionality of the system will remain the same.

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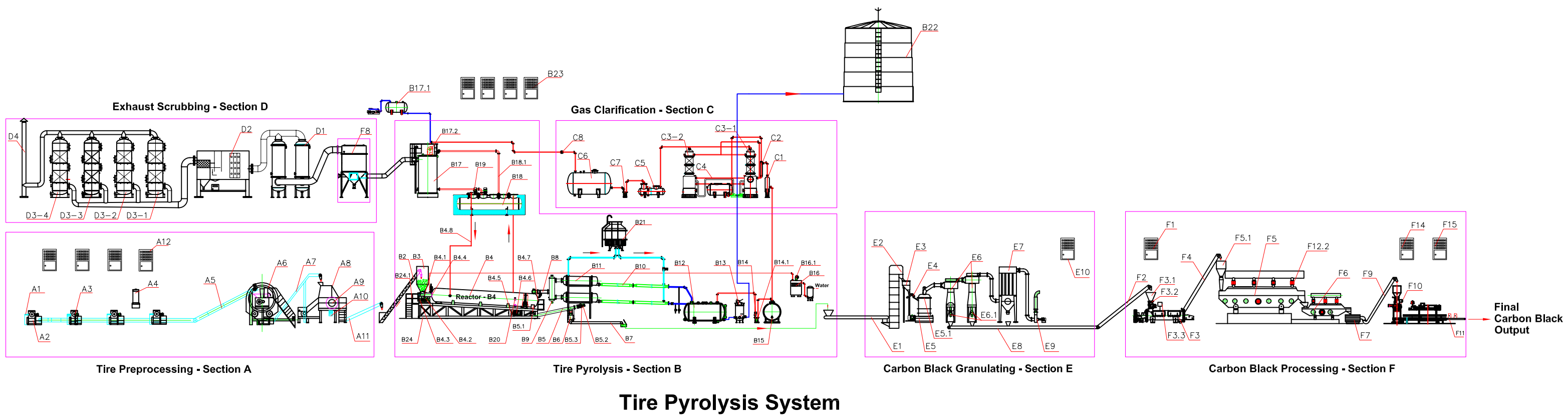
Process Flow Drawing

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Section A: Preprocessing System

Standard Shredding System

Item Number	Item
1	Conveyor
2	Steel Removal Unit 1
3	Steel Removal Unit 2
4	Tire Quartering Machine
5	Belt Conveyor 1
6	Shredder Unit 1
7	Belt Conveyor 2
8	Shredder Unit 2
9	Magnetic Separator (internal)
10	Steel Transport Conveyor
11	Shredder Output Conveyor
12	Electrical Control System

We offer a standard or an optional deluxe shredder with our equipment. Both of the shredding systems do not need to operate 24/7. The standard shredder is manufactured in China and the deluxe shredder is made in the USA.

We have the engineering expertise to interface any shredder to our equipment and work to accommodate our system to the customers' requirements and needs.

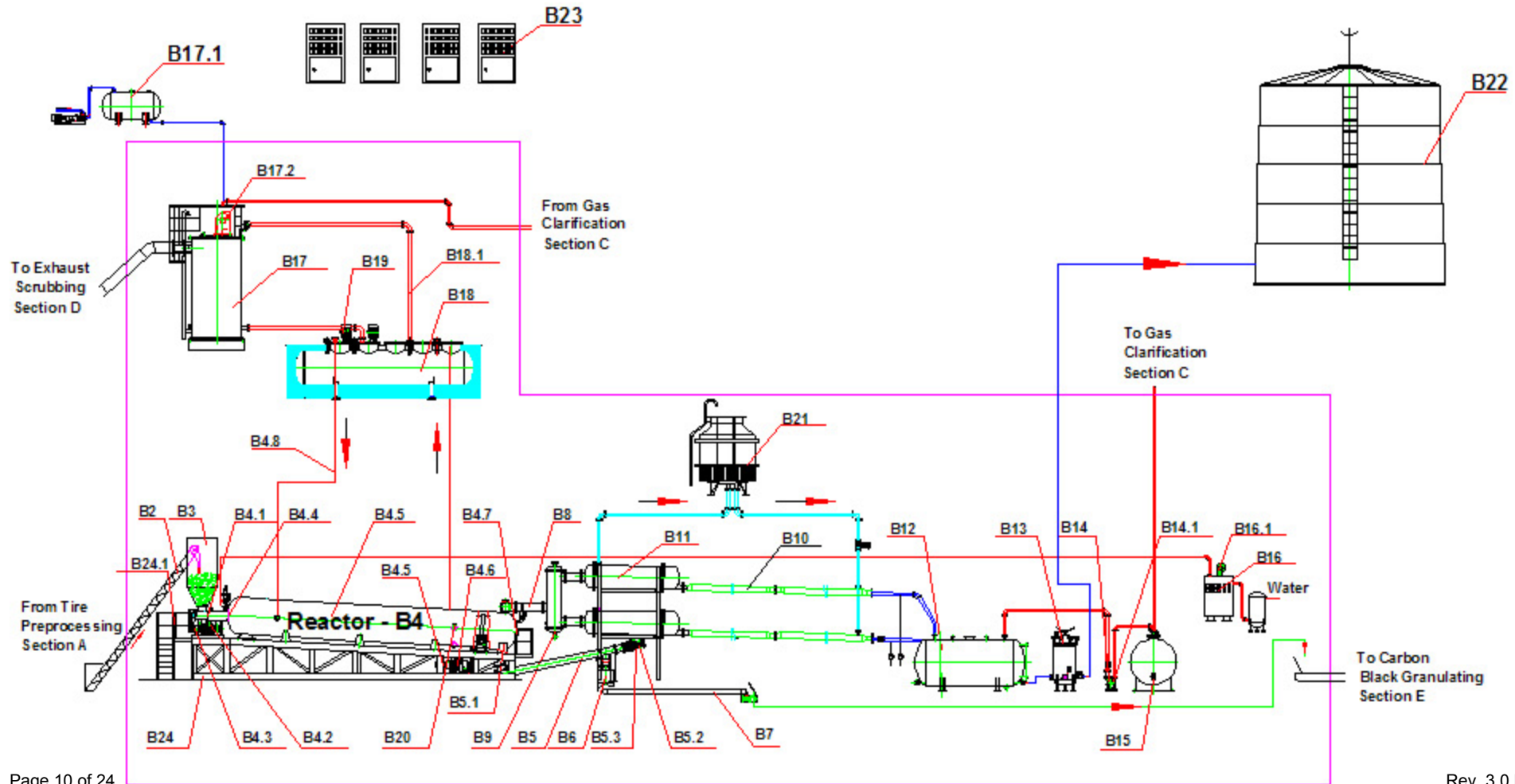
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Tire Pyrolysis - Section B

Section B: Pyrolytic System

1	CCTV System		10	Cooling Pipe
2	Lift Conveyor		11	Horizontal Condensers
3	Feeder hopper		12	Fuel Oil Storage Tank
4	Reactor		13	Precision Filter
4.1	Regulated Feeder		14	Pressure Control System
4.2	Regulated Feeder Motor		14.1	Pressure Control System
4.3	Regulated Feeder Gear Box		15	Gas Storage Tank
4.4	Input Air Seal (internal)		16	Vapor Generator & Piping
4.5	Reactor Motor		17	Furnace
4.6	Reactor Motor Gear Box		17.1	Furnace Fuel Oil Tank
4.7	Reactor Internal Heater		17.2	Furnace Burner
4.8	High Temperature Piping		18	Heating Solution Storage Tank
5	Carbon Black Conveyor (internal)		18.1	Heating Solution Piping
5.1	Output Seal (internal)		19	High-temp Pump
5.2	Carbon Black Conveyor Motor		20	High-temp Valve
5.3	Carbon Black Conveyor Mtr. Gear Box		21	Cooling Tower
6	Magnetic Separator		22	Fuel Oil Storage Tank
7	Carbon Black Conveyor		23	Control Cabinets
8	Duct Pipe		24	Superstructure
9	Oil Separator		24.1	Stairs, railings

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Tire Pyrolysis - Section B

Once the tires have been shredded and the approximately 90 ~ 95% of the steel has been removed from the tires, they are ready to be processed through the reactor (B4).

The furnace (B17) should have the heating solution at temperature and allow for the reactor to have reached operating temperature. It takes approximately three hours, from a complete cold startup, until you can feed shreds into the reactor. You normally will not have a complete cold startup and we have provision to assist in a speedy startup.

Our heating solution is a patent pending product that is most effective.

Conveyor (B2) is used to transport the shredded tires in to the feeder hopper (B3). The flow of tire shreds is regulated with our feeder system (B4.1, 4.2, 4.3) so as to provide the most efficient amount to shreds to be continuously processed. At the same time our patent pending catalyst is added to the shreds to allow the pyrolysis to be more efficient.

The reactor is rotated with a motor / gearbox unit (B4.5, 4.6) to facilitate the pyrolysis. The pyrolytic reaction on the shreds results in the decomposition of the shreds into fuel oil, carbon black and any remaining steel.

The fuel oil, now in a vaporous state, flows to the oil separator (B9) and then to the horizontal condensers (B11). The water-cooled condensers transform the fuel oil vapor into a liquid state. The fuel oil (now liquid) continues to flow to the buffer fuel oil tank (B12). A pump transports the fuel oil to a precision filter (B13) and then to the bulk oil storage tank (B22).

Another output of the reactor is carbon black and any remaining steel (approx. 5 ~ 10%).

These two materials are brought out of the reactor via the carbon black conveyor (B5). The two products are processed through the magnetic separator (B6) so as to remove the steel from the carbon black. The steel is stored and transported, per the requirements of the facility.

The carbon black is conveyed (B7) to Section E, Carbon Black Granulating.

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Section C: Gas Clarifying System

Item Number	Item
1	Separator Tank
2	SO ₂ Scrubber
3	Dual Stage Scrubbers
4	NaOH Storage Tank
5	Separator
6	Gas Storage Tank
7	Gas Transport Blower
8	Feedback Suppression Device

Section D: Exhaust Scrubbing

Item Number	Item
1	Vertical Condenser
2	Sulfur Removal Dust Collector
3	Exhaust Scrubbers
4	Exhaust Stack

Section E: Carbon Black Processing

Item Number	Item
1	Conveyor
2	Scoop Lift Conveyor
3	Storage Hopper
4	Regulated Feeder
5	Carbon Black Grinder
5.1	Carbon Black Size Selector
6	Carbon Black Collector
6.1	Carbon Black Dispenser
7	Pulse Dust Collector
8	Carbon Black Conveyor
9	Vent Fan
10	Control Panel

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Section F: Carbon Black Granulating

Item Number	Item
1	Control panel
2	Conveyor
3	Continuous Pellet Maker
3.1	Hopper
3.2	Feeder
3.3	Process Water Tank
4	Scoop Lift Conveyor
5	Fluid Bed Drier
5.1	Storage Hopper
6	Fluid Bed Cooling
7	Sieve Machine
8	Pulse Dust Collector
9	Scoop Lift Conveyor
10	Auto-packing Machine
11	Conveyor
12	Furnace/Hot Air Drier
12.1	Furnace/Hot Air Burner
12.2	Furnace/Hot Blast Main
13	Vent Fan
14, 15	Control Cabinets

Section C, provides Gas Clarification. The hydrocarbon gas that is not condensed into liquid fuel oil is “scrubbed” to remove sulfur. Once scrubbed, the gas is burned in the furnace, reducing operating costs and working to keep our environment “green”.

Section D, is an Exhaust Scrubbing system that removes emissions from the furnace exhaust.

Section E, Carbon Black Granulating, takes the reclaimed carbon black from the reactor and grinds it. The carbon black is reprocessed through the grinder until it is of proper size. Dust collectors are used to maintain a clean and friendly environment. The carbon black is conveyed to Section F.

Section F, Carbon Black Processing, takes the granulated carbon black and forms them into pellets. The pellets are hot air dried, cooled and transported to the bagging equipment for the final processing.

Our system is very flexible and we can provide a facility and equipment layout that meets your needs.

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Tire Pyrolysis Facility Photo and Description

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Section B, the reactor, presently in our showroom.

The reactor is the core of the tire pyrolysis system. The reactor can process shredded tires 24/7. We offer two systems to shred the tires. The tire shredding does not need to operate 24/7, as the tires can be shredded and placed in a storage hopper for later use. The reactor will output fuel oil, carbon black and the steel (from the steel belt in the tire). The three products can be sold for a sizable profit!

We also include a carbon black processing system, complete with bagging.

Our equipment processes the exhaust of the system to assure of virtually zero emissions.

We would be pleased to schedule your visit to our showroom. Please contact us for further details.

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Operations and Return On Investment (ROI)

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Operations and ROI

Operations

Facility Estimates	
Processing capacity	30 tons/day
Daily power consumption	5450 KW
Personnel required (daily, 24/7 operation)	12 (estimate, only)

Facility Output		
Fuel oil	12.9 ~ 14.4 tons/day	43 ~ 48%
Carbon black	10.5 ~ 11.4 tons/day	35 ~ 38%
Steel	3.0 ~ 3.6 tons/day	10 ~ 12%

The equipment that we provide for your facility is designed to operate with a minimum number of personnel as the pyrolytic process is automatic.

We suggest that the tire pyrolysis equipment operate 24/7 (24 hours a day/7 days a week) for optimum productivity and profits.

The tire preprocessing (Section A) does not need to operate 24/7 since the processing capabilities are more than what is required in Section B. The actual amount of time that Section A is required to operate is dependent on the output of the equipment selected for Section A.

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Facility Average Daily Output (USD \$)		
Fuel oil	\$250 / ton	\$3,400
Carbon black	\$500 / ton	\$5,400
Steel	\$80 / ton	\$265
TOTAL		\$ 9,065

NOTE: prices/ton are as found on various internet sites and subject to change.

Operating 330 days/year: \$ 9,065 * 330 = **\$ 2,991,450** (gross yearly profit)

ROI

Payback Period = Capital Invested/Annual Profit

We can see how many years it will take before the capital invested in the site and equipment will be paid back. Most investors will demand a payback period of three years or less before they will risk their money. Obviously, any venture which requires a high capital investment and yields a very low profit will have a long payback period, and the venture will be difficult to finance.

Estimating a \$7,000,000 startup cost:

Payback Period = \$7,000,000/\$ 2,991,450 = 2.34 years

This payback period is very attractive for a commercial facility, since it is less than three years. However, it is dependent on where the facility is located as the labor and energy costs may vary. Also, a “tipping fee” may be available so as to be added in to the yearly profit.

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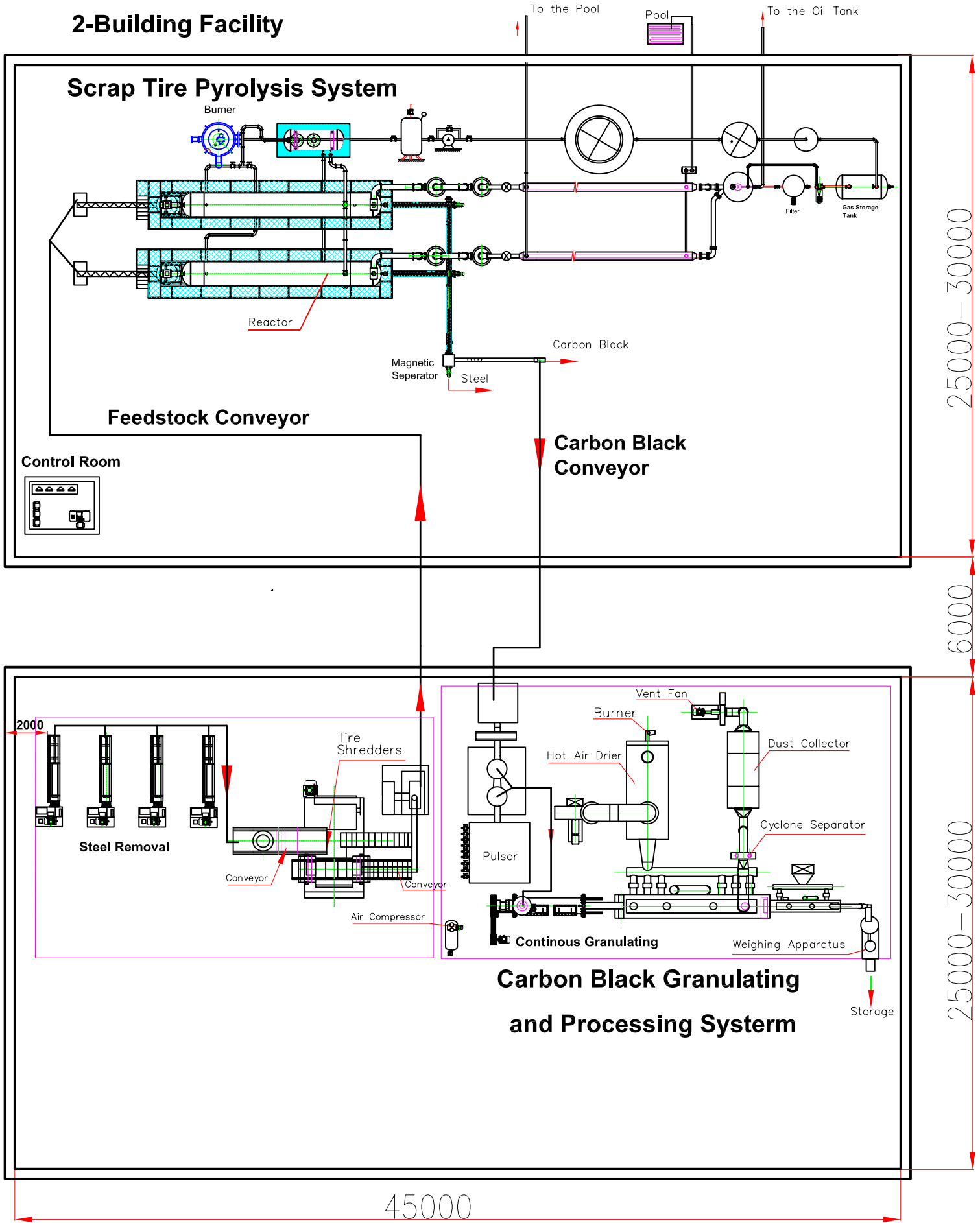
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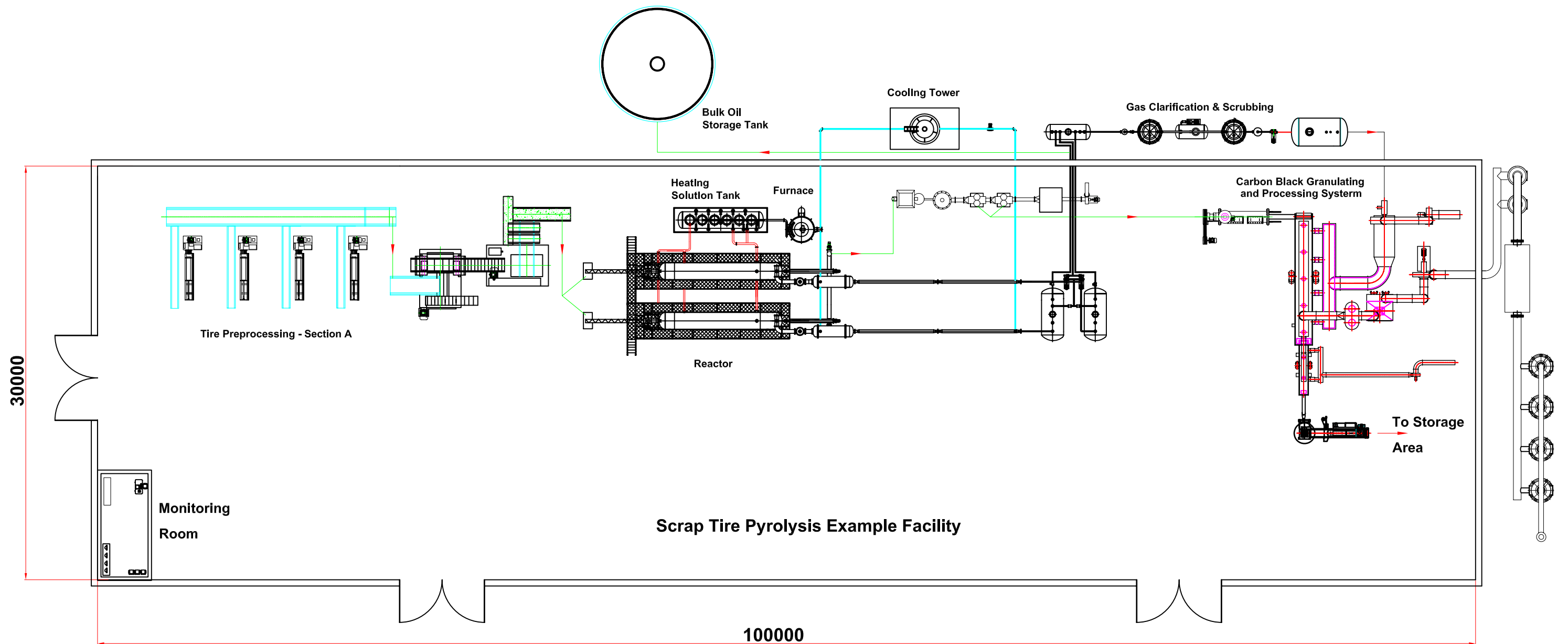
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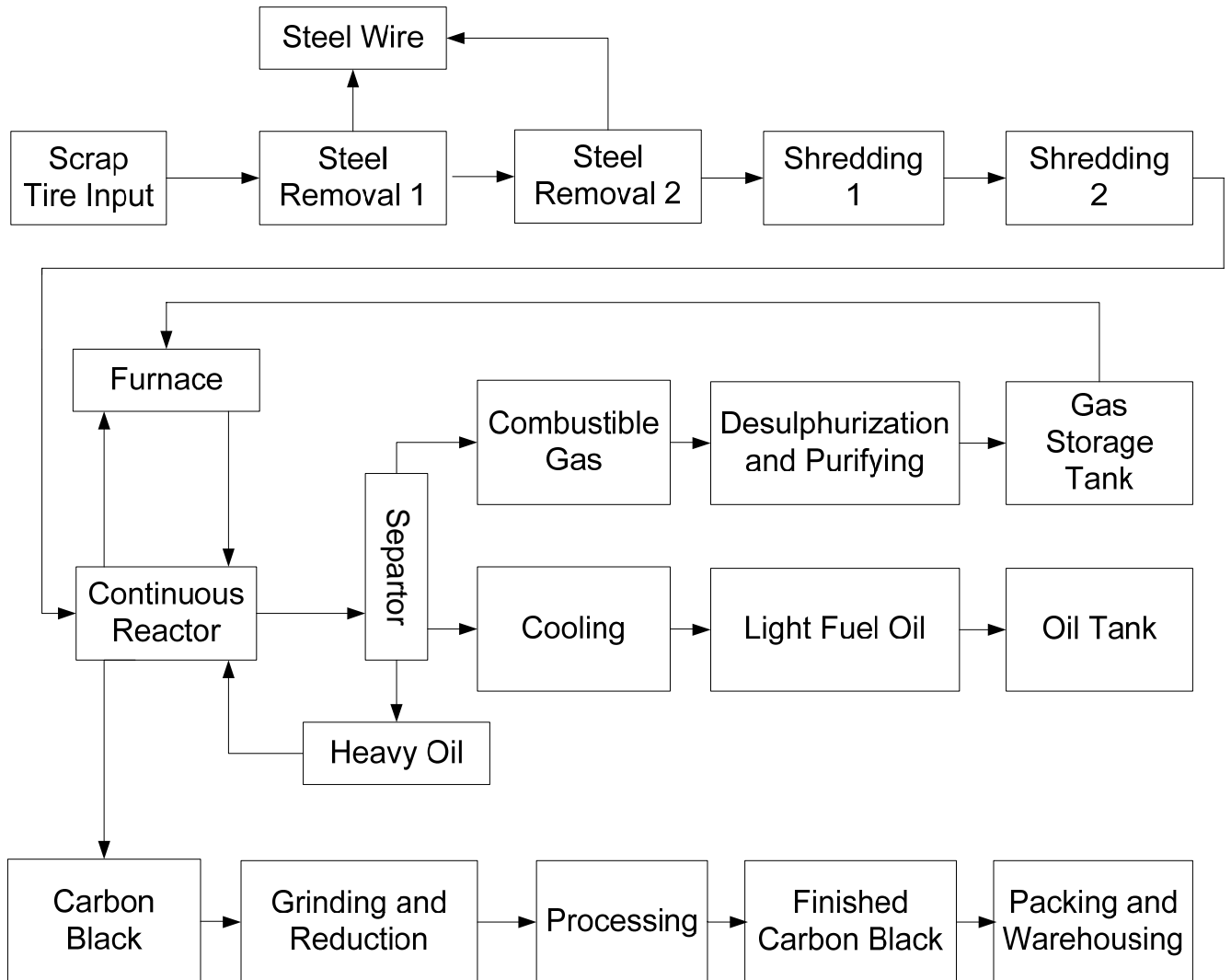
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2-Building Facility





Process Flow of our Fully Automated Tire Pyrolysis System



For simplicity, the above diagram shows the configuration of the process furnace and only one pyrolytic reactor.

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Authorization

Jinan Eco-Energy is pleased to appoint **Innovative Ecology** as their duly authorized distributor for sales, installation, parts and service throughout North America.

Jinan Eco-Energy has the proven experience and technology to offer the best pyrolysis equipment available in the international market place. Innovative Ecology will be in contact with industrial companies as well as government agencies and educational facilities.

The key members of Innovative Ecology are; Bin Niu, located in Jinan, China, Jim Molloy, located in New Hampshire, K.L. Woo, located in Kuala Lumpur, Malaysia and Mike Cavanaugh, located in Chicago. Mr. Bin Niu, of Jinan, China will be directly involved with the tire pyrolysis technology and equipment being shipped to North America.

Mr. Niu is involved in both Jinan Eco-Energy and Innovative Ecology. He will be responsible for the two companies to provide total customer satisfaction.

Jim Molloy will be the focal point for the sales, installation and service for North America.

Mike Cavanaugh will provide the interface between Jinan Eco-Energy, Innovative Ecology and the equipment manufacturers in China.

K.L. Woo will provide the interface between China and the North American market place.

Innovative Ecology will be based in the New Hampshire and is looking forward to securing the sales and installations of the pyrolysis facilities throughout North America.

Mr. Bin Niu, CEO, Jinan Eco-Energy

Date: 2006.9.15



Innovative Ecology

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