



WTTEC

Presents the

Waste Energy Recovery System (WERS)

Table of Contents

The Company.....	3
WTTEC Systems Inc	3
Product Portfolio:.....	3
Company Mission statement:.....	3
Company Goals and Vision:	3
Business Outlook	3
Meet WERS,	4
The Problem?	5
Step 1 Vortex/Revolution Waste Grinder	7
Step 2 Programmed Oxygenation Plasma Unit.....	8
Type of Waste Plasmatron® Accepts:	9
The PLASMATRON™	9
Step 3 Thermal Electric Generator.....	10
Step 4 Fuel Recovery Unit (FRU).....	11
Advantages of WERS Syn-Fuel vs Traditional Fossil Fuel.....	12
Benefits	12
Advantages to Synthetic Fuels.....	12
System Flow Diagrams	14
Micro-facilities.....	14
Large Facilities (over 200 tonnes).....	15
Site Plan Example: Large WERS Facility 100+ tonnes per day	16
Large WERS facilities 100 tonnes or more.....	16
Small WERS facility 50 tonnes and less (all facilities take up the same initial space).....	16
WERS Facility Dimensions	17
Actual site view.....	18
Before.....	18
Currently*	18
Thank You	19

The Company

WTTEC Systems Inc

- WTTEC Systems Inc. is a Greentech company based out of Alberta, Canada providing low cost, self-sustaining Waste management and energy solutions. Reducing landfills and providing for disposal in an environment friendly manner is the focus of WTTEC. The crux of the technologies at WTTEC Inc. is derivation of energy from the Baryonic matter and converting it into self-sustaining, (no external input source of energy required), heat energy with TRUE – ZERO EMISSION. True – because Dioxins and Difurans are dissociated within the controlled chamber and never ever gets into the environment. This Energy is then transformed for various applications including waste management and energy generation.
- WTTEC offers a variety of products in its portfolio.

Product Portfolio:

- Our unique Waste Energy Recovery System, (WERS), utilizes 4 unique technologies to form the most comprehensive Waste Management System on the planet. WERS produces energy, syn-fuels, carbon black and inert ash from sustainable resources. It focuses on providing solutions for waste management, waste disposal and waste recycling. It helps in reducing waste to landfill in an environment friendly manner.
- Other products: The Company is currently co-developing several other products for the environmental renewable energy and clean technology markets in the upcoming months. Examples are:
- Windcatch™ high output cage type wind turbines
- The GBox™ high energy electricity output, low footprint, renewable energy. Small scale
- The ZBox™ high energy electricity output, low footprint, renewable energy. Industrial scale
- Noddis™ both large municipal and portable clean water facilities

Company Mission statement:

- To continuously strive for perfecting self – sustaining, low – cost, truly green solutions for waste management and energy conversions across all sectors of the society including, but not limited to, areas of municipal, industrial, commercial, medical and manufacturing, whether it be land, air or sea.

Company Goals and Vision:

- Provide green energy employment opportunities
- Partner with local and international governments to build educational programs based on environmental practices
- Use our technology and expertise in developing affordable green housing
- Eliminate all Carbon Footprints
- Eliminate the need for energy transportation.

Business Outlook

- WTTEC has a business focused towards providing globally accepted solutions for waste disposal, recycling, waste management and reduction of landfills in an environment friendly manner. Considering the impact on the environment and developing environment friendly means, to achieve its objectives is of prime importance to WTTEC and hence it offers solutions accepted commercially even at municipal levels.

Meet WERS, YOUR PATHWAY TO A REVOLUTIONARY WASTE MANAGEMENT FACILITY



WERS™

The Problem?

High Costs. Environmental Harm.



Landfills. Incineration. Plasma Gasification. Every method adopted by the waste management industry to date has proven to be far too costly and damaging to the environment. None of the methods are truly cost-effective, or zero-emission.



Piled higher than regulated



Contaminated farmland

When do we say enough is enough?



Excess cannot be processed quick enough



Plastics taking over our oceans and land

Waste Energy Recovery System (WERS)

- In 2018 the **U.S. Environmental Protection Agency approved** The Plasmatron[®], the waste industry's first verified low-cost, 100% emission-free, solid waste processing solution.
- **The EPA has never approved a technology in this class.**
- The innovative machine, used successfully by municipal clients in Asia since 2013, is based on TeslaGREEN own trademarked technology, patented in 152 countries. No incineration is involved.
- To clarify, the ingenious plasma state-induced, hydrogen-splitting technology **does not rely on burning, as do older, seemingly similar technologies**, to molecularly transform waste matter (MSW & Biomass) down to its basic elements. It's a much smarter technology that takes municipal solid waste processing far beyond incineration & plasma gasification.
- The large WERS facility consists of a 4-stage process which utilizes advanced technologies to achieve the end-product. That product is electricity, syn-fuel, inert ash and carbon black. And it does all this while being 100% emissions free, self-sustaining and has an incredibly small footprint.
- All systems, large or small, can be **customized** to individual needs.
- The following pages will outline the steps and technology required to achieve such an incredible outcome.

ZERO
EMISSION



**Synthetic
Fuel**



**Continuous
Operations**



**Renewable
Energy**



**Highly
Customizable**



**Clean
Water**

Step 1 Vortex/Revolution Waste Grinder

The Revolution is a high speed, vertical gyroscopic attrition mill that employs a controlled, segmented vortex air stream identical to that of a tornado, to process, homogenize, de-odorize, remove moisture, and reduce particle size in various waste streams.

Main Characteristics:

- The revolution is the newest way to go green, because it greatly reduces the volume of waste to extend the life of the facility. Plus, it can be completely customized for any size facility.
- Volume is reduced by 50-70%
- Moisture is reduced to 5% by volume.
- Consistent throughput (up to 5000 tonne/hour dependent on design choice)
- Setup onsite
- Relocatable
- Zero emissions
- Turn key installation

Applications include (but are not limited to):

- Waste to Energy- Reduce landfill space by up to 97%, but it is a key component in converting waste to energy!
- Mining– can be used to grind as small as 1 micron, use in mining slag to recover precious metals left over from regular mining
- Municipal Solid Waste-Is so versatile it can grind any waste except case hardened steel
- Disaster Cleanup– Can be setup and running in remote locations
- Factory Seconds– Wood mills, construction mills
- Oil fields– Can be used to remediate sands and land around well sites to be rid of the hydrocarbons, which are reclaimed.
- All construction debris

Revolution for 500 Tonnes/day or more



Vortex for 250 Tonnes/day or less



Both utilize power generated from the secondary unit, the plasmatron, to run ALL systems. No external source is required.

Step 2 Programmed Oxygenation Plasma Unit

The Plasmatron™, (The heart of the system), is a waste management product that uses Plasma Heat Technology which makes sure the machine does not use any electricity, oil or fuel. It is also extremely mobile and avoids land filling. Furthermore, it does not require any segregation and has an extremely low maintenance cost as well. The machine has been patented in 151 countries with 10 trademarks. Technologies trademarked also include Programmed Oxygenated Plasma State™ (POPS™), Ionized Oxygen Plasma™ (IO2P™) and Tesla Flux Vortex™ (TFV™). To reiterate, it is not to be confused with high-heat plasma gasification introduced years ago, which involves high costs and harmful emissions.

How?

PLASMATRON became possible after finally solving a problem that had perplexed science for over a century. When scientists discovered a way to maintain a low-heat plasma state, the door to the future of waste processing had been opened. In contrast, high-heat plasma state, like that generated in older, inefficient waste technology, creates too many problems, high costs being only one. The low-heat plasma state achieved in the Plasmatron®—and maintained by feeding solid waste—can be found in no other technology previously introduced. It is the key reason why The PLASMATRON is the first technology of its kind to be approved by the EPA

Advantages of Plasmatron®

- **Portability/Size** – Its small size and mobility greatly reduce the cost of transporting and storing waste PLASMATRON can be set up at a transfer station, landfill, manufacturer, scrapping/shredding facility, processing plant/mill, hospital, entertainment venue, university, on a ship (commercial or military), or wherever waste is generated or collected, and transform virtually any matter down to its basic elements, right on site
- **Variable Sizes** – Machines range in size from as much as 2,000 tonnes/24 hours, down to 100kg/day. Multiple machines can easily operate in one location if tonnage demands
- **Significantly Lower Cost** – It is offered at a small fraction of the cost of competing technologies, including far lower operating & maintenance costs, compared with large processing facilities that burn waste
- **No Power** – Astonishingly, PLASMATRON is self-sustaining and requires no external power or fuel to run continuously.
- **Full Automation (Plasmatron® version)** – There are no moving parts inside, and the machine requires very little maintenance. With the latest version, known as the Plasmatron®, there is no need for a large, costly plant run by many dozens of expensive, highly-trained staff; rather, the PLASMATRON requires only a handful of hourly, non-technical manpower with one manager to feed a conveyor belt and watch over the simple operation
- **Carbon-Free Electricity (WTE)** – Verified, profitable by-products include over 65mwh of electricity (about as much as a nuclear power plant), valuable syn-oil, and high-quality ceramic ash for use in brick and cement (unlike useless fly ash generated by incineration plants). See more on WTE capabilities below. Syn-oil is also refined to produce other useful hydrocarbons such as syn-diesel and syn-jet/aviation fuel.
- **Zero-Emission/Carbon-Free** – There is no burning of waste, so it is smoke-free and odorless. The 100% clean emissions have been tested & verified by numerous environmental organizations to contain no nitrogen dioxide, sulfur dioxide, dioxins or furans
- **No Sorting** – Virtually all types of waste, Wet or Dry, can be fed into a Plasmatron®, with no segregation required
- **Small Footprint** – Requires only the size of a large room, as opposed to a large facility
- **Low Temp** – Incinerators operate at high temperatures and require a costly secondary combustion system. Plasmatron® does not require higher temperatures as it has the unique feature of Plasmic Decomposition.

Zero-Emission. How?

- Dioxins, Furans, Parabens, and all other gaseous products, are dissociated within the main chamber of a Plasmatron® machine, then converted to ionized oxygen, which in turn maintains low-plasmic heat.
- Any remaining gaseous emissions from the machine are passed through a customized three-stage wet scrubber. The scrubber allows the output gaseous emission from the chimney to be smokeless, odorless and 100% non-toxic, all EPA-regulated.

Type of Waste Plasmatron® Accepts:

- ANY WASTE, Wet or Dry!
- There are virtually NO limitations!
- Household Trash, All Plastics, All Paper, Wood
- Light Bulbs, Computers, TVs, All Other E-Waste
- Construction/Demolition Materials, Including Asbestos, Cement
- Rubber/Tires, All Sized Batteries, Insulation and Styrofoam
- Industrial Waste and Hazardous Chemicals
- Medical Waste: Needles, Scalpels, Infectious Materials
- Paint Cans, Soda Cans, All Other Aluminum

Where to Use Plasmatron?

- Transfer Station- may be placed in a Transfer Station to save tipping fees & operating costs including transportation.
- Landfill- Large machines may be placed at a Landfill (1) to eliminate need for incoming waste to be deposited, (2) to process existing old buried landfill material at the site, with the goal of reduction or complete elimination. Plasmatron is the only technology currently available to convert legacy waste.
- Manufacturing/Business- Can be placed at manufacturers that produce large amounts of waste, other corporations, paper mills, scrap or shredding facilities, hospitals, commercial complexes, schools, industrial tech parks & more to process all waste on site and to eliminate most expensive processing, storage and carting costs
- Residential- Large residential communities greatly benefit from having Plasmatron® on site, processing the community's waste, eliminating the need for frequent waste pick-up.
- Shipping- Plastron's portability extends beyond land. The machine may be fitted to a commercial or military ship to process waste during a voyage, eliminating the need to store and transport virtually all waste that is generated on a cruise ship, naval vessel or other.

The PLASMATRON™

Micro-unit



Medium Size Facility



Large size facility:
Up to 2000 Tonnes/day.

Currently developing 10,000
Tonnes/day units which will
be available by end of 2019

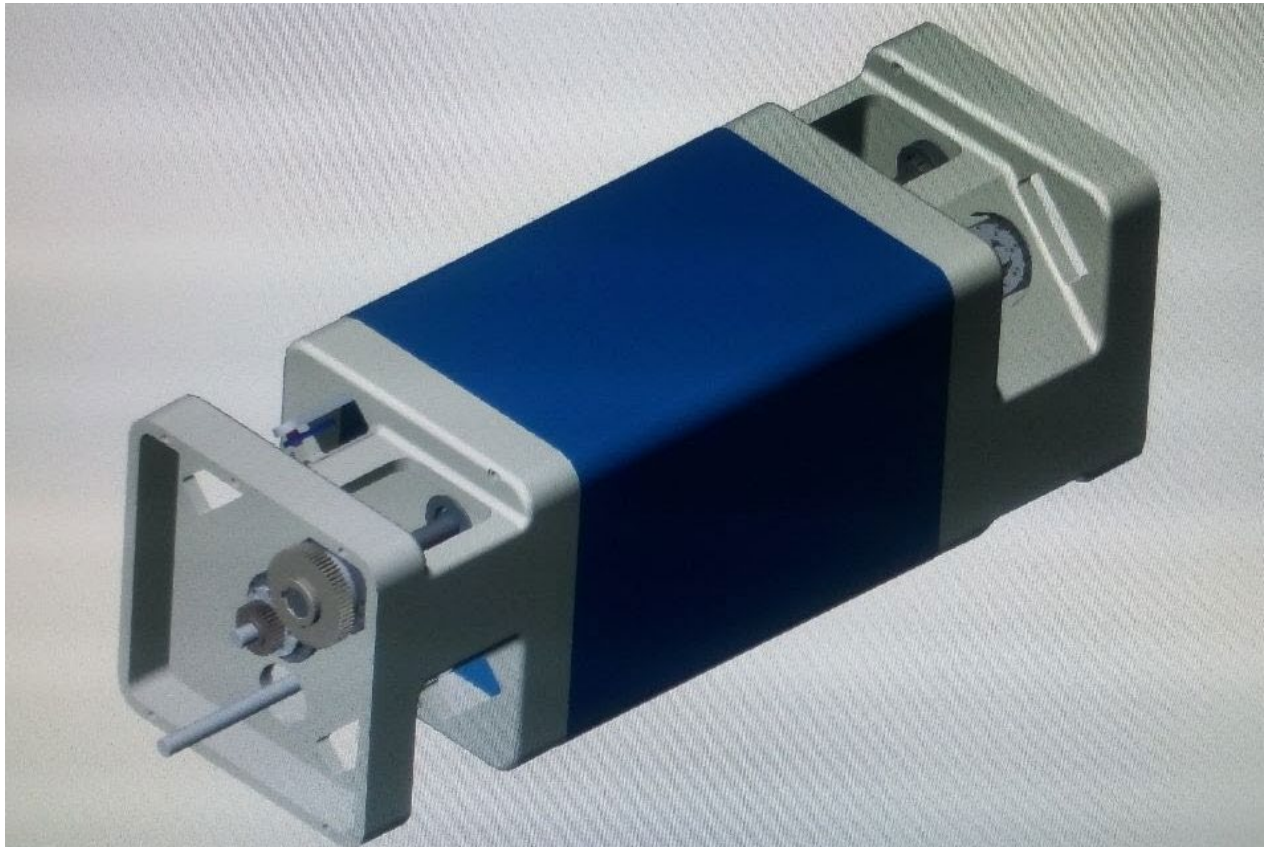


Step 3 Thermal Electric Generator

BosonENERGY™ generator is a unique product, which generates power by tapping baryonic matter energy. The process involves using a field of permanent magnets which have a life of 150 years. The key to BosonENERGY™ GENERATOR is that it DOES NOT involve any looping mechanism.

Main characteristic:

Using proprietary heating technology, the generators can be used in sequence to produce large quantities of power with the same baryonic energy produced from the plasmatron and produced syn-gas. The syn-gas is introduced during the second stage of plasma heating and is passed onto the generator. Once it leaves the generator it then passes through our patented heating coils and can then be passed onto the next generator in line. Using this form of in-line heating, the generator then becomes one of the most efficient ways to produce clean, reliable energy in the world using the same syn-gas in sequence.



Step 4 Fuel Recovery Unit (FRU)

With combining the process of fractionation and utilizing the ideas of the Fischer-Tropsch process, all the while adding our patented process, we can tear down or re-combine hydrocarbon molecules to produce the desired outcome. The system is designed to work at a much lower temperature, between 180-210 degrees Celsius. All performed within a single unit and powered by a combination of the second stage plasmatron and an onboard fuel/hydrogen generator for fuel for self-sustainment.

The process is fully automated with a PLC controlling all pumps valves as well as for monitoring operations. Each process unit operates independently but all link together into a control room for central monitoring. The unit consist of 3 vessels, the main vessel is the distillation/fractionation unit, vessels 2 & 3 are collection vessels for the light refined products recovered from the process.

Main characteristics:

- Class 2 classification as well to be able to be enclosed.
- The system is designed to convert base hydrocarbons to another form of desired fuel. Output can be alternated to suit capacity needs, for example:
- Heavy oil > syn-diesel
- Heavy oil > syn-jet fuel
- Tires/plastics > syn- diesel



A by-product of high-quality carbon black is also achieved, which can be sold for an attractive ROI.

Carbon Black is heavily used in Petrochemical facilities, water filtration and tire manufacturers.

Advantages of WERS Syn-Fuel vs Traditional Fossil Fuel

Benefits

World air transportation demand is projected to grow at a rate of around 5% per year over the next several decades. Although several opportunities exist to reduce the energy intensity of the aircraft fleet, they are not enough to stabilize or even reduce CO2 emissions. Alternative fuels offer an additional degree of freedom for cutting CO2 emissions. Among those, synthetic fuels from comparatively abundant waste sites around the world, show the greatest mitigation promise.

The cost, availability, and sustainability of feedstocks are key to successfully producing aviation biofuels. That is why with our WERS facility we can take any, and all, waste and produce syn-fuels of the highest quality.

The world is moving towards a crude oil shortage with increasing prices of fossil fuels. New eco-friendly raw materials, manufacturing processes and products are becoming increasingly important. If you compare our synthetic diesel fuel with crude oil-based diesel fuel (MK1: class 1), our reduction of carcinogens emissions is over 90 percent. Emissions of nitrogen oxides (NOx) are reduced by 25 to 50 percent in a heavy diesel engine, and emissions of NO2 are up to 80 percent lower and Sulphur output is reduced to zero. Co2 reduction of 50-65% is also achieved.

Environmentally Friendly:

- Our syn-fuel process is 100% emissions free. Sulphur is removed at an elemental level and disposed in the high-quality Carbon black. Thus, producing Sulphur free syn-fuels. Other metals that normally would appear in fuels are removed, in one pass, by the tertiary stage by the FRU making it the cleanest syn-fuel available to the market for years to come.

Cost Effective:

- Systems are scalable and can be set up in sequence. Making downtime and maintenance worries a thing of the past. Never shutting down processing is the key to higher profitability.
- The power needed to run the FRU is provided by the WERS facility and will not require any outside source of energy.
- You can feed the FRU with Sludge Oil from Micro-WERS facilities located throughout the area, Such as small communities, malls, hospitals. Basically, anywhere our micro-WERS facilities are located and do not have the output capacity to support an FRU unit on its own. Making it more effective and cost efficient and augmenting the output.

Advantages to Synthetic Fuels

- Improved viscosity at low temperatures.
- Better high temperature performance. Synthetic fuel has few low molecular weight hydrocarbons which evaporate at high temperatures.
- Higher purity
- Decreased oil consumption
- Reduced friction and engine wear
- Improved fuel consumption through better engine lubrication
- Longer intervals between engine maintenance
- Resistance to sludge problems
- Crude oil doesn't have to be used to produce lubricants

Our WERS facilities give the piece of mind that you are using the cleanest syn-fuels on the market for many years to come.

Market comparison Plasmatron vs. Incinerator

Compared to the next most widely used system, the incinerator, the plasmatron exceeds every comparison that can be made. There simply is no better solution.

Market Comparison

FEATURE	PLASMATRON	Incinerator
No electricity or fuel is required – 100% self-sustaining	YES	NO
Waste is destructed scientifically by intake of small atmospheric air through plasma	YES	NO
No additional equipment is required	YES	NO
Adopts advanced Plasma Magnetic heat decomposition	YES	NO
Operates at very safe temperatures	YES	NO
Any layman can operate the machine	YES	NO
Maintenance cost is very low – No moving parts in core machine	YES	NO
Can be used for any kind of municipal solid waste	YES	NO
Comparatively low in cost	YES	NO
Due to the controlled oxygen in flow technique, the dioxins and furan levels in the emissions are very low	YES	NO
Dioxin and furan are well under the norms due to the presence of plasma state	YES	NO
The ash can be reused in cement and ceramic tile industries	YES	NO
Running cost is almost nil	YES	NO
Can be decentralized accordingly	YES	NO
Can be easily transported	YES	NO
Has a minimum of 25 year life span	YES	NO
Can run continuously for days	YES	NO
Can be operated with less space	YES	NO
True zero emissions	YES	NO

System Flow Diagrams

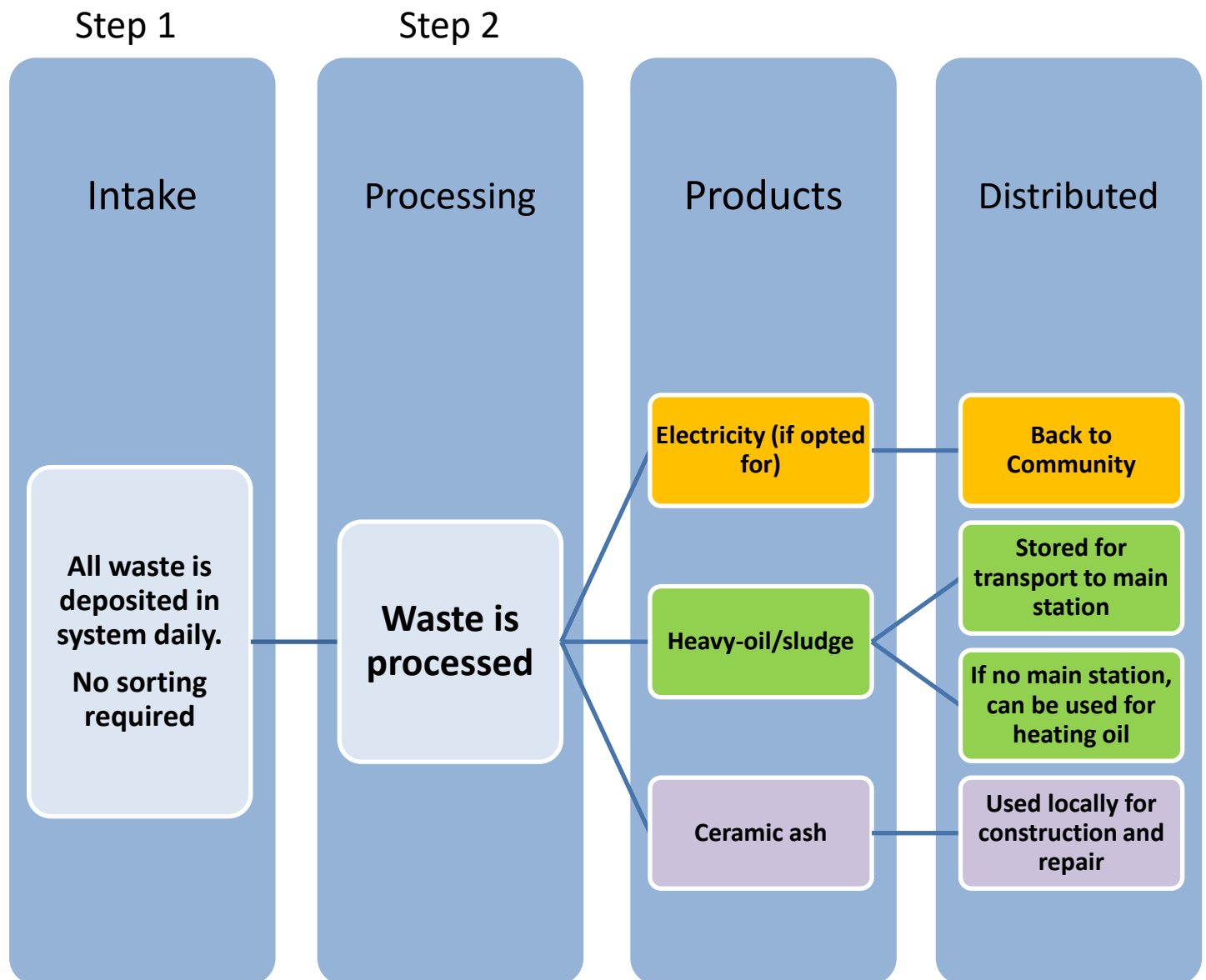
Micro-facilities

WERS micro-units for satellite facilities and smaller uses such as:

All product can be stored and delivered to larger facilities for full processing. Waste is reduced to 350:1 ratio. So very little space is required for storage until pickup.

- malls,
- hospitals,
- airports,
- manufacturing facilities,
- transfer stations,
- boat harbors,
- medium size communities,
- business complex's
- high density residential structures, etc...

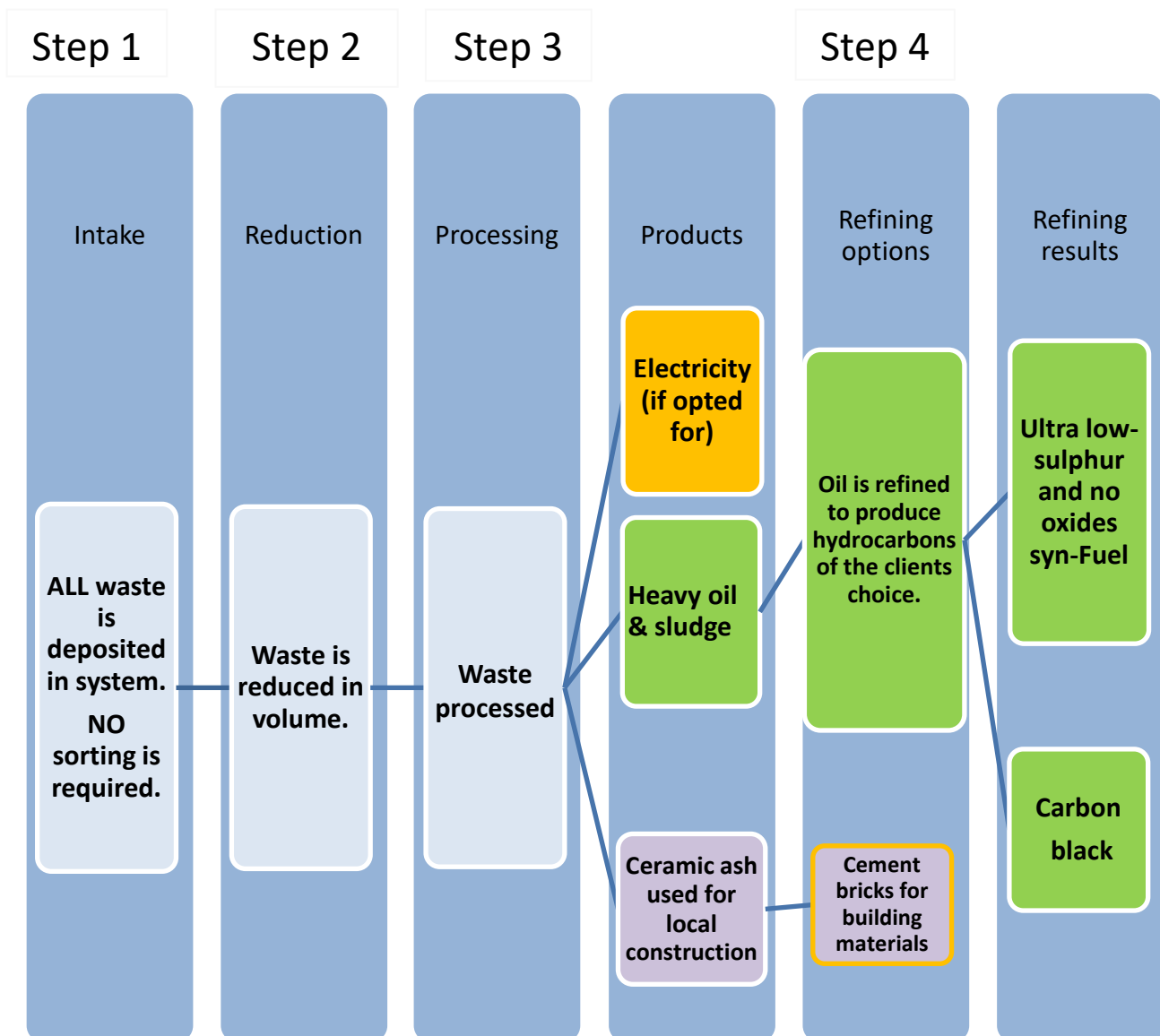
Involves just 2 stages and storage. Storage is only limited by area capacity.



Large Facilities (over 200 tonnes)

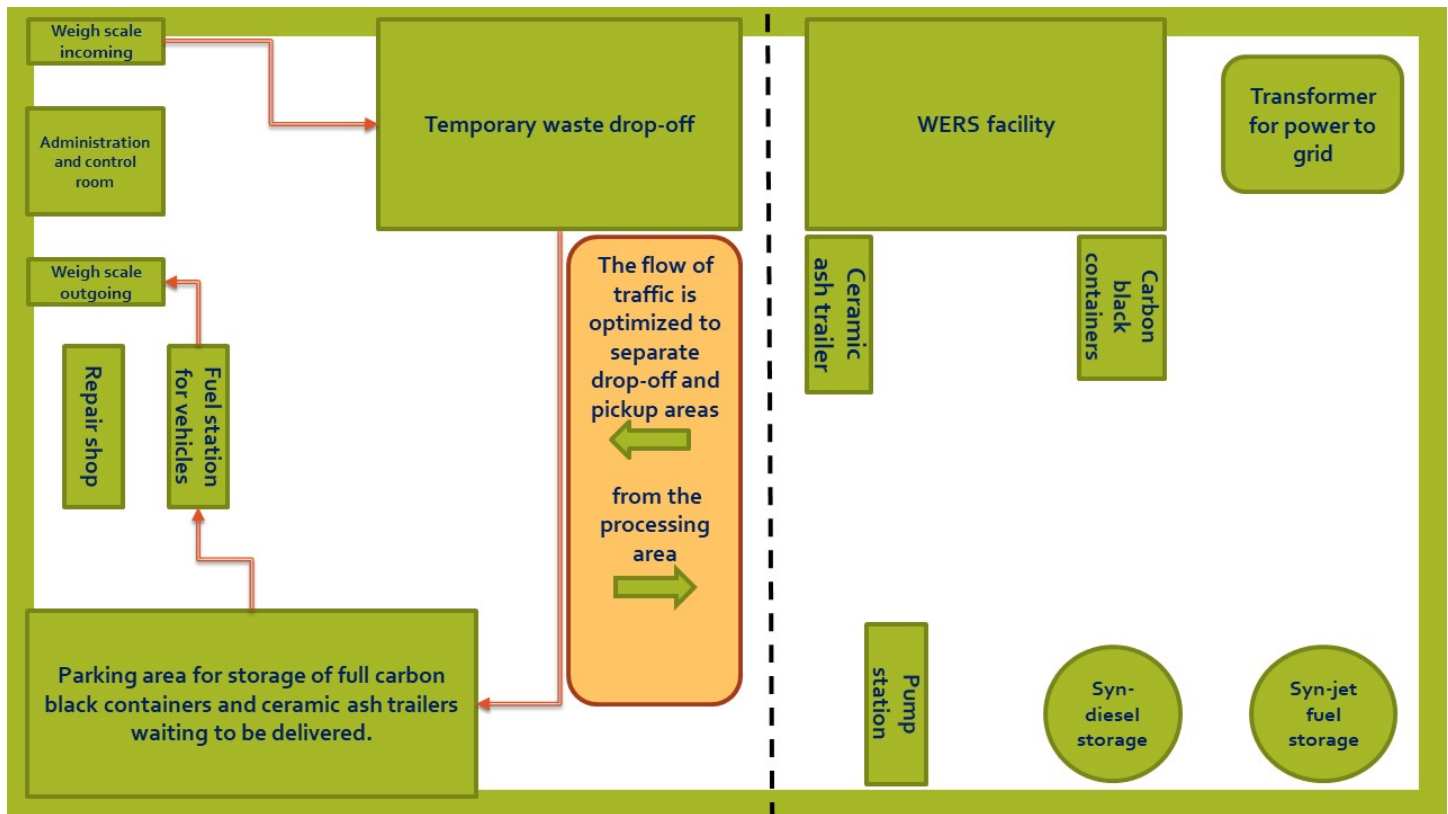
Large facilities for large Municipal waste sites and larger processing satellite sites.

- Serves as the hub of any smaller units.
 - Systems can be built in modules, so there is NO limit to the amount of waste that can be processed.
 - All modules are powered by a fraction of the power or syn-gas produced during the process.
 - No external power sources are need, regardless of size.
 - **Involves just 4 stages and storage. Storage is only limited by area capacity.**
- Emissions free
 - Self-sufficient (No outside energy resources needed once up and running)
 - Class 2 enclosure (can be enclosed in a building to protect from outside interference)
 - Provides immediate revenue from day 1
 - Less costly to outfit
 - Minimal operating costs
 - Easier to maintain
 - Robust, minimum 25-year life span
 - Smaller footprint
 - Quicker to build
 - Ease of training
 - Scalable to whatever the client desires



Site Plan Example:

Large WERS Facility 100+ tonnes per day



- With the site segregated for optimal performance, we can always keep a firm control on the ins and outs.
- Because of the site's setup, during maintenance times, we can still accommodate waste drop-off so that the schedule remains uninterrupted.
- The site will have a containment fence surrounding the whole area with a gate serving as access points. This insures the safety of the crew and the safety of the product.
- The administration building serves as the hub for the whole complex. Monitoring, surveillance and record keeping will all be located here under electronic access.
- Pumping stations, fuel pumps, storage containers and trucks can all be locally procured.
- The size of the site is determined by the capacity of the facility, for example:

Large WERS facilities 100 tonnes or more

- 200 tonne site: 90m x 180m (roughly the size of two soccer fields)
- 500 tonne site: 110m x 200m
- 1000 tonne site: 130m x 240m
- 2000 tonne site: 250m x 400m

Small WERS facility 50 tonnes and less (all facilities take up the same initial space).

- 4mx6mx3m
- The size of the site is determined by the space needed for storage of the ceramic ash and the syn-oil/sludge. This would be roughly another 20m²

WERS Facility Dimensions

Detailed Dimensions of The WERS Facility & It's related technologies

TPD	Foot-Print	PlasmaTRON	LaTierra	FRU	Vortex	Misc.Space	TOTAL	Hopper Size
100tpd	5m/10m/3m L/B/H	25m/23m 575Sq.m	35m/30m 1050Sq.m	35m/30m 1050Sq.m	35m/35m 1225Sq.m	30m/35m 1050Sq.m	4950Sq.m	2m/2m
500tpd	30m/15m/6m L/B/H	32m/30m 960Sq.m	40m/42m 1680Sq.m	50m/45m 2250Sq.m	50m/45m 2250Sq.m	30m/35m 1050Sq.m	8190Sq.m	2m/2m + 2m/2m
1000tpd	50m/25m/8m L/B/H	35m/35m 1225Sq.m	47m/45m 2115Sq.m	58m/50m 2900Sq.m	58m/50m 2900Sq.m	30m/35m 1050Sq.m	10,190Sq.m	2m/2m + 2m/2m + 2M/2M

NOTES-

1. All measurements are in METERS
 2. PlasmaTRON=Waste Energy Recovery System
 3. LaTierra=Electrical Components
 4. FRU=Fuel Recovery Unit - Syn-Fuels & Carbon Black
 5. Vortex=primary reduction of waste
 6. Misc.Space=Space for the storage tanks, 2 personnel, office, restrooms, monitors, camera systems and access roads.
 7. Hopper Sized Generic hopper size is 2m/2m. The size and number of hoppers can be increased or decreased (customized) for the 500tpd & 100tpd as per the requirement of the input waste.
 8. WTTEC Systems Inc will provide all trainings & continuous output monitoring.
 9. All & Any kind of waste will be reduced to 1/300 in Volumes. Input waste with higher carbon content will have higher reduction.
 10. A concrete pad of 8 Inches and an industrial shed of 35meters in height are required.
 11. Scrubber is automated so, water is recycled, not consumed.
- Water requirementsd 1000lts for 100tpd & 5000lts for 500 & 1000tpd.

For the Fuel Recovery Unit space is determined by the quantity of units needed based on Fuel conversion needs.

***Please note that the addition of storage tanks and storage containers must be allotted for when designing site plans. These are determined upon inspection of site.**

Actual site view

For example, a landfill in the Ladakh region of India is currently being “eaten” by a PLASMATRON® facility at far lower per ton cost than other tech, and without any harmful emissions released. Additionally, many other waste management customers in India, Indonesia, and Malaysia are benefiting from low-cost, 100% emission-free processing. Customers are running machines as small as 1 ton/day to as large as 2,000tpd. (WTTEC plans on producing 10,000tpd machines by the end of 2019).

Before



Currently*



***At this rate, the landfill will be able to process the incoming garbage DAILY by Spring 2020. A truly remarkable thing considering India has one of the worst Garbage issues facing any country.**

Thank You



WTTEC

We won't have a society if we destroy the environment. Margaret Mead

The Earth does not belong to us: we belong to the Earth. Marlee Matlin
