



**WPPENERGY**  
World Power Production



# WPP TOKEN, THE FUTURE OF ENERGY CRYPTOCURRENCY

**ITO WHITEPAPER (UPDATED)**

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# INTRODUCTION TO WPP ENERGY

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Headquartered in Geneva Switzerland, World Power Production Energy Corporation (WPP), which owns and controls several important advanced energy technology patents, is lead by its President Mr. Rafael Ben. Mr. Ben has 30+ years experience in the energy sector and is an established guest speaker and lecturer at international Green Energy Summits.

Mr. Ben has extensive technical and business experience in forming joint ventures and strategic 1alliances, entering into commercial ventures and significant contacts across the globe with heads of governments. As part of his team, he has engineers and experts in waste to energy power generation with the latest technologies, recognized on a global scale.

WPP ENERGY's mission has remained consistent throughout the years and that mission is to use Innovative and Disruptive Technologies to Produce and Provide the World's Most Affordable and Efficient Green Energy.



**RAFAEL BEN**

**CHAIRMAN & PRESIDENT**

# HISTORY OF ACCOMPLISHMENT

1972 WPP President Mr. Rafael Ben was concerned about the high rising fuels within the US and abroad, and began a research and development with his engineering and scientist team to alternate other fuels technologies and was the first person who has used alcohol blends during this period and wrote "Methanol - A Clean Fuel for the 21st century".

1986 WPP President, Mr. Ben worked various aspects of developmental technology for biomass and gasification.

1990 WPP President Mr. Ben, traveled to India for FAO in 1990 and evaluated conversion of agricultural wastes to fuels.

1992 Mr. Ben traveled to China for the Rockefeller Foundation to evaluate two new gasifiers built there.

1996: WPP President Mr. Ben, travelled around the world, visiting various gasification sites, gathering information for the book "Survey of Biomass Gasification".

1997 WPP President Mr. Ben, and his engineering team started the first prototype of a 1 Mega Watt per hour Biomass Plant in Chandpur near New Delhi the testing of the smallest unit that produced 24MW power generation per day that could power a small village with great success.

1998 WPP President Mr. Ben's team in conjunction with partner CPG, deployed the first power plant in a remote village in Ghana, West Africa, which was installed successfully and commissioned using Biomass. A new power source to 24,000 homes, avoiding the cost of underground cables with great success.

1999 WPP President Mr. Ben started the first testing device that converts water into Hydrogen with proprietary science developed in Belarus. The vision was to convert large thermal power plants to reduce their operating costs and dramatically increasing efficiency by 35%. Lowering costs and increasing efficiency while running the entire power station at zero pollution, and saving huge amounts on oil and gas costs.

2000 WPP President Mr. Ben and his team of engineers conducted ongoing research and development, partnering with world leaders in power generation sectors focussing on the world's most advanced technology to reach the highest possible capacity of power production, and at the same time to reduce the cost of operations with the vision to run only clean energy sources to address global warming and to present power producers around the world with a viable solution to produce power in an environmentally friendly way, resulting in clean air for the benefit of generations to come.

2004 WPP President Mr. Ben became one of the world's VIP speakers in green summits, speaking about the need to convert and upgrade power generation throughout the world to advance the use of new technologies as an alternative to the oil and gas sectors starting at Sydney Australia, Hong Kong, Cambodia, Bulgaria, Georgia, Macedonia, Crete, Greece, Saint Petersburg, and others.

From 2006-2008 WPP President Mr. Ben had power plants in Managua, Nicaragua for upgrading into Biomass plant. The conversion was to adopt new advanced Pyrolysis, combining Plasma Gasification with the Pyrolysis using tires and biomass combination to increase the amount of BTU's converting the plants to run on a clean energy, with much higher profits on the sale of the Carbon Black, and Stainless Steel by products using the Kremsmuler exhaust system that eliminates the gases and fumes used as a second cycle, increasing power production by 18%.

2009 Mr Ben formed World Power Production Energy Corporation (WPP Energy) to solve Municipal Solid Waste problems around the world using the advanced zero pollution technology, converting waste into power.

2010 WPP Energy introduces a revolutionary concept along with GE generators increasing power plant production by 30% and reducing operating costs by 45%.

2011 WPP collaborated with Technip (a leader in Oil & Gas) for a total investment of \$50 Billion USD for mega projects in Morocco.

2012 WPP Formed a Joint Venture with INEWCORP to implement waste to energy projects in 15 countries in Africa for waste to energy, and green villages with a signed PPA's with federal government in the SUM of \$55 Billion USD for 35 years contract back by a signed Government DECREE.

2013 WPP Formed a Joint Venture Agreement with GDTC for a Large Waste to Energy Projects totalling \$9.4 Billion USD.

In 2014 WPP expanded its Far East presence by signing a Joint Venture Agreement with South Korea to convert water into Hydrogen, building the first Home Unit to provide Low Cost Heat, Hot Water, and Electricity to Home Owners.

2015 WPP deploys technology for the desalinization/purification of water. The quality of drinking water is a powerful environmental determinant of health.

2016 WPP Energy begins to visualize the potential of block chain technology once applied to the power production industry and concludes it is the ideal way to reduce public power costs dramatically.

2017 WPP Energy President Mr. Rafael Ben was invited to present at the green energy summit to resolve the problem of waste heavy gases and fumes generated from the power plants via a special exhaust system built in Austria that eliminates heavy pollution, and reuses the same gases and fumes with power production increased by 18% with zero pollution.

Also in 2017 WPP ENERGY established 35 year contracts in Africa for waste to energy projects at the Federal Government level. This encompasses over 10,000 metric tons per day of Municipal Solid Waste (MSW). Each of 5 Power Plants will process 2000 Metric Tons of MSW Per Day converting waste into power and by-products. WPP ENERGY has simultaneously secured a government Power Purchase Agreement (PPA) to consume the energy produced at 14.5 cents per kilo watt. In addition a 35 year agreement is in place for gate/tipping fees of \$35 per metric ton. Contract includes yearly increases in the per kilowatt price and in the gate/tipping fees.

January 2018 WPP signs agreement with Dahir Insaat to bring to market Green City, Vertical Greenhouse Agricultural Towers.

Also in January 2018, WPP commenced development of its comprehensive ITO website.

# OUR MANAGEMENT TEAM



**RAFAEL BEN**

President and Chairman



**TROY MACDONALD**

Chief Operating Officer



**ARTURAS SVIRSKIS**

WPP Token, Chief  
Marketing Officer



**ANKUR MAHESHWARI**

CTO Of Blockchain Development,  
Founder & CEO At Blaze Protocol,  
CEO At Deqode, CTO At Gearbubble



**MATTEO INAUDI**

Swiss Lawyer  
WPP BOD member



**ABBEY KING  
KHAWAJA**

President, UK Division



**LUIS CABALLERO  
ALCALDE**

Advisor, Oem Products &  
Strategic Partnerships



**IÑIGO BEJAR GONZALEZ**

Advisor & Strategic  
Partner, H2 Burners &  
Manufacturing



**JUERGEN DIETER  
PRAEST**

Advisor & Strategic  
Partner, H2 Burners &  
Manufacturing



**JACQUELINE YOUNG  
CPA, CGA**

Vice President



**FELIX RODRIGUEZ**

Director of WTE  
Solutions



**JOÃO JAYME IESS**

Director Of Chemical and  
Process Engineering



**MICHAEL JOHN DE VERA**

Senior Director of  
Business Development



**DIONISIO ANG**

Project Coordinator



**ENGR. EUGENE BICAR**

Market Advisor,  
Philippines



**SERHII DERCHUK**

Director of Business  
Development





**KENNY TRAN**

National Ambassador,  
Vietnam



**SERGEI S. SIDOROV**

SVP, PPE Business Unit



**THOMAS PEREZ**

Business Development  
Executive



**MENTOR SHALA**

Front - End Director, 3D  
Modeler, UX/UI Designer



**CHANCE HOLT**

Engineer, WPP Online Telegram  
Community Advisor/Senior Admin

# WPP BUSINESS PARTNERS

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# WPP'S BUSINESS FOCUSSES ON 3 MAIN CATEGORIES

## 1 GOVERNMENT PROJECTS:

WPP Energy is a Joint Venture partner in large projects in several countries around the world. The projects are established with industry and governments for the production of Green Power and Waste Treatment Services. Some of the projects include long term Power Purchase Agreements (PPA's) converting Municipal Solid Waste (MSW) into electricity and into byproducts that will be used for local markets.

WPP Energy intends to utilize its alternative energy expertise to match equity investors coupled with traditional project finance to fund Joint Ventures with established alternative energy companies, developers and EPC Contractors for energy and energy related projects globally. The projects are established with industry and governments for the production of Green Power. Some of the projects include long term Power Purchase Agreements (PPA's) from 20 to 35 years.

Alternative energy projects can include, conversion of Municipal Solid Waste (MSW) into electricity and into byproducts that will be used for local markets, our W2H2 projects and any other proven alternative energy that meets return on investment requirements.

WPP ENERGY will deploy the most powerful advanced technologies globally assisting second and third world countries to have new opportunities to address their considerable housing and energy problems. WPP is taking a major step by contributing a percentage of overall WPP profits to facilitate an increase in power production as a humanitarian aid to countries with the greatest needs.

## 2 WPP ENERGY DIGITAL BLOCKCHAIN PLATFORM:

○ WPP's own global power production data will also be streamed into the platform. This will change the power generation industry for the benefit of buyers and suppliers both, as the WPP Platform will capture this supply via data transmission to the platform.

The Green Energy Producers participating in the platform must be ready to provide green fuels at competitive prices to those institutions and investors/traders interested in futures contracts related to clean power production around the world at reduced prices from traditional prices.

Data transmitted to the platform will include the type of energy/fuel supply produced, the amount of supply available, the price of the energy and its location.

The deployment of the new Global Green Energy Platform ("HyFi") will enable our ability to reduce the cost of green power production for the User. The Green Energy Platform ("HyFi") help us to fuse two of the most important sectors of the 21st century: blockchain technology and renewable energies.

**DISRUPTIVE GREEN ENERGY TECHNOLOGY SOLUTIONS.** The upcoming release of four advanced game changing disruptive energy technology solutions will solve many energy problems around the world:

○ **WPP VORAX®**

**VORAX** is a scientific breakthrough in the treatment of nearly all types of Waste such as MSW/ Urban, Medical/Hazardous, Plastics, Industrial, Pasty/Sludge, Liquid, Tires. There are 12 different models of Vorax which have capacities ranging from 2 Tons of Waste per day to our largest model which can treat 400 Tons of Waste per day, solving the global landfill problem. Models from 22T/day and up also have steam power generation packages available to create electricity, demonstrating **VORAX**'s Waste to Energy capability.

**VORAX** is in a technological classification of its own after more than 10 years of R&D from a brilliant team of scientists and in the invention of DuoTherm technology which puts **VORAX** ahead of plasma, Incineration, Gasification and also traditional pyrolysis. **VORAX** is thought of as a quantum leap over traditional Pyrolysis in part because two thermal processes, one at 900 °C and the other at 1600 °C, forming a thermal gradient, liquifying all solids completely, even inert materials such as sand or iron.

**VORAX** completely destroys the garbage effectively and safely, without combustion or an auxiliary equipment. **VORAX** requires no combustion of waste and disintegrates as a whole, completely destroying infectious, pathological and organochlorined materials.

The technology is patented in over 40 countries and is now available for distribution globally by WPP Energy after initially being deployed in Brazil.

○ **WPP W2H2 POWER GENERATION.**

**W2H2** is based on an advanced proprietary scientific method which includes the invention of using water thermolysis to extract Hydrogen Gas from water in high volume for power generation at much lower cost than competing technologies (i.e. Electrolysis). **W2H2** utilizes the combined effects of magnetization produced by neodymium magnets, ionization via plasma induction, and resonance

brought about by radio frequency to minimize the energy required to dissociate the water molecule into its element constituent of hydrogen and oxygen atoms.

Laser pulses are then applied to the water molecules as a final step to split the water into hydrogen and oxygen atoms. The combined effects of the said process requires much less energy than electrolysis (less than 10% for **W2H2** versus 30%+ for electrolysis) and is able to produce greater volumes of hydrogen when compared to electrolysis.

With WPP's **W2H2** disruptive energy technology solution will solve many energy and environmental problems around the world working toward a zerocarbon footprint. Our water to hydrogen energy production solution will eliminate fossil fuel electricity generation in every fossil fuel based power plant and generator we convert to hydrogen.

WPP will convert polluting power producers into efficient low-cost green energy producers. WPP's business plan includes converting to clean **W2H2** energy (water as the main input to produce mass amounts of hydrogen gas onsite) as many as possible of the world's 20,000+ polluting Coal, Oil, Natural Gas and Gasoline Power Plants and countless Diesel Generators around the world. **W2H2** will greatly reduce the largest operating cost of a power plant or generator, namely fuel, and increasing Power Plant efficiency by using Hydrogen gas which has a much higher caloric output than fossil fuels, while increasing environmental benefits through a near zero carbon footprint.

Many of the target power plants are shut down or on the list to be shut down because of EPA no longer allowing fossil fuels to be used as the source for generating electricity.

## GOVERNMENT & PRIVATE PROJECTS

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GOVERNMENT AND PRIVATE PROJECTS: WPP Energy is a Joint Venture partner in large projects in several countries around the world. The projects are established with industry and governments for the production of Green Power. Some of the projects include long term Power Purchase Agreements (PPA's) converting Municipal Solid Waste (MSW) into electricity and into byproducts that will be used for local markets.

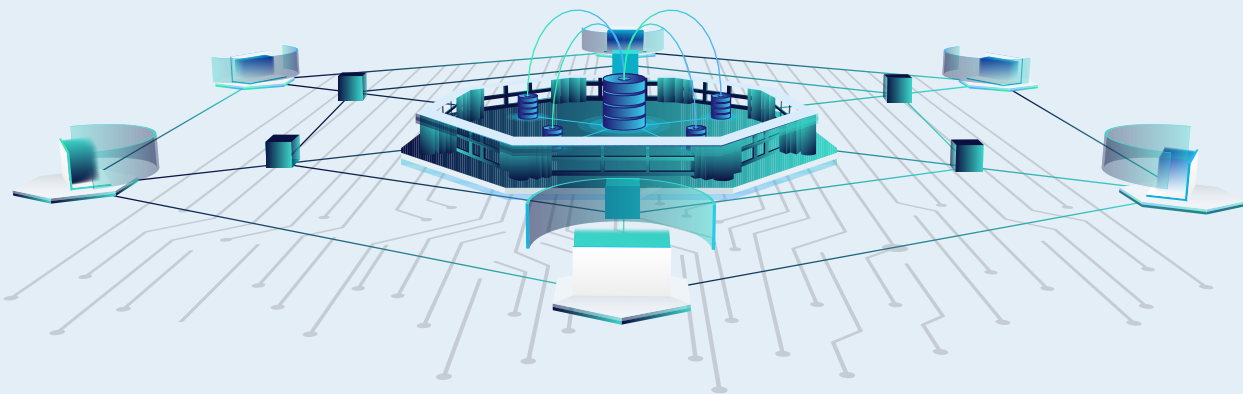
WPP Energy intends to utilize its alternative energy expertise to match equity investors coupled with traditional project finance to fund Joint Ventures with established alternative energy companies, developers and EPC Contractors for energy and energy related projects globally. The projects are established with industry and governments for the production of Green Power.

Some of the projects include long term Power Purchase Agreements (PPA's) from 20 to 35 years. Alternative energy projects can include, conversion of Municipal Solid Waste (MSW) into electricity and into byproducts that will be used for local markets, our W2H2 projects, solar energy, wind power and any other proven alternative energy that meets return on investment requirements.



**WPPENERGY**  
World Power Production

# GLOBAL GREEN ENERGY BLOCKCHAIN PLATFORM (“HyFi”)



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# EXECUTIVE SUMMARY

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Renewable Energy currently represents just under 25% of the world's total energy production and forecasts indicate by 2040 that share will increase between 33-40%. We believe the latter number is achievable and in fact can and will be surpassed. To do so both existing and new green technologies must be efficient in their science, economics, distribution, promotion and barriers removed for market adoption. To convincingly outmaneuver and outperform the polluting, toxic, and often lethal fossil fuel market, the global renewable energy market needs to have a highly organized central hub for the transacting of green energy supply, particularly Hydrogen which represents the single largest growth area in renewables for at least the next 30 years with over \$300B in (known) contracts signed as of Jan 2021.

Enter WPP Energy with a technologically advanced solution designed to make a major positive impact on the environment through the introduction of a new method of green Hydrogen production which revolutionized not only the scientific method of water electrolysis but the economics associated with H<sub>2</sub> production. WPP's breakthrough "W2H2" technology exists to reduce Carbon, Methane and other harmful emissions by displacing fossil fuel for example in the power generation, transportation, cement and petrochemical industries.

WPP's solution will be featured in a Blockchain initiative is called the "HyFi".

Platform participants will be incentivized with rewards for "Going Green". Platform participants will predominately be focused on the supply of Green Fuel futures contracts such as Hydrogen. The platform seeks to evolve in the future where clients can eventually trade hydrogen based electricity production itself by having the option to offer and enter into Power Purchase Agreements.

# ANATOMY OF THE PLATFORM

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**“HyFi” is a multi-phased initiative with a staggered roll commencing in 2021 consisting of the following 5 stages:**

- 1.** A blockchain marketplace to buy and sell green hydrogen futures contracts which have been derived from WPP’s **W2H2** Technology.

Smart contracts are being created to represent an underlying fuel futures contract being offered by the **W2H2** hardware owner, be it WPP or one of WPP’s technology customers, such as a power plant. The supply contract will be ready to be agreed to and purchased outright. The contract can also be resold on the platform if the original buyer decides to do so. The underlying fuel itself is a fully exportable/transportable commodity so that the buyer can take physical possession should they wish to do so. WPP will offer 2 financial settlement options, Fiat currency or WPP Tokens. WPP Tokens will carry an additional incentive over fiat to encourage cryptocurrency adoption in the energy sector.

- 2.** Expanding on Phase 1 above, Phase 2 sees the green hydrogen futures marketplace expand in a continuous multi-year initiative where requests for power purchase agreements can be made by both green power producers and larger consumers (businesses, governments, utilities) to cover any type of renewable energy supply that can be bought and sold via contracts between producers/suppliers and end buyers by using WPP Tokens, that are smart contract enabled to represent an underlying asset, namely an energy supply contract that is ready to be agreed to and purchased outright. The contract can also be resold on the platform if the original buyer decides to do so. As the transaction facilitator WPP will offer 2 financial settlement options to the end energy supplier: Fiat currency or WPP Tokens, with WPP Tokens carrying additional incentives over fiat to encourage cryptocurrency adoption within the energy sector.

To support the marketplace activity in 1 & 2 above the following 3 elements below are also being introduced.

- 3.** A Trust, Reputation and Feedback system all managed on the blockchain to underpin elements 1 and 2 above. This will help create the necessary confidence for parties to transact with one another.



**4. a)** Green Energy Rebate Program. WPP Tokens paid out as a rewards system to promote conducting green energy transactions on the HyFi Platform.

**b)** WPP ERC20 Wallet and Mobile App. WPP Token rewards earned from the Green Energy Rebate Program will be sent to a users WPP Wallet which can then be loaded into app and spent goods and services on a "rewards marketplace" which will follow with a wide range of products available from various participating companies also willing to reward users for "Going Green".

The following is an outline of Hyfi along with a distributed storage system for data collection from the participating energy producers for safe secure and easy energy transaction at a wholesale rate to the energy suppliers anywhere, anytime. Use of Smart Contracts through WPP Token on a distributed storage system on a permissioned ledger will help avoid any attempted disruption or blocking of what will be energy industry changing transaction methods. WPP will be using a permission based blockchain model to avoid mining and to ensure we are not adding to the present and growing energy crisis caused by crypto mining.

The project will be an intuitive user friendly cross platform web and mobile application which will allow the energy buyers and energy sellers to connect and do the energy transaction below the wholesale price bypassing the utility companies.

## **PRODUCT VISION**

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WPP Energy is an innovation leader in the global renewable energy market through the use of innovative and disruptive technologies to produce and provide affordable clean energy to the world. This revolutionary global renewable energy marketplace will be a complete global green energy solution facilitating the worldwide electronic trading of energy supply at wholesale prices

from WPP and other participating Green Energy Suppliers in a B2B and B2C focused Blockchain Marketplace Platform ("HyFi") targeting participants around the world who wish to purchase, trade or resell renewable energy supply.

WPP Token will serve as a featured payment method for all transactions conducted through the Platform. Users will be encouraged and incentivized to use WPP Token for transactions on the platform. WPP Token will be obtained from the Platform by converting fiat or other cryptocurrencies into WPP Tokens.

The combination of the "HyFi" Platform and the use of Smart Contracts through WPP TOKENS as the featured payment method will accomplish fast, cost effective transparent energy supply trading.

A distributed storage system of data feeds between the HyFi Platform and participating Hydrogen Fuel Producers to capture the data transmission on the type of energy available, the amount of energy available for purchase, the price of the Hydrogen, the location & distribution network of the Hydrogen (present and future), data metrics revealing how green the Hydrogen energy is.

Buyers will be able to use data sorting tools provided, after entering through a global energy grid/map interface, to find green energy supply data which is relevant to them. Use of a smart contract enabled WPP TOKEN as a featured method of payment will provide the ideal environment for the automatic processing, recording and tracking of a large number of transactions globally will help reduce operating/payment processing & record-keeping costs through automation.

This will not only facilitate the green energy adoption by users of a specific geography, but will also ensure the green energy is reaching to the end user in the most affordable and convenient manner.

## **PROPOSED PROJECT**

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The project will offer a reliable, trusted, real-time, high-throughput affordable green energy transaction experience among energy producers and buyers in conjunction with smart contract deployment between parties, identity management of users, WPP Token for energy transaction and a blockchain based distributed storage system for real time data collection from the Hydrogen producers on the amount of Hydrogen available for purchase, Hydrogen price, the location, Hydrogen distribution network, data metrics on how green the Hydrogen is with customer usage information in a tamper proof blockchain environment.

## **PROJECT REQUIREMENTS**

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### **PROJECT REQUIREMENTS**

The application will consists of a User onboarding, KYC, Identity management, Smart contract deployment, B2B marketplace for energy transaction, WPP Token for transaction and a distributed storage system on permissioned blockchain.

## **#LACK OF VERIFICATION**

When the system cannot form a reasonable belief that we know the true identity of a customer, we will deactivate the account or keep it in deactivated status; close an account after attempts to verify customer's identity fail; and determine whether it is necessary to inform the FSC or FCU in accordance with applicable laws and regulations.

## **USER ONBOARDING**

In order to start trading on the platform, user registration is mandatory. The users will be registered through email verifications followed by mobile verification, username creation and

## **KNOW YOUR CUSTOMER (KYC) IDENTIFICATION & CUSTOMER DUE DILIGENCE (CDD)**

The system will collect sufficient information from each producers, seller and the buyer who have opened an account to enable the customer to be identified; record CDD information and the verification methods and results; provide the required adequate CDD notice to customers that we will seek identification information to verify their identities; and compare customer identification information against the IDs issued by the government.

## **#REQUIRED CUSTOMER INFORMATION**

Users who have opened an account need to provide a scanned copy of photo graphic ID and proof of address, company registration, prior to being allowed to trade.

## **#RECORDKEEPING**

We will keep logs of our verification, including all identifying information provided by a customer, the methods used and results of verification, and the resolution of any discrepancies identified in the verification process.

# **B2B MARKETPLACE - GENERAL CAPABILITIES**

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## **#B2B TRANSACTIONS**

Business transaction is between producers of hydrogen energy and end users/buyers (in this model the buyers are consumers, businesses and entities).

The proposed transaction contemplates:

1. Producers selling energy directly to end buyers
2. The Hydrogen energy transactions be facilitated on a digital platform that allows for buy sell transaction to take place by smart contracts on a permission based blockchain with a cryptocurrency digital token being the digital asset that is traded in the platform.

## **PRODUCER**

API data feeds to be established between the HyFi Platform and participating hydrogen producers (WPP & our customers) who are required to data transmit - the type of energy available:

- - the amount of Hydrogen supply available for purchase
- - the price of the Hydrogen supply
- - the location & distribution network of the Hydrogen (present and future)
- - the data metrics on how green the Hydrogen is.

## **SUPPLIER/SELLER**

Suppliers who have a broad Hydrogen distribution network in place will be more desirable to attract as suppliers to the platform and some of the suppliers are providing energy in multiple nations.

## **BUYER**

A smart contract enabled Token is being generated to represent and track buy sell agreements between two parties who transact on the platform and also to serve as a featured payment method for all energy transactions conducted through the Platform.

Use of a smart contract enabled "WPP TOKEN" as a featured method of payment will provide the ideal environment for the automatic processing, recording and tracking of a large number of transactions globally. The token represents the energy supply contract between the supplier and end buyer where numerous details are agreed to.

The platform will collect the buyer's data necessary to engage in an energy transaction, and when users wish to bid on or purchase an energy contract listed by a supplier that (KYC required from the user) data will populate the smart contract.

The proposed digital platform transactions use a permission based blockchain model to avoid mining and to avoid adding to the related present and growing energy crisis. Reaching consensus algorithm options exist that do not require any mining.

**Our focus is on creating direct energy supply (smart) contracts between end supplier and buyers.**

## **#PRODUCT RESULTS AND FILTERING**

- Viewing and interacting with search and hydrogen energy contracts categories results with faceted navigation.
- Basic Filtering

## **#ENERGY CONTRACTS/GRID**

The buy side initially will have midsize to large businesses looking for affordable clean energy globally.

Contracts or services are offered by Suppliers.

Green Hydrogen Fuel Supply Contracts

Additional details are given by the suppliers for allowing buyers to select prospective suppliers.

- Post Hydrogen Energy Contracts with details
- Browse Hydrogen Energy Contracts
  - Contracts Fulfillment
  - Contracts Pricing
  - Contracts Review and Q&A

## **#NAVIGATION AND CATEGORIES**

The buy side initially will have midsize to large businesses looking for affordable clean energy globally.

- Finding contracts by browsing through product categories, attributes, facets.
- Taxonomy considerations.

## **#SEARCH & FILTER**

- A proper mechanism is provided by the portal which eases search for suppliers.
- Search rules, parametric search, type ahead, filtering, result sets, pagination

## **#TRACK ORDER AND CANCELLATION PROCESS**

- View Order Status
- Cancel Order

## **MY ACCOUNT**

- Quotes, Purchase lists, Track orders, Track reversals/returns.
- Account settings
- Contract terms and conditions

## **IDENTITY MANAGEMENT**

- Identity management of the producers, suppliers and the consumers/buyers
- Customer profile
- Customer Categorization
  - Customer Categorization based on qualification of its suppliers/buyers based on credit

## **BUYER**

Our focus is on creating direct hydrogen energy supply smart contracts between end supplier and buyers. The proposed digital platform transactions use a permission based blockchain model to avoid mining and to avoid adding to the related present and growing energy crisis. Reaching consensus algorithm options exist that do not require any mining.

A smart contract enabled Token is being generated to represent and track buy sell agreements between two parties who transact on the platform and also to serve as a featured payment method for all hydrogen energy transactions conducted through the Platform.

## **DISTRIBUTED STORAGE SYSTEM (TO STORE AND SHARE DATA ON PERMISSIONED LEDGER)**

Our focus is on creating direct hydrogen energy supply smart contracts between end supplier and buyers. The proposed digital platform transactions use a permission based blockchain model to avoid mining and to avoid adding to the related present and growing energy crisis. Reaching consensus algorithm options exist that do not require any mining.

- Distributed storage system to collect the data from the participating Green Energy Producers who are required to data transmit
- - the type of energy available
- - the amount of energy available for purchase
- - the price of the energy
- - the location & distribution network of the energy (present and future)
- - the data metrics on how green the energy is.
- Customer information is stored, selective disclosure is to be deployed to ensure the most sensitive customer data is protected.



**WPPENERGY**  
World Power Production

**WPP ENERGY PRESENTS**

**"VORAX"**

**A SCIENTIFIC BREAKTHROUGH IN SOLID WASTE TREATMENT**





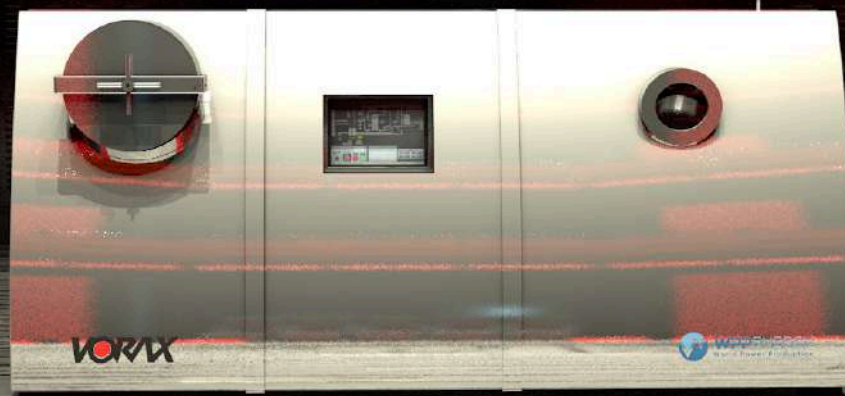


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## Introduction

WPP Energy presents VORAX, a scientific breakthrough in the ideal treatment of nearly all types of Waste such as MSW/Urban, Medical/Hazardous, Industrial, Pasty/Sludge, Liquid, Tires. There are 12 different models of Vorax which have capacities ranging from 2 Tons of Waste per day to our largest model which can treat 400 Tons of Waste per day. Models from 22T/day and up also have steam power generation packages available to create electricity, demonstrating VORAX's significant Waste to Energy (WtE) capability.



"ETNA" 2T/day model shown

Vorax is in a technological classification of its own after more than 10 years of R&D from a brilliant team of scientists and in the invention of DuoTherm technology which puts Vorax ahead of plasma, Incineration, Gasification and also traditional pyrolysis. Vorax is thought of as a quantum leap over traditional Pyrolysis in part because two thermal processes, one at 900°C and the other at 1600°C, forming a thermal gradient, liquifying all solids completely, even inert materials such as sand or iron.



Vorax completely destroys the garbage effectively and safely, without combustion or an auxiliary equipment. Vorax requires no combustion of waste and disintegrates as a whole, completely destroying infectious, pathological and organochlorinated materials, having as a solid byproduct a ceramic matrix (do not produce ashes) and inert in the bottom of the fusion module, with commercial application - the gases formed in the process have no dioxins or furans and are of low volume because they only arise from the disintegration of the material and not from combustion or gasification traditional processes.

The fusion module, in turn, works in negative atmosphere, preventing gas leaks. The process is dry distillation of the waste, with absence of air, no combustion of waste, which provides extreme reduction of the exhaust gases as compared with conventional processes and, moreover, does not allow the formation of dioxins or furans, in view of lack of oxygen and high temperature. The garbage is not mixed with the atmospheric air and suffers a dry distillation, meaning it is completely disintegrated and liquified in the absence of air, which considerably reduces the formation of pollutants harmful to the environment and health, including carcinogens. The reduction in mass of organic waste in this process is by volume 100:1 up to 250:1, according to the category of waste processed.

The gases formed inside the fusion module, are suddenly sucked and cooled (quench) to then be treated and neutralized in an immersion tank, alkaline. Last generation filters, coal-based activated, ensure that the emissions meet environmental standards.

The fusion modul is not refractory, as in conventional models, except in the melting pot. Therefore, it is lightweight and low maintenance equipment, suitable for use in hospitals, factories, ships, among other places of waste treatment.

For its operation, the Vorax - WTU DuoTherm only requires a 220V or 380V outlet. The equipment allows to operate continuously or intermittently, as needed by the user. Its power consumption is low and purely electric - for example a 2T/day model consumes only 40kWh, depending on the category of garbage.

Control and Operation of Vorax is automatic - After feeding no operator is required, from departure to the disconnection of its cycle. Anyone can feed the fusion module with the material to be treated, which operates automatically. The waste to be treated does not necessarily require selectivity – at first, everything can be processed: organic matter, iron, metals, and even sand.

Training for operating Vorax is performed at the installation site and requires only one full day of instruction.

**The technology is patented in over 40 countries and is being made available for distribution globally by WPP Energy after initially being deployed in Brazil.**

**5 ton/day model shown below**



## The scientific challenge of waste treatment :

The fundamental challenge of garbage is to find an effective way to treat it. Modern garbage contains high doses of heavy metals, organochlorines, benzene, dioxins, furans, among others. Landfills emit pollution including methane and essentially many parts of the world are drowning in garbage.

Incineration, Gasification and Partial Pyrolysis (with presence of atmospheric air), even via plasma processes, are known techniques but they fall short. Incineration or gasification (even with plasma technology) involves the presence of atmospheric air and it is for this reason that these technologies create environmental problems. The presence of air entails introducing a lot of oxygen in the process for combustion or gasification. Incineration, Gasification and Partial Pyrolysis (with presence of atmospheric air), even via plasma processes, are the all too common techniques given their problems.

These techniques, despite reducing the weight and the initial volume of garbage, cannot be considered effective, they are unable to dispose the waste, once the waste remains toxic, being presented mainly in the form of ash. More seriously, it is produced large amounts of greenhouse gases, which need to be addressed. The ashes, despite concentrating on small volumes, are fine particulates of non- volatilizable materials and may contain high concentrations of active elements harmful to the environmental balance, such as heavy metals. The gases in turn require appropriate filters and intensive maintenance because they contain significant concentrations of pollutants.

Additionally, the combustion process can form at inappropriate temperatures, by means of reactions catalyzed by the ashes, a family of hydrocarbons, usually cyclical, high-destructive power of genomic features of human cells, which results in the production of cancer cells. Other procedures applied on a smaller scale such as autoclaving and destruction by radiation (including from sources of microwave), for not reducing the volume of disposable material, are not considered appropriate for the disposal of waste.

In the case of hospital and industrial waste, due to the components present in it, the quantity of heavy metals in the ash coming from the incineration is absurdly high, greatly increasing the risk of contamination of groundwater when accommodated in landfills.

The increased presence of chlorine components in these types of waste can also greatly enhance the generation of carcinogenic residues, which are present in the exhaust gases of combustion and in the generated microparticles.

The laws currently in force (as the National Solid Waste Policy, enacted in August 2010, which stipulates the prohibition of dumps) may become even more expensive the treatment of these special wastes, which practically requires the search for new technologies for waste treatment that can make the process cheaper and less polluting.

It is for all the reasons above that VORAX was invented as total solution to satisfy the scientific challenge summarized above. "Vorax", has appropriately received its name thanks to its power to "swallow" almost any type waste disposal and providing an economical and highly efficient environmental destination.

**WPP Energy asserts to the world that the technology used in Vorax – "WTU DuoTherm of dry distillation", via thermal gradient WITHOUT the use of oxygen, is the most effective waste treatment solution in the world.**

# Waste types that vorax can process:

- Medical/Drugs/Sharpies
- Municipal and Urban Waste
- Industrial
- Pesticides and their containers
- Biomass
- Animal Housing
- Coal
- Ashes from incinerators
- Sewage
- Galvanic sludge
- Organic sludge from petrochemical
- Materials with low radioactivity
- Used oils
- Batteries
- Tires
- Waste of explosive material
- Hazardous industrial waste
- Plastics (no restrictions)



# VORAX TREATS ALL WASTE TYPES & SOLVES THE UNIQUE PROBLEMS OF MEDICAL & BIOHAZARD

Medical waste generated at health care facilities, includes a large component of general waste and a smaller proportion of hazardous waste, which contain infectious agents, toxic chemicals or pharmaceuticals, radioactive and genotoxic.


All individuals exposed to hazardous health-care waste are potentially at risk, including those within health-care establishments that generate hazardous waste, and those outside these sources who either handle such waste or are exposed to it as a consequence of careless management.

According to the U.S. Environment Protection Agency, improper management of discarded needles and other sharps can pose a health risk to the public and waste workers. For example, discarded needles may expose waste workers to potential needle stick injuries and potential infection when containers break open inside garbage trucks or needles are mistakenly sent to recycling facilities. Janitors and housekeepers also risk injury if loose sharps poke through plastic garbage bags. Used needles can transmit serious diseases, such as human immunodeficiency virus (HIV) and hepatitis.

Measures to ensure the safe and environmentally sound management of health care wastes can prevent adverse health and environmental impacts from such waste including the unintended release of chemical or biological hazards, including drug-resistant microorganisms, into the environment thus protecting the health of patients, health workers, and the general public.

Proper measures to deal with medical and biohazard waste typically come at a high cost of up to \$2500 per ton depending on the region.





Current best practices and often laws state that the hazardous waste must be separated, treated and disinfected. Common practice now is that all infectious medical wastes are disinfected by autoclaves, strong heated containers used for chemical reactions and other processes using high temperatures, and steps must be taken to dispose them.

Even the non hazardous medical waste is not often considered normal waste, as long as the governing bodies in a territory have not approved the wastes being harmless, in accordance with the waste management laws, medical wastes are still considered infectious.

Landfills are not equipped to handle the unique requirements of medical waste and often don't have the most basic infrastructure such as water, electricity and etc.



**VORAX IS A TOTAL SOLUTION FOR  
MEDICAL WASTE WITH NO PRESORTING OR  
STERILIZING NEEDED**



# Process

## Incineration

VS

## Vorax Duo Therm

- Low energy efficiency
  - Excess air and low temperature
- Produces ashes , dioxins and furans
  - High carcinogenic components
- High gas formation rate
  - Too much air for temperature control
- Inorganic pollutant portion
  - Heavy materials exposed to the environment
- Slow process initiation
  - There is risk of refractory break

- High energy efficiency
  - Does not use air in the process
- Does not produces ash, dioxins and furans
  - High temperature of 2<sup>a</sup> source, breaks the molecules
- Low gas formation rate
  - Does not processes the waste in the presence of air
- Inert inorganic portion
  - Heavy materials are retained inside ceramic matrix
- Quick stop process
  - Turn on and off in only 4 min., without any damage

# Material Reduction (Incineration versus Vorax)

## Incineration

<b>VOLUME:</b>	<b>5:1</b>
<b>MASS/WEIGHT</b>	<b>2:1</b>

## Vorax Duo Therm

<b>VOLUME:</b>	<b>100:1 up to 250:1</b>
<b>MASS/WEIGHT</b>	<b>10:1</b>



Inert ceramic product. Can be used in constructions as concrete load, cement, glass wool, asphalt, tile, etc.



Heavy materials such as lead, arsenic, cadmium, chromium, mercury, etc, are retained within the crystal structure.

## Benefits

### Vorax Benefits

Easy transportation

Easy setup

Easy maintenance

State of Art Technology

Easy Startup

Automatic operation

Internet operation

Reliability

Very Low Energy consumption

Low noise

All types of waste

### Vorax Benefits

Volume reduction

Mass reduction

Waste inertization

Absence of Liquid pollutants

Reduced gases exhaust

No Ash production

No Dioxins & furans

Helpful subproducts

Energy cogeneration

Energy efficiency

Low Labor

# VORAX - ENERGY BALANCE/CONSUMPTION

## Sample Waste Composition:

Organic 55%	Textiles 4.3%
Paper 14%	Metal 3.3%
Plastic 14%	Glass 2.4%
Cardboard 6.7%	Wood .3%

Vorax Fusion Module(Power Source Only)Electric Consumption For Given Waste Composition (kWh/t)

See separate file, Excel Sheet titled: WASTE TO ENERGY VORAX`

Efficiency %	26				
	Lower Calorific Power PCI (kCal/kg)	Lower Calorific Power PCI (MWh/t)	Specific Energy (kWh/t)	Specific electrical energy consumption (kWh/t)	Net Specific Energy Vorax (kWh/t)
<b>MSW (Example)</b>	<b>2,780.0</b>	3.2	839.3	183.3	656.0
MSW - highest moisture	1,750.0	2.0	528.3	183.3	345.0
MSW - lowest moisture	3,250.0	3.8	981.1	170.2	810.9
WDF (Waste Derived Fuel)	4,500.0	5.2	1358.5	183.3	1175.2
TDF (Tire derived fuel)	7,000.0	8.1	2113.2	183.3	1929.9

### VORAX MSW Waste to Energy

Waste Capacity (400t/day)	Waste Capacity (t/h)	Total electric Power (MW)	Net Electric Power (MW)	Consumption electric power (MW)	~Efficiency (%)
400	16.67	13.99	10.93	3.06	26

#### Key Data Summary

**Using 2780 kCal/kg 400 tons of waste per 24 hour day generates 10.93MWh (NET) or 262.32MW/24 hours**

**656kWh (NET) per ton of waste**

**1.525 tons of waste = 1MW (NET)**

10.93MWh (NET) assumes MSW with PCI (Lower Calorific Value of 2780 kCal/kg). Higher outputs achievable depending on types of waste used as feedstock.

**Example: TDF (tires) 7000 kCal/kg = 35.22MWh gross = 32.17MWh net (after Vorax electrical consumption).**

**Example: WDF 4500 kCal/kg = 22.64MWh gross = 19.59MWh net (after Vorax electrical consumption).**

# Solid Waste Treatment

## VORAX Duo Therm vs Other Technologies

Item	Features	Load	Landfill		Incineration		Autoclave		Gasification		Plasma		Duotherm	
			Grade	Result	Grade	Result	Grade	Result	Grade	Result	Grade	Result	Grade	Result
1	Easy Transportation	1,0	0	0	0	0	4	4	4	4	4	4	5	5
2	Easy setup	1,0	1	1	1	1	4	4	3	3	2	2	5	5
3	Easy maintenance	5,0	1	5	1	5	3	15	3	15	1	5	5	25
4	Technology	3,0	0	0	1	3	1	3	2	6	4	12	5	15
5	Startup process	1,5	4	6	1	2	4	6	4	6	5	8	5	8
6	Automatic operation	2,0	0	0	1	2	0	0	0	0	0	0	5	10
7	Internet operation	1,5	0	0	0	0	0	0	0	0	0	0	5	8
8	Reliability	7,5	4	30	2	15	4	30	4	30	4	30	5	38
9	Energy consumption	10,0	4	40	2	20	3	30	3	30	0	0	5	50
10	Noise level	2,0	5	10	2	4	5	10	5	10	5	10	5	10
11	Type of waste	7,5	3	23	2	15	2	15	2	15	5	38	5	38
12	Volume reduction	3,5	0	0	3	11	2	7	2	7	5	18	5	18
13	Mass reduction	5,0	0	0	3	15	2	10	2	10	5	25	5	25
14	Waste inertization	6,0	0	0	0	0	0	0	0	0	5	30	5	30
15	Liquid pollutants absence	6,0	2	12	2	12	2	12	2	12	5	30	5	30
16	Reduced gases exhaust	6,0	1	6	1	6	3	18	1	6	1	6	5	30
17	Ash production	6,0	1	6	1	6	5	30	5	30	5	30	5	30
18	Dioxins & furans	8,0	1	8	1	8	3	24	3	24	5	40	5	40
19	Helpful subproducts	5,0	0	0	0	0	0	0	0	0	5	25	5	25
20	Energy cogeneration	3,5	4	14	4	14	0	0	3	11	5	18	5	18
21	Energy efficiency	4,0	0	0	1	4	2	8	2	8	4	16	5	20
22	Labor	5,0	0	0	1	5	2	10	2	10	4	20	5	25
Benefit (punctuation)				161		147		236		237		365		500
Benefit (percentual)			100,0	32%		29%		47%		47%		73%		100%

Grade: 0 - Bad

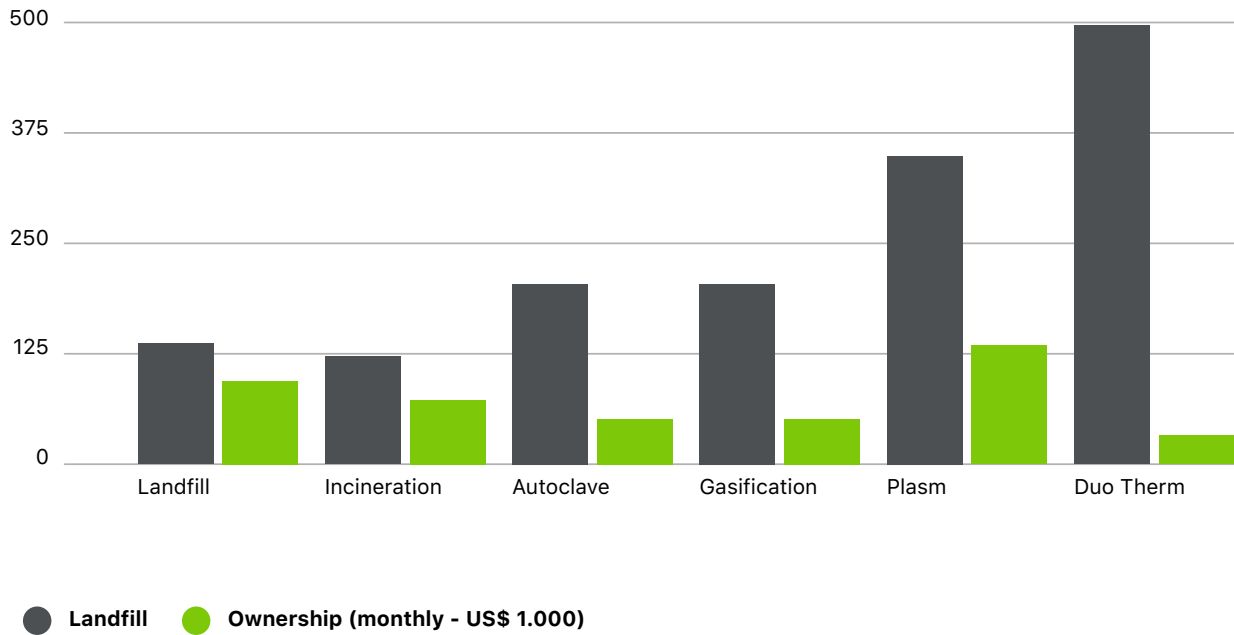
1 - Poor

3 - Good

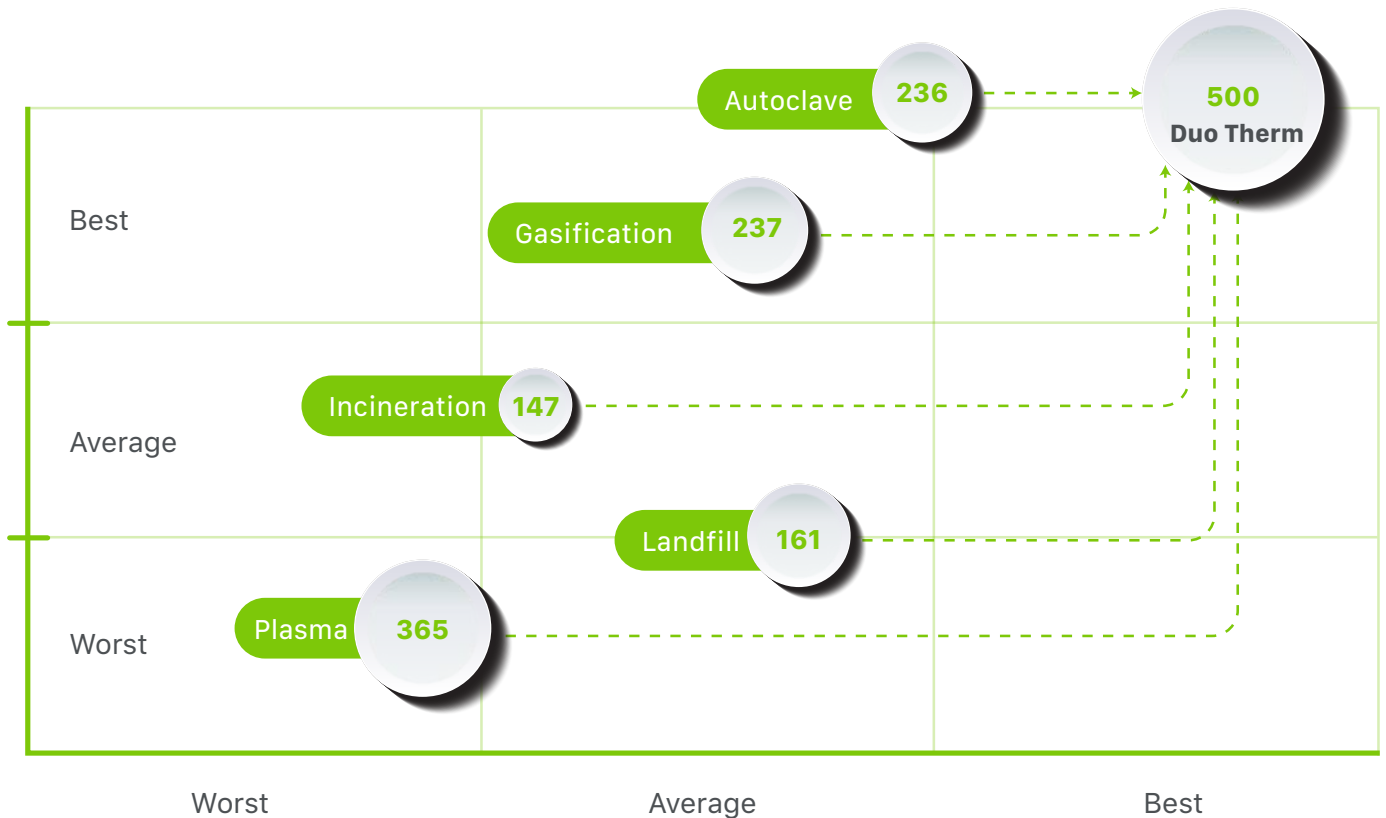
4 - Very good

5 - Excellent

# Ownership X benefit



# Cost x benefit



Buble Area = Benefit

# Technical Comparison

Item	Vorax Duo Therm	Incineration
Technology	State of art	Outdated
Operation	Automatic by WiFi	Manual
Processes	Any material	Restricted
Size	Small	Big
Transportation	Easy	Hard
Setup	Easy	Complex
Operating risk	Null	High
Noise	Low	Moderate
Capital expenditure	Low	High
Operation expenditure	Low	Moderate
Maintenance cost	Low	High

# Benefits

Item	Vorax Duo Therm	Incineration
Process startup	Fast	Slow
Energy consumption	Low	Low
Volume reduction	100 a 250:1	5:1
Mass reduction	10:1	2:1
Gases exhaust	Low	High
Carcinogenic	Null	High
Liquid pollutants	Null	High
Solids sub products	Inert	Pollutants
Gravel production	Yes	No
Sub noble products	Yes	No
Energy cogeneration	Yes	No



**PROCESSES  
ANY MATERIAL**



# WPP VORAX Product Line at a Glance

12 Models to Choose from!

See Q&A Section on (page 22) for more info

Name	Technology	Platform	Type	Components	Application	Model	Capacity	Utilization	Gross Electric Power (before Vorax's own consumption)	NET Energy Generation (after Vorax's own consumption)
Vorax	Duo Therm	Volcano	UTR	Storage Crusher Feeder System Fusion Module Peripherals Monitoring and Control	Waste Treatment Only	Etna	2 ton/day	Solid, Medical	Not applicable	Not applicable
						Kilauea	4 ton/day	Solid, Medical		
						Kilimanjaro	5 ton/day	Solids, Liquids, Pasty, Medical		
						Krakatoa	10 ton/day	Solid, Liquid, Pasty, Medical		
		Solar One	UTE	Waste Storage System Crusher Feeder System Fusion Module Peripherals Monitoring and Control Steam Generator Boiler Compression Turbine Reductor Power Generator Unit Sub-station	Waste to Energy with Power Generation Package Included	Zeta One	22 ton/day	WDF - TDF 1,04t / MWh - 0,83t / MWh, Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	0.77 MW	0.60 MWh *
						Zeta Two	36 ton/day	WDF - TDF 1,35t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	1.26 MW	0.98 MWh *
						Rigel One	60 ton/day	WDF - TDF 1,04t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	2.10 MW	1.64 MWh *
						Rigel Two	72 ton/day	WDF - TDF 1,35t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	2.52 MW	1.97 MWh *
						Altair One	110 ton/day	WDF - TDF 1,35t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	3.85 MW	3.01 MWh *
						Altair Two	150 ton/day	WDF - TDF 1,04t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	5.25 MW	4.10 MWh *
						Procyon	220 ton/day	WDF - TDF 1,35t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	7.69 MW	6.01 MWh *
						Orion	400 ton/day	WDF - TDF 1,35t / MWh - 0,83t / MWh Medical, Hazardous, Industrial, MSW, Solids, Liquids, Pasty, Medical	13.99 MW	10.93MWh *

ALL VORAX MODELS CAN BE OPERATED INDOORS OR OUTDOORS

10.93MWh assumes MSW with PCI (Lower Calorific Value of 2780 kCal/kg). Higher outputs achievable depending on types of waste used as feedstock.  
Example: TDF (tires) 7000 kCal/kg = 35.22MWh gross = 32.17MWh net (after Vorax consumption).

\* Calculation Basis - CDR

## VORAX - Component Parts

- Waste Storage System (CDR / CDP, others)
- Waste Preparation System (Shredder)
- Feeding System: solid, liquid, pasty (silo, tipper, track, worm thread, valve feed lines)
- Thermal Unit: Fusion Module (fusion module - transient catalyst / plasma, gasifier, afterburner)
- Peripherals: gas scrubber, filters, hood, by-product collector, etc.
- Monitoring and Control Center
- Direct Labor: Teams, Consulting
- Power Generation Unit: boiler, turbine - condensation / back pressure, reducer, electric generator, substation

## Note

1. WTUs Dimensions, Total Area and Costs: estimated values; they must be sharply determined after basic Power Plant project execution.
2. WTUs Prices (22 t/day 36 t/day, 60 t/day, 72 t/day, 110 t/day, 150 t/day, 220 t/day and 400 t/day): estimated values; they must be sharply determined after basic Power Plant project execution.

## Legend

- WDF - Waste Derived Fuel
- TDF - Tire Derived Fuel
- WTU - Waste Treatment Unit
- TU - Thermoelectric Unit

# WPP VORAX Product Line at a Glance

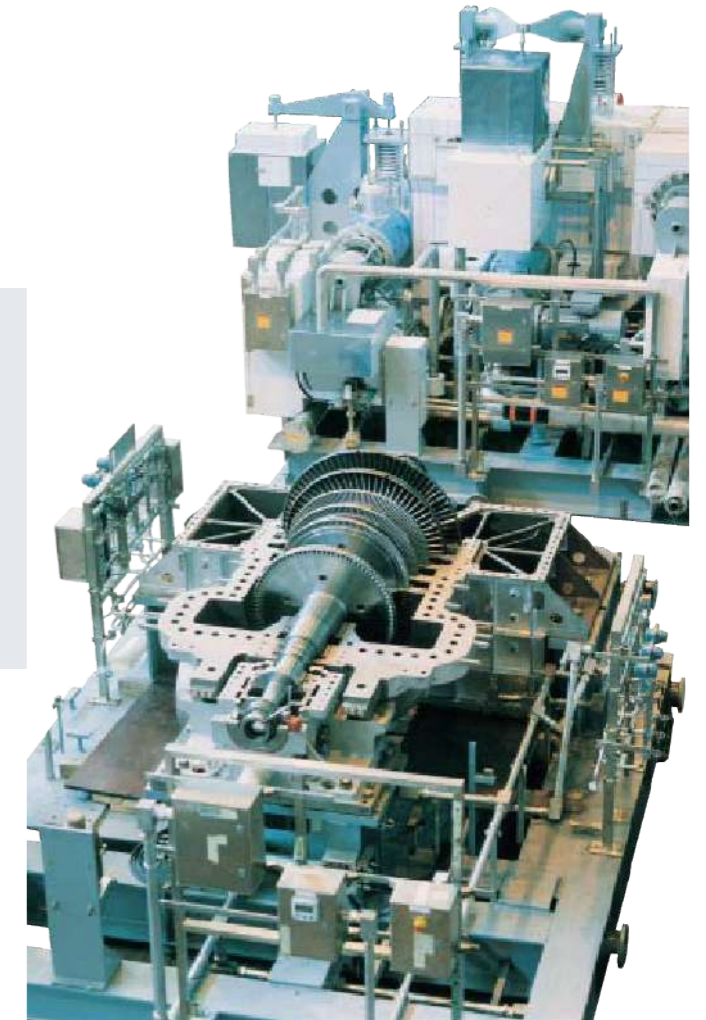
## 12 Models to Choose from

Name	Technology	Platform	Type	Components	Application	Model	Capacity	Dimensions	Order Fulfillment & Delivery
Vorax	Duo Therm	Volcano	UTR	Storage Crusher Feeder System Fusion Module Peripherals Monitoring and Control	Waste Treatment Only	Etna	2 ton/day	5,0m x 2,5m x 2,3m	5 months
						Kilauea	4 ton/day	6,0m x 4,0m x 6,0m	6 months
						Kilimanjaro	5 ton/day	8,0m x 4,0m x 6,0m	6 months
						Krakatoa	10 ton/day	10,0m x 6,0m x 12,0m	9 months
		Solar One	UTE	Waste Storage System Crusher Feeder System Fusion Module Peripherals Monitoring and Control Steam Generator Boiler Steam Turbine Reductor Power Generator Unit Sub-station	Waste to Energy with Power Generation Package Included	Zeta One	22 ton/day	18,0m x 8,0m x 10,0m	12 months
						Zeta Two	36 ton/day	18,0m x 8,0m x 12,0m	13 months
						Rigel One	60 ton/day	30,0m x 10,0m x 13,0m	14 months
						Rigel Two	72 ton/day	30,0m x 10,0m x 15,0m	15 months
	Altair One					110 ton/day	40,0m x 12,0m x 13,0m	17 months	
	Altair Two					150 ton/day	40,0m x 12,0m x 15,0m	19 months	
	Procyon					220 ton/day	50,0m x 18,0m x 15,0m	21 months	
	Orion					400 ton/day	60,0m x 24,0m x 15,0m	24 months	

**VORAX models 22T-400T/day have steam based power generation ability (required equipment is already included in the pricing above) from 2.5MWh up to over 30MWh depending on the waste composition being treated.**

### BAKER HUGHES GE BFP STEAM TURBINE BMC6

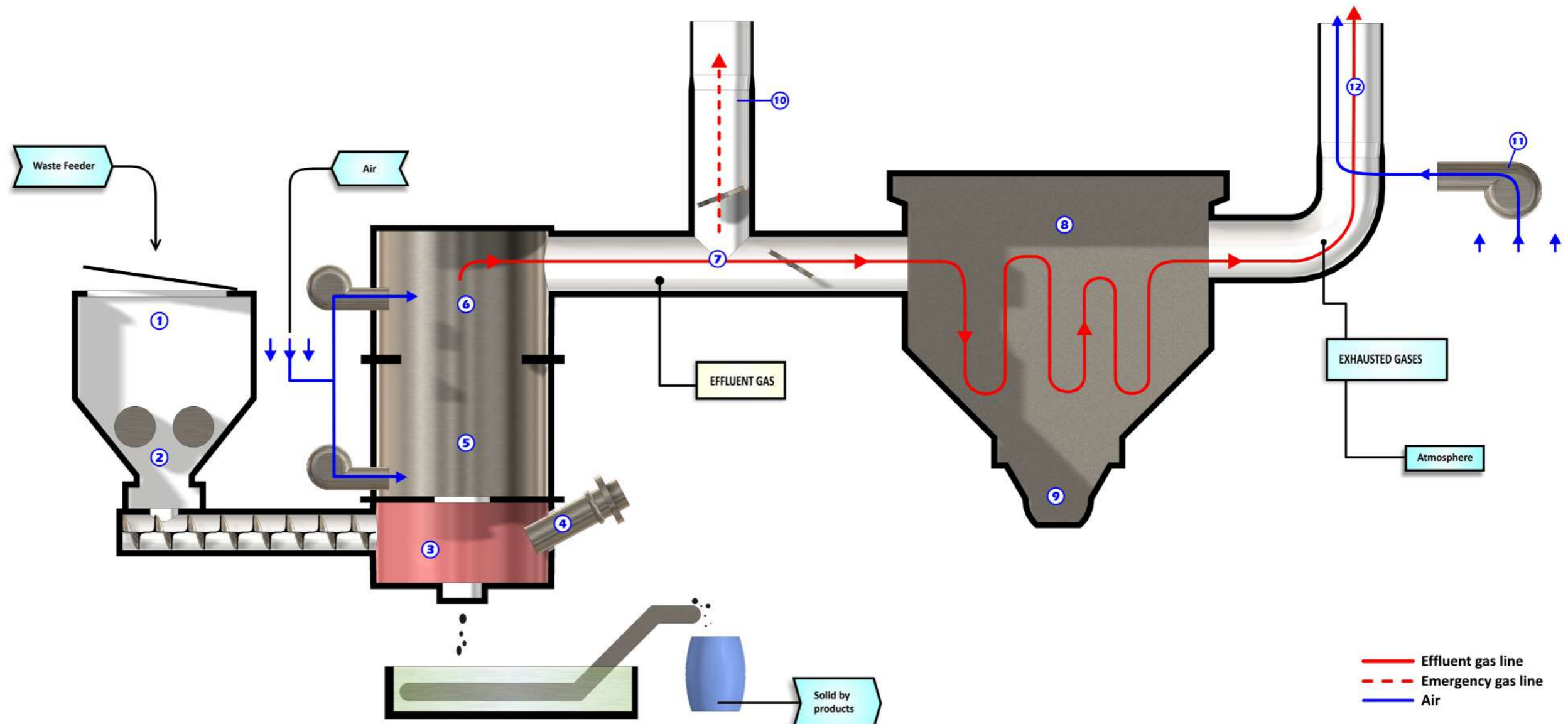
SAMPLE STEAM POWER GENERATION PACKAGE



# VORAX PROCESS FLOW SCHEMATIC FOR MODELS: 2T, 4T, 5T, 10T/Day

(No power generation package offered)

1. Feeder
2. Waste Shredder
3. Pyrolysis
4. Torch
5. Combustor
6. Afterburner
7. Safety Valve
8. Filter Sleeve
9. Particulates
10. Chimney Backup
11. Exhaust Fan
12. Chimney

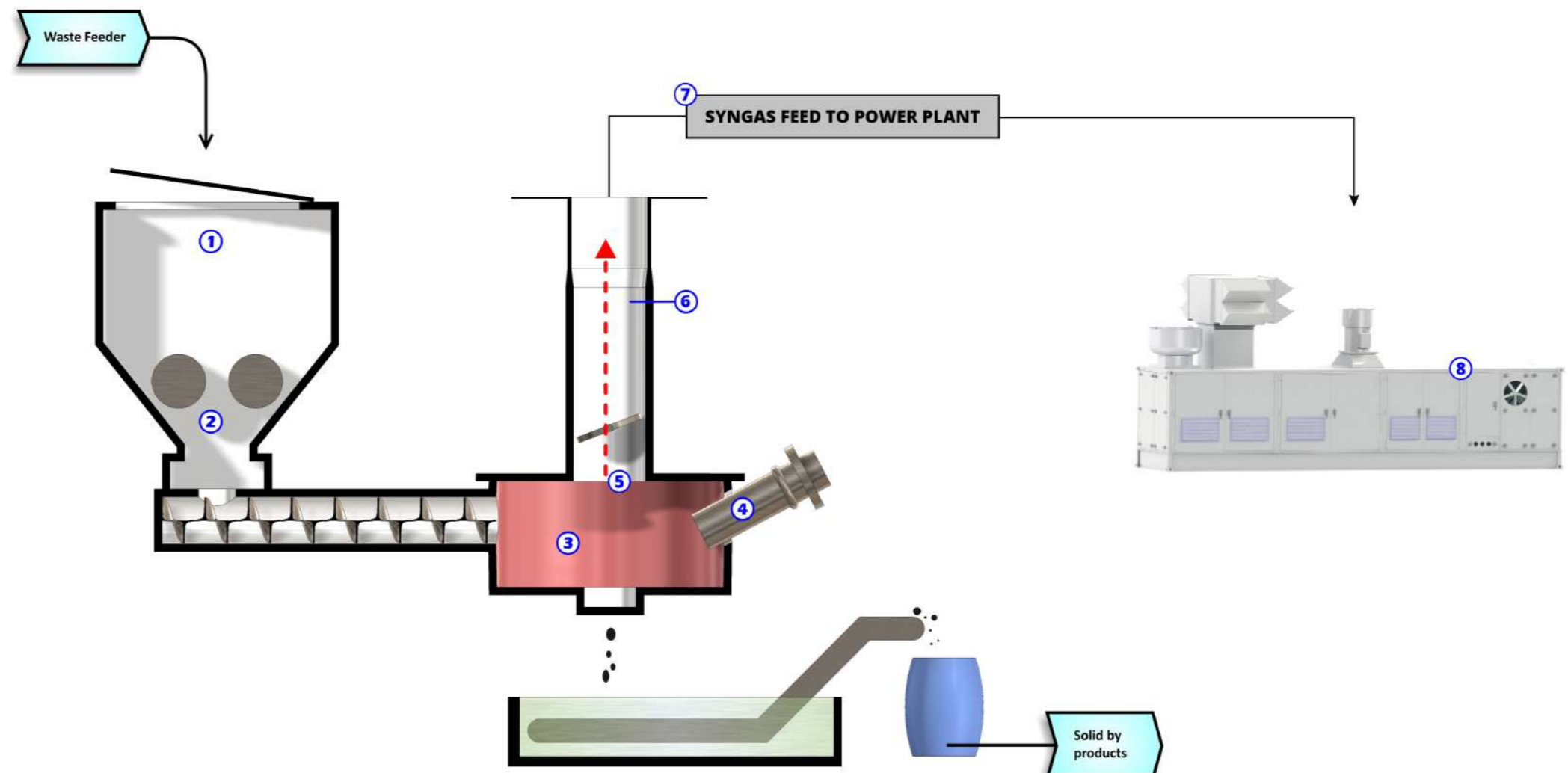


**VORAX**

# VORAX PROCESS FLOW SCHEMATIC FOR MODELS (SYNGAS BASED WtE): 36T, 60T, 72T, 110T, 150T, 220T, 400T/Day

(Combustion Associates Inc Syngas Power Generation Package Included, but not mandatory)

- 1. Feeder
- 2. Waste Shredder
- 3. Pyrolysis
- 4. Torch
- 5. Safety Valve
- 6. Chimney Backup

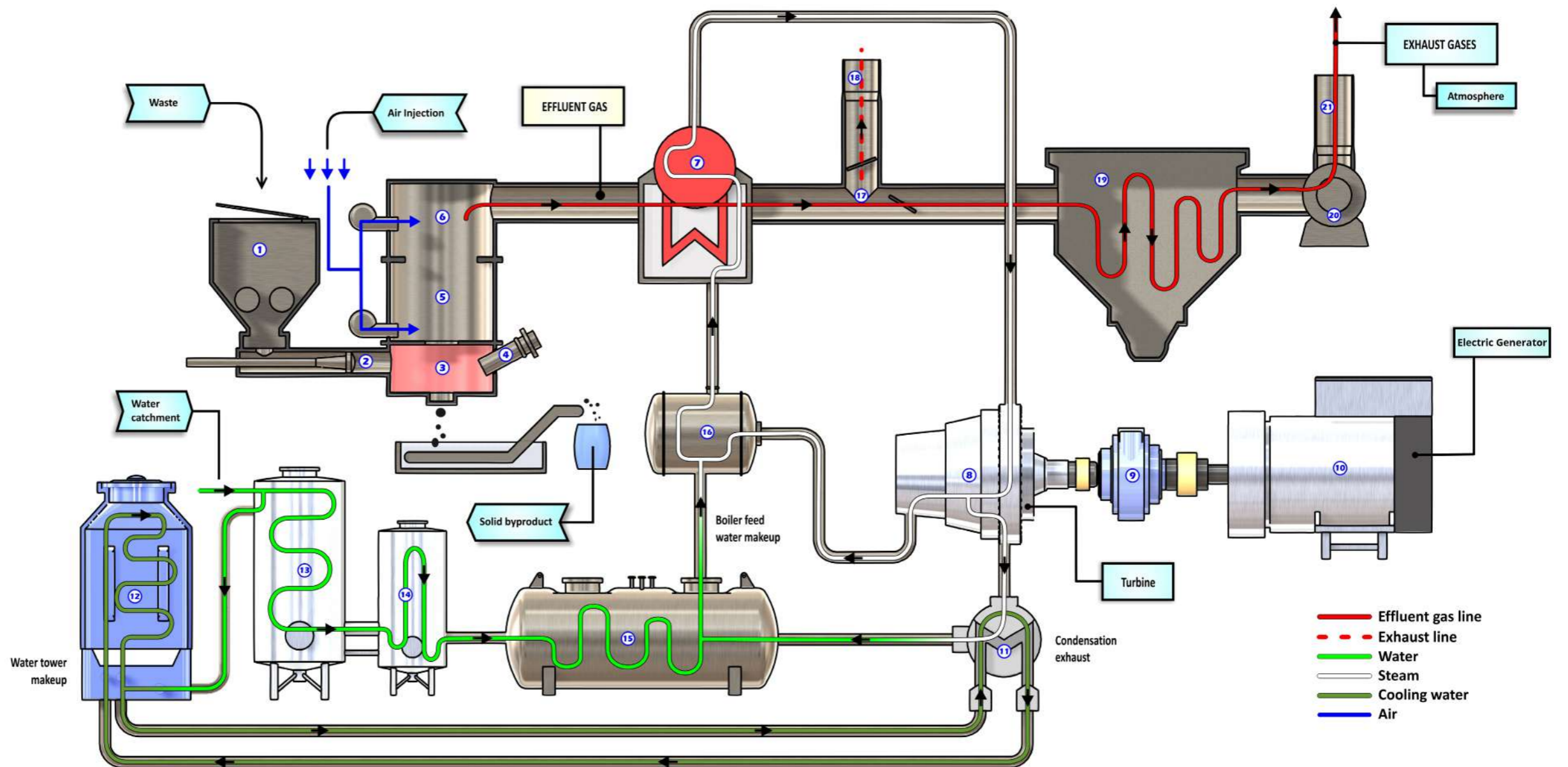


# VORAX

# VORAX PROCESS FLOW SCHEMATIC FOR MODELS: 22T, 36T, 60T, 72T, 110T, 150T, 220T, 400T/Day

(Power Generation Package Included, but not mandatory)

1. Feeder
2. Piston
3. Pyrolysis module
4. Torchs
5. Combustor
6. Pro Combustor
7. Steam Boiler
8. Turbine
9. Reducer
10. Generator
11. Condensation Outlet
12. Cooling Tower
13. Water Treatment Tower
14. Dehumidifier
15. Condesate Tank
16. Deaerator
17. By Pass Valve
18. Escape Chimney
19. Particulate Filter
20. Exhaust
21. Chimney



**VORAX**



# INTERNATIONAL AWARD 2016



## IN THE ENVIRONMENTAL CATEGORY

The technology is patented in over 40 countries and is being made available for distribution globally by WPP Energy after initially being deployed in Brazil.



# VORAX Q & A

## What are the Pre-sorting requirements if any?

No pre-sorting, no pre-selection and no pre-classification is required, the waste of various categories can be processed simultaneously, solid, liquid and pasty waste.

## Can Vorax accept Plastics?

Yes Vorax thrives on plastics of all types, no physical or chemical restrictions exist as to which plastics it can handle. Furthermore on our 22T-400Tpd models plastics provide very high energy output for electricity generation.

## What is the expected downtime for VORAX per day/week or month?

The equipment will only be stopped for maintenance reasons, normal operation will occur 24 hours a day, 30 days a month. Maintenance is monthly, 1 stop per month for a maximum of 12 hours.

When necessary, a refractory inspection will take place on the fusion module. For faster maintenance a new fuser module should be purchased as replacement parts.

## What is the expected life expectancy of a VORAX Model?

With all maintenance performed correctly, the expectation is that life expectancy exceeds 40 to 50 years, the equipment is made of steel, all components used are of industry standard, if necessary these components can be replaced by new ones not interfering with useful life.

## What is VORAX's efficiency?

VORAX reduces in mass of 10: 1 and volume up to 250: 1. The ratio of total energy generated to net energy gives us an efficiency of 26.9%. Vorax Fusion Module Efficiency is 70%.

For more info refer to the [Energy Balance/Consumption Table \(page 46\)](#)

## How loud is VORAX? Can I use it indoors and outdoors?

Well within accepted ranges, 77dB (2T to 10Tpd Models) up to 90dB (22T to 400Tpd Models).

Yes VORAX can be used both indoors and outdoors



## What resources are needed to run/operate Vorax?

### 1. People power

2T/4T/5T/10T/22T	→	2 people	110T	→	5 people
36T	→	3 people	150T	→	5 people
60T	→	4 people	220T	→	6 people
72T	→	4 people	400T	→	10 people

### 2. Electrical energy input/consumption

Approximately 183.5 kWh electrical power consumed per ton of waste treated.

### 3. Natural gas input/consumption

For each ton of waste treatment Vorax requires/consumes approximately 100Nm<sup>3</sup> of natural gas. The price of natural gas varies widely by region and according to market conditions. Some regions it can be as low as \$25 for per 100m<sup>3</sup> and some regions closer to 2x.

### 4. Bicarbonate/Baking soda (Where applicable)

In cases where the waste composition causes the creation of NO<sub>x</sub>, SO<sub>x</sub> or chlorate acid gases. By applying Sodium Bicarbonate/baking soda of up to 12kg per ton of waste. The purpose of the Bicarbonate is to neutralize acid gases like, If the waste does not have and does not generate these gases, the bicarbonate consumption becomes 0.

## How much Electrical Energy can Vorax Produce? (22T-400Tpd models only)

At the upper end of the scale, using the largest Vorox Model "Orion" 400Tpd and burning very high calorie waste such as tires Vorax can produce 32MWh "net" after factoring for its own energy consumption requirements. Our smallest WtE model "Zeta One" capacity of 22Tpd, the net power produced (tires as feedstock) is 1.77MWh.

For MSW of varying compositions and moisture levels electrical energy outputs can be expected to be roughly within the range of 1/4 to 1/2 of the values provided in the Tires example above. Mixing MSW with Plastics and Tires increases the amount of electrical energy that can be produced.

**Clients who submit details of the proposed waste composition will receive a more accurate estimate of the electrical power output to be expected.**

**Is steam based power generation from waste heat the only type of electrical energy that Vorax can produce?**

No, Vorax can be configured to produce Syngas and also a future version will be available with the custom option of steam reforming and prism membranes technology to achieve 95% purity of H<sub>2</sub> in high production volumes. (400T/day Vorax Orion model = 11,000kg - 30,000kg per 24 hour day of H<sub>2</sub>, depending on waste type).

**What type of Warranty does Vorax come with?**

Vorax comes with a standard Two Year Comprehensive Warranty with Warranty extension options available.

**Does the total daily capacity need to be divided by 24 to determine the max loading capability per hour? What happens if we exceed that capacity?**

For each model the waste feeder will be set to this condition, the torch is set for processing this volume. For example: A 2t / day model processes 83.33kg/hour, the waste feeder will be set to that maximum accordingly.

**Can you tell us more about the award that VORAX won?**

VORAX equipment technology, received from the German government through the Germany – Brazil Chamber of Commerce the “Cities of the Future” award. This award was sponsored and delivered by BASF Chemical. Parallel to the award, VORAX’s state – of – the – art technology was also presented at the IV Germany-Brazil Innovation Seminar, which annually brings the main trends in innovation and technology.

## What residual is left from VORAX?

The only residual product after the two thermal products is a saleable inert by-product material in demand by the construction and asphalt industry. The by-product can be used as an asphalt filler, ie as a complement to the asphalt mix itself, this by-product can be pressed and through this process produce bricks, it can also be aggregated into other materials. manufacturing of precast parts and lastly as a suggestion is the use with noble rubble. The byproduct with the characteristic of crushed sand, similar to crushed stone.



VORAX reduces in mass of 10: 1 and volume up to 250: 1



Heavy materials such as lead, arsenic, cadmium, chromium, mercury, etc, are retained within the crystal structure.

## What's the risk of radioactivity on the Vorax and the inert residue?

Vorax enables the solidification and vitrification of low-radioactive waste from the waste melting process. The radioactive residue in contact with high temperature, almost 1600 degrees celsius changes its contaminated solid state to liquid and then is cooled, during this vitrification process the radioactivity is encapsulated in the resulting matrix crystalline, the final residue keeps the radioactivity immobile and can be stored in a location without risk of contamination.

## **Do you have a process flow summary of how the residue/slag is discharged and cooled?**

Answer yes, here is the summary:

- The equipment is turned on
- The equipment is heated by gas burners
- The equipment reaches an ideal temperature for the supply of waste
- Waste is introduced into the fusion module
- The waste is heated
- Waste heated to a high temperature enters the melting and sublimation phase
- After the melting process, the liquid phase waste is directed to a by-product collector
- The waste is cooled down sharply inside a collector equipped with a conveyor and water at low temperature
- The conveyor belt forwards solid and cooled by-products to a collection box
- At the end of the process, the box full of by-products is removed and exchanged for an empty one
- The process is continuous without interruption

## **At what temperature does the initial slag leave the plasma arc chamber?**

It depends on the type of waste, for example glass and aluminum melt at around 1,200°C, other residues require a higher temperature, by guarantee we work with 1,580°C, a temperature capable of melting the vast majority of the existing residues on the planet.

## **Is the residue/slag cooled prior to the metals being removed?**

When the residue reaches its melting temperature, it is automatically sent to a by-product collector, this by-product collector is equipped with a water cooling system and a conveyor belt, the water is always kept at a low temperature for cooling to occur abrupt since the by-product comes in contact with water between 1,250 to 1,580°C. There is no separation of the metal, the process melts the residues completely, the difference in density and incompatibility of connection causes a natural separation, for example molten glass (silica) does not completely bond to a stainless steel part.

## **Can Vorax Process Asbestos?**

Yes, When asbestos is heated above 800°C the chrysotile decomposes into non-fibrous forsterite mineral. Chrysotile Melting Temperature is 1,450 to 1,500. Vorax DuoTherm technology creates temperatures above 1,500 to facilitate the melting of the material, and a portion of it will turn into silica.

## What are the safety features of VORAX?

VORAX features a design that maximizes safety as it is equipped with anti-explosion systems. On top of the fusion module is installed a valve that moves as the internal pressure increases instantly, preventing explosions.

In the event of a power outage, bypass valves are installed at the fusion module outlet that direct all the gas into the atmosphere to prevent this gas from standing still inside the fusion module.

In order for the melting torches to be supplied with gas and air, the system goes through a pressure and flow check control and also a leak check, if these parameters are incorrect a fault system is activated and the equipment is not supplied.

For safety reasons, for any fusion module door that is opened the grinding is paused, and only resumes when the doors close.

For any fault a visual and audible alarm is issued on the equipment control screen.

All equipment complies with safety regulations, Regulatory Standard 12 br, safety at machinery and equipment work Created by the Ministry of Labor and Employment, Regulatory Standard No. 12, aims to ensure that machinery and equipment are safe to use worker.

The equipment has level sensors that control the levels of waste feed so that there is no overload of the feeders. The same is true for sodium bicarbonate feeders.

If there is a pressure drop the system stops for the operator to check the leak location and failure.

## **What are the Emissions and What are the EPA Results for Vorax? (Environmental Protection Agency of the United States)**

The methodologies employed in the measurements are described in the methods of ABNT - Brazilian Association of Technical Standards, CETESB - Company of Environmental Sanitation Technology and of the "Environmental Protection Agency of Unity States of America" mentioned below:

### **EPA E CETESB**

- USEPA 01 – Sample and velocity traverses for stationary sources;**
- USEPA 02 – Determination of stack gas velocity and volumetric flow rate;**
- USEPA 03 – Gas analysis for carbon dioxide, oxygen, excess air and dry molecular weight;**
- US EPA 04 – Determination of moisture content stack gases;**
- US EPA 05 – Determination of particulate emissions from stationary sources;**
- US EPA 07 – Determination of nitrogen oxide emissions from stationary sources;**
- US EPA 08 – Determination of sulfuric acid mist and sulfur dioxide emissions from stationary sources;**
- USEPA 23 – Determination of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans from Municipal Waste Combustors;**
- US EPA 50 – Determination of HCL/CL2 emissions from stationary sources;**

The tests are conducted by measuring with calibrated equipment and standards traceable to international references.

All equipment is calibrated and accompanies the calibration certificate.

Provided to perform the services the following equipment:

- Isokinetic collector of atmospheric pollutants for sampling ducts and chimneys from stationary sources (CIPA);**
- Sampling Probes and Pitot Tubes for collecting ducts with temperatures above 800°C;**
- NOx sampling kit: vacuum pump, "U" pressure gauge, T-valve calibrated volumetric flasks and protective housing;**
- CONFOR OPTIMA 7 analyzer for direct reading of flue gases for O2, CO2, CO and excess air analysis;**

Parameter	Result
O2	8,4%
PM	13,52 mg/Nm <sup>3</sup>
SOx	3,56 mg/Nm <sup>3</sup>
NOx	239,48 mg/Nm <sup>3</sup>
CO	40 ppm
HCL_CL2	<5,57 mg/Nm <sup>3</sup>
DIOXINS & FURANS	0,011 ng/Nm <sup>3</sup>
CO2	6,5%
Cl2	<5,57 mg/Nm <sup>3</sup>

Air emissions monitoring campaign to verify Vorax DuoTherm concentration and emission rate. The work comprises the collection, analysis, interpretation, report emission and results of the chimney gas monitoring.

### What is a Fusion Module?

The fusion module fuses the waste through the high temperature torches. The solid part of this molten residue is conveyed to a collection mat and the gaseous part is released by the upper part of the module, this gas fraction is the synthesis gas. then the fusion module fuses the waste and releases the synthesis gas. For optimal heat retention, the fusion module is lined with refractory bricks, it helps to conserve heat making the process more efficient avoiding losses to the environment.

### What technology exists within the Vorax Fusion Module to be able to accomplish the dramatic increase in temperatures between the two chambers?

We are able to reach very high temperatures and transition between the first chamber at 900°C and the second chamber at 1600°C because Vorax is equipped with gas burners assisted by low-amperage (back-plasma) electric discharges. Transient because it is in the range between cold plasma and thermal plasma and has anomalous behavior: sometimes the amperage may increase with the discharge sometimes it may decrease, today we work with 3 amps, up to 10 amperes is still considered transient plasma.

## How is Vorax different from the other technologies in the market?

Vorax is in a technological classification of its own after more than 10 years of R&D from a brilliant team of scientists and in the invention of DuoTherm technology which puts Vorax ahead of plasma, Incineration, Gasification and also traditional pyrolysis. Vorax is thought of as a quantum leap over traditional Pyrolysis in part because two thermal processes, one at 900°C and the other at 1600°C, forming a thermal gradient, liquifying all solids completely, even inert materials such as sand or iron.

Vorax completely destroys the garbage effectively and safely, without combustion or an auxiliary equipment.

Vorax requires no combustion of waste and disintegrates as a whole, completely destroying infectious, pathological and organochlorined materials, having as a solid byproduct a ceramic matrix (do not produce ashes) and inert in the bottom of the fusion module, with commercial application - the gases formed in the process have no dioxins or furans and are of low volume because they only arise from the disintegration of the material and not from combustion or gasification traditional processes.

The fusion module, in turn, works in negative atmosphere, preventing gas leaks. The process is dry distillation of the waste, with absence of air, no combustion of waste, which provides extreme reduction of the exhaust gases as compared with conventional processes and moreover, does not allow the formation of dioxins or furans, in view of lack of oxygen and high temperature.

The garbage is not mixed with the atmospheric air and suffers a dry distillation, meaning it is completely disintegrated and liquified in the absence of air, which considerably reduces the formation of pollutants harmful to the environment and health, including carcinogens. The gases formed inside the fusion module, are suddenly sucked and cooled (quench) to then be treated and neutralized in an immersion tank, alkaline. Last generation filters, coal-based activated, ensure that the emissions meet environmental standards.

See chart on (Page 47): Solid Waste Treatment VORAX Duo Therm vs Other Technologies.



## Landfills, a global environmental problem

Vorax was designed by a team of world class scientists and engineers to accept nearly every possible type of waste to address the global problem of landfills and the reality that the earth is drowning in garbage. After treating the waste Vorax leaves only an inert resalable Vorax byproduct, leaving nothing to dump at landfills.... saving money, real estate and pollution simultaneously.

VORAX can save governments the massive cost and the long list of problems that come from creating and maintaining landfills. VORAX can eliminate landfills and their harmful pollution caused by methane gas and carbon that landfills bring.

VORAX also has a Waste to Energy component where models from 22T-400Ton per day can be equipped to produce ample amount of electricity, turning trash into money.

VORAX owners can also benefit by collecting landfill tipping fees.

## The need to take action now

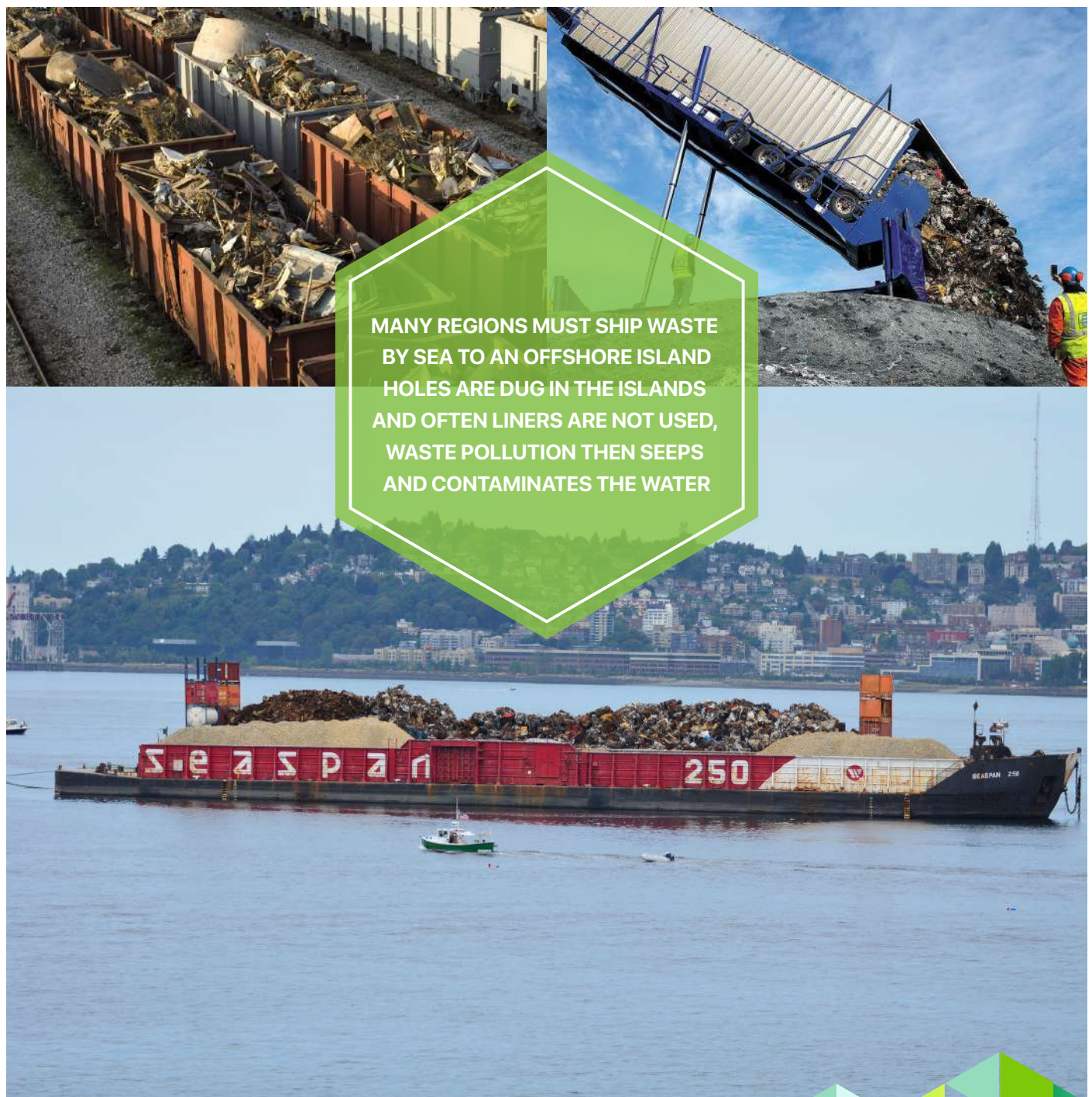
### Projected global waste increase of 2.2 billion tons annually by 2025

The staggering amount of landfill waste produced each year poses enormous challenges for the health of our planet. Despite efforts by many of us to “Reduce, Reuse and Recycle”, the fact is we’re generating more landfill trash now than ever before. Worse yet, our waste is projected to nearly double globally over the next 15 years.

Today, the average American throws out about 1,000 pounds of garbage each year. Americans generated about 250 million tons of trash last year, according to U.S. EPA estimates. Globally, we’re producing a colossal 1.3 billion tons of landfill waste annually, with a projected increase to 2.2 billion tons by 2025. The environmental problems caused by landfills are numerous. Due to massive global scale, some say the scope of our global trash crisis could exceed the challenges we currently face with climate change.

Tougher environmental standards instituted have resulted in waste management companies closing many facilities. Local dump sites have been replaced by a smaller number of regional “mega” landfills, often located hundreds of miles away.

Waste now must travel farther from a household trash-can to the landfill. The longer trips mean more greenhouse gas emissions from trucks, trains, and barges. Depending on the route, one ton of garbage traveling 500 miles by train could generate 115 pounds of carbon dioxide. Trucking is even less efficient and produces more air pollution.



**MANY REGIONS MUST SHIP WASTE BY SEA TO AN OFFSHORE ISLAND HOLES ARE DUG IN THE ISLANDS AND OFTEN LINERS ARE NOT USED, WASTE POLLUTION THEN SEEPS AND CONTAMINATES THE WATER**



## Greenhouse gas pollution

Our landfill problems not only can be compared to climate change, but they also contribute to it. As organic material such as food scraps break down in a landfill, they eventually release methane into the atmosphere. This greenhouse gas is 21 times more potent than carbon dioxide. Methane from landfill sites account for 12% of total global methane emissions and almost 5% of total greenhouse gas emissions.



## Ground water pollution

Toxic waste that leaches from landfills into our soil and groundwater are extremely harmful to human, animal and plant life. The protective barriers and stricter standards of modern landfills only delay the inevitable.

Even though today's landfills cannot legally receive "hazardous" wastes, they can still slip in, resulting in a dangerous toxic soup. Aside from industrial and household chemicals, growing amounts of electronic waste containing lead, cadmium, and mercury are serious threats to water quality issues.

The EPA reports that of the nearly 3 million tons of electronic waste, 25 percent or less were recycled. Noxious e-waste materials accumulate and can eventually penetrate landfill linings or be washed away periodically by rain and into our municipal water supplies. VORAX can process electronic waste.



# A REVOLUTIONARY ENVIRONMENTAL WASTE TREATMENT TECHNOLOGY

**All Vorax models come with a complete warranty and service. Please inquire for details.**



**WPPENERGY**  
World Power Production

## FOR MORE INFORMATION


**Email Address: [info@wppenergy.com](mailto:info@wppenergy.com)**

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**INQUIRIES: +41 917 566 945**

WPP VORAX® powered by Solum®

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# A SCIENTIFIC BREAKTHROUGH.

**INEXPENSIVE MASS HYDROGEN PRODUCTION FROM WATER**

**CLEAN H2 POWER GENERATION. NO FOSSIL FUEL**



# W2H2 TECHNOLOGY INTRODUCTION

W2H2 is a solution that will convert polluting power producers into efficient low cost green energy producers using water as the feedstock to generate onsite large scale hydrogen production which then replaces fossil fuel to operate the power plant. The solution is able to scale to industrial volumes of hydrogen production for use in thermal electric power plants.

The WPP agenda includes converting to clean hydrogen fired W2H2 energy as many as possible of the world's polluting Coal, Oil, Natural Gas and Gasoline Power Plants. WPP brings forward an offering for an industrial sized solution to clean up this industry, greatly reducing the main operating cost of a power plant, namely fuel, while significantly reducing the costs of energy production and significantly increasing environmental benefits through a zero carbon footprint.

The W2H2 solution will help facilities which are shut down or about to be shut down because most commonly of environmental regulations no longer allowing fossil fuels to be used as the source for generating electricity.

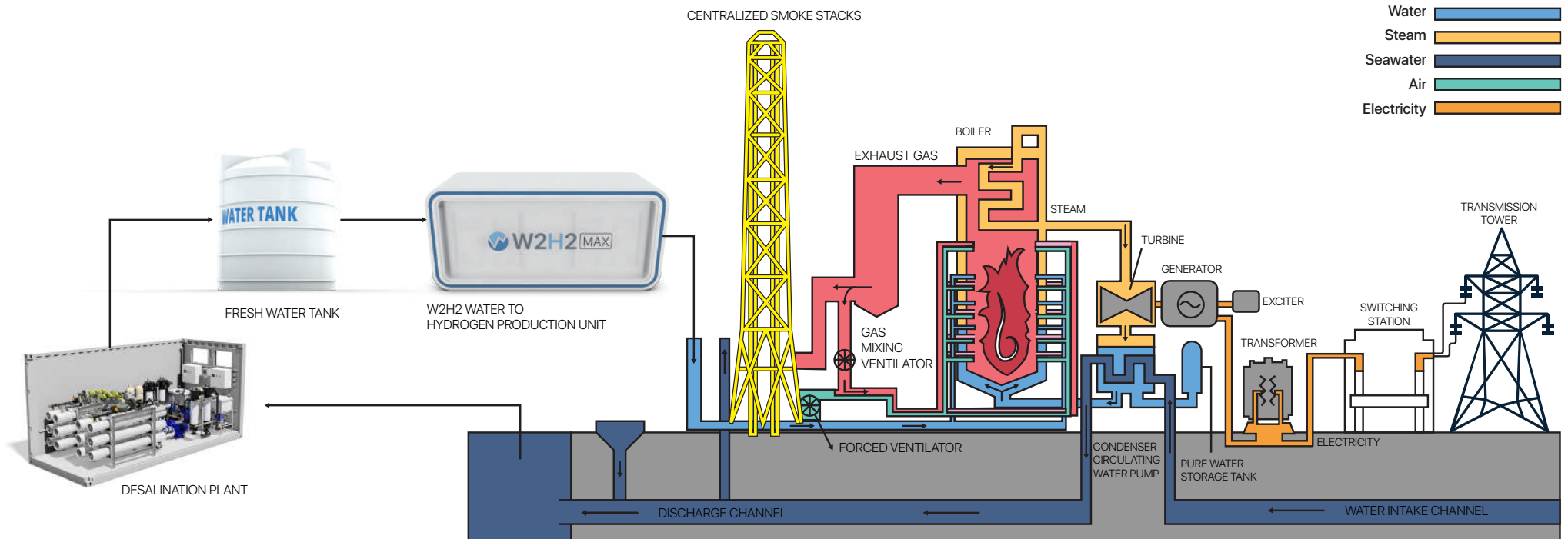
Aside from dramatically lower the cost of hydrogen based energy to less than \$0.02 per kWh, using the W2H2 solution no significant of hydrogen is required since H<sub>2</sub> production is done in real time according to actual power production requirements. Eliminating storage addresses one of the greatest challenges in using hydrogen gas as a renewable fuel source, avoiding a storage model is also much safer.



With W2H2 onsite hydrogen production technology no transportation of hydrogen or no underlying supply chain tied into the costs associated transportation by truck, rail or boat. This increases safety and decreases operating costs.

W2H2 technology, not only promises lower cost of energy, but also a complete elimination of CO<sub>2</sub> and Methane.

# W2H2 OPERATING SCENARIO SCHEMATIC



- NO NEED FOR FUEL SUPPLY CONTRACTS AND NO NEED FOR FUEL TRANSPORT
- HYDROGEN FUEL PRODUCTION AND ELECTRICITY PRODUCTION ARE LOCATED IN THE SAME AREA
- HYDROGEN FUEL PRODUCED IN-HOUSE AND NOT INFLUENCED BY MARKET FORCES

# ADVANTAGES OF THE W2H2 POWER GENERATION SYSTEM



- Up to 70% Reduction in Fuel Costs
- Zero CO<sub>2</sub> & Zero Methane Emissions
- Carbon Credits
- H<sub>2</sub> Possesses 3-5X The Calorific Value Of Fossil Fuel
- Eliminates Fossil Fuel Storage Costs
- Eliminates Fuel Transportation Costs
- High reliability and longer life expectancy
- Sea container design ensures lower site set-up costs
- Ease of operation
- Longer intervals between maintenance cycles and overhauls
- 24/7 continuous, reliable fuel supply and power



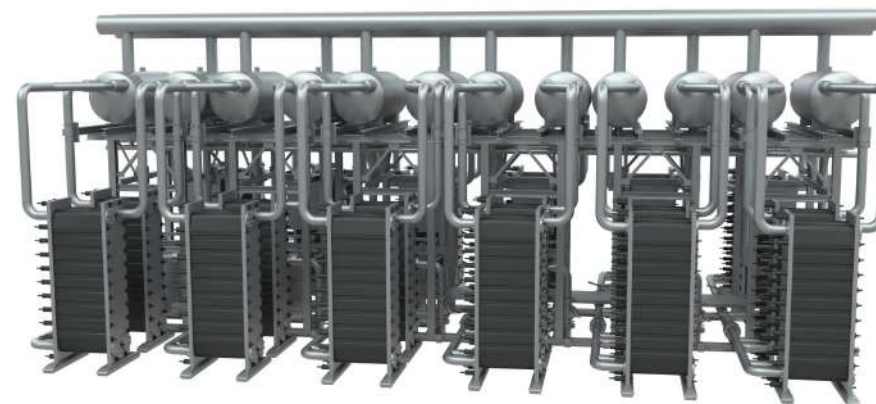
# W2H2, THE INNOVATION OF WATER SPLITTING THROUGH USE OF MAGNETIC AND OPTICAL FIELDS

W2H2 is based on an advanced proprietary scientific method developed over 12 years of research by a team of world class physicists which are at the heart of the W2H2 solution. The method includes the invention of using an unconventional multi step process of producing Hydrogen Gas from water at much lower cost than competing technologies (i.e. conventional Electrolysis which uses 44 to 55 kWh of electricity per 1kg of H<sub>2</sub> production).

To address the energy consumption problem of conventional water electrolysis WPP Energy, has pioneered a new method of magnetic and light enhanced electrolysis that using the same amount of electrical energy input, produces more than 9 times as much hydrogen than conventional electrolysis methods do. Consequently a portion (estimated at 25-30%) of the hydrogen generated can be used to drive the process itself and the major portion (70-75%) then can be applied to generate power for other purposes. This idea seems to contradict the law of conservation of energy. In reality it does not.

The new enhanced electrolysis process includes a weakening of the oxygen-hydrogen bond of the water molecule.

An electric and a magnetic field are established before the bond is broken. The magnetic field is generated using a permanent magnet and thus requires no additional energy. The electric field is generated by a laser operating at **XXXnm** wavelength that requires relatively little input power. The effect of bond weakening by the application of electric and magnetic fields is difficult to explain fully theoretically but it is experimentally proven.



The liberated energy from the process is greater than the energy that was used to break the weakened bond. This energy gain phenomenon may best be theoretically explainable by the same or similar process as observed in low energy nuclear reactions (LENR).



The W2H2 method can be implemented as a retrofit solution to replace existing conventional electrolyser methods in well established electrolysis products on the market such as the Siemens Silyzer as shown.

Key members of our team published research in 2017 which demonstrated a 915% improvement in H<sub>2</sub> production volumes over conventional electrolysis using the same amount of energy. It is this research which is the foundation W2H2 Technology.


**A summary of the groundbreaking research is Detailed in the 8 page document which is classified**

# W2H2: A SOLUTION FOR POLLUTION AND GREENHOUSE GASES

**POWER GENERATION WITH ZERO CO<sub>2</sub> AND ZERO METHANE EMISSIONS.**

W2H2 is a no carbon emissions technology designed to shift existing and future industrial power production away from fossil fuels and therefore reduce the world's harmful emissions, currently approximately 25% of the world's harmful emissions are caused by Industrial Power Production.

The availability of W2H2 technology will dramatically lower the cost of energy, increase security and ultimately reverse global warming since carbon neutrality can be achieved. The dependence on oil producing countries will be eliminated.



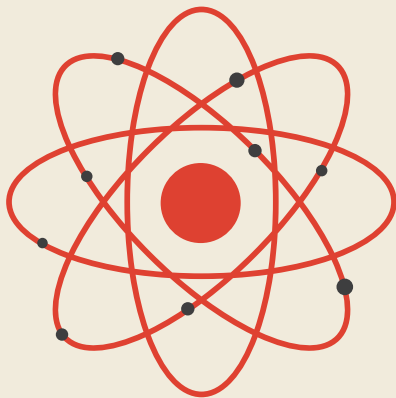
A 210MW Natural Gas Fired Boiler (operating at full load) if converted to Zero Carbon Emissions W2H2 Technology would see an estimated 333,300 metric tonnes of CO<sub>2</sub> per year eliminated and a Coal-Fired Boiler a reduction over 650,000 tonnes annually.

In addition the many environmental problems associated with the mining of and transportation of coal are avoided and similarly all of the problems and leakage associated with natural gas drilling, fracking and transportation are avoided.



# W2H2, TRUE SUSTAINABLE RENEWABLE ENERGY

The environmental friendly water vapor emissions coming from the W2H2 power plant goes to the Earth's atmosphere where it undergoes the various steps of the Earth's Water Cycle enabling them to eventually, in various amounts, replenish the water resources in the land and the abundant water resources in the sea in the form of rain and this process will repetitive during the course of the power plant's operation.



## CLASSIFICATION OF HYDROGEN:

By definition, Renewable Energy is energy that is collected from renewable resources, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves and geothermal heat.

W2H2 is sustainable since our water feed for W2H2 Conversion unit comes from the ocean which is an inexhaustible resource.

Currently approximately 5% of the world's hydrogen production is considered green. W2H2 is a green method of Hydrogen Production and not dependent in any way on fossil fuel.

Not all Hydrogen production methods have the same environmental benefits which is where W2H2 technology shines. While Hydrogen that does not emit CO<sub>2</sub> upon combustion the source of the hydrogen must be considered when assessing its impacts on carbon emissions in power generation applications. Hydrogen production can be classified according to its carbon footprint:



## Green Hydrogen

Hydrogen production with zero associated CO<sub>2</sub> emissions, such as **W2H2** advanced water electrolysis using electricity from 100% renewable sources (It's own power generation for example). Emerging technologies may also be classified as green if there are no CO<sub>2</sub> emissions associated with the electricity required for the process.

## Blue Hydrogen

CO<sub>2</sub> capture systems are fitted to the hydrogen production a technology and the CO<sub>2</sub> sequestered in underground aquifers, depleted oil and gas fields, or used in industry (ex: Food & Beverage) to produce higher value products. CO<sub>2</sub> capture is not 100% efficient, so some CO<sub>2</sub> will always be released to the atmosphere.

## Black/Grey/ Brown Hydrogen

CO<sub>2</sub> is produced during the hydrogen production process and released to atmosphere. To date, more than 90% of the worldwide hydrogen is supplied via this route. However, in combination with power generation the associated CO<sub>2</sub> emissions with generating hydrogen this way is equal to or greater than the avoided emissions from burning natural gas in a gas turbine.



# ARE THERE ANY EMISSIONS WITH W2H2?

Hydrogen allows us to eliminate the emission of CO<sub>2</sub> and Methane. If we do not have carbon present in the combustion reaction, obviously we are not going to produce it in the gases.

Hence, CO<sub>2</sub> is not emitted when hydrogen is burned. When hydrogen is burned nitrogen oxides (NO<sub>x</sub>) is emitted and the W2H2 solution comes with a NO<sub>x</sub> control system to keep levels below environmental regulations level. The reason for the higher formation of nitrogen oxides comes from the higher flame temperature of hydrogen. The adiabatic flame temperature of hydrogen is about 170 °C higher than that of natural gas.

The W2H2 NO<sub>x</sub> solution is based mostly on a recirculation of gases to decrease the temperature of the flame, and the consequent decrease in thermal NO<sub>x</sub>. This recirculation of gases can be internal or external.

By re-circulating approximately 15-20% of the total gases emitted by the generator, we can reduce emissions even below 100 mg / Nm<sup>3</sup>, less than those of natural gas.

By applying this gas recirculation technology, we are also able to reduce the flame temperature, and consequently, reduce the heat transmitted by the flame by radiation.

The recirculation of gases will allow us to obtain more friendly flame temperatures for the equipment and also guarantee a higher lifetime without having to reduce their thermal power.

Emission regulations are governed by two Directives in the European Union at this time. They are directive 2010/75/EU, applicable to combustion plants of more than 50 MW thermal, and directive 2015/2193 EU, which affects medium combustion plants with a power between 1 and 50 MW thermal. The emission values that mark these two regulations are the following (the emission values are calculated for a temperature of 273.15 K, a pressure of 101.4 KPa and an excess of oxygen of 3%).



## W2H2 STRONG VALUE PROPOSITION (DATA PROVIDED IS PER 210MW LINE)

Cost of 100% H <sub>2</sub> Fuel in US\$/kWh	0.0142
Estimated Cost of Natural Gas Fuel in US\$/kwh in the region	0.0400
Savings of W2H2 Compared to Natural Gas Price in %	64.4%
US\$ Cost Savings of 100% H <sub>2</sub> over Natural Gas for Electricity sold per Year	29,045,833.32
US\$ Cost Savings of 100% H <sub>2</sub> over Natural Gas for Electricity sold per 5 Year	145,229,165
US\$ Cost Savings of 100% H <sub>2</sub> over Natural Gas for Electricity sold per 25 Year	726,145,825
Project CAPEX = 120m Euros (\$145m USD)	Investment recovery in 5 years*

Return on 120m euros investment after 25 years

**= CAPEX Covered + \$581,145,825 USD (481m Euros) saved on fuel costs. Additional benefits from carbon credits not included.**

**Approximately a 4x return on investment after 25 years**

# SOLUTION FOR HOME OWNERS/HOME BUSINESS OWNERS (FUTURE PRODUCT)

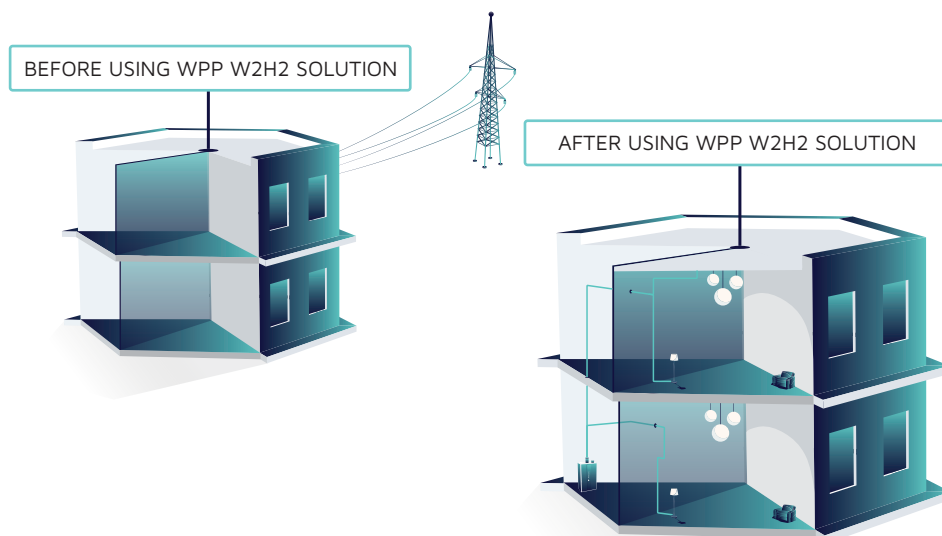
The WPP Home Owner/Home Business Owner offering is an instant low cost clean energy power source for those wishing to unplug from their current overpriced energy provider and enjoy their own efficient, very low cost, clean independent power source. Users will enjoy a dramatic reduction in energy costs.

The W2H2 Home Owner Solution is projected to produce (estimate only, still under development, and final design subject to change) 2, 10 and 20 kWh.



## SMALL INVESTMENT, BIG SAVINGS

Users of this technology will discover that it will typically pay for itself in under two years. Users will be free of power bills once their modest initial investment in the W2H2 hardware has been recovered. Utility companies around the world will bear the brunt of widespread market adoption as they lose customers after years of charging consumers high prices.





# WPP TOKEN DETAILS

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## TOKEN DISTRIBUTION:

<b>Token Sale</b>	50%
<b>Founders/Management/Operations</b>	20%
<b>WPP Reserve</b>	5%
<b>R&amp;D Team (s)</b>	5%
<b>Cryptocurrency Rebate Program</b>	10%
<b>Marketing: Referral/Bounty/ Rewards/Commumunity Growth</b>	10%



## KEY METRICS

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- ⊗ **SYMBOL - WPP (ERC20)**
- ⊗ **TOTAL SUPPLY - 5 BILLION WPP**
- ⊗ **CIRCULATING SUPPLY - 2.5B +/-WPP**
- ⊗ **SOFT CAP - 5M USD (REACHED)**
- ⊗ **HARD CAP - 2.5B WPP TOKENS (99.53% OF HARD CAP REACHED)**
- ⊗ **ITO START DATE - JULY 15TH, 2018**
- ⊗ **ITO END DATE - DECEMBER 31ST, 2018**



**WPPENERGY**  
World Power Production



# WPP TOKENOMICS REPORT

2019

**Intention to tie WPP Token to the retail value of Hydrogen Gas (H2) and Intention to accept WPP Token as a Payment Method towards future WPP Energy subsidiary equities.**

## INTRODUCTION TO WPP ENERGY GmbH

Headquartered in Geneva Switzerland, WPP ENERGY GmbH is an innovation leader in the renewable energy industry since 2009.

WPP is a repository for disruptive green energy technologies, aiming to produce electricity at a much lower Cost and to reduce landfill waste by up to 97%.

Technologies such as **W2H2** Power Plant Conversion where fossil fuel power plants are converted to Hydrogen fired, and environmental technologies such as the **VORAX** which processes and converts garbage into electricity for power generation purposes. WPP intends to transmit its energy and biofuel production, and that of its partners, into an upcoming Blockchain based Global Green Energy Futures Contract Trading Platform (“HyFi”).

WPP builds, owns, operates and maintains these advanced technologies and enters into strategic joint venture partnerships for the purpose of accelerating the deployment of important environmentally friendly technologies for the benefit of the entire world.



# GROUNDBREAKING TOKENOMICS

## WPP TOKENOMICS QUICK OVERVIEW

The First Token to be tied to the retail value of Hydrogen Gas (H2), and as a payment method to participate in Equity Markets.

1. INTENT TO HAVE WPP TOKEN ACCEPTED AS A PAYMENT METHOD TO PURCHASE CONVERTIBLE PREFERRED SHARES (Subject to SEC, FINMA and any other regulatory approvals required).
2. INTENT TO ASSET BACK WPP TOKEN WITH COMMODITIES (Subject to SEC, FINMA and any other regulatory approvals required).
3. BONUS REWARDS FOR HOLDING WPP TOKENS
4. PAYMENT TOKEN ON THE GLOBAL GREEN ENERGY FUTURES CONTRACTS BLOCKCHAIN (“HyFi”)
5. WPP TOKEN IS TO BE ACCEPTED PAYMENT METHOD FOR ALL WPP ENERGY PRODUCTS



## WPP TOKENOMICS DRILL DOWN

### 1. INTENT TO HAVE WPP TOKEN ACCEPTED AS A PAYMENT METHOD TO PURCHASE CONVERTIBLE PREFERRED SHARES

Hold WPP Token for 12 months or more to have the right to swap into public company convertible preferred shares.

(Subject to SEC, FINMA and any other regulatory approvals required).

WPP Energy GmbH has is in the process of executing a Binding MOU to acquire a 90% interest in a Public Company which is now with the SEC attorney for review and execution.

The public company intends to have an Offering to issue a convertible preferred stock (amount to be determined) subject to SEC approval.

It is further intended that the public company will accept payment in Tokens at an exchange value of a minimum of \$1 per token or 25% over the current market value.

The issuance of the Public Company Convertible Preferred Stock will be priced at the time of Offering. The pricing of the convertible Preferred Stock will be at \$25 to \$50 per share with an estimated 8% annual dividend payable quarterly.

WPP Tokens will carry a valuation premium of 25% over fiat currency when purchasing the Preferred Shares.

When purchasing Preferred Stock with WPP Tokens you must provide a least a 25% fiat currency component to the purchase.

## 2. SO HOW DOES IT WORK ?

### EXAMPLE 1

WPP Token trades at **\$0.50**, and the Preferred Share is expected to be priced between **\$25-\$50** per share.

WPP will accept WPP Token at a value of **\$1.00** when purchasing a convertible preferred share, and at least a **25%** in fiat Component.

To Purchase a Preferred share at \$25

You will need a fiat requirement of **\$6.25** and **18.75** WPP Tokens (when WPP Token price is at **\$0.50** but accepted at **\$1** value)

### EXAMPLE 2

WPP Token trades at **\$1.50**, and the Preferred Share is expected to be priced between **\$25 – \$50** per share.

WPP will accept WPP Token at a value of **\$1.875** when purchasing convertible preferred share, and at least a **25%** fiat Component.

To Purchase a Preferred share at **\$25**.

You will need a fiat requirement of **\$6.25** and 10 WPP Tokens (when WPP Token price is at **\$1.50** but accepted at **\$1.875** value)

### MORE DYNAMICS IN MOTION

This provides a dynamic aspect to WPP Token as it provides Token Holders access to the equity markets where dividends can be earned and crypto is valued favorably over fiat.

Furthermore traditional stock market buyers will recognize it may be a better strategy to buy WPP Token first before buying the shares with fiat currency so the 25% valuation premium can be obtained.

The Convertible Preferred Stock will also have redemption rights backed by a cash component of the Principal Investment which will be placed in an IOLTA Trust account at a Major World Bank. This offering is subject to Swiss Law and SEC approval.

The Public Company intends to issue the Convertible Preferred Stock which will be convertible into common shares of stock or may be traded as a separate stock on an exchange. subject to SEC approval.

## **2. INTENT TO ASSET BACK WPP TOKEN WITH COMMODITIES**

The WPP Engineering teams, blockchain, chemical, industrial and electrical engineering are working together to accomplish the tie in of H2 (Hydrogen Gas) production and target H2 Reserves/Reservoirs into the blockchain.

The intent is to Asset Back and correlate WPP Token to the market price of 1 KG of H2 (Hydrogen Gas). (Subject

to SEC, FINMA and any other regulatory approvals required)

The strategy is to create incremental levels of asset backing of the token.

## **3. BONUS REWARDS FOR HOLDING WPP TOKENS**

Ecosystem to reward token holders with bonus tokens to be calculated on the amount held in WPP tokens for every **3 consecutive months of ownership**.

WPP will provide a **25%** bonus for holding WPP Token for the initial 3 month period right after WPP Token is launched on Digifinex. Token Holders of record as of **March 31st 2019 at 11:59pm EST** are eligible.

Tokens must be stored on an **ERC-20** wallet (**MEW, Metamask**) to be eligible to receive the bonus.

**Tokens moved to the crypto exchanges will not be eligible.**

Additional incentive programs will follow.

#### **4. PAYMENT TOKEN ON “HyFi“ Platform.**

WPP Token will be featured on Green Energy Futures Contract Trading Platform (“HyFi“). WPP Token intends to trade as a 1kg unit of measurement on the HyFi Platform.

For more information on the role of WPP Token in the upcoming Global Green Energy Blockchain Platform (“HyFi“) please see:

<https://hyfi-corp.com/>

#### **5. WPP TOKEN IS TO BE ACCEPTED PAYMENT METHOD FOR ALL WPP ENERGY PRODUCTS.**

WPP will accept WPP Token at the posted fixed WPP Store rate towards WPP Products shown.

In certain cases up to 50% of the products total purchase price can be paid in WPP Tokens and the remaining must be paid in Fiat Currency.

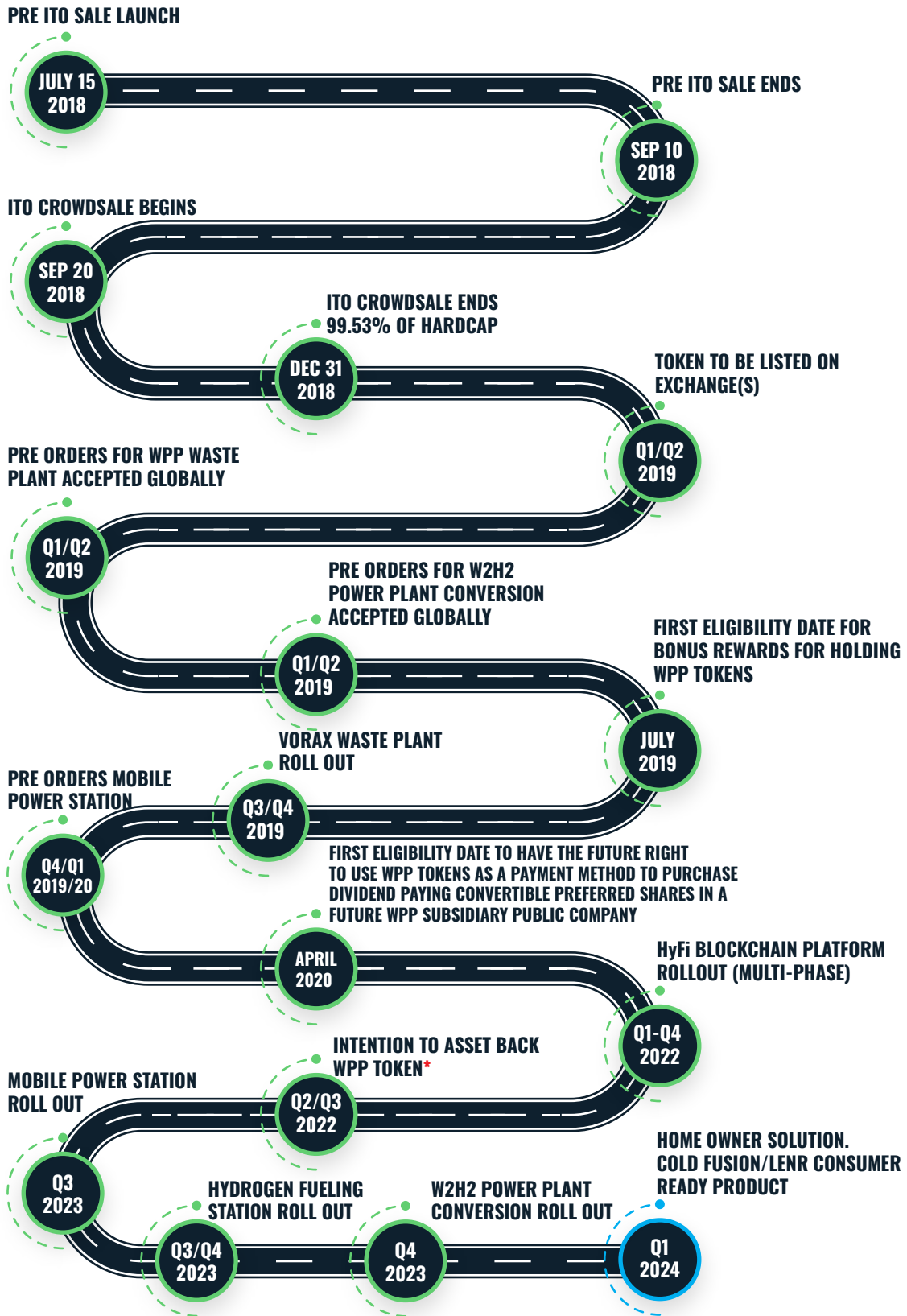
More information will be provided according to the product roll out schedule disclosed in our roadmap. Please see the last page of our whitepaper for the roadmap

<https://wppenergy.io/pdf/Whitepaper.pdf>





# 2018 to 2024 ROADMAP



\*(Subject to successful negotiations with Key Partners and any regulatory approvals needed (i.e. SEC, FINMA)).