

Waste-to-Energy

“EXPRESSION OF INTEREST (EOI) TO DESIGN, BUILD, FINANCE, MAINTAIN & OPERATE AND TRANSFER A WASTE TO ENERGY PROCESSING PLANT IN DANDORA”



Circular Economy Transition - ZERO Waste ZERO Landfill



To - The County Secretary and Head of County Public Service Nairobi City County Government, P.O Box 30075-00100, Nairobi, Kenya

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Example of Waste-to-Energy & Recycling plant - Full funding provided and a 10% revenue share in each plant for the Government.
The plant (s) will pay for themselves from Power Purchase Agreements



EOI - Funding Offer LOI



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January 23, 2023

The Honorable County Secretary and Head of County Public Service
Nairobi City County Government
P.O. Box 30075-00100
Nairobi, Kenya

LETTER OF INTENT **Funding the Waste-to-Energy Program in Nairobi, Kenya**

To the Honorable Sirs:

Headway USA, as a collaborator with the UK company, PSECC, is a leading project management and project finance group in the United States, and is pleased to state its intention to provide management and funding support, to the fullest extent possible, for the facilities and services being proposed for the evaluation, selection, implementation, and operations of a Nairobi **Waste-to-Energy program (the "Program")**.

This letter of intent ("LOI") outlines the interest and capability to participate in the proposed Program under PSECC and is subject to the execution and closing of a definitive agreement ("Definitive Agreement" or "Contract").

We propose the initial project phase to include the planning and engineering design works for a planned either one large plant processing 2,500 TPD (Tons Per Day) of MSW (Municipal Solid Waste) or five plants each processing 500 TPD MSW. This is envisioned as a \$385 million USD project.

1. Financing the Waste-to-Energy Programs from US Eximbank, ESG oriented funds and US and European large financial institutions

Program funding is achieved by a combination of low-interest rate, near-concessional rate US government loans to the government of Kenya via US Eximbank, and private-sector funding via specialized ESG (Environmental, Social, Governance) oriented funds. In particular, a new ESG fund mechanism being developed by Headway and several US and European financial institutions will be tapped for this Program.

Loan Financing from the US government, is typically denominated at 1-1.5% above the US Treasury Rate (currently US 10-year Treasury rate is 4.25% per annum, which would entail a gross rate of 5.25-5.75% per annum to Kenya) and for 10-year or 18-year duration, this will be facilitated by Headway, together with the US Department of Commerce and the US Export-Import Bank, along with Headway's banking partners. In conjunction, private funding, which is provided on an equity investment basis (no debt, but share of earnings of the enterprise), will also be arranged directly by Headway, along with the investment committee of the new ESG fund mechanism. Close coordination will be required with the

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official governmental and financial regulatory bodies in Kenya to provide assurances in terms of repatriation of funds and earnings, and, in the case of loans, repayments of the loans.

Repayment of the funding can be structured via power purchase agreements from the selling of recycled materials generated from the Waste-to-Energy Program. This also takes into account a planned revenue sharing with the various local government structures as negotiated.

2. Technology and Services Offering to the Waste-to-Energy Program

The technology involved in Waste-to-Energy is constantly evolving and improving, in terms of capability, operability and profitability. Headway has pre-established relationships with the leading Waste-to-Energy companies throughout the US and globally; however, Headway shall work closely with the relevant authorities in Nairobi to evaluate the latest developments, alongside their operating limits and benefits, to establish the optimal solution for Nairobi for this program.

3. Structure of the Relationship

A new special purpose vehicle (or newco) corporate entity will be launched in Kenya for the Program. The new entity shall include the various stakeholders in the Program, i.e. Kenyan government, municipal players in the waste market, private sector players, facility operators, financing players, PSECC and Headway representatives. Once the new company is formed, that entity's agreements and covenants, as satisfactory to all the parties, will govern the development and operations of the project. The funding is then provided to that new entity.

4. Next Steps: Phase I and Phase II

Phase I: Feasibility and Engineering: \$10 Million

Headway recommends a preliminary feasibility and engineering phase for the Waste-to-Energy program at the single site or the five sites, respectively, at locations to be determined based on recommendation and preferences presented by each of the stakeholders. This phase one feasibility and engineering plan entails a \$10 million process to develop a technical and economic feasibility study, in addition to the initial engineering design plan. This will be arranged by Headway and provided via an Eximbank loan. The action steps needed are as follows:

- ⇒ Negotiate and sign a commercial agreement between Nairobi and the Headway, outlining the Waste-to-Energy program for the one or five identified sites. Typically, the contract is signed should be signed by the local government and a national government minister. This will require close coordination among those respective governments and ministries.
- ⇒ Submission of an Eximbank loan application. The application process is detailed and complex, thus Headway will utilize its expertise to support and coordinate the Kenyan government through the entire application process to ensure an efficient turnaround. The application must be signed and submitted to US Eximbank by the Minister of Finance of Kenya.

Phase II: Implementation of five (5) WTE Plants: \$375 Million

- ⇒ Upon approval of the \$10 million fund for feasibility, Headway will manage and develop and finalize the technical and economic feasibility study, in addition to the initial engineering design



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plan. During this stage, Headway will prepare submission to Eximbank for the remaining funding of roughly \$375 million for the one or five sites.

Headway hereby states and affirms its intention to fully support the evaluation, selection, implementation, and operations of this proposed Program. We look forward to further discussions regarding the Waste-to-Energy Program for Nairobi and we envision subsequent near-term missions from the US with our funding and/or technical partners, to conclude any necessary agreements with you.

Sincerely,

A handwritten signature in black ink that reads "Danny Cruz".

Danny Cruz
CEO and Managing Director
HEADWAY PM, LLC
Washington DC / Orlando, Florida, USA
www.headwayus.com

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Certified

Executive Summary

Headway USA & PSECC Ltd (the Developers) Consortium Submission documents and proposal for the development, operation and maintenance of a Waste to Energy project through a framework on a Design, Build, Finance, Operate and Transfer the “DBFOT basis. This **ZERO Waste ZERO Landfill** waste project could have one large 2,500 tpd MSW Waste-to-Energy Gasification & Recycling plant or five plants each processing 500 tpd MSW. Our Gasification is 45% more efficient than Incineration and much cleaner. Our proposal could lead Nairobi into a Sustainable Circular Economy Transition, create wealth for the Government and Job creation. Following our formal submission by the 2nd February 2023 and if we receive our formal acceptance letter to proceed we will make available the funding from US EXIMBANK with no requirement for the Government to repay the funding loan as these payments will be made from Power Purchase Agreements (PPA’s) - the plant (s) pay for themselves.

Project costs are estimated at \$385 million for the plant (s) and to do Feasibility study Phase 1 Engineering the first \$10 million is released and will start with a Feasibility study and 90 days thereafter the remaining \$375 million funding will be in place. We have had a two-year development program in Kenya with Kisumu County and have won that Waste-to-Wealth Tender in November 2022 to assist the Government towards Vision 2030. Our proposal to use Gasification is in line with the National Solid Waste Management Strategy, which highly recommends thermal treatment of waste as it leads to the generation of useful products besides waste treatment. The Financial breakeven, payback period of the plant (s) is 7.55 years.

Our Engineering, Procurement and Construction companies have built over 1,500 power plants. Our large Gasification & Recycling plant or five plants proposed for Dandora are scalable and can easily process the 2,500 tpd of MSW in Nairobi further plants in Kenya over the next five years if required. As well as the Waste-to-Energy function we can have Recycling of some plastics, all the glass and metals and can also produce Fertilizers and transport fuels and introduce also Manufacturing plants to make new products from the Recycled Glass, some plastics and metals and building blocks from ash when added to cement. We will increase the MSW collections rates each day if required by the provision of 200 new trucks & 1,000 Gas powered Rickshaws. Dandora cleanup costs and Cost Estimate of Cleanup of Illegal Dumpsites can be added onto the Dandora Waste-to-Energy plant (s) project costs and made available by Headway USA via the US EXIMBANK if negotiated. We can include an in-depth analysis of those in the phase 1 study of our Dandora Waste-to-Energy project. Infrastructure Development and Waste Sectors together with twenty-seven years’ experience in Climate Change Mitigation, Sustainable Energy & Waste sectors. We will engage with a consultancy in Nairobi on developing WTE in Nairobi and we will definitely engage at the appropriate time and pay a deposit/retainer & all costs ongoing to cover the cost of local content.

Introduction

Waste-to-Wealth - Circular Economy Transition for Nairobi County

Your Vision 2030 - In Vision 2030, one of the flagship projects is the Solid waste management initiative which calls for relocation of the Dandora dumpsite and the development of solid waste management systems in five (5) leading municipalities and in the economic zones planned under vision 2030.

Headway USA/ PSECC Ltd Consortium Submission documents and proposal for the development, operation and maintenance of a Waste to Energy project through a framework on a Design, Build, Finance, Operate and Transfer the “DBFOT basis. The waste project could have one large 2,500 tpd MSW Waste-to-Energy plant or five plants each processing 500 tpd MSW and this will assist the Vision 2030.

The plants (s) will pay for themselves from Power Purchase Agreements.



One large Waste-to-Energy plant

Or



Five smaller Waste-to-Energy plants



We will increase the MSW collections rates each day if required by the provision of 200 new trucks and 1,000 Gas powered Rickshaws.

We have had a two-year development program in Kenya with Kisumu County and have won that Tender in November 2022 and to assist the Government towards Vision 2030 and soon we hope the Governor of Nairobi with this EOI submission.

We understand that KenGen did engage last year another waste company to do feasibility study for a 45MW Waste-to-Energy plant at RUAI to process 3,000 tpd, which was approved by NMS (Army) & KenGen MoU, however there have been delays in regulatory approvals including from the Treasury. The Government now wants a plant for Dandora and we are able to provide one large plant processing 2,500 tpd or five Waste-to-Energy plants, each processing 500 tpd MSW, fully funded and will be in Nairobi and also provide funding for the closure aspects of Dandora dumpsite remedial works and it should be turned into a park or for redevelopment.

To assist the Circular Economic Transition of Nairobi and to deal in a sustainable way with the MSW then our plants can be engineered to provide Waste-to-Energy, Recycling, process tyres and some Medical waste and also use the Recycled material in Manufacturing plants for Glass, Metal and building blocks.

MSW



Recycling Plant



Medical waste



Tyres



Recycled glass



Recycled metals



We will work with Nairobi Government Officials and teams to ensure that all the MSW fractions are used in the most appropriate manner and meet all the Government's requirements. We can obtain Waste-to-Energy and also the recycled glass, metals, some plastic and ash can then be used in our new Manufacturing plants set up on site to produce new plastic, metal and glass products and the ash used with cement to produce building blocks for affordable homes. Tyers can also be processed and this together with wood and plastic can be used for energy recovery and the production of electricity.

Please review the following website that has been designed in order to convey and assist the Government to understand our offer. www.kenyazerowaste.com

Our large plant or five plants proposed for Dandora are scalable and can easily process the 2,500 tpd of MSW in Nairobi, further plants in Kenya over the next five years if required. As well as the Waste-to-Energy function we can have Recycling of some plastics, all the glass and metals and can also produce Fertilizers and transport fuels and we hope our approach was much needed for Nairobi in order to deal sustainably with waste management. The Circular Economy concept has grown in desirability and as such PSECC Ltd together with Headway USA have brought together different waste company technology providers to provide Recycling, Waste-to-Energy Gasification, now more efficient and Fuel production. If adopted by Nairobi County Government would lead the City & County into a Sustainable Waste Management and commence Circular Economic Transition - Waste-to-Wealth - real value for money and lead to a “Sustainable Urban & Rural life” in Nairobi and job creation.

Electricity



Building Blocks for house building



If adopted by Nairobi and County Government:

- It would lead the County into Sustainable Waste Management and commence Circular Economic Transition - Waste-to-Wealth - leading to a “Sustainable Urban & Rural life” in Nairobi.
- An Integrated Waste Management Facility processing 2,500 tpd MSW,
- National Determined Contributions on Climate Change Mitigation would be enhanced and many Sustainable Development Goals (SDG’s) met.
- Hundreds of jobs created and new Manufacturing Industries established using the Recycled materials of glass, metals, ash and building blocks made for affordable homes.
- The Renewable Energy mix of Nairobi also would be increased offering increased electrification and stable supply of electricity.
- **Nairobi County will have a 10% shareholding in the plant if interested. No Government money to build - Full Funding will be provided.**

Life cycle analysis (LCA) is a way for environmental scientists to clarify the environmental impacts of a material or product. A circular economy is a system of production and consumption that is powered by renewable energy.

The National Solid Waste Management Strategy highly recommends thermal treatment of waste as it leads to the generation of useful products besides waste treatment. A clean circular economy also focuses on eliminating toxic chemicals and closing material loops through better design, maintenance, repair, reuse, refurbishing, and recycling. This offer we are making and submission to Nairobi will ensure a smooth transition into the Circular Economy. To understand this further then a study of Life-Cycle-Analysis is required to understand all the energy used and emissions from, for example producing 1 ton of plastic. The following website is a good place to start on LCA. Our Engineering, Procurement and Construction companies have built over 1,500 power plants.

www.ellenmacarthurfoundation.org/life-cycle-assessment-for-the-circular-economy

What is Municipal Solid Waste?

Municipal solid waste (MSW), more commonly known as garbage or trash, consists of non-hazardous refuse items that are thrown away by residential consumers, commercial businesses and public institutions.

What Materials Can Be Processed?

Because MSW is a mixture of waste, there can be a wide variety of items that can be processed for recycling in our plants. The most common items found in MSW are organic food, product packaging, cardboard, furniture items, clothing, glass and plastic bottles, food scraps, consumer paper waste, consumer electronics and appliances, and batteries.

We are interested to process all fractions of MSW.

Why process and Recycle MSW?

In many ways, MSW processors have the same goals to separate valuable materials from the non-recyclables and less valuable items. When MSW commodities like metal, wood, cardboard, glass, and plastic are recycled, the amount of virgin raw materials needed to produce new products is reduced. Disposal of MSW into landfills is not only expensive, but not sustainable for the long term, given the limited and finite landfill space available. In addition, MSW Waste-to-Energy and recycling is a profitable revenue stream when recovered efficiently in our plant. This will lead Nairobi into the Sustainable Circular Economy model transition.

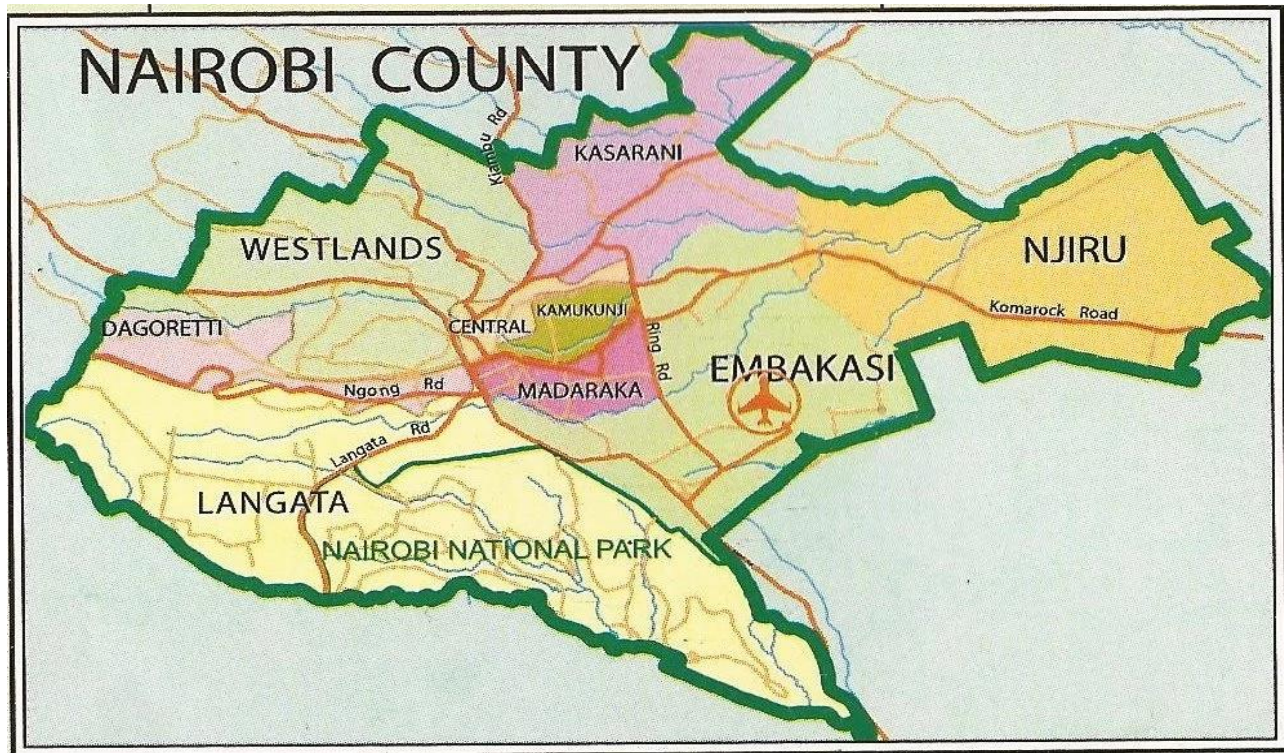
Fig 1. Circular Economy - Our Plants are Zero Waste - Zero Landfill



The reason for the Circular Economy is that our current Linear economy extracts resources, manufactures products, people buy and use the products and then dispose of the old products into Landfill dumpsites. In the process of extraction and manufacturing energy is used and many emissions of pollutants. In order to reduce energy and pollutants then a Circular Economy is required whereby we only extract resources once, reduce energy usage, we recycle and reuse together with recover energy and materials from the waste and re-manufacture them into new products but eliminating the need to extract new resources. We can also clear the Dandora dumpsite and use that waste in the Gasification plant and return the site back to a park or for redevelopment.

We understand NAIROBI current waste management

Fig. 2 - Nairobi County map



From the NATIONAL ENVIRONMENTAL COMPLAINTS COMMITTEE, A REPORT ON STATUS OF SOLID WASTE MANAGEMENT IN KENYA - April 2021

EXECUTIVE SUMMARY

Waste is a resource that can be managed to achieve economic, social and environmental benefits. Addressing the waste management challenge effectively in Kenya is critical to delivering on Nairobi, Kenya's constitutional right to a clean and healthy environment for all, advancing the circular economy to create green jobs and wealth from the waste sector, and advancing the nation's sustainable development goals. Sustainable waste management is also fundamental to delivery of each of the government's "Big Four" national priorities - the transformational agenda on housing, manufacturing, food and nutritional security and health care - and to Kenya's leadership in the blue economy, with its focus on creating economic growth, ensuring healthy waters and building safe communities. Accumulated waste deposits are an indication of societal lifestyles, waste management practices and production technology.

Overview of waste management in Nairobi

The population of Nairobi has been increasing rapidly at 4% per annum since 2000 and is now estimated at 3.14 million (UNEP & UN-Habitat, 2007, Ministry of Planning, 2009). The increase in the number of residents in the city coupled with economic growth has led to increased municipal solid waste (MSW) generation. The generation rose from 1,500 tonnes in 1998 to 2,400 tonnes per day in 2004. About 85% of the waste generated was residential (JICA 1998, Bahri 2005). For a long time, solid waste collection and disposal in Nairobi has been characterized by a general inefficient, unfavorable and inadequate organizational set-up. For a while now, less than 40% of the city receives waste collection services. The remaining 60% is either dumped in open spaces and burnt, or scavenged (Mwaura 1991, UNCHS 1998). Urgent considerations for the establishment of a proper solid waste disposal and management plan for the city are therefore required.

Waste generation and collection - From a recent study, waste in polythene bags was collected from residential houses, one bag from each house early morning on each sampling day. In every zone, except Kibera, refuse was pooled together from 15 randomly selected households to produce one waste composite sample. The combined weight of 15 samples to make the composite sample from each zone ranged between 100kg and 200kg. In Kibera, where it was difficult to use polythene bags (waste from houses is normally dumped on an open site), the waste was collected from a dump site heap close to a busy road to make the same weight. In other estates, sampling of the waste in the bags was then done at the source before any scavenging or recycling occurred. Empty clean Polythene bags of known weight were marked with five classes of solid waste - Plastics, Papers, Organic or food waste (Putrescibles), Inorganics (bottles, metals and others) and Leather & Textiles (LT). The solid waste in each composite sample was then handpicked and separated out into a polythene bag corresponding to its class. The polythene bags containing waste of each class were then weighed. The percentage representation of each class of waste was determined to give the composition of the waste.

As stated earlier, this sampling procedure was done early each day before refuse collectors in trucks picked it up for transfer to the Dandora dump site. Since the waste was mainly found in polythene bags in the morning, the effect of the weather was considered small and the waste fillings were negligible. This may not be true for the case of Kibera where the sample was obtained on the road dump site. However, as stated earlier, during the sampling period of this study, 4th - 29th July 2010, no rain fall was recorded in Nairobi and mean temperatures ranged between 20 - 25° C and RH 44 - 64% (Ministry of Environment, 2010).

Minimum requirements for Solid Waste Management

The County Governments are expected to implement the minimum requirements across the waste management cycle;

Waste collection

- 1.Ensure that the waste collection areas are zoned;
- 2.Ensure timely and regular collection of all solid wastes either through door-to-door collection or from centralized collection points;
- 3.Ensure waste collection facilities such as skips; bulk containers and waste cubicles are regularly emptied and do not become eyesores;

Waste transportation

- 4.Ensure that all the collected waste is transported using NEMA licensed vehicles to designated disposal sites.

Waste disposal site

- 5.Ensure there is a designated site(s) for waste disposal
- 6.Ensure that the disposal site is secured with a fence and a gate manned by a county government official to control dumping and spread of waste outside the disposal site.
- 7.Ensure all incoming waste is weighed or estimated and the quantities recorded in tonnes
- 8.Develop and maintain motorable roads inside the site to ensure ease of access during disposal;
- 9.Ensure the waste is spread, covered and compacted at regular intervals
- 10.Put in place appropriate control measures for the management of dumpsite fires
- 11.Enhance security and control of the disposal sites so that illegal activities are contained.

Requirement for licensing

- 12.Ensure waste transportation vehicles have NEMA licences;
- 13.Obtain licences to operate waste disposal sites.

The principal impacts from the open dumping of waste include the contamination of groundwater, surface water and soil due to leachates from solid waste dumps. In addition, the waste entering the dumpsite is mixed, and thus it is highly probable that it contains toxic chemicals and hazardous materials. This increases the chances of pollution but also puts the health of the scavengers, waste pickers and dumpsite workers at risk as they do not have the appropriate protective gear to be handling waste. In addition, these individuals are also prone to cuts and infections as a result of stepping on glass, tin and/or syringes while scavenging for valuable materials. The Dandora Landfill dumpsite has now been closed.

The open burning of waste is another challenge as it results in the release of toxic pollutants and emissions such as sulphur dioxide (SO₂), nitrogen oxides (NO_x), dioxins and furans. These gases can cause respiratory diseases when inhaled, and others like dioxins and furans are carcinogenic and known to aggravate bronchial and asthmatic disorders. This also results in air pollution which can adversely impact on human health especially for communities living near landfill sites. Greenhouse gas (GHG) emissions are one of the most significant environmental impacts associated with the conventional landfill and combustion of solid waste. These GHG namely methane and carbon dioxide are also released during the break-down of biodegradable materials. These gases in particular are of concern because of their high global warming potential. Other risks associated with open dumping include bad odour, aesthetic nuisance, fire outbreaks and the proliferation of insects, mosquitoes, flies, cockroaches, rats and rodents. Such dumping sites often become breeding grounds for vectors of ailments like cholera, dysentery, diarrhoea and yellow fever.



Sustainable Urban & Rural Life

Stop the need to burn waste in Landfill sites - Helps prevent pollution and enhances Duty-of-care in Nairobi Jobs offered to pickers to bring waste to the new plant. The Recycled products can be used in new Factories, new concrete building blocks to build the new homes in Nairobi from Recycled, Glass, Ash and then cement added and also CO₂ used in food production and enable vegetables such as Tomatoes to be grown.



Less water pollution

Clean up of all the waste near the water's edge. Our plants will stop plastic entering the water and also contamination of Rivers and Lake Victoria - 70,000 sq KM and help clean it and increase Fish stocks Also Enhance Duty-of-Care for the population.

Prior to the establishment of Kenyan Environmental Management and Coordination Act (EMCA) of 1999, solid waste management was the sole responsibility of local authorities. The Act was enacted to provide the appropriate legal and institutional framework for the protection, management and conservation of the environment (Republic of Kenya 1999). The EMCA also emphasizes citizens' right to a clean and healthy environment and the duty to safeguard and enhance the environment through disposing of waste in designated areas (Republic of Kenya 1999). The waste management regulations within the Act apply to all waste categories and specify the requirements for handling, storing, transporting, treatment and disposal of waste (Agong et al. 2008; Republic of Kenya 1999). In 2008, the EMCA was complemented by environmental bylaws which specified the appropriate waste practices and outlined the penalties for failing to adhere to the stipulated standards. Moreover, these bylaws allowed local authorities to contract private waste collectors licensed by the National Environment Management Agency (NEMA).

Improper management of waste poses a threat to Climate Change and eventually in the achievement of sustainable development. Waste being one of the contributors of greenhouse gases, affects climate change and it is for this reason that as a country, the development of sustainable waste management technologies and initiatives is underway to curb this growing global challenge. Through our commitment to sustainable development, Kenya aims to balance the broader economic and social challenges of development and environmental protection. For this reason, the Country subscribes to the vision of a prosperous and equitable society living in harmony with our natural resources. This is also reinforced in the constitution under the fundamental right to a clean and healthy environment.

Sound environmental management entails use of waste reduction technologies in production, sustainable product design, resource efficiency and waste prevention, re-using products where possible; recovering value from products. Although, elimination of waste entirely may not be feasible, systematic application of modern waste management systems should be explored and implemented. To efficiently manage solid waste in Kenya, these actions are recommended. The National Government should ensure that the National Waste Management Strategy is fully implemented in all counties for effective waste management in Kenya. Additionally, the Government through the concerned agencies should wholly enforce the legal frameworks on waste management. The County Governments should ensure that waste is frequently collected at collection points so that waste does not accumulate and is not an irritant to the public. As a long-term solution, County governments should venture into recycling as a way of managing the generated waste. Normally provision of solid waste services is an expensive undertaking, and resources are required to purchase the appropriate equipment and infrastructure, fund the maintenance and daily operation of vehicles and equipment and train or upskill personnel. The scarcity of resources (financial, technical and logistical) is a major hindrance to effective solid waste management practices in Nairobi. **Our consortium is here to assist Nairobi with the technology and funding to make this task sustainable.**

General waste management in the Counties' Waste management programme is a major challenge in Kenya, especially in rapidly growing urban metropolises and coastal areas. Investigations conducted by NECC in the Major cities in the Country including Nairobi, Mombasa, Nairobi, Eldoret and Nakuru listed the following findings: Nairobi City produces around 2,500 tons of waste every day, of which only 38 per cent is collected and less than 10 per cent recycled (JICA, 2010).

The remaining 62 per cent is disposed of at the uncontrolled Dandora dumpsite, illegally dumped on roadsides and waterways, or burned releases toxic air emissions and particulate matter. Illegal dumping and burning are particularly common in low-income areas of the city, which are home to over 2.5 million people who cannot afford waste collection services.

Nairobi, was initially a Green city in the sun owing to its geographical location, built on an interesting mix of rainforest and savanna grasslands, with several rivers running through. Since its establishment in 1899, the city has exponentially grown both in development and population, and there is a downside to that. Pollution of air, water, and soil.

Environmental degradation is a part played by everyone existing in a community, County, Country, Continent, and eventually the universe. We all play a part in polluting the environment from the time we wake up to when we go to sleep. We are consumers of products and services and everything we use to enhance our daily living from food to the haircut you get at the barbershop pollutes the environment in one way or the other. The brighter part about this, however, is that you are in control of the impact on the environment of your daily consumption whether it is a service or product.

Nairobi residents dispose of between 2,400 & 2,500 Metric Tonnes of waste on a daily basis. This means that if residents don't embrace individual responsibility, the city will soon be covered in trash and a disastrous break out of communicable diseases. This negative impact will carry on to the next generation. To experience change in Nairobi County and eventually in our country, you have to live change to make a change and our Waste-to-Energy & Recycling plants will enable that change.

Dandora Landfill dumpsite

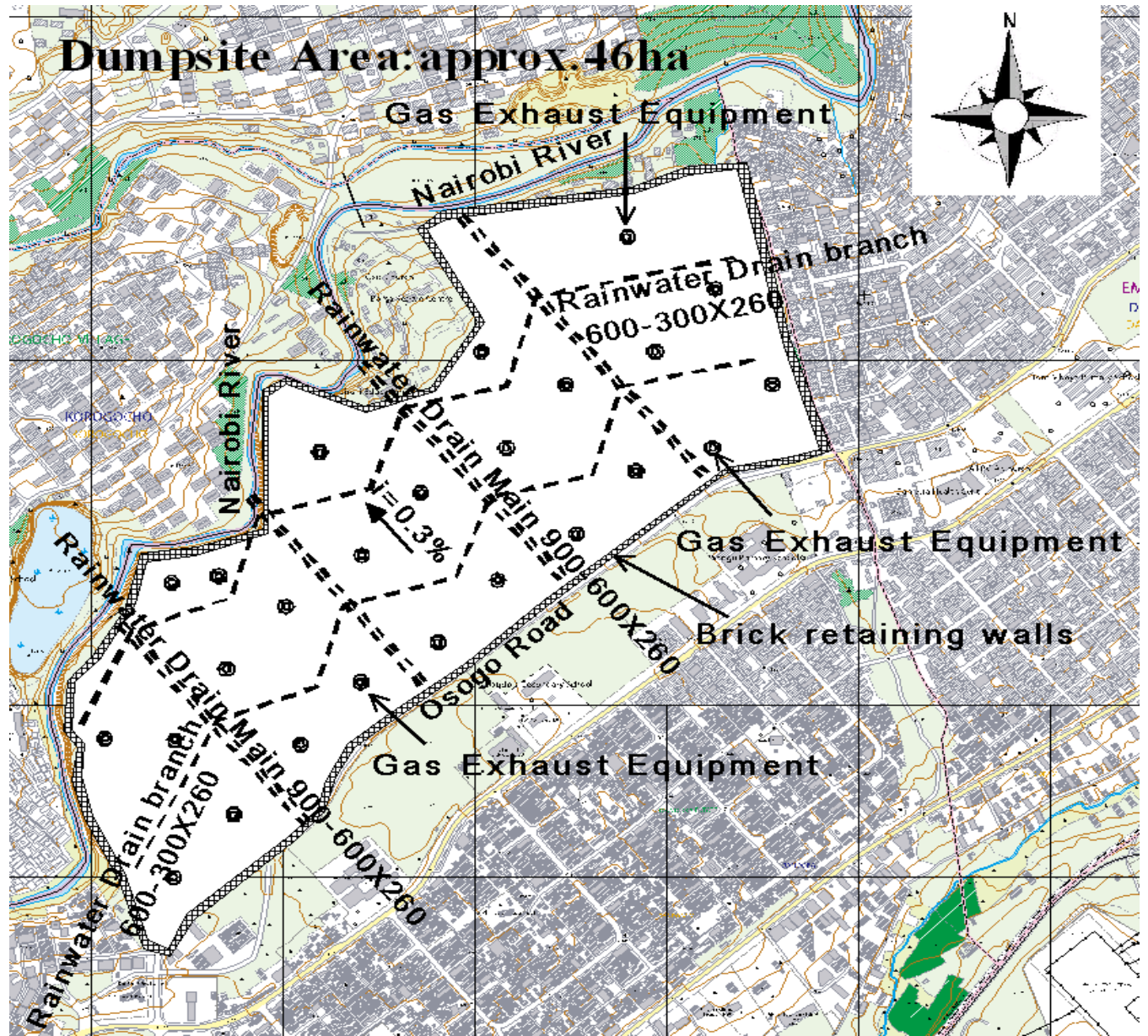


The Dandora Dumpsite in Nairobi City currently has now been closed and was an open dumping site lacking in management and thus causing bad odour, garbage scattering and production of landfill gases that ill-affect the surroundings. To reduce further contamination of the area it is necessary to close this dumpsite by applying technical burying procedures.

Implementation of Dandora Dumpsite Urgent Improvement Plan.

It is preferable to close the Dandora dumpsite as much as possible at the earliest time. However, as described in Subsection 4.4.3, there is no choice but to continue using the Dandora Dumpsite for an additional six years (2011~2016) until the new landfill site will be in service in 2017. However, since it will not be desirable in terms of social and environmental consideration to continue operation of a landfill under the current operation, it will be necessary to implement the following countermeasures aimed to improve the current conditions for the landfill.

Fig 3. Layout Closure Plan of Dandora Dumpsite.



Source: 5. CLOSURE PLAN OF DANDORA DUMPSITE

Table 1 Cost Estimate of Cleanup of Illegal Dumpsite

Works	Unit Quantity (m ³) (Division Total Waste Amount)			Unit Price (KSh)	Cost (KSh)		
	Makadare	Kasarani	Westlands		Makadare	Kasarani	Westlands
Wheel loader	840	2,000	520	350	294,000	700,000	182,000
Truck	840	2,000	520	1,570	1,318,800	3,140,000	816,400
Sub-Total					1,612,800	3,840,000	998,400
Overhead				25%	403,200	960,000	249,600
Total					2,016,000	4,800,000	1,248,000

Works	Unit Quantity (m ³) (Division Total Waste Amount)			Unit Price (KSh)	Cost (KSh)		
	Dagoretti	Embakasi	Langata		Dagoretti	Embakasi	Langata
Wheel loader	560	580	480	350	196,000	203,000	168,000
Truck	560	580	480	1,570	879,200	910,600	753,600
Sub Total					1,075,200	1,113,600	921,600
Overhead				25%	268,800	278,400	230,400
Total					1,344,000	1,392,000	1,152,000

Works	Unit Quantity (m ³) (Division Total Waste Amount)			Unit Price (KSh)	Cost (KSh)		
	Starehe	Kamukunji	Markets		Starehe	Kamukunji	Markets
Wheel loader	1,000	1,240	1,554	350	350,000	434,000	543,900
Truck	1,000	1,240	1,554	1,570	1,570,000	1,946,800	2,439,780
Sub Total					1,920,000	2,380,800	2,983,680
Overhead				25%	480,000	5,95,200	745,920
Total					2,400,000	2,976,000	3,729,600

Source:

*Final Report
Volume 3 Supporting Report
Section E*

*Preparatory Survey for
Integrated Solid Waste Management in Nairobi City
Republic of Kenya*

These Cost Estimates of Cleanup of Illegal Dumpsite can be added onto the Dandora Waste-to-Energy plant (s) project costs and made available by Headway US via the US EXIMBANK if required. We can include an in-depth analysis of those in the phase 1 study of our Dandora Waste-to-Energy project.

Good practice

REDUCE WASTE

At the individual level, there is a need to reduce what they produce and consume on a daily basis as it is essential to the waste hierarchy. Reducing focuses on what is used and what it is used for. It is important to ask yourself whether something can replace a service or product or if it is really necessary in the first place. For example, it is safer to use e-mail than it is to use paper mail, buying electronic electricity tokens as opposed to printed tokens. Also, it is safe to buy multiple-use electronics for the household and office than many single use electronics. It is environment friendly to purchase and cook food that is enough for the day that anticipatory amounts that end up in the trash. Lighting and energy are services provided and you could reduce waste disposed of by turning off bulbs, air conditioners, or heaters when you don't need them, to cut on fossil fuel emissions. This way, reduced use leads to reduced waste disposed of. Life Cycle Analysis indicate all the emissions resulting from the manufacture of new products, our Gasification & Recycling plants minimise emissions and result in less environmental burden.

REUSE

Reusing does not mean you are economically handicapped, backward, or a hoarder, in fact, this is the best practice you can adopt at the individual level to cut down on waste disposal. It is important that we learn how to repurpose items around the house, place of work, and all around the environment. When product containers and jars are reused as sugar, salt, or soap holders or metal containers are repurposed to build homes and offices, the environment is reduced solid waste that would have led to degradation.

RECYCLE

This means transforming something into a raw material after its end-stage. You do not have to own a plant that recycles products but you can support these recycling plants by sorting out your waste from the house. For example, separate organic waste from plastics and general waste that is collected on a weekly, monthly basis depending on the arrangement. These collectors are usually connected with a network of recyclers from those that make fertilizer out of your organic waste to those that purchase plastics to remold them. Dumping the plastics appropriately also helps a big deal in saving the environment. Purchasing products made from recycled material also is another way to conserve the environment. The three R's eliminate improper waste disposal such as burning waste, trashing rivers, and contaminating the soil.

Nairobi Municipal Solid Waste Composition and characteristics relevant to a Waste-to-energy

A Cascadia Consulting Group inc analysis in 2003 indicated in high population density zones in Nairobi, the composition averaged 64.2% putrescibles, 14.4% plastic, 12.4% LWTR, 7.9% inorganics and 6.4% paper. In low population density zones, the composition averaged 56.5% putrescibles, 15.8% plastics, 4.2% L WTR, 11.4% inorganics and 12.3% paper. The overall composition of waste in Nairobi averaged 58.8% putrescibles, 13.8% plastic, 7.8% LWTR, 8.3% inorganic and 11.3% paper.

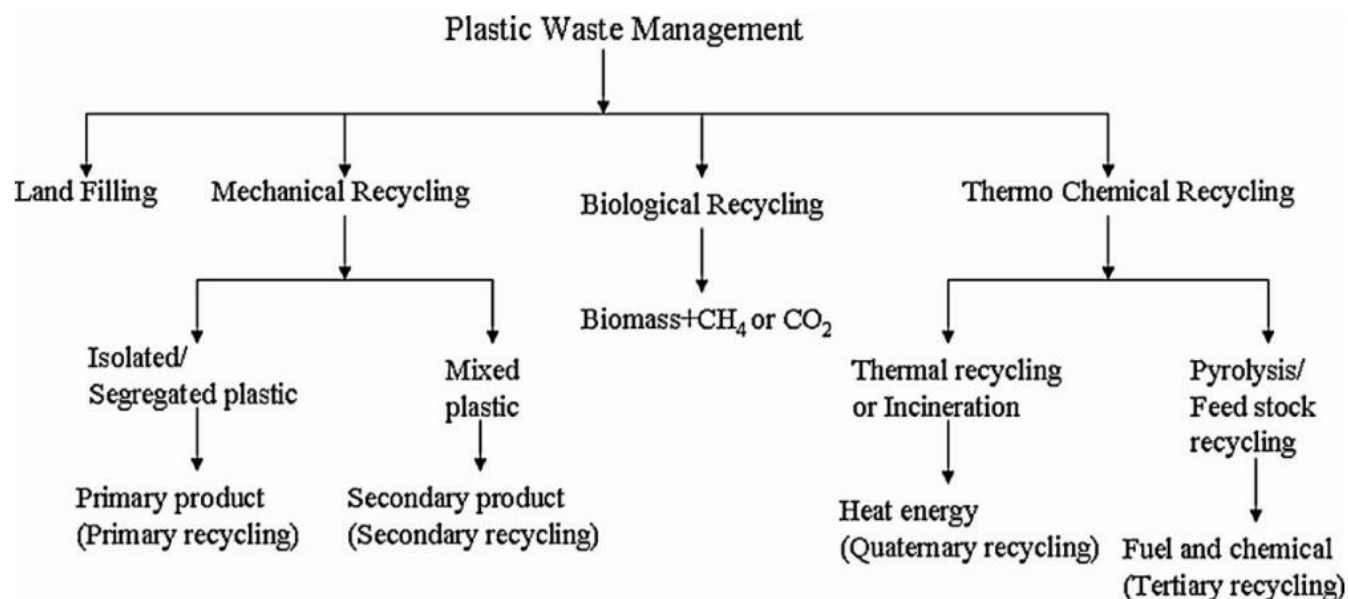
The waste was oven dried and the moisture content averaged 69% for high population density zone, 69.5% for medium density population zone and 63.6% for low population density zone. The calorific value was determined according to British standard 1016: Part 5:1967 and was found to be 17.17 MJ/kg for paper, 16.63 MJ/kg for L WTR and 15.4 MJ/kg for putrescibles. The mean calorific value was calculated as 12.48 MJ/kg. The density varied between 282 kg/m³ and 296 kg/m³, the higher density being experienced in high population density one while the lower density being experienced in the low population density zone. An estimate of the energy content of the waste was 2.1 MJ/kg or 2100 KJ/tonne and with an energy efficiency of 54.1%. The electricity output is estimated at 0.197 kWh/kg or 197 kWh/tonne.

The calorific value was determined according to British standard 1016: Part 5:1967 and was found to be 17.17 MJ/kg for paper, 16.63 MJ/kg for L WTR and 15.4 MJ/kg for putrescibles. The mean calorific value was calculated as 12.48 MJ/kg. The density varied between 282 kg/m³ and 296 kg/m³, the higher density being experienced in high population density one while the lower density being experienced in the low population density zone. An estimate of the energy content of the waste was 2.1 MJ/kg or 2100 KJ/tonne and with an energy efficiency of 54.1%. The electricity output is estimated at 0.197 kWh/kg or 197 kWh/tonne - 84,907 kWh per 431 tonnes of MSW this is without Plastics; however our Gasification plant significantly increases this value once plastics are added and tyres.

Table 2. Percentage composition of MSW

Waste category	High population density zone (Dandora & Kibera)	Medium population density zone (Kariobangi south & Buruburu)	Low population density zone (Loresho)	City centre
Plastics	14.4%	12.9%	15.8%	13.5%
Papers	6.4%	9.3%	12.3%	22.6%
Putrescibles	64.2%	63.8%	56.5%	52.8%
LT	12.4%	5.7%	4.2%	7.8%
In-organics	7.9%	8.3%	11.4%	3.3%

Fig 4. Different routes for Plastic waste management



See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/293156565>

Thermolysis of waste plastics to liquid fuel A suitable method for plastic waste management and production of value added products – A world prospective

Article · November 2017

Table 3
Calorific values of plastics compared with conventional fuels.

Fuel	Calorific value (MJ/kg)
Methane	53
Gasoline	46
Fuel oil	43
Coal	30
Polyethylene	43
Mixed plastics	30–40
Municipal solid waste	10

Table 4

Comparison of waste plastics fuel to regular gasoline.

Properties	Regular gasoline	Plastic waste fuel
Colour, visual	Orange	Pale yellow
Specific gravity at 28 °C	0.7423	0.7254
Specific gravity at 15 °C	0.7528	0.7365
Gross calorific value	11210	11262
Net calorific value	10460	10498
API gravity	56.46	60.65
Sulphur content (by mass)	0.1	<0.002
Flash point (Abel) (°C)	23	22
Pour point (°C)	<-20	<-20
Cloud point (°C)	<-20	<-20
Reactivity with SS	Nil	Nil
Reactivity with MS	Nil	Nil
Reactivity with Cl	Nil	Nil
Reactivity with Al	Nil	Nil
Reactivity with Cu	Nil	Nil

Plastic content per 500 tonnes of MSW

13.8% is equal to 69 tonnes per day from each 500 tpd MSW plant.

Plastic Calorific value is 2,160 MJ/Kg

Or 2,160,000 MJ/Tonne

So, $2,160,000 \times 69 = 14,904,000$ MJ

If 1 J = 2.776 KWh

Then $14,904,000 \times 2.776 = 41,373,504$ KWh per day additional energy.

As we have seen before, The electricity output of Nairobi MSW is estimated at 0.197 kWh/kg or 197 kWh/tonne - this is without Plastics.

So, $(500 - 69) \times 197 = 84,907$ KWh

Then $84,907$ KWh + $41,373,504$ KWh = $41,458,411$ KWh per 500 tpd plant.

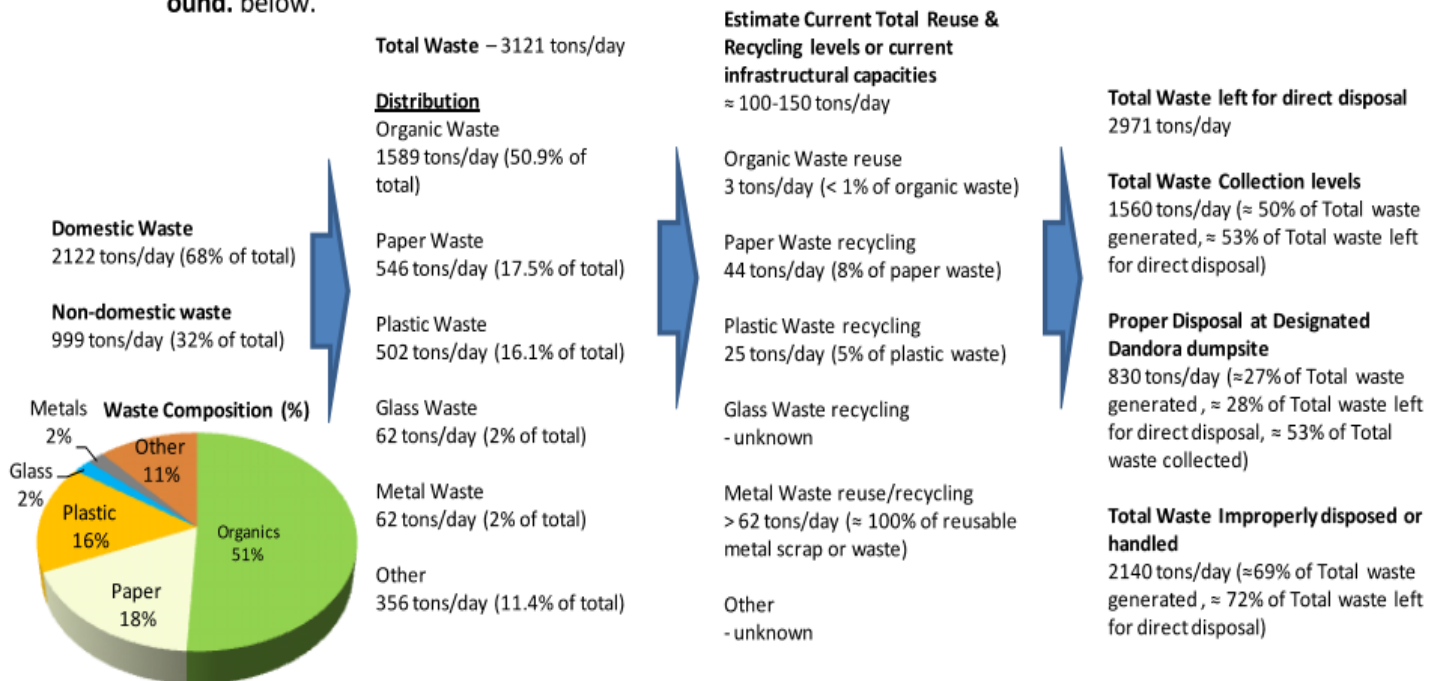
The 6th International Conference on Energy and Environment Research, ICEER 2019, 22-25 July, University of Aveiro, Portugal

Gasification of plastic waste for synthesis gas production

The disadvantages of landfill and incinerating are carbon dioxide emission. Although plastic waste can be reused and recycled, in the end it will be garbage or become non-recyclable. As we have seen - Gasification is a much better technology, cleaner and 45% more efficient than Incineration. In gasification, plastic waste is reacted with gasifying agent (e.g., steam, oxygen and air) at high temperature around 500-1300 °C, which can produce synthesis gas or syngas. It can be observed that the main difference between these methods is the obtained product. Gasification of plastic waste has been focused on this work since syngas can be further used to produce many products and fuel for fuel cell to generate electricity.

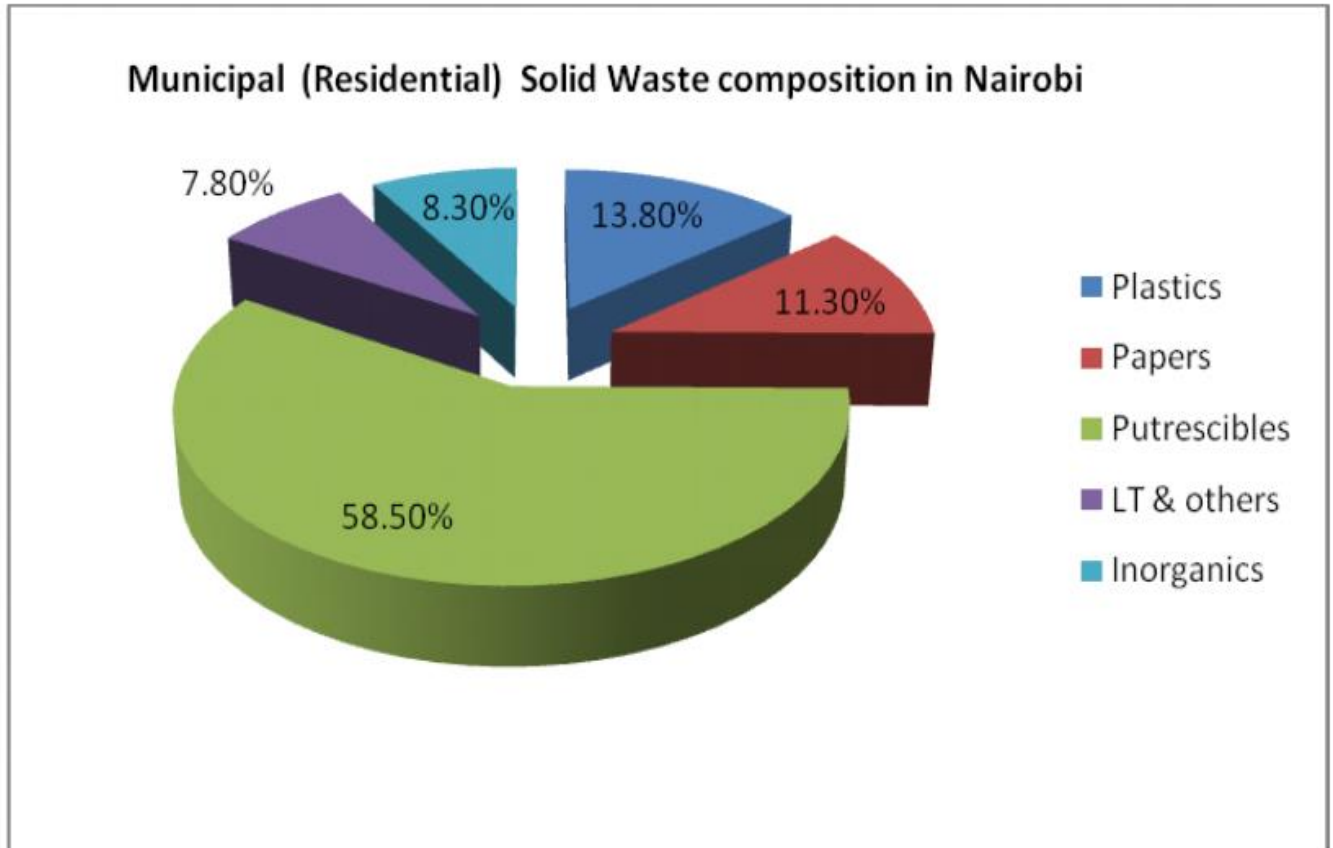
Summary of Nairobi's Waste Sources and Sinks 2009

The various waste sources and sinks in Nairobi City are summarised in **Error! Reference source not found.** below.



Source: Solid Waste Management in Nairobi: A Situation Analysis Technical Document accompanying the Integrated Solid Waste Management Plan - Prepared by: Allison Kasozi and Harro von Blottnitz

Fig. 5 Residential MSW composition in Nairobi



The composition of waste in a city depends on the existing sectors, public consumption patterns, lifestyles, income and cultural traditions.

We will process the 2,500 tpd of Inorganic waste streams of MSW, tyres and also some medical waste can be processed.

Table 5 Summary of wastes generation, collection and recovery status in major towns

Name of town	Estimated Waste generated (tons/day)	% Waste collected	% waste Recovery	Uncollected waste
Nairobi	2400	80%	45%	20%
Nakuru	250	45 %	18%	37%
kisumu	400	20%	Unknown	Unknown
Thika	140	60%	30%	40%
Mombasa	2200	65%	40%	35%
Eldoret	600	55%	15%	45%

Fig 6





Fig 7 Circular Economy model



In June of 2022 we entered negotiations with the UK AID program “Manufacturing Africa” in order to gain financial assistance for our Solar PV Manufacturing plant for Kenya and can approach them for additional funding to setup Manufacturing plants for the recycled materials from the waste plants thus creating further jobs and further wealth creation.

With Our ability to apply insights across different sectors, we are able to understand customer pain points and deliver integrated, end-to-end capabilities to customers. We have deep expertise in technology and waste management development. We design, develop and deploy cutting edge technology platforms that enable organizations to offer superior experiences for the ever-changing customer needs.

We have Solutions that enable organizations achieve greater agility, accuracy and efficiency in transforming processes, managing information, enhancing overall customer satisfaction and driving enterprise profitability.

Preferred Waste materials

MSW - organics & Inorganic plastic, metals, wood, ash, paper, cardboard,- we can also process some medical waste & Tyres.

Recycling, Energy production Gasification and Manufacturing

100%. Recycling of the glass, metals, ceramics & ash and manufacture of building blocks and food production using waste carbon dioxide. Plastic is used for electricity production



Tyres processed & Renewable Energy produced

Adaptive planning, Circular Economy, manufacturing & food production



Tyres are Recycled



Electricity Generated



Food production

The system proposed will initially consume up to 2,500 tpd in the plant for the City of Nairobi, the County has more MSW available in the Nairobi County area, so further plants can be built over time and Technology & funding provided by us. Some plastic will be used for manufacturing of new products.

WASTE-TO-WEALTH

Zero Waste - Zero Landfill dumps - Circular Economy Transition

CONSORTIUM

Current Waste Collection company in Nairobi

HEADWAY USA

Forty-years of Developing Nations Infrastructure development & Funding Project Management & funding arranger.

PSECC LTD UK
Twenty-seven years in Climate Change Mitigation - Waste Management, Energy Policy & Strategy and Renewable Energy

SARRALLE SPAIN
In SARRALLE we care about the Environment, therefore Recycling is one of our business lines. We process used material (waste) into new useful products, reducing the amount of raw materials. Recycling also uses less energy and a great way of controlling air, water, and land pollution.

Agra Energy
Waste-to-Energy, Agricultural waste & MSW - Dynamic Renewable Energy technology, reducing the carbon footprint - energy, fertilizers & fuels.

At SARRALLE we work to manage in the most efficient way the waste resulted from the industrial activity and obtain energy from it. We work close to the best technologist in the waste recovery area, giving the best solutions adapted to our customer needs.

Alset Power Company Inc
Waste-to-Energy Gasification Zero Waste - Zero Landfill dumps

SARRALLE supplies engineering and construction services in :

- Incineration.
- Biomass.
- Gasification.
- Urban solid waste treatment.
- Energy recovery.
- Sludge Treatment.

ESG - Funding - fully private-sector funding via specialized ESG (Environmental, Social, Governance)-oriented funds,

DEUTSCHE BANK GERMANY
Replacing ageing infrastructure, upgrading transportation and improving energy efficiency create a need for private financing through the debt markets. Deutsche Bank provides administrative services to project, acquisition, corporate and other financing across the infrastructure and energy markets

US EXIMBANK

Qualification of Bidders

I. Copies of certificate of incorporation/ business registration.

Headway USA

Electronic Articles of Organization For Florida Limited Liability Company	L17000109960 FILED 8:00 AM May 17, 2017 Sec. Of State Iyarbrough	
Article I		
The name of the Limited Liability Company is: HEADWAY PM, LLC		
Article II		
The street address of the principal office of the Limited Liability Company is: 8003 BAYSIDE VIEW DRIVE ORLANDO, FL. US 32819		
The mailing address of the Limited Liability Company is: 8003 BAYSIDE VIEW DRIVE ORLANDO, FL. US 32819		
Article III		
The name and Florida street address of the registered agent is: DANNY CRUZ 8003 BAYSIDE VIEW DRIVE ORLANDO, FL. 32819		
Having been named as registered agent and to accept service of process for the above stated limited liability company at the place designated in this certificate, I hereby accept the appointment as registered agent and agree to act in this capacity. I further agree to comply with the provisions of all statutes relating to the proper and complete performance of my duties, and I am familiar with and accept the obligations of my position as registered agent. Registered Agent Signature: DANNY CRUZ		
Article IV		
The name and address of person(s) authorized to manage LLC: Title: MGR DANNY CRUZ 8003 BAYSIDE VIEW DRIVE ORLANDO, FL. 32819 US Title: AP DIANE ROBINSON 8003 BAYSIDE VIEW DRIVE ORLANDO, FL. 32819 US		L17000109960 FILED 8:00 AM May 17, 2017 Sec. Of State Iyarbrough
Signature of member or an authorized representative Electronic Signature: DANNY CRUZ		
I am the member or authorized representative submitting these Articles of Organization and affirm that the facts stated herein are true. I am aware that false information submitted in a document to the Department of State constitutes a third degree felony as provided for in s.817.155, F.S. I understand the requirement to file an annual report between January 1st and May 1st in the calendar year following formation of the LLC and every year thereafter to maintain "active" status.		

PSECC Ltd



**CERTIFICATE OF INCORPORATION
OF A
PRIVATE LIMITED COMPANY**

Company Number 10652586

The Registrar of Companies for England and Wales, hereby certifies that

PSECC LTD

is this day incorporated under the Companies Act 2006 as a private company, that the company is limited by shares, and the situation of its registered office is in England and Wales.

Given at Companies House, Cardiff, on **4th March 2017**.

The above information was communicated by electronic means and authenticated by the Registrar of Companies under section 1115 of the Companies Act 2006



II. compliance certificates OR equivalent

Headway USA - Copies of PIN and Tax compliance certificates OR equivalent

***State of Florida
Department of State***

I certify from the records of this office that HEADWAY PM, LLC is a limited liability company organized under the laws of the State of Florida, filed on May 17, 2017.

The document number of this limited liability company is L17000109960.

I further certify that said limited liability company has paid all fees due this office through December 31, 2021, that its most recent annual report was filed on February 22, 2021, and that its status is active.

*Given under my hand and the
Great Seal of the State of Florida
at Tallahassee, the Capital, this
the Twenty-ninth day of April,
2021*



Samuel R. Bruce
Secretary of State

Tracking Number: 2641541663CU

To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.

<https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication>

Tax Conformation PSECC Ltd Tax Conformation



Dear Alan John Brewer

Activation Code for PAYE for Employers

Your activation code is:

258632821201

This Activation Code will expire on 07/11/2019. If you do not use the code by this date, you will have to request a new one.

You will need to request a separate Activation Code for each online service you want access to.

To get access to the PAYE for Employers online service you need to:

1. Go to www.gov.uk/hmrconline
2. Select 'Sign in'.
3. Sign in using your Government Gateway user ID and password.
4. Select 'Activate' for PAYE for Employers.
5. Enter your Activation Code.
6. Select 'Get access'.

If you need help, phone the PAYE for Employers helpline on 0300 200 3600.

If you require information in Braille, audio or large print, please contact our helpline for more information. You can identify genuine contact from HM Revenue and Customs (HMRC) on GOV.UK by searching 'Genuine HMRC contact and recognising phishing emails'.

EACD

HMRC 08/18

Submission status

Submission status:

Submitted

Submission date:

3 October 2019

Submission time:

08:46:09

Acknowledgment reference:

5SHP EEJV J46I FKJ

Taxes you have requested to register

You have requested to register:

- as a limited company for Corporation Tax
- for PAYE as an employer

Director details

Name	National Insurance number
Mr Alan John Brewer	YT145764D

Submission status

In what capacity are you completing this registration?

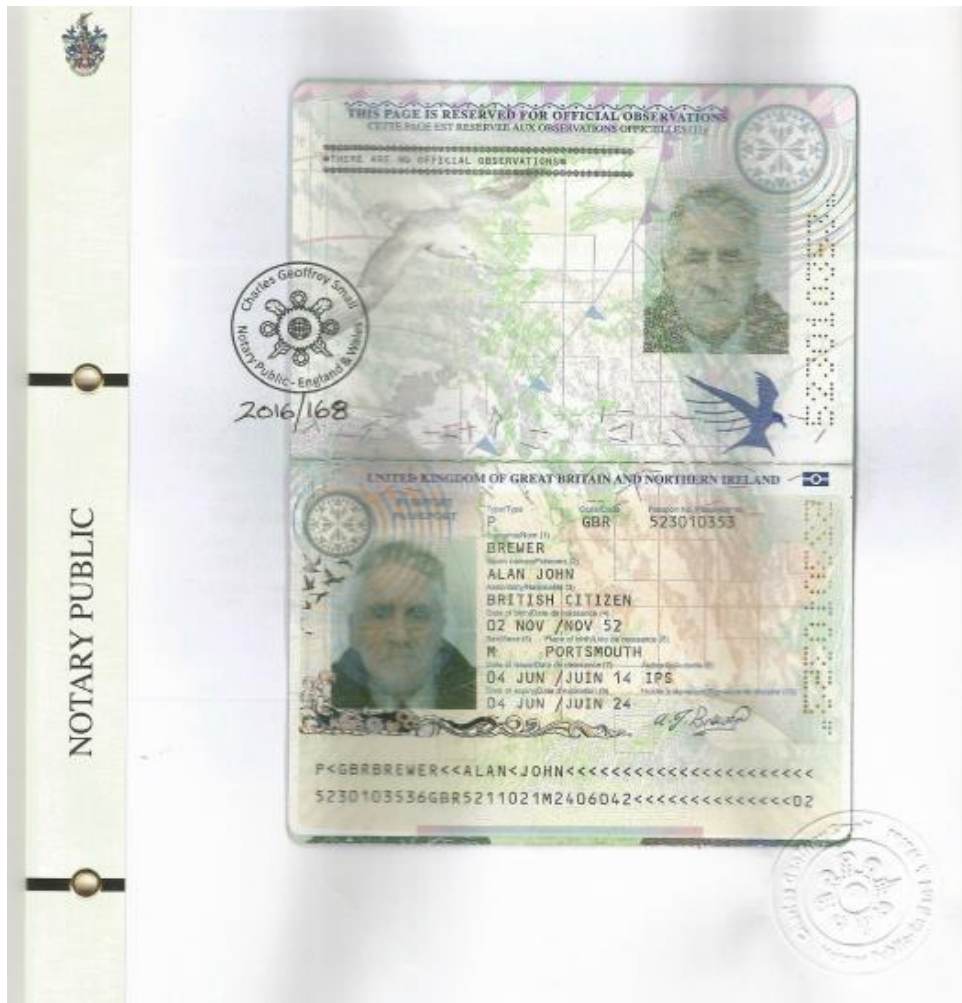
Director

I declare that the information I have provided in this registration is accurate and complete to the best of my knowledge

Ticked



Certified



I, **Charles Geoffrey Small**, practising from Langstone Gate, Solent Road, Havant, Hampshire, PO9 1TR, England, United Kingdom, **notary public**, duly admitted and sworn, and authorised to practise throughout England and Wales, certify that **Alan John BREWER** of 39 Woodhay Walk, Havant, Hampshire, PO9 5RD appeared before me today and produced his British passport number 523010353 and that the attached document is a true, complete and exact copy of the corresponding pages in that passport.

Signed and sealed at Havant, Hampshire, England this Fourteenth day of October 2016.

Charles Geoffrey Small

Charles Geoffrey Small
Notary Public
England & Wales

Tel: +44 (0)23 9249 2300
Mob: +44 (0)7958 525019

Email: cs@charlessmallnotary.co.uk
Web: www.charlessmallnotary.co.uk



Protocol number 2016/168

III. Relevant factory operating licenses.

Relevant factory operating licenses.

- Permits

The codes and standards for waste-to-energy plants are relatively well defined, and the Nairobi County plant (s) will be permitted to process municipal waste in the future. Permits provided for the plants will be evaluated and the project team will determine if additional permits or modifications to the requested/applied ones are necessary prior to PPA finalization.

Regulatory Resources for Buildings

- International Code Council – Model Building and Construction Codes and Standards
- National Fire Protection Association – Model Building and Construction Codes and Standards
- International Association of Plumbing and Mechanical Officials – Model Building and Construction Codes and Standards

	Permit type	Activity#	Complete Date	Issuance Date	Summary of Action
F-14-033	Renewal	APE20140002	6/25/2014	11/10/2014	Renewal and administrative amendment

SECTION A - PERMIT AUTHORIZATION of INEZ Gasification Plant

Pursuant to a duly submitted application the Kentucky Division for Air Quality (Division) hereby authorizes the operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes (KRS) Chapter 224 and regulations promulgated pursuant thereto.

The permittee shall not construct, reconstruct, or modify any affected facilities without first submitting a complete application and receiving a permit for the planned activity from the permitting authority, except as provided in this permit or in 401 KAR 52:030, Federally-enforceable permits for non-major sources.

Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by the Kentucky Energy and Environment Cabinet (Cabinet) or any other federal, state, or local agency.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Unit: 01 (01) Description: Municipal Solid Waste Gasifier

The emission unit consists of a gasification kiln and a dryer unit exhausting into a reduction chamber (also known as boiler furnace chamber). The gasification kiln is equipped with a 15 million British thermal units per hour (MMBtu/hr.) burner. The reduction chamber is also equipped with a 15 MMBtu/hr. burner. The emission unit also contains two heat exchangers used to recover heat from the gasifier exhaust gases.

Process 001: Municipal Solid Waste Gasifier Type: Shop fabricated

Maximum Capacity: 18.33 tons per hour appx.

440 to 500 tons per day

Construction Date: 2003, new burners added in 2006

Process 002: #1 & 2 fuel oil (primary fuel) Construction Date: 7/29/2006

Process 003: Natural gas (secondary fuel) Construction Date: 7/29/2006

Process 004: Propane (tertiary fuel) Construction Date: 7/29/2006

Control Device:

Spray dryer absorber; baghouse

(Injection of sodium bicarbonate and/or calcium oxide in the flue gas prior to the spray dryer absorber unit to reduce hydrochloric acid emissions and introduction of aqueous ammonia to the flue gas prior to the spray dryer absorber unit to reduce nitrogen oxides (NOX) emissions)

The heat recovered from the flue gas in the indirect heat exchangers will be used to produce steam to power a 9-Megawatt (MW) steam turbine for the generation of electricity. The flue gas will then be directed to the control devices.

APPLICABLE REGULATIONS:

401 KAR 60:005, 40 C.F.R. Part 60 standards of performance for new stationary sources, incorporating by reference 40 CFR 60, Subpart Eb, Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994, or for Which Modification or Reconstruction is Commenced After June 19, 1996.

401 KAR 59:021, New municipal solid waste incinerators. STATE-ORIGIN REQUIREMENTS

401 KAR 63:020, Potentially hazardous matter or toxic substances

**Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
200 Fair Oaks Lane, 1st Floor
Frankfort, Kentucky 40601
(502) 564-3999**

Final

**AIR QUALITY PERMIT
Issued under 401 KAR 52:030**

Permittee Name: Inez Power, L.L.C.
Mailing Address: P.O. Box 367, Allen, Kentucky 41601

Source Name: Inez Power, L.L.C.
Mailing Address: 900 Middle Fork Wolf Creek Road,
Debord, Kentucky 41214

Source Location: 900 Middle Fork Wolf Creek Road

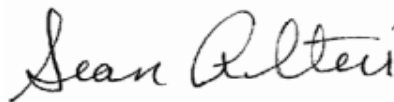
Permit ID: F-14-033
Agency Interest #: 40472
Activity ID: APE20140002
Review Type: Title V, Operating
Source ID: 21-159-00026

Regional Office: Hazard Regional Office
233 Birch Street, Suite 2
Hazard, KY 41701
(606) 435-6022

County: Martin

Application Complete Date: June 25, 2014
Issuance Date: November 10, 2014
Expiration Date: November 10, 2019

**Worldwide
rights to sell
the technology
as developed
at Inez Power
belongs to
MDGS**



Sean Alteri, Director
Division for Air Quality

Version 10/16/13

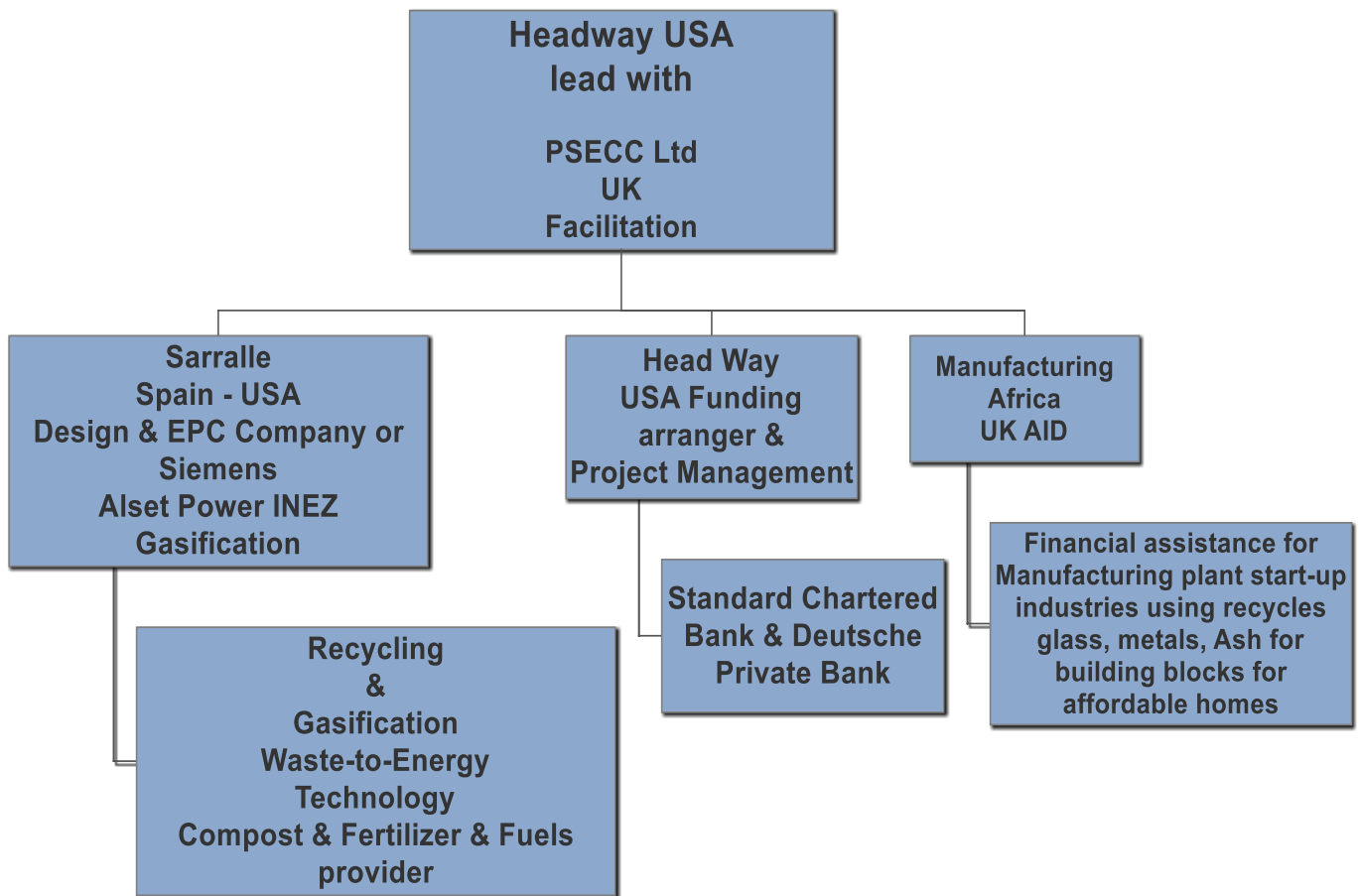


Certified
40

IV. A copy of the company profile.

A copy of the company profile

Fig 7. Consortium partners



As well as our technical teams there will be appointed “In Country” technical Consulting Engineers, staff to operate the plants, maintenance technicians, operators, pickers, Drivers and Security workers.

Headway USA

www.headwayus.com



What We Do

Headway provides project management to infrastructure and service projects, through its own internal capabilities and by leveraging strategic partnerships with reputable organizations and subject matter experts - in the US and around the globe.

Our Commitments

Creating innovative solutions is at the core of everything we do. With the many challenges our world faces today as a consequence of poverty, climate change, population growth, pollution and more - we are committed to positively impacting the communities that deserve the opportunity to thrive.

Our Partnerships

Partnerships and collaborations with external experts and organizations are crucial to overcoming challenges. Our vast international network and strong ties with both private companies and government agencies continue to be one of our strongest edge and advantage towards success.

Our Perspectives

New problems require new solutions. Our decisions and actions are based on continuous efforts to research, evaluate, and adapt new cutting-edge technology to implement with our tried and tested methods and technologies. Continuous learning and flexibility are key to solving some of the world's biggest challenges.



Danny Cruz
CEO & Managing Partner



Mark Brown
Co-Founder & Managing Director



Juliana Cruz
Senior Vice President



Chadwick Hardee
Chief Operating Officer



Joshua Phipps
Director of Technology



Kaleb LeConte
Director of Development - Africa

Area of Expertise

Project Management

Business Operations & Analysis

Government Project Financing

Financial & Budget Planning

Private Equity Funding

Supervision & Financial Control

Our Service & History at Headway USA, we maintain a very flexible project and organizational structure so that we can be responsive as client and project requirements change, while continuing to adhere to the principles of quality assurance and quality control. The result is the ability to develop and implement a broad array of challenging assignments effectively, on time and on budget. Headway USA, LLC is a Florida entity and a project management vehicle for several international projects. It is an offshoot of activities pursued under GWOT Solution Partners, a Virginia-based entity, engaged in technology ventures in defence-related and homeland security applications.



Infrastructure Funding



Clean Water Technologies



Urban & Rural Development Planning



Telecommunication & IT



Waste Management & Waste-To-Energy



Commercialization of New Technologies

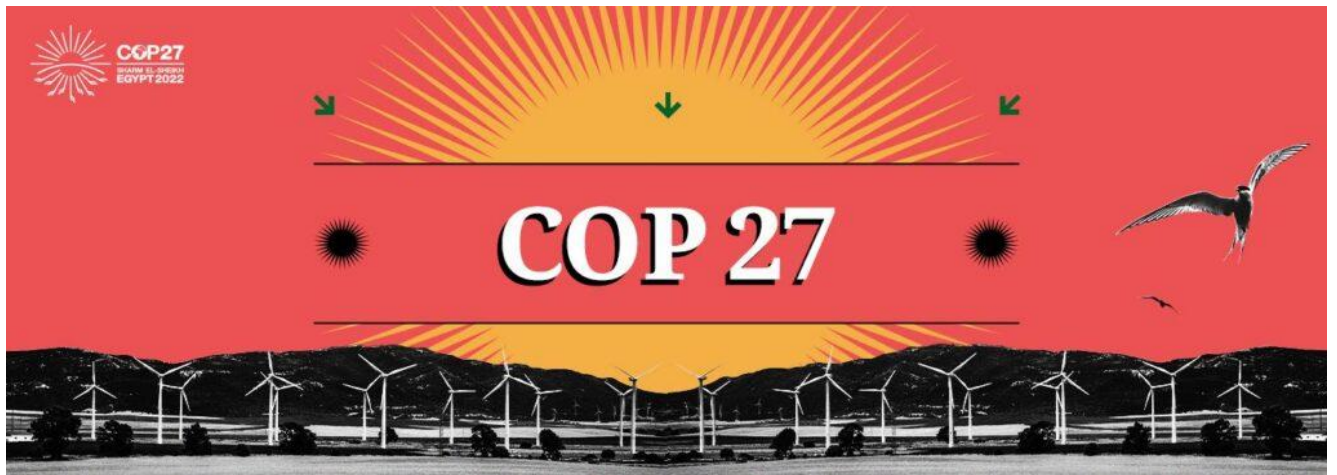




Portsmouth Sustainable Energy & Climate Change Centre
www.psecc.co.uk



We are developers & Facilitators and work hand in hand with Headway USA and Sarralle to help assist Net Zero - Zero Waste - Zero Landfill dumpsites and Paris Accord, COP26 & COP27 aspirations.



In 1995 our CEO Alan Brewer MSc was responsible for Researching and helping to write the first Integrated Energy Policy for Portsmouth City Council under Agenda 21 Sustainable Development programming. The Policy was adopted by the Royal Navy in June 1996. In 2004 we went onto the Coordinating the Energy Network for Hampshire County Council - HNRI programme.

Delivered on Intergovernmental Agricultural projects in Africa funded by the UK Government - InnovateUK programme - Ghana & soon Kenya. The funding for the project is from the Global Challenges Research Fund (GCRF) and Foreign, Commonwealth & Development Office (FCDO) through the Agri-Tech Catalyst.

We have won the Tender for Kisumu waste in 2022 and now wish to assist the Governor of Nairobi with introducing our funding and consortium to assist the Circular Transition of Kenya.

We are in a position to provide Renewable Energy funding for projects in the typical range of £60 million to £10 billion. We are Facilitators & Developers - One of our Key missions has been since 2012 to promote the Circular Economy, Renewable Energy & Sustainable Waste Management in Africa.

The recent UN IPCC report indicates that to reach the 1.5 degree C Consistent Pathway then a robust - cross societal approach is required.

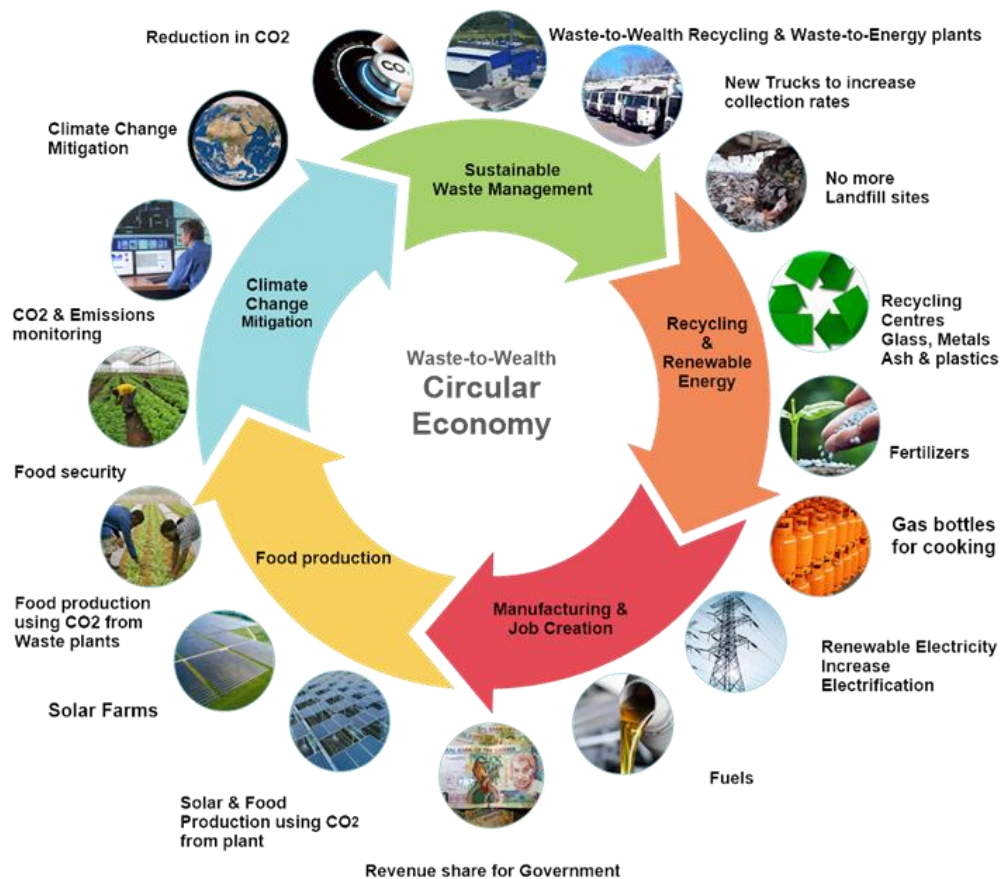
Our work since 1995 - much of our work has been Academic & not-for-profit, Policy, Strategy, Funding can be arranged for Renewable Energy development together with Waste Management, Integrated Waste Management Plants & Gasification is available via PSECC Ltd to assist a Circular Economic model. 2021 - Our current partners in the Energy & Waste sectors include Headway USA, Sarralle EPC, Alset Power Company Inc, Siemen's, & USA Funders such as Morgan Stanley, UK Export Finance, Standard Chartered Bank, Deutsch Bank & USA EXIMBANK.

COP26 - Governments will make their National Determined Contributions NDC pledges and International Business Investors have available £60 Trillion for Climate Change Mitigation. Businesses will lead and enable the way to the Net Zero- or 1.5-degree C consistent pathways.

We can assist all Counties such as Nairobi or Countries link into funding. Headway USA. invest in a Sustainable manner - resilient Cities - Climate Action plans - Fossil Free Cities with our Waste plants & Solar Farms together with Solar PV - Circular Economy.

We are active in the waste sector in Kenya, Zambia, The Gambia, Senegal, Ethiopia and Nigeria.

PSECC Ltd Circular Economy for Nairobi possibilities



- Sustainable Waste Management
- Circular Economy Transition
- Full funding provision
- Wealth creation - 10% share ownership given to Government in each waste plant.
- Job creation
- Zero Waste - Zero Landfill dumps
- Renewable Energy generation
- Fuels, Fertilizers, compost
- Recycled products and Manufacturing company formations
- Solar PV Panel Manufacturing company formation
- Farmers Solar PV with food production
- Sustainable Housing schemes using our waste building blocks.

PSECC Ltd



2023



Alan Brewer MSc - Director PSECC Ltd - DEVELOPMENT

WASTE-TO- ENERGY & Renewables Please review www.psecc.co.uk

Mr Alan Brewer is responsible for facilitating this project with Headway USA and leading the Waste & Energy teams at PSECC Ltd. Since joining PSECC Ltd first in 2011, he has been directly involved in restructuring and continued evolution of the Waste & Renewable Energy in Africa since 2012 and advises six African Nations. Formerly Head of Climate Change at the Chambers of Commerce, Energy Network Coordinator of the HNRI programme in the UK and responsible for City Energy Policy & Strategy under Agenda 21 Sustainable Development programming in the waste and energy sectors on an international basis. Degree level in Management and a Master's Degree in Environmental Engineering from the Universities of Portsmouth & Plymouth & a Qualified Global Assessor BREEAM.

We have been in negotiation with the Nairobi County Government Ministers and Governor since 2020. We had gained support for our proposal to provide full funding and our truly sustainable waste management solution for Nairobi. Our solution has developed out of these negotiations and is one that offers "Wealth" creation from the MSW in Nairobi in the form of Renewable Energy, Recycled products such as glass, metals, Ash, some plastic and fertilizer and fuel production. We have already linked into the UK AID "Manufacturing Africa" programme for our Solar PV Manufacturing plant for Nairobi and could also link into them for financial assistance in setting up manufacturing Industrial start-ups for Nairobi to make new products from the Recycled material coming from our waste plant.



sarralle[™]
A Universe of Engineering



www.sarralle.com/en Video at www.youtube.com/watch?v=pL6DUkZ0PqA

www.sarralle.com/en/sectors/waste-recycling

B° Landeta, C/Orendaundi N° 7 Apdo. 120730 Azpeitia (Gipuzkoa) SPAIN



Processing tonnes of municipal waste with less effort and time. Our contemporary MSW processing plants offer systematic solutions to treat each waste like MSW - paper, plastic, electronics, glass, etc. separately. As the industry is heading towards digitization, we are bringing revolutionary change giving a technological curve to get the job done professionally. Our teams of professionals and experts are systematically making the MSW process customizable to tackle the different kinds of waste in one go. We are passionate about creating a circular economy while recycling or reusing all kinds of MSW using only patented waste sorting machines.



SARRALLE our EPC Partner

With decades of experience in the Industrial Engineering, SARRALLE aims at supporting customers all along every step of the EPC projects. Preceded by FEED phase (Front-end Engineering Design) also developed by us, we manage and provide the detail engineering, procurement of the necessary equipment and materials, the construction from our own workshops, installation, commissioning and start-up of the functioning facilities or assets in the Steel, Energy and Environment industries.

Our construction execution strategy is determined early in the FEED phase or at the EPC project bid phase and our team guarantees direct assistance and quality management of the turnkey facilities.

SARRALLE is proficient at **managing every aspect of your project** with easy access and fast reply from any of our technical members. We pay constant attention to the customer relationship ensuring your installation is completed on time and within the budget.

Our Greenfield Project Execution consists of the following phases:

- **Project Management & Control.**
- **Engineering & Design.**
- **Manufacturing with Factory Acceptance Test (FAT).**
- **Logistics.**
- **Site Construction: Civil works, Steel Structures and Installation.**
- **Start-Up & Commissioning.**

SARRALLE provides the best service for erection, site assembly and commissioning of all the SARRALLE products.

Our know-how and international references proves our capabilities to optimize Customers' plants and increase their productivity. We are an EPC company that covers all the phases from civil works to commissioning.

Sarralle Projects in the USA

SARRALLE works to consolidate itself as a strategic supplier to the largest steel manufacturers in the United States. SARRALLE, established in 1965, is an EPC company and leader in industrial engineering and equipment supply to the steel making, rolling, environmental, and energy sectors; providing advance technological turnkey solutions to the largest international steel manufacturers. Our long successful history supports us as a strategic ally capable of undertaking complicated projects including: engineering, automation, hydraulic and electrical work, equipment manufacturing and assembly, commissioning, and follow-up support.



Incineration ,for Steelmuller in Zubieta (Spain), 2017 ONGOING



Marpol Treatment plant , SERTEGO (TANGER), 2016

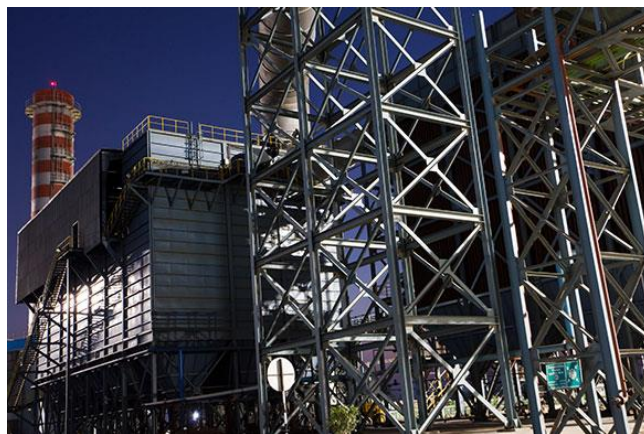
SARRALLE supporting Steel Legends

Our experience and the knowledge gained over the years allows us to successfully complete as a key EPC supplier in the United States; evidenced by our last contract awards including: Arcelor Mittal and Nippon Steel Corporation (AM/NS Calvert), North American Stainless (NAS), Steel Dynamics Inc. (SDI) and Nucor Steel (NUCOR).

SARRALLE's direct involvement and project execution afforded these customers with increased productivity and product quality within their respective markets.

SARRALLE Offices in the United States

Sarralle has been operating in the US since 2013, when we opened our offices in Pittsburgh, Pennsylvania. With continued client order growth, in 2021 we decided to open our second location in Mobile Alabama. This allows SARRALLE to better serve our southern US clients attending to their requirements with fast responsive local contacts.





Technology
**Enjoy the best *Gasification* or *Moving Grate WTE*
and *Recycling* combined together**

100% Recycling & Cleanest form of Waste-to-Energy

At SARRALLE we work to manage in the most efficient way the waste resulted from the industrial activity and obtain energy from it. We work close to the best technologist in the waste recovery area, giving the best solutions adapted to our customer needs.

At SARRALLE we work to manage in the most efficient way the waste resulted from the industrial activity and obtain energy from it. We work close to the best technologist in the waste recovery area, giving the best solutions adapted to our customer needs.

SARRALLE supplies engineering and construction services in :

Incineration.

Biomass.

Gasification.

Urban solid waste treatment.

Energy recovery.

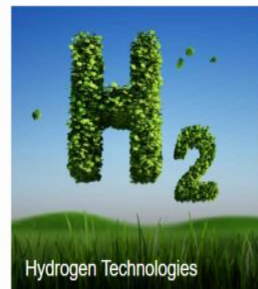
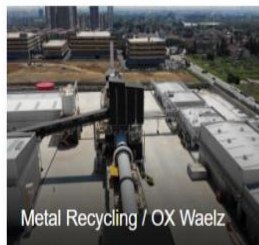
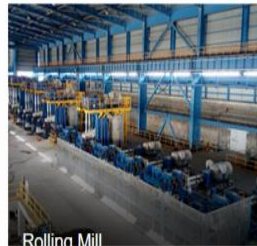
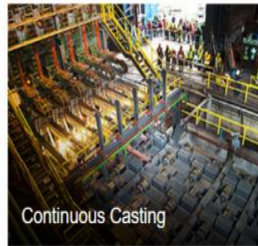
Sludge Treatment.



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Business Lines

Innovative solutions for various industrial divisions



Customers

SARRALLE PALENCIA . Industrial Provincial
Av. Tren Expreso Parcela 223 34200 ...

Rolling Mill

SARRALLE is a driver for hot rolling long
product mills technology thanks to its ...

Contact us

SARRALLE AZPEITIA - HEADQUARTERS. B°
Landeta, C/Orendaundi, N° 7 20730 ...

Processing lines

SARRALLE has its own production facilities
for mechanical and electrical assembly ...

Steel Melting Plant

SARRALLE was founded in the 1960s. Today,
with more than 50 years of ...

Workshop & Storage Systems

Since 1971, SARRALLE is engaged in the
design, manufacture and supply of the ...

Career

Working hand in hand, we achieve optimum
results. Join us!

Waste Recycling

Waste Treatment, Business Lines, Waste
Treatment, In SARRALLE we care about ...

Continuous Casting

SARRALLE Continuous Casting Machines
have been engineered through the ...

Waste to Energy

Since the Electric Arc Furnace (EAF)
stepped into the industrial production of ...



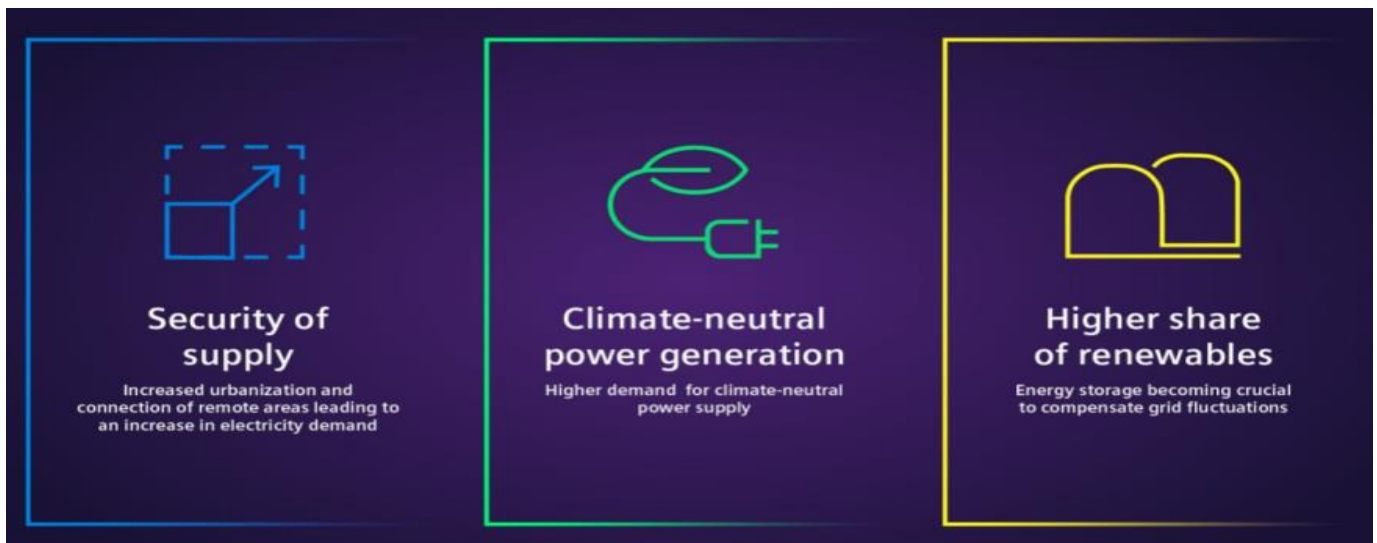
www.siemens-energy.com/global/en/offerings/power-generation.html



Sustainable power generation

Using energy resources efficiently for sustainable power generation

They have built over 1,500 power plants globally. Urbanization, scarce resources, and climate change: Wherever we look, global challenges are spurring an increasing demand for efficient and emission-neutral power generation, and energy from renewable sources is becoming more and more important. That's why energy systems are already undergoing a rapid transformation - and adapting to the high shares of renewables that will be essential for future energy systems.



(Siemens may also be used as they built the INEZ Gasification plant in Kentucky)

		
<p>Decarbonization</p> <p>occurs step by step: We improve the efficiency of existing assets. The transition away from conventional fuels comes next – from coal to gas and then to hybrid systems and cleaner fuels. Learn how we’re pushing the boundaries of both conventional and renewable energy to meet the demand for sustainable, reliable, and affordable energy.</p>	<p>Distributed generation</p> <p>is becoming more and more important in the new energy era. Do you want to integrate renewables? Bring reliable and affordable electricity to remote areas? Or achieve decarbonization goals using local energy generation and storage? Explore how on-site power generation secures your power supply for the future.</p>	<p>Services and digitalization</p> <p>are critical for maximizing the lifecycle value of power generation assets. Our services and digital service solutions help you extend the lifespan of your assets. Discover what Siemens Energy services can do for you – and how to implement competitive and innovative methods to reduce downtime and increase output.</p>

Individual power plants that create value

As energy consumption will continue to increase in the years to come, efficient power generation will be a vital component to reliable, eco-friendly energy systems. Fluctuations are more frequently and at shorter intervals. Energy markets around the world are demanding more and more from their participants - whether that be responding flexibly to fluctuations, observing increasingly stringent emission limits, supplying power at lower and lower costs, or ensuring supply under adverse conditions.

Anyone looking to stay ahead of the game needs more than an “off-the-shelf” power plant. You need an individual power plant solution aligned with your objectives? Whether it’s a small, integrated system or a heavy-duty power plant, a purely gas-fired simple cycle or a combined cycle power plant, we’ll collaborate closely with you to find and construct a solution optimized specifically for you.

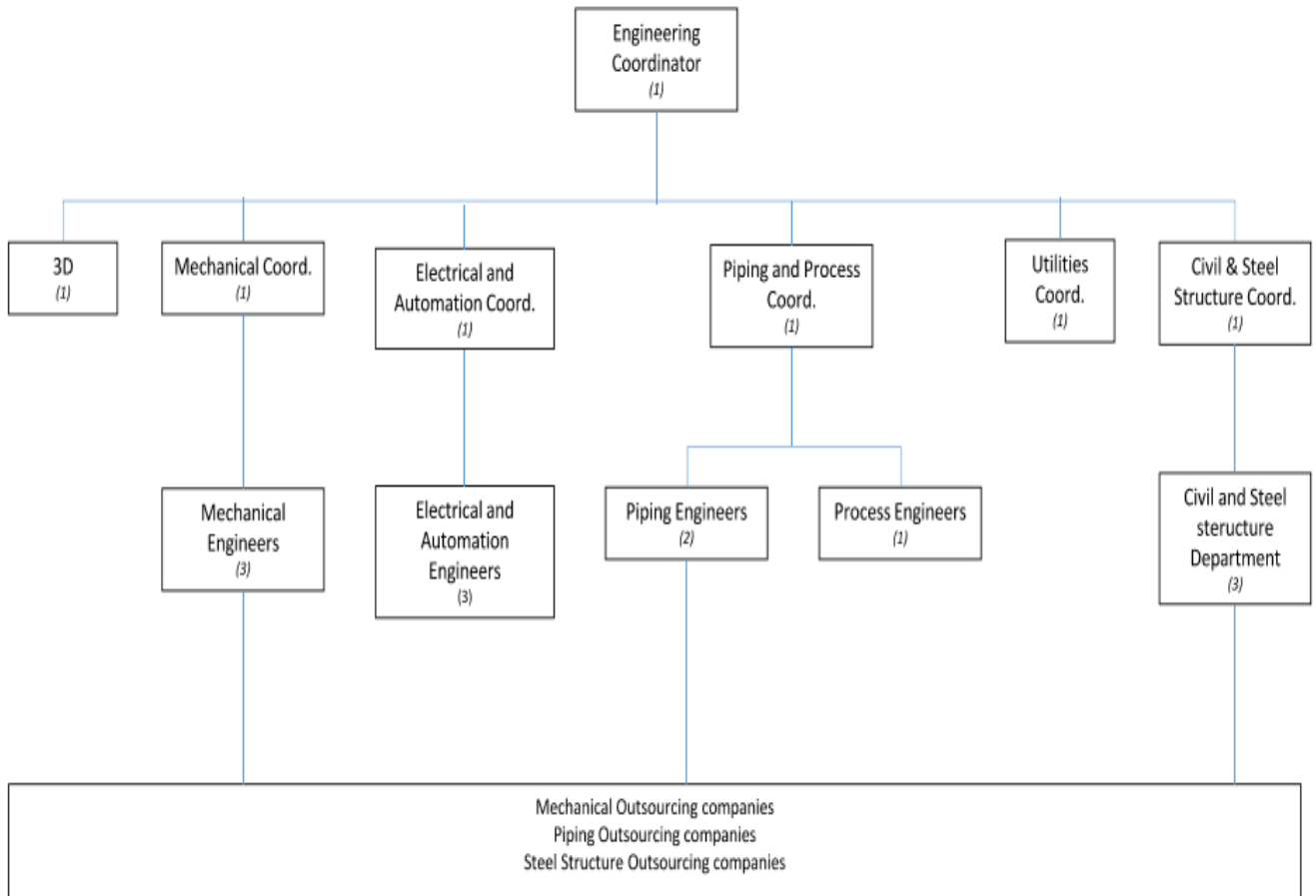


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- V. **Further demonstration of the capability to deliver the services, including:**
EPC companies available to us.....

**Further demonstration of the capability to deliver the services, including:
EPC companies available to us.....**

sarralle' Fig 8. Capability teams



Waste Treatment

In SARRALLE we care about the Environment, therefore Recycling is one of our business lines. They process used material (waste) into new useful products, reducing the amount of raw materials. Recycling also uses less energy and a great way of controlling air, water and land pollution. At SARRALLE they work to improve in the most efficient way the process of recycling of the different types of waste. They work close to the best technologist in the recycling area, giving the best solutions adapted to our customer needs.

We operate in several sectors such as, Environment, Waste, Energy and Steel.

We work for Your Future.

They deliver innovation and modern solutions for your company. They know how to do it. Founded in 1965, and nowadays with more than 50 years' experience on international projects, SARRALLE is your partner in the Environment, Energy & Steel Worlds. They are an innovative Design, Engineering, Manufacturing and Installation company, with more than 700 dynamic, highly-qualified and multicultural employees and located in more than 7 countries, that's why we are fast, flexible and close to you. Their unique expertise, technological capabilities and group synergies will help you to create smart ways of meeting today's challenges. They provide you turnkey solutions services, adapted to your needs, helping you optimize your productive processes because we want you to be the best company in your market and they work for their prior aim:

- **STEEL MELTING PLANT** since 1960, designs, manufactures and provides complete turnkey solutions for steel works internationally. It is a company with extensive experience in the world of steel supported by professionals seeking constant innovation. In addition to offering EPC solutions SARRALLE offers a broad line of products.
- **ROLLING MILL** provides engineering, procurement & construction projects with a technology developed for the processing of semi-products for the diverse range of end products.
- **PROCESSING LINES** has extensive experience in the design, construction, installation and commissioning of lines for the processing of metal coils, for the entire range currently produced by the industry. This range includes the largest coils produced, regarding the thickness (high-thick coils), weight and width.
- **ENVIRONMENT & ENERGY** offers general engineering service focusing its activities in the "Waste to Energy" and "Oil & Gas" sector.
- **WORKSHOP & STORAGE SYSTEMS** was born in 1971 and is dedicated to the design, manufacture and commercialization of products for storage and optimization of working spaces with the consequent rationalization of the associated costs.



Using energy resources efficiently for sustainable power and heat generation
Urbanization, scarce resources, and climate change: Wherever we look, global challenges are spurring an increasing demand for efficient and low-/net-zero power generation, and energy from renewable sources is becoming more and more important. That's why energy systems are already undergoing a rapid transformation - and adapting to the high shares of renewables that will be essential for future energy systems.



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VI. Resource capability (human, financial etc),

Resource capability (human, financial etc),

We have forty-years' experience in Infrastructure projects in Developing Nations and twenty-seven years of Climate Change Mitigation. Our EPC partners have thousands of staff and workers and have built over 1,500 Power & Waste Plants.

Headway USA, a leading project management and project finance group in the United States, is pleased to state its intention to provide management and funding support at low interest rates, to the fullest extent possible, for the facilities and services being proposed by us and PSECC Ltd, for the evaluation, selection, implementation, and operations of the nationwide Waste-to-Energy (WTE) plant (s) at Dandora Landfill dump site in Nairobi. The following are some of the indicators for this provision of funding:

Financing the Waste-to-Energy Plant (s)

Headway is able to fund via the following mechanism: low-interest rate, near-concessional rate US government loans to the government of Nairobi, Kenya via US Eximbank and Headway's banking partners, in conjunction with private-sector funding via specialized ESG (Environmental, Social, Governance)-oriented funds, in particular a new ESG fund mechanism being developed by Headway and several US and European financial institutions.

Loan Financing from the US government is typically denominated at 1-1.5% above the US Treasury Rate (currently US 10-year Treasury rate is 4.25% per annum, which would entail a gross rate of 5.25-5.75% per annum to Kenya) and for 10-year or 18-year duration, this will be facilitated by Headway, together with the US Department of Commerce and the US Export-Import Bank, along with Headway's banking partners. In conjunction, private funding, which is provided on an equity investment basis (no debt, but share of earnings of the enterprise), will also be arranged directly by Headway, along with the investment committee of the new ESG fund mechanism. Close coordination will be required with the official governmental and financial regulatory bodies in Nairobi. Kenya to provide assurances in terms of repatriation of funds and earnings, and, in the case of loans, repayments of the loans from Power Purchase Agreements.

The plants (s) will pay for themselves from Power Purchase Agreements.

Table 6. Initial approximate Financial Breakeven of a 500 tpd plant

Btu to Kwh/Income/Break Even Estimation		
BTU Electricity Estimation		
Comparison Btu	Inez Btu for MSW	Ratio
3500	5200	0.673
Ratio	Inez Elec. Prod.	Elec Prod Estimate
0.673	776	522.31
Kenya Est Kwh per Ton	Tons per Day	Daily Kwh
522.31	500	261153.85
Electricity/Tip Fee income		
Kwh per Day	PPA	Daily Elec Income
261153.85	\$ 0.10	\$ 26,115.38
Daily Elec Income	Days per Year	Yearly Elec Income
\$ 26,115.38	335	\$ 8,748,653.85
Tires & recyclables	Tons per Day	Income per year
3,856,296	500	3,856,296
Tip Income per Day	Days per Year	Yearly Tip Income
\$ -	335	0.00
Yearly Elec Income	Yearly Tip Income	Yearly Income
\$ 8,748,653.85	0.00	\$ 12,604,949.85
Break Even Estimate		
Yearly Income	Estimated O&M	Yearly Profit
\$ 12,604,949.85	\$ 3,000,000.00	\$ 9,604,949.85
Estimated Project Cost	Yearly Profit	Break Even payback yrs
\$ 72,500,000.00	\$ 9,604,949.85	7.55
All monetary values in USD.		
Funding loan must now be paid back and O&M plus running costs and labour together		

Exact financial revenues and costs will be determined during Feasibility Study stage

Financial Implication – Headway USA – US African ESG fund US EXIMBANK

Financing

Headway USA, a leading project management and project finance group in the United States, is pleased to state its intention to provide management and funding support, to the fullest extent possible, for the facilities and services being proposed by PSECC and Headway USA. The following are some of the indicators for this provision of funding:

Financing the Waste-to-Energy Programs

Headway is able to fund via either of two mechanisms or their combination: low-interest rate, near-concessional rate US government loans to the government of Kenya via *US Eximbank and Headway's banking partners*, or fully private-sector funding via specialized *ESG (Environmental, Social, Governance)-oriented funds*, in particular a new ESG fund being created by Headway and several US and European financial institutions. In the case of loan financing from the US government, this will be facilitated by Headway, together with the US Department of Commerce and the US Export-Import Bank, along with Headway's banking partners. In the case of private funding, this will be arranged directly by Headway, along with the investment committee of the new ESG fund. In both cases, close coordination will be required with the official governmental and financial regulatory bodies in Kenya to provide assurances in terms of repatriation of funds and earnings, and, in the case of loans, repayments of the loans.

The **Export-Import Bank of the United States** (abbreviated as **EXIM** or known as **the Bank**) is the official export credit agency (ECA) of the United States federal government. Operating as a wholly owned federal government corporation, the Bank "assists in financing and facilitating U.S. exports of goods and services". EXIM intervenes when private sector lenders are unable or unwilling to provide financing, equipping American businesses with the financing tools necessary to compete for global sales. EXIM's aim is to promote U.S. goods and services at no cost to U.S. taxpayers, protecting "made in America" products against foreign competition in overseas markets and encouraging the creation of American jobs.

The Export-Import Bank of the United States (EXIM) is a government agency that provides a variety of tools intended to aid the export of American goods and services. The mission of the Bank is to create and sustain U.S. jobs by financing sales of U.S. exports to international buyers. EXIM equips U.S exporters and their customers with tools such as buyer financing, export credit insurance, and access to working capital. Second, when U.S exporters face foreign competition backed by other governments, EXIM provides buyer financing to match or counter the financing offered by almost 96 ECAs around the world. The Bank is chartered as a government corporation by the Congress of the United States; it was last chartered for a three-year term in 2012. The Charter details the Bank's authorities and limitations.

Among them is the principle that EXIM does not compete with private sector lenders, but rather provides financing for transactions that would otherwise not occur because commercial lenders are either unable or unwilling to accept the political or commercial risk inherent in the deal. The EXIM's products are intended to assist export sales for any American export company regardless of size. The bank's charter provides that EXIM makes available "not less than 20%" of its lending authority to small businesses although they have often fallen short of the 20% threshold. In fiscal year 2013 however, 76% of the value of loans and guarantees went to the top 10 recipients.

Similar banks, known generally as export credit agencies (ECAs), are operated by 60 foreign countries. As the United States is a member of the Organization for Economic Co-operation and Development (OECD) they conduct their activities by obeying OECD rules and principles. The goal is to permit exporters in various countries to compete based on the quality of their goods and services, not on preferential financing terms. ECAs of countries, which are not participants of the OECD, such as the China Exim Bank, Ex-Im Bank of Russia, Brazil, and India, are not required by their governments to follow OECD rules.

Benefits Attributable to the U.S. Exim Bank Structure

Specific benefits accrue to the investment structure offered the Company by US Exim Bank, to present to the Project Sponsor. These benefits are described below:

As per new FASB guidelines adopted on 02-25-16, a Power Purchase Agreement (“PPA”) or Off-Take Agreement for a new energy project is now considered a lease for accounting purposes (a liability on the Energy User’s Balance Sheet, with an offsetting “Right of Use Asset”). US Exim Bank’s loan is also considered a liability on the Energy User’s Balance Sheet, with an offsetting “Right of Use Asset”.

Under a Finance scenario between US Exim Bank and the project owners, the current term of the financing is one year under current guidelines. However, the term does not begin until the Zero-Waste Power Plants are fully completed and operational. The construction time is expected to be anywhere from twelve to fourteen months. Based upon the timeline indicated, the power plant PPP venture would have at least two years to seek a replacement loan for the Zero-Waste power plants. Obviously, this exercise is much easier once the power plants are up and running and producing a cashflow.

Lessee’s bottom line on its P&L improves due to US Exim Bank’s low Cost of Funds (5.5% to 6% simple interest appx.), as the PPP group expenses out interest paid to US Exim Bank and depreciation, which is typically less than expensing out the entire payment under a normal bank loan at current interest rates.

Owner’s Net Income (as described above), if held as “Retained Earnings”, improves the Balance Sheet even further.

Financial Summaries and Estimates

The offer of continued services under a PPA on the part of the Project Company Alset Power to the Project Sponsor, Nairobi County PPP, is detailed below under two scenarios: first with Nairobi keeping the Renewable Energy Certificates (REC’s) or (Carbon Credits) to sell on the markets, and second with a discount for the REC’s should Kenya PPP or Nairobi determine it better for their bottom line to give them up for the Consortium to sell instead to the markets.

The Total Generation Cost of power offer summarized below and charted in the Pro Forma reflects an all-inclusive fixed, accelerated Generating and O&M price offer. The Exim Bank financing is not included in the PPA pricing between Headway USA /PSECC Ltd and Nairobi County PPP, as the Exim Bank financing is between the Project Sponsor and the Project Investor directly.

However, conservatively estimated Nairobi County PPP costs and revenues are included as a convenient point of reference on the financial underpinnings and relevance of the project to Nairobi County PPP's bottom line. Assumptions and calculations are described in the ensuing pages prior to the introduction of the detailed Pro Forma.

Pro Forma

Pro Forma Income Statement listed below include Nairobi power plant Headway USA /PSECC Ltd and Nairobi County PPP net operating revenues from the Project (projected) in two separate statements: first as projected if Nairobi County PPP maintains the Renewable Energy Certificate values; and a second set reflecting Nairobi plant use of the RECs in exchange for a reduced cost of power. We will need to verify if RECs are valid and permissible in the country of Kenya. The statements are shown by quarter for the first three operating years, and annually from years 4 through year 20 at the end of the contract period. The following assumptions govern the figures listed in the Pro Forma Income Statements:

Accelerator, Cost of Lease, and General Comment

Rate and Unit Costs

Energy Sale Price

\$0.10 / kWh (based on requested PPA) negotiable to fit with Nairobi County requirements

Cost of Fuel

Based on supply quantities available:

Nairobi: \$25.46 / ton MSW - to be checked

Anticipated Cost of Capital

5.5% to 6% for Exim Bank

Estimated Transmission Cost \$0.06 per kWh

Commercialization

Commercialization / Operational plant is projected to begin in 2024 assuming a start date triggered by availability of Investor funds.

No Tipping Fee

Capacity, the 16 MW to 18MW of MSW electric power generating facility will operate at an 85% minimum annual capacity factor for an average of 112,482 MWh at Nairobi City or County annual electric power generation.

Table 7. Material prices (2010)

Type	Avg. selling price (1998)		Avg. selling price (2009)	
	KShs/kg	US\$/kg	KShs/kg	US\$/kg
Paper	3	0.0375	4	0.0537
Old newspapers	-	-	15 - 27	
Broken glass	3	0.0375	1	0.0134
Unbroken glass			50 cts per bottle	
Steel	5	0.0625		
Scrap iron	5	0.0625		
Plastic	5	0.0625		
PET			6	0.0805
HDPE			20	0.2685
Trash Bags			20	0.2685
Whole bottles	1-15/kg	0.0125 - 0.1875		
Bones	4	0.05		
Aluminium	12	0.15	15	0.2013
Copper	10	0.125		
Old Tyres			50 - 300 per tire	

Source: Solid Waste Management in Nairobi: A Situation Analysis Technical Document accompanying the Integrated Solid Waste Management Plan - Prepared by: Allison Kasozi and Harro von Blotnitz

Table 8. Disposal Costs to Dandora designated and Ruai landfill (2010)

Zone	Cost/ton to Dandora (KShs)	Estimated Rate/ton to Ruai (KShs)
CBD	1144	4576
Kamukunji	943	3772
Starehe	990	3960
Embakasi	852	3408
Dagoretti	1210	4840
Westlands	1155	4620
Langata	1144	4576
Makadara	849	3396
Kasarani	891	3564

VII **Experience in developing and operating similar plants (all list of such plants and locations)**

Experience in developing and operating similar plants (all list of such plants and locations)



Sarralle Example of Plants

1. HITACHI ZOSEN INOVA - PRIMARY AND SECONDARY COMBUSTION AIR SUPPLY SYSTEM FOR NEW INCINERATION PLANT IN VANTAA (Finland)
2. ROS ROCA – HITACHI ZOSEN INOVA - TERSA INCINERATION PLANT REVAMPING, SANT ADRIA DE BESOS (España)
3. KOBELCO ECO SOLUTIONS - PRE-ENGINEERING FOR GASIFICATION NORTHACRE PROJECT – UK
4. KOBELCO ECO SOLUTIONS - HOOTON PARK WtE GASIFICATION PLANT (UK)
5. TURNKEY PROJECT TO DEVELOP A NEW ZINC OXIDE RECYCLING PLANT AT JIANGSU (China)



Incineration ,for Steelmuller in Zubieta (Spain), 2017 ONGOING

Marpol Treatment plant , SERTEGO (TANGER), 2016

ENERGY – URBAN WASTE TO ENERGY

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Environment & Energy

KOBELCO ECO SOLUTIONS

PRE-ENGINEERING FOR GASIFICATION NORTHACRE PROJECT - UK

KOBELCO ECO-SOLUTIONS CO.,LTD.

PROJECT DATA

CLIENT: KOBELCO

PROJECT DATE: 2018 – 2019

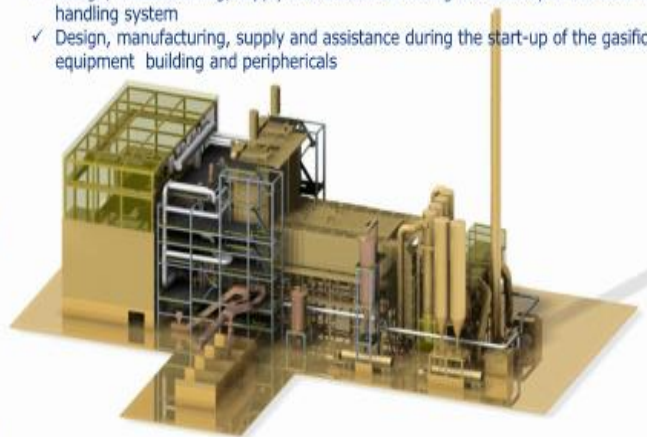
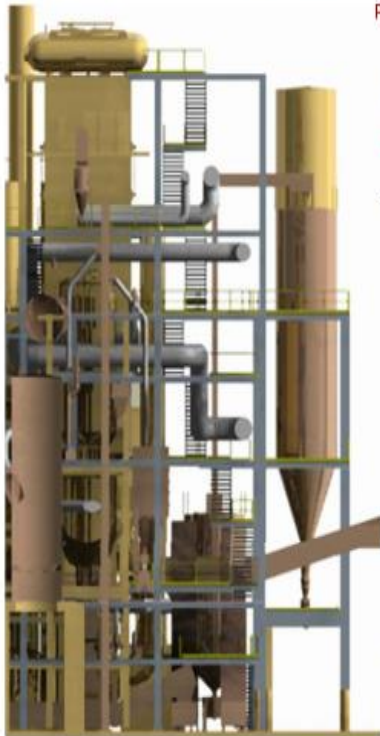
PROJECT DESCRIPTION

SARRALLE Environment & Energy was contracted by KOBELCO for engineering of the plant that will be located at Northacre in UK.

SARRALLE Environment & Energy – SCOPE

The project scope includes:

- ✓ Design, manufacturing, supply and assistance during the start-up of the GASIFICATION Furnaces for the two lines of the plant.
- ✓ Design, manufacturing, supply and assistance during the start-up of the RAW material handling system
- ✓ Design, manufacturing, supply and assistance during the start-up of the gasification equipment building and peripherals



ENERGY – URBAN WASTE TO ENERGY

sarralle
Environment & Energy



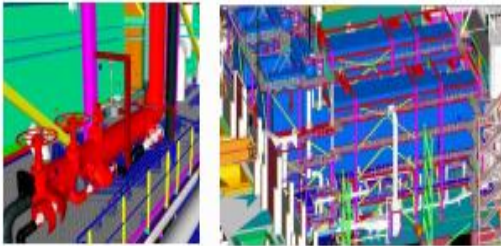
ENGINEERING SERVICES – TIME SCHEDULER & COST CONTROLLER FOR THE EXECUTION OF ENVIRONMENTAL COMPLEX OF GIPUZKOA PHASE I IN ZUBIETA (DONOSTIA)

PROJECT DETAILS:

PROJECT

CLIENT: **STEINMÜLLER BABCOCK ENVIRONMENT Gmbh**

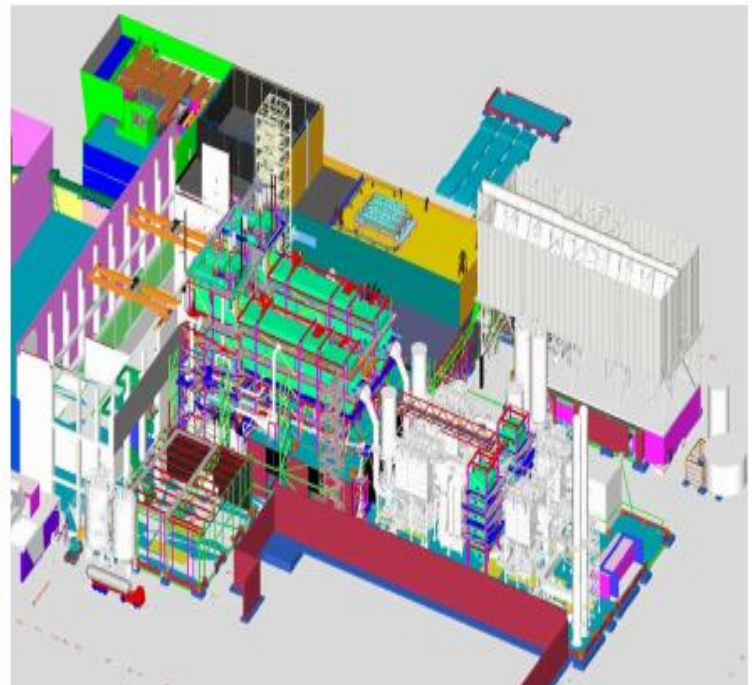
DATE: **March 2018 – December 2018**



The company STEINMÜLLER BABCOCK ENVIRONMENT Gmbh, has got the contract to provide the valorization furnaces technology furnaces at the environmental complex of Gipuzkoa Phase I in Zubieta (Donostia) awarded to its consortium with URBASER, Moyua, Altuna y Uria, Murias y LKS.

SARRALLE will be in charge of:

- ✓ Coordination of general layout 3D model from the consortium members.
 - ✓ Boiler house.
 - ✓ Flue gas cleaning system.
 - ✓ Turbine.
 - ✓ Air cooled condenser.
 - ✓ Demineralised water plant.
 - ✓ Water steam cycle.
 - ✓ Biomechanical treatment.
 - ✓ Infrastructure (as pipe bridges and cable trays).
 - ✓ Civil / civil infrastructure
- ✓ Time Management Plan.
 - ✓ Baseline for project monitoring, control and reporting
 - ✓ Progress measurement system procedure
 - ✓ Monitoring, forecasting and project execution tools
 - ✓ Critical path method implementation
 - ✓ Monitoring S-curves and KPI 's on regular basis
 - ✓ Implementation of critical path method



ENERGY – URBAN WASTE TO ENERGY



ROS ROCA – HITACHI ZOSEN INOVA



envirotec

Hitachi Zosen
INOVA

TERSA INCINERATION PLANT REVAMPING, SANT ADRIA DE BESOS (España)

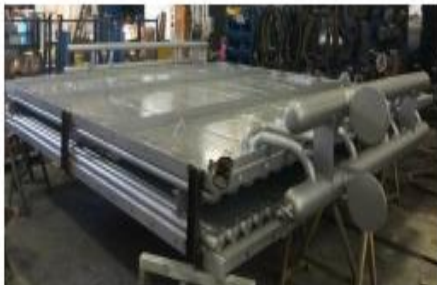
PROJECT DETAILS

CLIENT: ROS ROCA

PROJECT DATE: **January 2012 – October 2014**

PROJECT DESCRIPTION

The Plant is located in San Adria de Besos (Barcelona, Spain) and working since 1975, operated by TERSA since 1982



Total capacity of the plant is 330,000 tpy of waste and electrical production of 155,000MW-h, yearly consumption of around 50,000 households

The scope of the project was the design, fabrication and erection for the revamping of the 3 incineration lines of the WtE plant:

- Feed hopper modification
- Grate modification and reinforcement of the furnace structure
- Primary and secondary combustion air supply system
- Slags and ashes collection system
- Supports and structures



SARRALLE Environment & Energy -SCOPE

The project scope includes:

- ✓ Detail Engineering.
- ✓ Fabrication.
- ✓ Removal of existing equipments and structures.
- ✓ Erection and commissioning of new equipment, including Project Management

ENERGY – URBAN WASTE TO ENERGY



HITACHI ZOSEN INOVA

Hitachi Zosen
INOVA

PRIMARY AND SECONDARY COMBUSTION AIR SUPPLY SYSTEM FOR NEW INCINERATION PLANT IN VANTAA (Finland)

PROJECT DETAILS

CLIENT: **HITACHI ZOSEN INOVA**

PROJECT DATE: **November 2012 – July 2013**



PROJECT DESCRIPTION

This new plant was developed by VANTAA ENERGY.

Total capacity of the plant is 320,000 tpy of waste and power capacity of 78Mwe, and 120Mw for the District Heating with a total efficiency of 95%

A mix waste separator system feeds the plant.

The scope of SARRALLE Environment & Energy was the design, fabrication and erection of the primary and secondary combustion air supply system to the incinerator chamber

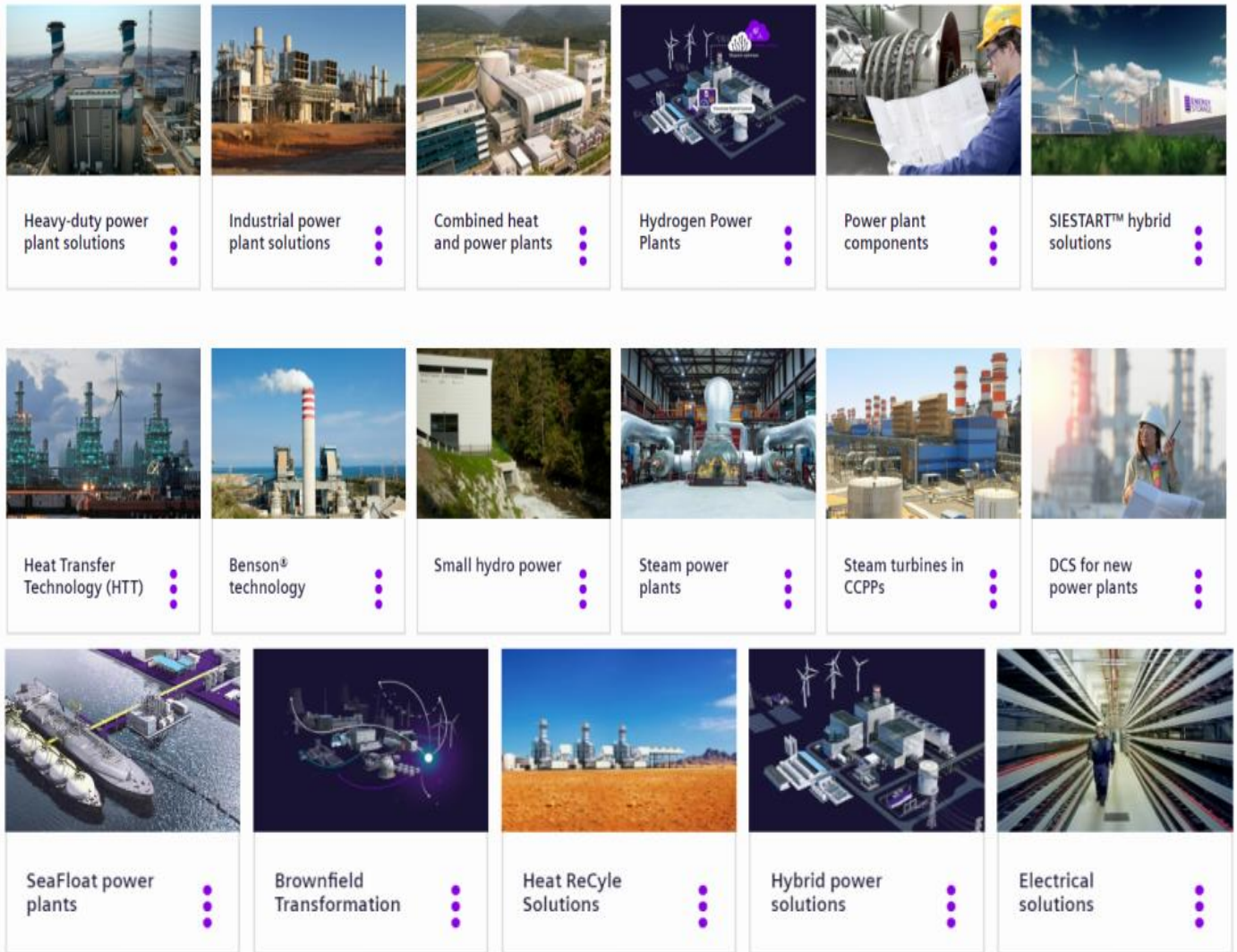


SARRALLE Environment & Energy SCOPE

The project scope includes:

- ✓ Detailed engineering of the piping, pipe racks, interconnections, injection system, fans,....
- ✓ Fabrication.
- ✓ Erection, testing and commissioning, including Project Management

Example of our plants



Siemens - A truly integrated solution always comes from a single source.

We have the most extensive in-house technology portfolio on the market, which allows us to choose the most appropriate products to incorporate into your solution. That allows you to benefit from our expertise as an OEM EPC and from the certainty of one-stop procurement - for every one of your projects.

- From individual components like I&C to power islands and turnkey power plants
- Simple cycle power plants, thermal power plants, combined cycle power plants
- From industrial of about 20 MW to 2,000-MW heavy-duty power plants
- For 50- and 60-Hz grids
- As combined heat and power (CHP) for maximum fuel utilization
- Net plant efficiencies in excess of 63 percent
- Extraordinarily reliable, low in emissions, and easy on resources

*Project Management & Partial Construction Reference List
Gas Turbine & Combined Cycle Plants*

PROJECTS

Partial Construction Project
Management Reference List
Gas Turbine & Combined Cycle
Plants



Gemma Power Systems, Monroe, GA
Installation of Westinghouse, 50-F Gas Turbine



Aalborg Industries, Inc., Erie, PA
Install 4 Heat Recovery Steam Generators



PG&E National Energy Group, Napoleon, OH
50 MW Power Plant-Peaking Facility, 2-GE Frame 5



PG&E National Energy Group, Bowling Green, OH
50 MW Power Plant – Peaking Facility, 2 – GE Frame 5



City of Calhoun, Calhoun, GA
22 MW Power Plant – Peaking Facility, 1 – LM 2500



City of New Smyrna Beach, New Smyrna Beach, FL
50 MW Power Plant – Peaking Facility, 2 – Frame 5



SW Energy/Sweeny, Old Ocean, TX
335 MW Cogeneration Plant, 3 – 501D5A



Papeles Venezolanos, Venezuela
30 MW Combined Cycle Power Plant, 1-GE Frame 5



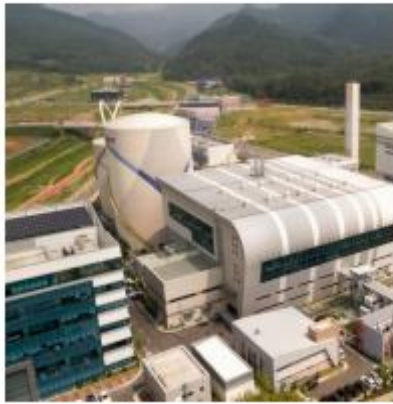
Saranac Energy Company, Inc., Plattsburg, NY
240 MW Combined Cycle Cogeneration Plant, 2-7EA
w / ACC



CSW Energy/ARK Energy, Bartow, FL
103 MW Combined Cycle Cogeneration Plant,
2-LM 6000 w / 25 MW STG



EB4104, Eastern Illinois University, Charleston, IL
Fuel: Coal fired chain grate boiler



Vineland Cogeneration, Vineland, NJ
48 W Combined Cycle Cogeneration Plant, 1 – LM
6000 w / 12 MW STG



E86138 Kent State University, Kent, OH
Fuel: Coal fired chain grate B&W boiler



E86070 Union Carbide Corp., Charleston, WV
Fuel: coal fired chain grate boiler #4



E87032 Montgomery County Incinerator Plant, Dayton, OH
Fuel: Trash incinerator chain grate CE boiler



E86152 Innovest IBAE, Kuala Lumpur, Malaysia
Fuel: Heavy oil (3-6% S) oil fired IBAE boiler



E94124 Taroko Textile Corp Ltd, Taipei, Taiwan
Fuel: Heavy oil (6% S) fired Chin boiler



E94115 Taroko Textile Corp Ltd, Taipei, Taiwan
Fuel: Heavy oil (8% S) fired Chin boiler



E9714 Ajinomoto Vietnam Co Ltd, Dong Nai Province Vietnam
Fuel: Heavy oil (8% S) fired (4) Donstoker boilers



E94122 Long Chen Paper Co Ltd, Chang Hua Hsien, Taiwan
Fuel: Heavy oil (8% S) fired Chin boiler



Installation of Westinghouse
501-F Gas Turbine



E20038 Nestle Foods (M) Sdn Bhd, Shah Alam, Malaysia
Fuel: Heavy oil (8% S)



E84104, Eastern Illinois University, Charleston, IL
Fuel: Coal fired chain grate boiler

- Aalborg Industries, Inc., Erie, PA
 - Install 4 Heat Recovery Steam Generators
- Gemma Power Systems, Monroe, GA
 - Installation of Westinghouse, 501-F Gas Turbine
- PG&E National Energy Group, Bowling Green, OH
 - 50 MW Power Plant – Peaking Facility, 2 – GE Frame 5
- PG&E National Energy Group, Napoleon, OH
 - 50 MW Power Plant – Peaking Facility, 2 – GE Frame 5
- City of New Smyrna Beach, New Smyrna Beach, FL
 - 50 MW Power Plant – Peaking Facility, 2 – Frame 5
- City of Calhoun, Calhoun, GA
 - 22 MW Power Plant – Peaking Facility, 1 – LM 2500
- Papeles Venezolanos, Venezuela
 - 30 MW Combined Cycle Power Plant, 1 – GE Frame 5
- SW Energy/Sweeny, Old Ocean, TX
 - 335 MW Cogeneration Plant, 3 – 501D5A
- CSW Energy/ARK Energy, Bartow, FL

- 103 MW Combined Cycle Cogeneration Plant, 2 – LM 6000 w / 25 MW STG
- Saranac Energy Company, Inc., Plattsburg, NY
- 240 MW Combined Cycle Cogeneration Plant, 2 – 7EA w / ACC
- Vineland Cogeneration, Vineland, NJ
- 46 W Combined Cycle Cogeneration Plant, 1 – LM 6000 w / 12 MW STG
- E84104, Eastern Illinois University, Charleston, IL
- Fuel: Coal fired chain grate boiler
- E86070 Union Carbide Corp., Charleston, WV
- Fuel: coal fired chain grate boiler #4
- E86138 Kent State University, Kent, OH
- Fuel: Coal fired chain grate B&W boiler
- E86152 Innovest IBAE, Kuala Lumpur, Malaysia
- Fuel: Heavy oil (3-6% S) oil fired IBAE boiler
- E87032 Montgomery County Incinerator Plant, Dayton, OH
- Fuel: Trash incinerator chain grate CE boiler
- E94115 Taroko Textile Corp Ltd., Taipei, Taiwan
- Fuel: Heavy oil (6% S) fired Chin boiler
- E94124 Taroko Textile Corp Ltd, Taipei, Taiwan
- Fuel: Heavy oil (6% S) fired Chin boiler
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- Fuel: Heavy oil (6% S) fired Chin boiler
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- Fuel: Heavy oil (6% S)
- Installation of Westinghouse
- 501-F Gas Turbine
- E84104, Eastern Illinois University, Charleston, IL
- Fuel: Coal fired chain grate boiler

We are developing MSW Gasification & Recycling plants in Mexico, Morocco, Brazil, Philippines and have an operational plant at INEZ in Kentucky, USA built by Siemens.



Certified

VIII. References attesting to its activities in the energy and waste sectors

References attesting to its activities in the energy and waste sectors



www.siemens-energy.com/global/en/offerings/power-generation.html



Sustainable power generation

Using energy resources efficiently for sustainable power generation

We have built over 1,500 power plants globally. Urbanization, scarce resources, and climate change: Wherever we look, global challenges are spurring an increasing demand for efficient and emission-neutral power generation, and energy from renewable sources is becoming more and more important. That's why energy systems are already undergoing a rapid transformation - and adapting to the high shares of renewables that will be essential for future energy systems.

Headway USA has forty-years of experience in Developing Nations in Infrastructure development, Energy, Water and Waste sectors and Funding.

PSECC Ltd has over twenty-seven years' experience in Energy, Waste, Funding and Climate Change Mitigation with reference to Cities, Counties and Countries on an International basis.



Portsmouth
City Council



Contact Mr Johnston
Our reference DJ/GAS/LA21
Your reference
Telephone 01705 834247

Fax
DX

19 October 1995

TO WHOM IT MAY CONCERN

RE: ALAN BREWER, MSc CANDIDATE, PORTSMOUTH UNIVERSITY 94-95
161 SYDENHAM COURT, BERKSHIRE CLOSE, FRATTON, PO1 1RQ

I confirm that Alan Brewer has been engaged on his MSc project "Sustainable Development in Local Authorities", full-time from early May 1995, until 13 October 1995.

Whilst engaged on this project he has also been assisting a City Council Team engaged on developing an Energy Policy and Strategy which forms an essential part of a Sustainable Development Strategy in Terms of Local Agenda 21. Alan has attended all meetings of this internal team which started on 12 April 1995 and has provided a positive knowledgeable contribution.

Furthermore, during this period he has also assisted me with other workgroups and Local Agenda 21 issues.

The City Council has benefitted from Alan's voluntary assistance and I, personally, have benefitted not only by his ready assistance but also from his expert knowledge of the full range of environmental issues embraced by Local Agenda 21.

I would have no hesitation in recommending Alan for any post in the sphere of environmental management and control.

Yours faithfully

D M R Johnston
Environmental Co-ordinator

Environmental Health Service

Civic Offices
Guildhall Square
Portsmouth
PO1 2AZ

Head of Environmental Health ■ Alan Higgins



To whom it may concern

Reference Mr Alan Brewer

I was the Director of the Hampshire Natural Resources Initiative (HNRI) until I left the county in 2005. The HNRI was a public /private sector network of organisations that were working in the field on conservation of natural resources; materials, water, natural environment and the development of renewable energy.

Mr Brewer approached the HNRI representing a network of organisations that were interested in providing renewable solutions and with the potential to realise funding that would promote the development of renewable energy projects. At the time what was needed was someone to pull together those interested in this area and Mr Brewer was given this task.

Mr Brewer did present the HNRI with a report on ideas and opportunities for future development.

Whilst not involved as a Director or trustee of HNRI - MR Brewer was active in this area and attended a number of meetings and offered a range of ideas.

The HNRI embedded into the county an approach to sustainability that has seen a number of results on all areas of its work.

Bob Lisney OBE Ex Director HNRI

18/11/11



Letter of Reference

Date: 20/08/2021

To Whom it may concern,

Through this letter of reference, I would like to commend the project management and communication skills of **Mr Alan Brewer (Msc.)**, CEO of PSECC LTD, 39 Woodhay Walk, Havant, Hants, PO9 5RD the UK.

We worked with Alan in an Innovate UK Agritec-Round 8 project (**105654 - Design and development of direct-coupled photovoltaic agri-processing machinery**). He acted as **Project Admin lead & Project Manager**.

The project was implemented in Ghana through a grant by UK Government – InnovateUK Agri-Catalyst, to work on renewable energy integration into Cassava Processing. Up to 30% to 40% Crop loss occurs of Cassava due to wastage and poor processing abilities – the innovative Hammer Mill will produce a mash and process Cassava Root powered by Solar PV for smallholders and cooperatives.

PSECC Ltd led and concluded the project successfully, along with other consortium partners *both in Ghana and the UK, namely:*

1. *Food Processing Enterprises (FPE) in Accra (Local Manufacturer)*
2. *The University of Greenwich - Natural Resources Initiative (Technical Lead in the UK)*
3. *Food Research Institute, Pokuase, Accra (Technical Lead in Ghana).*

I have no hesitation recommending PSECC Ltd as a competent partner in any other future Government projects in Developing Nations in Agriculture, Renewable Energy & Climate Change Mitigation.

A handwritten signature in black ink, appearing to read 'Aditya Parmar', with a horizontal line underneath.

Dr Aditya Parmar

Crop Postharvest Scientist

Natural Resources Institute, University of Greenwich, Central Avenue, Chatham Maritime, Kent ME4 4TB, UK

Tel: +44 (0)1634 883070 | Skype: aparmar_1 | Email: a.parmar@gre.ac.uk | Web: www.nri.org | [Sign up to NRI's newsletter](#) | [f](#) [t](#) [in](#)

University of Greenwich, a charity and company limited guarantee, registered in England (reg. no. 986729).

Registered office: Old Royal Naval College, Park Row, Greenwich, London SE10 9LS.

To whom it may concern,

23rd August 2021

It is with great pleasure that I offer this reference for PSECC and in particularly Alan Brewer for the professional, courteous, and efficient project and stakeholder management of the Intergovernmental InnovateUK funded project for which I was the Monitoring Officer.

The project involved the successful design and development of a Cassava Hammermill for African countries with their specific requirements given the climate and agricultural environments as well as their financial and resourcing constraints. Their knowledge and understanding of the customer base was exceptional and the ability to combine expertise from partners companies with the local situations was exemplary.

Your sincerely,

Dr Adele-Louise Carter

MD Kiteway Ltd



Certified

IX. Proposed technology

Proposed technology



One large Waste-to-Energy plant

Or



Five smaller Waste-to-Energy plants

Alset Power Gasification INEZ technology

The projects discussed herein (the Projects) will provide positive benefits to both issues mentioned above: emissions from power generation and management of MSW. Gasification Waste-to-Energy technology produces electricity from MSW while capturing 95% of harmful emissions, substantially reducing dioxins and furans. These plants can serve as major processing centres of MSW, alleviating some of the pressure on landfills. Municipalities and counties depend on an ability to dispose of waste to maintain sanitation, safety, and environmental stewardship.

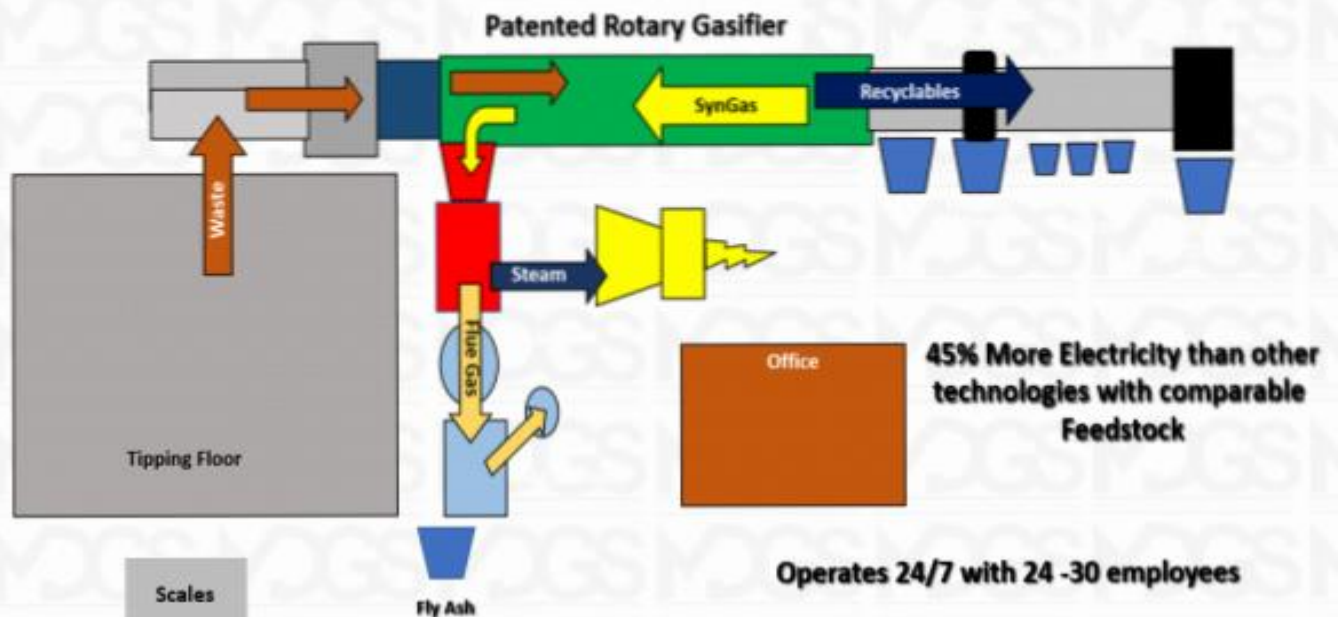
Original Plant

- 15 Years of Research and Development
- Patented in February 2018
- Fully functional 440 tpd W2E plant
- Received EPA letter of Highest Recommendation
- 3rd Party Verification of Electricity Production
- International feasibility study selecting our technology over all other current technologies.

15.8 MW W2E Plant
INEZ, KENTUCKY
USA

MGS

THE ROTARY GASIFICATION PROCESS



TIPPING FLOOR BASICS

- Each Tipping Floor is Unique
- Size of Gymnasium
- Large enough to mix and fluff MSW
- Completely enclosed with ID (Induction Draft) fans
- Sloped floor
- Customized to fit clients' needs
- Can hold several days waste
- Promotes even heat value and production of Syngas
- Prevents smell and pests from community
- Drains excess liquid off MSW

TIPPING FLOOR OPTIONS

ISSUES

- Very High Moisture Content
(Below 25% Moisture)
- Human Sludge
- Hospital Waste

ANSWERS

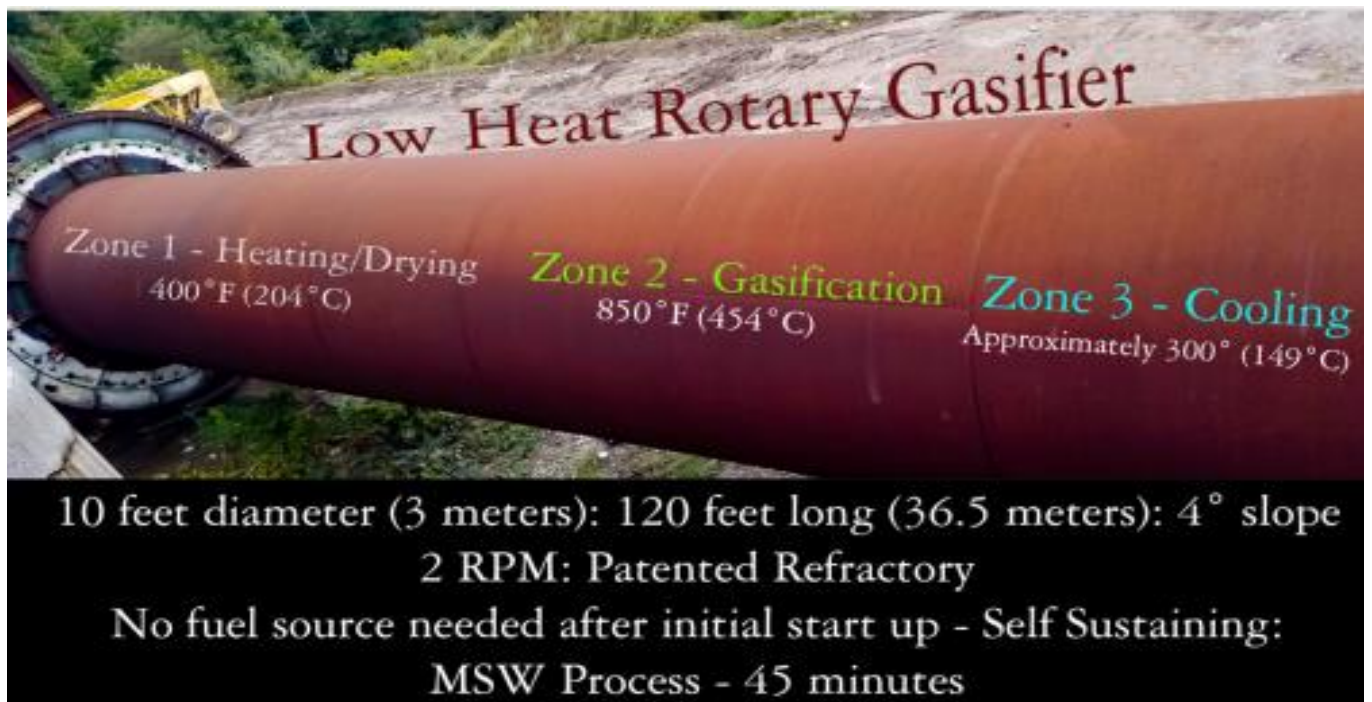
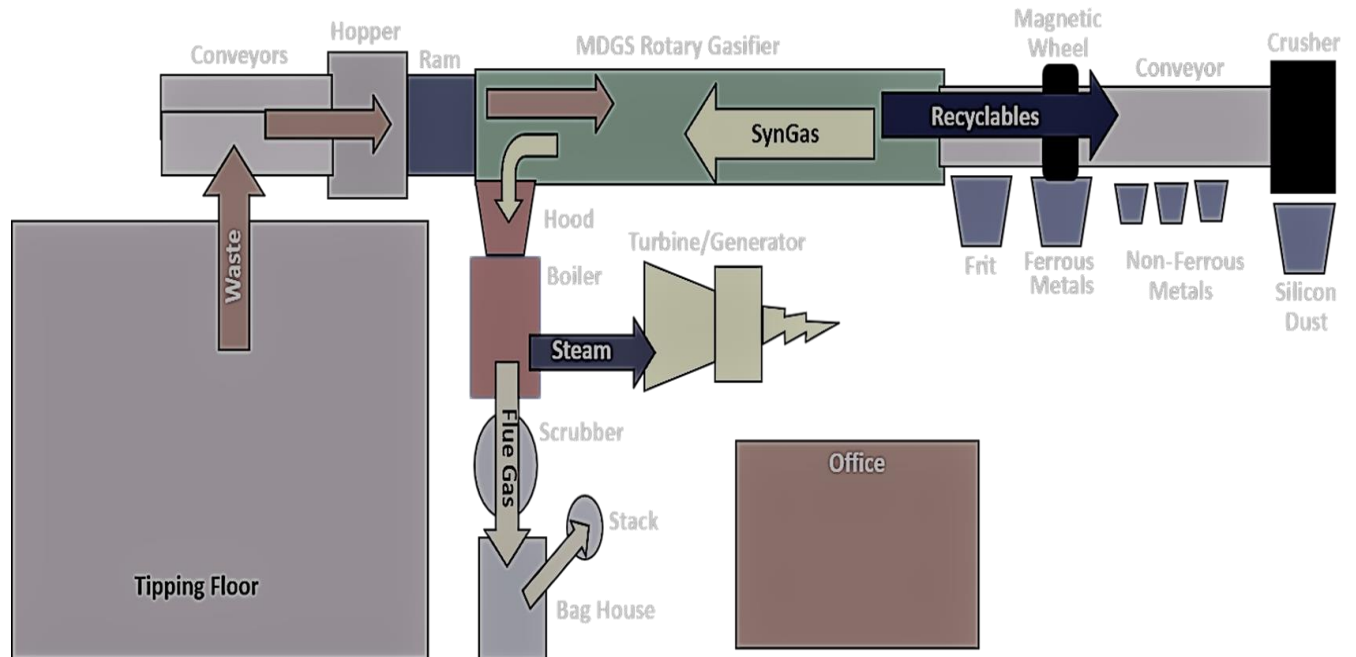
- Heated Floor
- ID (Induction Draft) Fans
- Dryer
- Centrifuge and fuel source
- Autoclave

HOPPER/RAM

- Hopper (Giant Funnel) loads the high-powered Ram
- It continually feeds gasifier through hinged gate
- Design creates Oxygen Deprived environment— (1% O₂)



Proprietary Rotary Gasifier



COMPLETE COMBUSTION

ROTARY GASIFICATION PROCESS

- Low temperature (850°F) (454°C)
- Complete Gasification of Organics
- Low Temperature prevents contamination of byproducts by toxic ash
- 100% Recyclables—NO LANDFILL

OTHER TECHNOLOGIES

- High temperature creates char on waste
- Prevents complete combustion
- Toxic ash melts into byproducts
- Toxic byproducts sent to landfill

OUR RECYCLABLES

Mineral Frit

- Mineral Frit exits onto a shaker screen and falls through to a bin ready for Recycle (7%)
- used as an additive for Asphalt production

Ferrous Metals

- Ferrous metals are lifted from the conveyor by a magnetic wheel and placed in a bin ready for recycle
- These metals are toxin free and can receive 100% income from recycle center

Some plastic will be recycled in Nairobi plant, all the metals, ash and glass.

RECYCLABLES

CONTINUED

Non-Ferrous Metals

- Non-ferrous metals continue on conveyor to be hand picked or eddy current process and sorted into bins
- These metals are non-toxic and ready for recycle!

Ceramics and Glass

- Ceramics and glass continue on conveyor to crusher
- These are crushed into silicon dust and ready to recycle
- Used as an additive in Concrete production

BURNER/BOILER

PATENTED TECHNOLOGY

- Syngas is ignited as it enters Boiler (the only Flame in the entire process)
- Patented technology allows combusted Syngas to reach **4200°F (2315°C)**
- High temp destroys Syngas and **95%** of toxins including Dioxins



SCRUBBER

- Remaining Flue Gas moves to **Mist Scrubber**
- Flue Gas is sprayed with Activated Carbon and Lime Slurry to remove Acidic Gasses and Heavy Metals
- Slurry also cools Flue Gas for transport to Bag House
- Rapid cooling prevents Dioxin reformation—Below 300°F (148°C)



BAG HOUSE

- **Bag House** filters small particulates remaining in Flue Gas
- Intermittent shaking allows **Fly Ash** to drop from Filters (Socks)
- Fly Ash (**2%**) is deposited in Bin for recycle—Mixed with Frit for Asphalt



STACK

- Exhaust travels from Bag House to Stack
- Constant Emissions Monitoring System (CEMS) assures our exhaust meets all EPA standards
 - Every 3 seconds digital update
 - Every 7 minutes paper read out
 - 3.2ng/DSCM
- Stack releases clean and cooled Exhaust to the atmosphere

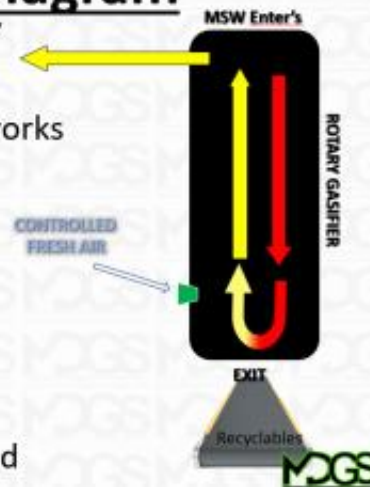
WELL BELOW EPA STANDARDS



Reverse Flow Diagram

PATENTED TECHNOLOGY

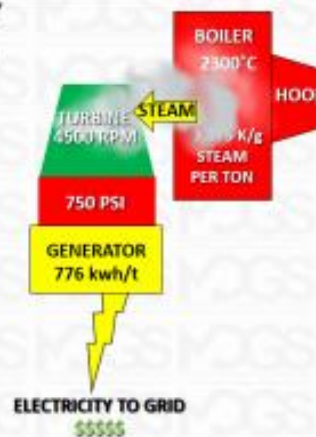
- System is **Reverse Flow** - As **MSW** works down the Gasifier, **Syngas** works back up to front
- Controlled amount of Fresh Air:
 - Diverts flow to beginning of Gasifier
 - Increases **Syngas** Volume
 - Increases **Syngas** temperature (**1800°F**) (**982°C**)
- Syngas helps heat **MSW**
- Then is extracted through the Hood



STEAM PRODUCTION

PATENTED TECHNOLOGY

- Boiler creates **7000 lbs (3175 K/g)** of steam per ton of MSW
- Steam reaches **750°F (398°C)**
- **750 psi** - Powers Turbine Powers Generator
- Electricity is sold to Grid
- **10% Parasitic Load**



OUR RECYCLABLES

Mineral Frit

- Mineral Frit exits onto a shaker screen and falls through to a bin ready for Recycle (7%)
- used as an additive for Asphalt production

Ferrous Metals

- Ferrous metals are lifted from the conveyor by a magnetic wheel and placed in a bin ready for recycle
- These metals are toxin free and can receive 100% income from recycle center



Recyclables

Continued

Non-Ferrous Metals

- Non-ferrous metals continue on conveyor to be hand picked or eddy current process and sorted into bins
- These metals are non-toxic and ready for recycle!

Ceramics and Glass

- Ceramics and glass continue on conveyor to crusher
- These are crushed into silicon dust and ready to recycle
- Used as an additive in Concrete production

- Rotary Gasifier Technology
- Patented—Boiler Burner Control System
- Automated System Control
- Blueprints
- Specs on all needed equipment
- Our team will work together with our providers to assure Specs are met

WARRANTY

- **1-year warranty of gasification and burner/boiler technology**

(Industry Standard)

MAINTENANCE

- **Maintenance is required** biannually (2 times per year)
- **Plant will be shut down for 8 days and 14 days to perform required maintenance**
- **Plant run time expectancy - 90-92% (335 days)**
- **Refractory repair anticipated every 8 years**

Kiln shell

This is made from rolled mild steel plate, usually between 15 and 30 mm thick, welded to form a cylinder which may be up to 230 m in length and up to 6 m in diameter. This will be usually situated on an east-west axis to prevent eddy currents. Upper limits on diameter are set by the tendency of the shell to deform under its own weight to an oval cross section, with consequent flexure during rotation. Length is not necessarily limited, but it becomes difficult to cope with changes in length on heating and cooling (typically around 0.1 to 0.5% of the length) if the kiln is very long.

Refractory lining

The purpose of the refractory lining is to insulate the steel shell from the high temperatures inside the kiln, and to protect it from the corrosive properties of the process material. It may consist of refractory bricks or cast refractory concrete, or may be absent in zones of the kiln that are below around 250 °C. The refractory selected depends upon the temperature inside the kiln and the chemical nature of the material being processed. In some processes, such as cement, the refractory life is prolonged by maintaining a coating of the processed material on the refractory surface. The thickness of the lining is generally in the range 80 to 300 mm. A typical refractory will be capable of maintaining a temperature drop of 1000 °C or more between its hot and cold faces. The shell temperature needs to be maintained below around 350 °C in order to protect the steel from damage, and continuous infrared scanners are used to give early warning of "hot-spots" indicative of refractory failure.

Tyres and rollers

Tyres, sometimes called riding rings, usually consist of a single annular steel casting, machined to a smooth cylindrical surface, which attach loosely to the kiln shell through a variety of "chair" arrangements. These require some ingenuity of design, since the tyre must fit the shell snugly, but also allow thermal movement. The tyre rides on pairs of steel rollers, also machined to a smooth cylindrical surface, and set about half a kiln-diameter apart.

The rollers must support the kiln, and allow rotation that is as nearly frictionless as possible. A well-engineered kiln, when the power is Kiln tyre closeup showing typical cut off, will swing pendulum-like many times before coming to rest. chair arrangement. The mass of a typical 6 x 60 m kiln, including refractories and feed, is around 1100 tonnes, and would be carried on three tyres and sets of rollers, spaced along the length of the kiln. The longest kilns may have 8 sets of rollers, while very short kilns may have only two. Kilns usually rotate at 0.5 to 2 rpm, but sometimes as fast as 5 rpm. The Kilns of most modern cement plants are running at 4 to 5 rpm. The bearings of the rollers must be capable of withstanding



The key principles of a sustainable enterprise and system include:

- Using technologies that are close to the feasible maximums in terms of efficiency.
- Having systems and processes that produce outcomes with the highest level of quality, efficiency, reliability, safety, longevity, durability, maintainability, serviceability, and disposability.
- Ensuring that safety and human health are primary considerations during designing and operating facilities, plants, and processes.
- Ensuring that the impacts of the technologies, processes, and operations do not adversely affect the quality of life in the local and regional communities or the natural environment.
- Communicating with stakeholders to provide full information about the processes and outcomes.
- Applying resources in a manner that minimizes the potential for environmental degradation, depletion, disruption, and destruction.
- Using resources in the most effective and efficient means possible given their availability and costs, the processes, and best practices.
- Using non-toxic and safe materials and ensuring that all processes are environmentally friendly.



Certified

Benefits of our Plant

1. ZERO Waste - ZERO Landfill - complete Sustainable Waste project - meets Net Zero objectives * Circular Economy.
2. One plant - 2,500 tpd or 5 x 500 tpd MSW plants - total plant funding of approximately USD \$385 million.
3. "NO" Cost or burden to Nairobi Government for the plant Provision of USD \$385 million for the plant & trucks & Rickshaws & more via Headway USA - US EXIMBANK.
4. MSW, Medical and some liquid waste processed, energy, recycling, fertilizers, fuels produced, which fits into the Nairobi Strategic Objectives.
5. Climate Change Mitigation - Renewable Energy - CO₂ & CH₄ reduction.
6. Less Air Pollution and Leachate from Landfills entering the water courses in Rivers and Lake Victoria, Composting produced.
7. Assist with removal of Plastic from Rivers and Lake Victoria & Weed technology for energy.
8. Increase in Fish stocks.
9. 100% recycling of Glass, Ash and metals used in production of new products in the new Waste Management Facility.
10. 1,000 job creation, poverty reduction.
11. 10% Shareholding in the plant - Revenue Generator for Nairobi Government.
12. 200 Trucks & 1,000 Gas Powered Rickshaws.
13. Manufacturing of Concrete Building blocks.
14. Food production using waste Carbon Dioxide from the plant & heat (Food security).
15. Gasification is 45% more efficient than Incineration.
16. 50% less cost than Incineration 112,482 MWh of electricity produced each year.
17. Income generation each year revenue from the plant for Nairobi Government, actual amount will be determined by negotiations and the Feasibility study.
18. All SDG's met (Sustainable Development Goals) by these waste plants for Nairobi.
19. Carbon Credits.
20. Full funding provided for plants, trucks, and Rickshaws infrastructure - bins, containers for village, Town and City waste collection, also bins and containers.

"NO" Cost or burden to Government to build the plant and the Renewable Electricity & PPA of 12.5 Kenyan Shillings or \$0.10 KWh will be required to be paid by Nairobi County to for the electricity or Private Off Taker to assist the Sustainable Urban & Rural Sustainable Waste Management in the County.

Please review separate Technical Review report.

CV's - Headway USA CEO / Managing Director



DANNY B. CRUZ

Chief Executive Officer / Managing Director



- ❖ Washington, DC / Orlando, FL
- +1 (202) 486-8771
- dacruz@headwayus.com

CORE COMPETENCIES

- ❖ National/international operations
- ❖ Program/project management
- ❖ Government-to-government funding and support initiatives
- ❖ Project/investment finance
- ❖ Global business development
- ❖ Strategic partnership formation
- ❖ Supply chain management
- ❖ Product research and development
- ❖ Team building and management
- ❖ Technical innovation leadership

EDUCATION AND CERTIFICATIONS

- ❖ **BSC Biology/Zoology**
Howard University
- ❖ **Project Management Certification**
American Management Assoc.
- ❖ **Telecommunications Tech. Cert.**
American Management Assoc.

BOARD MEMBERSHIPS, AFFILIATIONS AND OTHER PROFESSIONAL ACTIVITIES

- ❖ OperaOrlando, Orlando, FL
2017-present
- ❖ Central Florida Traumatic Brain Injury Support Group, Orlando, FL
2017-present
- ❖ Coalition of Hope, Miami, FL
2012-present
- ❖ Instructor in International Affairs, George Mason University, Fairfax, VA. 2008-2011
- ❖ Senate/House Press Credentials, Senate Radio-TV Press Gallery, Washington, DC. 2008-2010
- ❖ Board of Int'l Advisors, Monterey Institute for International Studies, Monterey, CA. 2007-2009

PROFESSIONAL EXPERIENCE

2007 - Present

CEO / Managing Director
HEADWAY USA, LLC.

Established successful international project management and finance company in Washington, DC to support global initiatives in technology, infrastructure, telecommunications and public health. Scope includes: project financing through government-to-government facilities and private sector investment, overall project management, procurement of all resources required, including goods, services and labor, assembly, commissioning and long-term operations and servicing. Some highlighted accomplishments are:

- Development of emergency response and reconstruction plans for the Ministry of the Interior of Ecuador, following the major earthquake of 2017. Included upgrade and financing of National Police high-frequency trunking radio system.
- Establishment of the National Clean Water Program for the Ministry of Energy and Water Resources of Cameroon. A \$150m nation-wide program to provide healthy, filtered water to near 1 million inhabitants in every region of Cameroon, taking into account multiple climate and demographic factors.
- Establishment of the National Water Infrastructure Support for the Ministry of Water of Nigeria. A \$300m water program for key areas of the country.
- Formulation of expert team and sourcing strategy for the major infrastructure programs listed above, including the structuring of teaming and collaboration partners comprised of leading industry participants, in the fields of banking, i.e. Standard Chartered Bank, engineering, i.e. the Mitie Group of London, - in the US: SAIC, Booz-Allen-Hamilton, Lockheed Martin, etc.
- The formation of social-cultural business initiatives for Orlando, in particular with EPCOT at Disney World, with national government clients. For the government of Hungary, this comprised the financial feasibility of co-investment and participation with EPCOT at several levels, including a specially dedicated Hungarian pavilion, promoting the culture and business of Hungary. For the government of Scotland, this comprised the first entry of a national entity into the famous annual EPCOT "Food and Wine Festival", featuring many weeks of that nation's cuisine and culture. In 2012, Scotland was given primary position ahead of all other countries in key events and locations at EPCOT.
- The design and development for a oil-centered electronic commodities exchange for Kazan, the central oil-producing region of Russia. Included close coordination with TAIF, the largest oil conglomerate in the region.
- Advisory and financial support to US TSWG (US Technical Support Working Group, a government inter-agency composed of the US Department of Defense and the US Department of State, with support of all the intelligence agencies, in the exploitation of first-responder and war-fighter technologies. Multiple successful implementations are now in the field.

**BOARD MEMBERSHIPS,
AFFILIATIONS AND OTHER
PROFESSIONAL ACTIVITIES
(continued)**

- ❖ Member, US Inter-agency language round-table, Washington, DC. 2005-2012
- ❖ Founder, board member, Russian American Film Festival (AmFest), Moscow, Russia. 2003-present
- ❖ Advisor to Chairman, Junior Achievement Russia, Moscow region, Russia. 2002-2005
- ❖ Founder, co-owner, Moscow Internet Exchange - First Tuesday Moscow. 2001-2005
- ❖ Board member, United Way Moscow, Russia. 1999-2005
- ❖ Board of Advisors, Schwendimann Technology Investment Fund, New York, NY. 1999-2001
- ❖ Board member, Goodwill Industries, Washington, DC. 1992-1998
- ❖ Member, IT committee chair, US-Asia Science and Technology Advisory Council, Washington, DC. 1987-1994
- ❖ Aide, National Kidney Foundation, Washington, DC. 1988-1997
- ❖ Coordinator, Meals-on-Wheels, Bethesda, MD. 1982-1996

**CURRENT COMMUNITY AND
PERSONAL PROJECTS**

- ❖ As a board member of the Central Florida Traumatic Brain Injury Support Group, support and engage in community awareness-building, fund-raising, participant activities, legal affairs.
- ❖ Participating and managing a package of projects related to military simulations and gaming, co-ventured with two local technology/educational institutions (under non-disclosure agreement), involving cutting-edge computing and simulations technologies, deep understanding of several military processes, etc.

PROFESSIONAL EXPERIENCE (continued)

HEADWAY USA, LLC (continued)

- Led and advised in strategic advisory engagements for clients in corporate finance and business development; selected projects are:
 - Supported disease detection and diagnostics via genetic testing technology, financed by private Marriott family-fund
 - Developed fuel efficiency technology for all diesel engines (car, locomotive), created new markets and partners, co-financed with New York venture capital group
 - Formed investment team, titled the Upward Spiral Partners, to engage multiple corporate finance and venture development activities, which then worked on multiple project engagements
 - Re-financed and operated Federal News Services in Washington, DC, including contracts with the US Department of Defense, State Department and the House of Representatives

2005 - 2008

Founding Partner
EXERA, LLC

Established and led Washington, DC-based company to provide project management, technical and financial leadership to several government, public-private facilities and private-sector clients. Main accomplishments include:

- Provision of high-end advisory services to Freddie Mac and Fannie Mae headquarters locations, employing multiple subject-matter expert teams in mortgage finance, accounting disclosures, especially regarding SOX flows (Sarbanes-Oxley requirements), integration and audit-level documentation of multiple financial platforms within those institutions that managed up to \$2B in monthly secondary mortgage packages.
- Launch of practice group engaged with US TSWG, later merged into Headway USA teams (see above). Successful work with US intelligence agencies on several classified counter-terrorism technologies. Further supported US TSWG leadership by focus on "hard cases" lists of urgent technology requirements.

As the two major clients (Freddie Mac and Fannie Mae) underwent politically-mandated restructuring (2008), that practice group was subsequently partially disbanded. The remainders of that group, and all of the US TSWG work, was then merged into the then-forming Headway USA, LLC.

1998 - 2005

General Director
ООО «НОВЫЕ РЕШЕНИЯ» (Russian: NEW SOLUTIONS, LLC)

Founded and managed all activities of Moscow-based company providing services in corporate and venture finance as well as overall management and business development to clients throughout Eastern Europe and Russia. Some representative engagements are:

- From 2003-2005, operated a leading 3D computer animation studio in Moscow, providing media materials to US and European commercial clients in multiple sectors.

CURRENT COMMUNITY AND PERSONAL PROJECTS (continued)

- ❖ Creating strategic team and setting up finance for the conception and development of an Orlando, FL area complex of facilities for the production of multiple media-based simulations, for the military and entertainment sectors
- ❖ Promotion, support and finance of the smart-school concept in the school systems through the Orlando region. Among other things, this includes renewable energy facility investments tied to the massive real-estate holdings of the school systems in the area. It also also comprises the inclusion and utilization of languages and the arts (music, media, movement) into the learning curricula.

PROFESSIONAL EXPERIENCE (continued)

NEW SOLUTIONS, LLC (continued)

- Led engagement teams in corporate finance activities for several companies in the telecommunications sector throughout Russia (including Russian regions and republics), while building market intelligence services in the Russian telecommunications, technology and finance sectors. Exceptional projects included Ice Fili (largest ice cream maker) and AvtoVaz (largest automotive maker).
- In 2001, formed the E. European office of iDirect, a Reston, VA-based satellite technology company, then offering complete Internet-via-satellite services. Ran all regional operations while working closely with its US investment capital partners.
- From 1998-2001, co-founded the Moscow Internet Exchange / First Tuesday Moscow, which led the way in market development for Internet ventures in Russia, including regular networking events, specifically targeted matchmaking, building the primary market intelligence source on all Internet deals and opportunities in Russia at that time.
- In 1998, in the midst of the Russian banking crisis, operated the "Bank Watch" publication resource on the entire financial sector, building market intelligence for external investors.
- In 1998, set up, managed and trained the corporate finance division of "Metropol IFK", a leading Russian investment bank.

1997 - 1998

Vice President

Renaissance Capital

Recruited to bring Western management practices to 75-man IT department of the leading investment bank in Russia. Also participated in major financial exercises (ruble denomination conversion, bond default crisis) and technology portions of due diligence on company acquisitions (multiple sectors).

- Responsibilities also included a multiple city talks with universities and local leaders on economic/business practices

1987 - 1997

President

DC Associates

Founder of consulting/financial group, projects included:

- Ellen Kaye, Marriott family venture for corporate decorations
- Marriott communications/Internet technologies/strategies
- Philippine Tourism Master Plan for the Department of Tourism
- Philippine Government Communications Network, forming the national Internet backbone, with AT&T and SAIC

1986 - 1987

President and co-Founder

Wedge Computer Systems Corporation

Joined and eventually ran, as President, a technology group that obtained venture financing for a battlefield management system for the US Department of Defense, including then cutting-edge communications and software technologies. Successful exit in 1987.

PSECC Ltd CV

39 Woodhay Walk
Havant
Hampshire PO9 5RD- Mobile: 07510 977203



Alan.J.Brewer MSc
Director PSECC Ltd

International Waste & Solar PV, UK City
Energy Policy, County Energy Strategy
Coordination – Solar Farm development &
Project Management 500MW Zambia, Kenya &
Ghana, Uganda, Senegal, Rwanda, & Nigeria.
Excellent references
alan@psecc.co.uk - **Optimistic**

Waste & Solar Farm Developer, Project Manager, Solar PV Domestic & Commercial Business Developer – Qualified Environmental Engineer to master’s degree level, Electrical / Mechanical Maintenance Engineer – Solar Farm Project Management, Climate Change Mitigation, Carbon Management over twenty-seven - 28 years in Renewables, EFW sectors with recent eight years in Solar PV homes, large scale 500KW and development of 4MW, 5MW, 25MW & 50MW Solar Farms in Africa. Good all-round experience in all renewable’s apart from Wind.

Strong Development skills & Senior Level negotiation at Presidential, Country Ministerial, Director level, Project Manager / Development experience over 28 years. Interesting career path so far over – Project Manager / Development in Waste Gasification & recycling plants, Renewable Energy, Electrical & Mechanical fitter – three phase and single phase. Experience of working with InnovateUK, UK AID, US EXIMBANK funding platform and UNEP in Kenya, Zambia & Ghana and REPP funding platform together with identification of Adaption projects for climate change programme in Kenya, Zambia, Senegal, Nigeria, Uganda, Rwanda and Ghana. Energy Efficiency, Good Carbon Reduction technical abilities and BREEAM. Risk assessment & Technical reporting produced for all stages of developing Solar and all renewables. Now wishing to return to UK role, could offer ten 50MW solar farms on JV basis in Zambia.

Carbon Management, Energy Policy & Strategy formulation, Solar PV & Energy Crops Currently developing Africa - strong business Climate Change Adaption development skills –Qualified in Energy, Waste, BREEAM and in Renewable’s sectors, Solar PV, Energy, Waste, Climate Change Mitigation, Carbon Reduction. Mechanical & Electrical Engineering training and BT Computer Training over 8 years, manufacturing & environment sector over the last twenty-seven years. Have Global Agreements in place with Energene - CERES Miscanthus seed provider – good for USA. Mexico partners in place to provide small Solar PV to the people of Africa. Arrange all funding requirements for projects and technology partners.

I have performed current technical assignments of Kenya for the Kenyalight project, six years development in Ghana, two years in Kenya and two years in Zambia and have work collaboratively with many partners in Africa such as Siemens, Alset Power, itpower group Ltd, Alpin Sun GmbH, SMEP, UNEP and implementing reporting and successful delivery of the relevant project technical reports and risk assessments.

Have worked on development of Solar PV with many UK Waste & Solar companies, on the HNRI initiative, diligent, hard worker, respectful, persistent, consistent, presentable, loyal, and enthusiastic. Instigated with British Gas and Freetricity the Free Solar programme in the UK. Environmental engineering, renewables, energy, waste, solar PV, development work and Climate Change mitigation. Developed “Resource Ownership” concept. Proactive identifying sustainable business opportunity and run with it to a successful conclusion. Manufacturing, Mechanical, and electrical Fitting experience & computer experience also over six and eight years respectively together with good public relations, wide knowledge. International & UK development management experience, CRC, Future Solent Programme, and advice on Renewable Energy developments. Renewable Energy development experience, Solar & Waste sectors. ESCO formations / Project Management - partners include PMSS, British Gas, Talbots, SSE, JCA Group, Riomay Renewable, Energene, Freetricity Plc, Solar Advanced Systems, Solar Selections Ltd, Lightsource Ltd and many more. Project Management of following technologies - Solar PV / Biomass / Ground source sectors / all Renewable Energies.

Carbon Reduction Commitment Grant & funding sourced for ESCO's. Senior level negotiation and development experience, PROJECT MANAGEMENT - Gasification, Solar PV, good facilitator of sales and marketing strategies, especially Solar, Gasification, Biomass, Waste, Climate Change mitigation, Renewable's, Waste Strategy & Policy formulation, energy efficiency, recycling, environmental management- EFW - waste disposal experience. NHS Trust Solar PV case studies submitted on Climate Change and CO2 emission reduction - provision of case studies to NHS Trust Sustainable Development Unit. Extensive experience of developing international business opportunities in Waste & Solar PV sectors, presenting CRC, Agenda 21 Sustainable Development programmes to Council officials, companies - Energy, Renewable, Energy Efficiency, Construction, Housing and Waste Sector experience. BREEAM Schools Advisor.

Skills

International Developer - Waste Gasification & Recycling, Solar Farm Development - Waste & Carbon Management, Energy Policy & Strategy - Electrical & Mechanical fitter six years- three phase and single phase. Project Funding, Project Development, Project Management, Climate Change Mitigation - International Consortium formation for Kenyalight project in Nairobi Kenya. Advise to Future Solent programme Board, PV - Highcross Ltd - Business centres throughout the UK, schools, NHS, commercial **Project management** - International consortium Solar Farms & Waste-to-Energy in Kenya, Zambia, Ghana & Nigeria. NHS Trust advice on Solar PV and CO2 emission reduction - Carbon Reduction - provision of case studies to NHS Trust Sustainable Development Unit. **Project Management Driving Climate Change CO2 reduction**- Commercial Highcross & NHS Trust **Development Manager** - Solar Farm development, Solar PV - Energy Policy & Strategy **Renewable Energy Business Development Manager over twenty-seven years**, Solar, EFW, Biomass, Tidal **BREEAM school's advisor** - sales development at County level & Educations sectors. **International sales development** - Solar, Waste Management & Solar PV Commercial and Private **Engaging Communities** in the Waste & Solar PV marketplace & Sustainable Development

Environmental Engineering - Renewable Energy & Waste sectors
Project Management in both sectors of Renewable Energy & Waste
International Development management in Renewable Energy, Energy & Waste sectors
ESCO formations for Solar PV and Biomass. - fund raising for ESCO's,
International negotiation and development management experience
Energy Coordination of Energy Network - Renewable Energy Hampshire County Council appointment
Sustainable Energy Policy & Strategy formulation Portsmouth City Council appointment - **Ski Technician**

Affiliate member of the Energy Institute - Member of the Chartered Waste Management Institute

- Sectors worked in CRC, Energy Policy & Strategy, Waste, Solar, Biomass, Energy Efficiency Renewables
- Energy Network coordinator - HNRI - Hampshire County Council, Renewables & Energy efficiency.
- UK Waste Strategy Working Party Group member / International negotiation skills, Hong Kong etc
- Sustainable Energy Project management - Business Development over eighteen years Solar PV -MSW
- Waste Strategy 2005 CIWM Group member London
- City & County Agenda 21 Sustainable Development - Energy Policy and Energy Strategy Research and writing of Policies & Strategies to meet Kyoto Climate Change targets.
- Chairman of the Southeast Chamber of Commerce-Renewable Energy Group
- Excellent Interpersonal Skills - good facilitator / Feasibility Studies PowerPoint Presentations & sound Computer skills.

Previous Employment

PSECC Ltd -Developer, Facilitation, and development of Renewable Energy in Africa - 500MW of Solar Farms - **December 2014 - now**
International Solar Farm development work - IEDL, Kenyalight Ltd - in Kenya, Uganda, Cameroon and Tanzania - arrangement of all project partners EPC / funders \$100 million **Jan to December 2014**

Project manager and developer - Self Employed Consultant Kenyalight project for Kenya www.iedl.org advisor on Climate Change - CO2 emission - (Carbon Reduction Commitment) reduction for Councils - case studies to NHS Trust England Sustainable Development Unit - Sustainable Retail - Solar PV funding & technology - 500KW. **April 2013-May 2014**
Project Manager - Solar Selections CO2 reduction in Lakeside - Highcross business centres - **Nov' 2012 to April 2013**

Development manager - Self Employed - UK Solar projects - Ground Source HP - Biomass Plants, Kenya Village Solar Grids - both Off Grid and Mini-Grid systems / Gasification Solar PV business development UK Colleges. **Mar' 2012 to Nov' 2012**
 Established Free Solar PV programme & helped raise £16 million for Domestic Solar PV programme

Development consultant - Portsmouth City Council - Solar PV advise -16 schools **May 2010 - Feb' 2011**
iTPower Ltd - SEI & British Gas, BP - Partnership -Business Development Solar PV-7 schools **Mar' 2008 - June 2010**

Consultant - Partnership - iTPower Sustainable Energy Installations Ltd **Jan 2006 - Mar' 2008**
 for Hampshire - County Council - Solar PV for Schools

Development - Energy Network coordinator - Hampshire County Council **April 2004 to Nov' 2006**

Renewable Energy assessment for the County (self employed)
Energy Business development Manager – Sovereign Ltd **Feb' 2003 - April 2004**
 Environmental advisor for Sustainable Energy & Integrated Waste Management. South Sudan Energy / Environmental Policies /
 Strategy advice, Coordination of Renewable Energy development between Hampshire County Council, Hampshire Natural Resources
 Initiative, Rushmoor Borough Council.

Formation and Chairman, Southeast Chamber of Commerce **Jan' 2002 to Feb' 2003**

Formed Energy Focus Group in Hampshire Promotion of Wind, Solar, Energy Crops and Green Energy supply

Business Development Manager, MSW Waste sector, International Mercantile Group **June 1996 to
Dec' 2002**

Development of International Waste Management consortium, feasibility study writing.

Hampshire County Waste Strategy and provision to the group of nine international cities for waste disposal contracts. **Gasification** EFW
 Instigated Energy Crop programme with the Ministry of Agriculture, Fisheries & Food (MAFF-DEFRA) in two English Counties, West
 Sussex, and Hampshire Climate Change - arranged all technological choices and finance/insurance package. Written Integrated Waste
 EFW Management reports for Russia, India, Hong Kong, Bulgaria, Poland, Riyadh, Doha, Winchester, Hampshire, Brighton, Edinburgh,
 and Moscow. Six-month research - Sustainable Development energy policy and strategy formulation Working party member for: energy
 from waste, EMS, transport, and energy efficiency, renewable energies of solar, wind, water, cogeneration, and recycling.

Trainer, Nynex Communications – Home Sales development and training **1993/1994**

Ski Technician **1993/occasionally**

Energy, Brytec, Hayling – energy sales, low energy lighting systems **1991/1993**

Senior Computer Data Processing Officer, British Telecom, Portsmouth **1980/1990**

Electrical / Mechanical Maintenance Engineer, Solent Repetition, Portsmouth **1968/1974**

Education and Qualification

BREEAM Education Assessor training for Schools – currently an advisor only **2008**

(CAT) – Wales – Community Renewable Energy Schemes & Solar course **2006**

Chartered Waste Management Institute & Affiliate member of the Energy Institute **2006**

Practical Wastes Management Course – Certificate **2004**

Graduate, Member of EI & Chartered Institute of Waste Management UK **2003**

MSc. Environmental Engineering – University of Portsmouth – Majored in Energy **1995**

PgDip. Environmental Engineering – University of Portsmouth **1995**

PgCert. Environmental Engineering – University of Portsmouth **1994**

NVQ (IV) Management – Portsmouth **1993**

C.Ed.Environmental Science – University of Plymouth **1980**

O.N.Dip. Sciences – Highbury Technical College, Portsmouth **1976**

Alset Power The Management Team (if Alset Power INEZ technology agreed too & O&M)



President and Chief Executive Officer (CEO), Avery Knox, MBA, with responsibilities to maintain the steady and consistent focus on the core principles of the enterprise: with overall responsibility to enable, lead, promulgate and grow the capacity, capabilities, competence, and relevance of the enterprise and the revenue streams it delivers to investors, the markets, and the people who forge them. Primary location will be New York City. .

Avery is a former member of American Stock Exchange. Stockbroker and bond trader with Morgan Stanley. Former real estate sales agent with Douglas Elliman Co. in New York, NY. Former owner and operator of a pet supply business. Entered the field of Business Brokerage in 2003. Worked with several firms and then branched out on his own as a sole proprietor of Diversified Business Brokers. He received Bachelor's degrees in Economics and Art History from Yale University in 1979. He later earned an MBA in Finance from New York University's Stern Business School in 1985.



Senior Vice President, Steve Racoosin, with responsibilities of overall construction management and operations related to deliver, operate within, and augment sustainable outcomes to increase profitability, positive change in the communities we serve, and the influence we yield in the laboratories, on the markets and on public policy. Primary location will be in California.

A high-tech visionary, Mr. Racoosin brings over 49 years' experience in energy development projects, landfill operations, material recovery facilities, transfer stations, and alternative waste solutions. His design of the "Alternative Energy Center" or "TRF" "Total Recovery facility" which is ALL WASTE streams under one roof, cleanly processed into electricity, fuels and useful building products is setting the full-service standard that communities are looking for. Mr. Racoosin previously served as CEO of BioGold Fuels Corporation in the United States. Mr. Racoosin was the Founder and CEO/President of Full Circle Industries, Inc. which is today BioGold Fuels. In 2002 Mr. Racoosin founded and became CEO of World Waste of America, Inc., which later became World Waste Technologies, Inc., a publicly traded waste-processing company. Mr. Racoosin's past research efforts include pressurized steam classification technologies for MSW in addition to biomass to liquid fuels and pyrolysis/gasification, has researched algae and has been involved with the transesterification of organic oil from crops to high grade diesel fuels and he has studied hydrogen and fuel cell technologies. He has spent his career studying creative re-uses for ALL forms of waste into energy and fuels. In 1992 he studied at the University of Alabama at the Johnson Environmental Energy Research Center at the Von Braun Rocket Center in Huntsville, Alabama on the science of Steam Sterilization of MSW. In 1984 as a landfill manager with R. E. Wolfe enterprises and San Bernardino County he was in charge of the construction and management of the landfill and was also involved in the first privatization of the San Bernardino County landfill at Ontario, CA and in 2005 was involved with his company World Waste Technologies in the building of the Republic Services Material Recovery Facility in Anaheim, CA today, one of the largest MRFs in the world processing over 6,000 tons of MSW per day. Mr. Racoosin invented the Bio Carbon Fuels dryer and is the patent owner before assigning the patent to Bio Carbon Fuels. He spent 18 years developing the system to take ALL FORMS of waste and blend them into re-engineered carbon for production of liquid fuels and clean electricity.



Alan Brewer, MSc, twenty-seven years Climate Change Mitigation experience with responsibilities to organize, develop, and deliver portfolio projects to market and grow the enterprise. He establishes the initial client relationships and structures the project to provide maximum value. Primary location will be the United Kingdom.

Alan has experience of working with a wide range of Governments since 2017 at both Ministerial & local level and with UNEP and REPP together with identification of Adaption Renewable Energy & Waste projects for climate change program in Kenya, Ghana, and the USA. In 2012 he formed International Consortium with World Expert Companies. He has effective delivery abilities and world-class consulting experience and capacity building as indicated by his work over twenty-five years for UK Government Climate Change Mitigation programs and Hampshire County Council together with City Council Energy Policy & Strategy together with UK Waste Strategy input. He is a qualified Environmental Engineer, Manager with Project Management experience over twenty-six years together with being a Strategic Thinker, Agenda 21 Sustainable Development & Renewables Developer & Waste Management Plant development.



VP of Research & Development, Mark Turner, with responsibilities over the current and future technology developments, will lead the research team to successfully implement systems and develop improvements to processes and components. Primary location will be Florida.

Mark M. Turner, American Inventor and founder of Green Group Alliance Members, is the CEO of Global Energy Group P744 Worldwide Inc. and managing member of his other corporation GEG Consulting & Developing International, LLC. Mark's Ideas are multifaceted in the fields of electromagnetics and chemical formulations. His problem-solving abilities have been used extensively with members in this group and with other close inventor friends of his. He is known by his friends as "The Professor" taught by the school of thought and imagination. Mr. Turner, whose degree is in refrigeration mechanical engineering, owned and operated a very successful refrigeration business for many years. He has been an independent research scientist for over 25 years. After a sever industrial accident in the mid 1990's, he turned his interests to research and development of electromagnetic field generators. Mark has been working on DC motors and how they relate to becoming power production systems through various old technologies that employ AC to DC through setups like alternators and electronics, and magnetic pulse direct/drivers to develop ADV voltage, and ADC current where both systems work together through DC motors or without the use of any motors to create a Load Compensating Electrical Fuel Cell being powered by AC sources without inverters. Mark has worked on the development of magnetic coil energy generators to free up all power needs to eliminate fossil fuel usage, and most recently has been developing the load compensating electrical fuel cell. This fuel cell has the capacity to reduce and/or completely eliminate the need for outside electrical power systems from power plants.



Executive VP of EPC, Tim Formaz, with responsibilities as a Board member and EPC leader, Tim will provide oversight to construction scope definition and contracting. Primary location will be Ohio.

Timothy (Tim) Formaz is a graduate mechanical engineer with over forty-five years of power generation experience. Tim has deep experience in EPC design/build for combined cycle gas turbine plants, bio-mass plants, CHP plants, waste-to-energy projects, utility boilers and a broad range of engineering consulting services. Projects are worldwide to include the Middle East, Europe, Africa, and Ireland. He specializes in difficult fuels and unusual applications. Past projects include converting low BTU coal fired boiler to fire MSW and the conversion of 25 MW coal fired stoker boiler to fire woodchips.

Prior to founding Turbine Power in 2006, Tim was President/Principal of HRSG International, Inc. in Seville, Ohio performing EPC, consulting, and design services for power generation systems in the Pacific Rim countries and continental US. Setting up joint ventures in Taiwan, Thailand, Vietnam, Malaysia, and India for boiler and heat recovery equipment design and manufacturing, custom finned tubing and finned tube products, specialty heat exchangers using internally developed software and design programs. Earlier Tim was President of Waste Heat Technologies, Inc. (Waste Heat) The company located in Wadsworth Ohio performed the design and manufacture of Heat Recovery Steam Generation units (HRSG's), Fin-Fan units, Economizers, Air Heaters, Super Heaters, and specialized heat exchangers. Waste Heat was a full ASME Code boiler shop with 120 hourly employees and 35 people on staff. The company manufactured a full line of boiler products; HRSG's up to 200,000 PPH and tubular air heaters. The company also specialized in heat exchangers for military applications, diesel exhaust gas boilers, air cooled heat exchangers, and custom finned tubing. The company entered into technology transfers agreements in China, Korea, and Taiwan for the entire product line and design software.



Director of Brazilian Operations, Luiz Salomon, with responsibilities to source and develop energy projects in Brazil. Luiz was recently requested to become the Energy Minister of Brazil by President Jair Messias Bolsonaro. However, Luiz turned down the position. He is currently negotiating a project in Brazil to provide 1,000 MW of power plants in which Alset Power Company is involved.

Luiz is a Senior Executive Director and electrical engineer, with a solid and strong background in telecommunications and energy sector, including power generation and transmission lines. He has 30 years of vast experience with projects and construction in the civil, mechanical, and electrical engineering fields. In the past couple of years, he has been developing M&A prospects with over R\$ 6 billion in potential projects.



Director of South American Operations, Juan Walker Prieto, with responsibilities to source and develop energy projects in Chile and Argentina. He was the first person to build a wind farm in Chile. He has just completed a large solar PV farm project with J.P. Morgan. *Juan is an experienced executive in the energy sector, with over 20 years representing major project developers and equipment manufacturers in South America. He has represented Vestas, Iberdrola, and now Alset Power, while also forming multiple project companies for wind and solar projects that were later sold to investors. He is also the founder of ACERA, a Chilean Renewable Energy Association. Juan holds a Bachelor's degree in Economics with a minor in Business from Boston University in 1986.*

This leadership team, which is already hands-on in daily execution of Enterprise-related efforts to-date, will come together as decision-makers to guide the Company's strategy and business plan, and to manage the enterprise according to specific areas of expertise crucial to creating optimal, appropriate, and sustainable revenue streams positioned by the collective portfolios this group identifies, develops, and delivers to the markets we serve. All partners are tasked with governing, growing, and setting new standards in business development, implementation, and profitability, while lowering risk exposure across all activities. Each Partner contributes a specific skillset that underlies their primary role, and each member brings a unique and valued perspective to the leadership from a broad and deep practical experience beyond their named expertise in science, economics, policy and the law; what we consider to be the primary drivers of change relative to the activities of the Company. The primary focus of this leadership team will be supporting requirements of the Project. Management will be supported by the following individuals, some of which will be part-time roles, providing robust hands-on information and quality control management:

1. Compliance and Permit Director
2. Controller (CPA)
3. Operations Coordinator
4. Project Development Coordinator
5. Public Relationship Director

The Company is lean by design to meet current objectives. All individuals will perform a multiplicity of tasks to ensure established milestones are met on time and within managed resources, which encourages structured cost containment and risk reduction while supporting anticipated agility necessary to respond to near term and long-term challenges. Office personnel stand at five and plant personnel is currently at twenty-six. Alset Power Company principals have a combined experience in the municipal solid waste and power plant industries of more than one hundred (100+) years. We have no experience specifically in the country of Kenya, but experience in similar projects in other parts of the world. Current annual revenues are in the range of \$21.3 Million.

The management team will also be supported by the following individuals executing the work in the field:

1. Chief Engineer (PE Certified)
2. Senior Project Manager (Engineer)
3. Deputy Project Manager I (Engineer)
4. Site Services Director (Engineer)
5. Chief Architect

Positions and Roles

Project Monitoring and Control Group

Compliance and Permit Director

Directs permitting and licensing activities to enable the Project to satisfy local, state and federal land use, industry, and public safety requirements. Prepares documentation and submittals and represents the Company in public permit and licensing proceedings. Provides legal and cost analysis on required Project filings and filing fees. Advises the Project management on new or pending regulatory requirements that may impact project components.

Controller

Directs financial affairs of the organization. Prepares financial analysis of operations for guidance of management. Prepares reports that outline company's financial position in areas of income, expenses, and earnings, based on past, present and future operations. Directs preparation of budgets and financial forecasts. Arranges for audits of company's accounts.

Operations Coordinator

Coordinates and enables complex project planning, development, and operational mechanics outlining current and future initiatives. Acts as the single point of contact on all phases of project operations related to resourcing, logistics, procurements, scheduling, delivery, monitoring and testing, documenting, and promulgating project details and results. Works closely with Senior Management to maintain clear and continuous information flow between field, control, and senior leadership. Develops, implements, and maintains relevance of project communications flows to assure timely, productive, and accurate work.

Project Development Coordinator

The Project Development Coordinator is the control point of project level Operations and Policy Development teams, with responsibility of assuring complete and accurate applications and outcomes by: creating, implementing and maintaining a detailed project log noting work and specifications required, met, approved, and otherwise acted on in support of the deliverable; engaging with senior project team personnel to maintain communication lines between the project team and project partners, suppliers, and the public; and working with the Public Relationship Director to craft and deliver relevant and informative public messaging, and to represent the Company on the public arena.

Public Relationship Director

Directs staffing, training, knowledge, and performance evaluations to develop and enhance community relationships. Manages market goals and advises partners and policy makers concerning development goals and standards. Analyzes market and industry statistics to formulate programs in promoting engagement with existing projects and in developing new understanding of local or regional needs. Manages public-related activities. Represents the Company in the public sphere.

Project Implementation Group

Chief Engineer (PE Certified)

Oversees the facilities and operations. Responsible for the technology, engineering, and mechanics of project installations, testing and monitoring during commercialization, and ongoing operations and maintenance oversight and control systems. Directs project personnel on all aspects of engineering, development, and operations, including scheduled shutdowns and trouble-shooting operations in case of a performance or operational drag on the system. The final decision-maker in the field in all operational component issues impacting the delivery of services, responsible for maintaining the promise of the Company to deliver on the guaranteed continuous high-quality electric power capacity under an ongoing service contract.

Senior Project Manager (Engineer)

Develops and maintains the mission and charter of the Project. Oversees business aspects, technology development, production, finance, support service, etc. Approves all financial obligations. Seeks business opportunities and strategic alliances with other companies and organizations. Plans, develops, and establishes policies and objectives of the project organization in accordance with Company directives and charter. Directs and coordinates financial programs to provide funding for new or continuing operations to maximize return on investments and increase productivity.

Deputy Project Manager I (Engineer)

Directs raw materials sourcing and procurement, and management, field service, repair, and shipping/receiving functions for the plant. Assists the Project Manager and Chief Engineer in maintaining the integrity of the project construction and delivery.

Site Services Director (Engineer)

Designs and Engineers site services including water, wastewater, building electricity, sewage treatment, telephone and internet services, and assists with project interconnections and interconnection services. Works closely with Project Leadership and the project team to assure appropriate systems integration and timely coming online of critical services. Provides oversight to plant services operations post-commercialization under an ongoing service contract.

Chief Architect

Directs site appropriate architectural and site-specific design program activities with the specific intent to integrate project components within the existing environment. From a systems perspective, the Chief Architect will work closely with the Chief Engineer, Site Services Director, and Building Science Specialist to review and modify structures, access points, and public spaces as needed to enhance the productivity of the plant, and the accessibility and desirability of the plant architecture from the community perspective.



Certified



Manufacturing Africa



Additional assistance to Nairobi will be offered from the UK AID programme “Manufacturing Africa” in order to provide access to their funders in order to set-up Manufacturing plants for the Recycled material from our plants.



Market Design and Demand Intelligence



Partnership for Vaccine Manufacturing



Opportunity and Investment Potential for Electric Vehicles (EVs) in Kenya



Driving sustainable mobility solutions in Nigeria



Health and nutrition investment support



Pioneering Production of Green Construction Materials



Manufacturing Africa

Assistance to set up Manufacturing in Nairobi



Recycled glass - New Glass & Cement floor tiles can be manufactured



Glass & Cement table-tops can be manufactured



Recycled metal made into new products made



Some Recycled Plastic products

Expected role of Bidder & County Government

Expected role of Bidder

1. Arrange funding letter from US African ESG fund - We have formed the “US African
2. ESG fund” for Africa - the funding is from US EXIMBANK and Standard Chartered
3. Bank funds and officers will be on our investment committee.

4. Design, Build, Finance, Operate and Maintain (the “DBFOT”) a Waste Management Plant on a Collaboration Agreement basis at an agreed concession period of 20 years for management of Solid Waste. Under this model, the entire investment for Designing, setting up of the Waste Management Plant, including operation and running and maintenance expenditure of the Plant shall be borne by the selected Company / Agency for the entire tenure of the contract/agreement.

We will supply operate and maintain the facility in compliance with all applicable Government policies, legislation and regulations. The other products such as organics, produced if any, shall be sold or supplied by the Company to other processors on their own choice by the Government. The exact technology chosen will be further discussed with the Government to ensure good compliance with Policy & Strategy to meet Sustainable Waste Management, Circular Economy Transition, assist with National Determines Contributions (NDC's) and Sustainable Development Goals (SGD's). Our plant will enable a transition by Nairobi into the Circular Economy ensuring Zero waste - Zero Landfill dumps, maximum recycling and clean energy generation.

5. Appoint sub-contracting companies for personnel such as drivers and operation staff if required.

6. Our approach - A detailed Feasibility study will be undertaken if we have been chosen as the preferred bidder. We will investigate further the current waste situation in Nairobi, undertake a detailed waste analysis and work with the Government teams to ensure the final technology design company chosen in our consortium meets all the objectives of the Government Policies and Strategies such as the aspirations of your Horizon 2030 and the Nairobi Integrated Solid Waste Management Plan (KISWaMP).

Expected role of County Government

1. To facilitate meetings with our consortium representatives in order to have an input into choices and decisions made on the exact requirements of the Government for such things as Manufacturing plants to be established with the assistance of UK AID “Manufacturing Africa” to process recycled glass, metals, ash and some plastics into new products.
2. To assist with the Power Purchase Agreement (s) either with the Nairobi Government taking the electricity or a Utility company.
3. To maintain a working relationship with our consortium throughout the life of the plant to ensure MSW Feedstock of at least 600 tpd is maintained on a daily basis.
4. The Government will have a 10% Shareholding and profit share in the plant so will be expected to work with us to ensure operational profits are maintained.
5. To assist with making provision of the land to be made available for the plant, preferably in the Special Economic Zone.
6. To provide all TAX incentives suitable for Sustainable Waste Management, Recycling, Renewable Energy Generation and Manufacturing.

July 2023 Through Dec 2023

<i>Begin Date</i>	<i>End Date</i>	<i>Phase</i>	<i>Item</i>	<i>Duration</i>																
01-July-23	1-Oct-23	Design	Develop engineering parameters and drawings: assess site layout and select the location of gasifier; integrate the gasifier system with the facility layout and support mechanisms; obtain necessary government approvals and permits; develop infrastructure requirements; approve all designs. Expected outcomes include approved specifications and drawings and approved permits.	3 months ongoing																
01-Oct-23	1-Dec-23	Design-Build Infrastructure	Engineering and drawings; complete approvals; obtain all permits; place purchase orders on facility-related equipment and materials; produce equipment. Expected outcomes include the delivery of equipment and installation, and the completion of the related supporting infrastructure.	2 months ongoing																

Sep 2023 Through August 2024

<i>Begin Date</i>	<i>End Date</i>	<i>Phase</i>	<i>Item</i>	<i>Duration</i>																
01-Sep-23	1-Apr-24	Design-Build	Finalize engineering and drawings; complete approvals; check all permits; place purchase orders on facility-related equipment and materials; produce equipment. Expected outcomes include the delivery of equipment and installation, and the completion of the related supporting infrastructure and build process.	8 months ongoing																
01-Apr-24	01-May-24	Commission	Perform start-up procedures; evaluate the performance; link system to grid; test warranty aspects; correct defects and problems; prove the expected performance; finish the commissioning. The expected outcome is a proven and ready to operate facility.	1 month																
01-May-23		Commercialization	Operate Facility in Commercial mode.	Milestone																
01-May-24	31-Aug-24	Contingency	Project Contingency	3 months																

Aug 2024 Through Feb 2025

<i>Begin Date</i>	<i>End Date</i>	<i>Phase</i>	<i>Item</i>	<i>Duration</i>																
01-Sep-23		Commercialize	Operate Facility in Commercial mode.	Milestone																
01-Aug-24	01-Oct-24	Contingency	Project Contingency	3 months																
01-Oct-24	28-Feb-25	Contingency	Exim Bank Contingency	6 months																

RISK FACTORS

Table 9. Risks

Risk Area	Response
Power Prices	Long-Term PPA – 25 Year power purchase agreement with fixed pricing insulates the Project from all merchant price risk.
Credit	Dependent on the credit quality of the Power Purchaser
Performance	Significant performance benefits
	Reputable Vendor
	Warranty
	Power Output Guarantee
Late Completion	Guaranteed Delivery Date – The Project provides for a feasible and achievable time period marked by a Date Certain and enhanced by additional Lease Contingency funds provided by Investor.
Cost Overruns	Fixed Price on Facility Cost and Delivery of Services
Operating Expenses	Warranty Maintenance and Service Agreement
Casualty, Loss, Failure of Equipment or FM Event	Property Insurance – The Project will purchase property insurance
	Business Interruption Insurance – The Project will have business interruption insurance covering casualty and force majeure events

Summary

Compelling Reasons

Sustainable power generation endeavors to systematically eliminate negative impacts by identifying and avoiding questionable products, processes, and/or activities, preventing impacts whenever possible, and mitigating all negative aspects to the extent possible. The primary focus is on using safe and effective resources and technologies that lead to sustainable solutions through proper resource usage, process efficiencies, resource recovery, and waste minimization. Resource usage and the efficiencies of the processes are primary considerations because upstream inputs have dramatic implications on downstream activities and outcomes. The ideal process would convert inputs into outputs without any wastes; therefore, resource utilization would be the most efficient. Increasing efficiency, effectiveness, performance, and benefits and decreasing defects and burdens are the critical factors in sustaining growth and business value.

KEY PROJECT STRENGTHS

✓ ***Reliable Baseload Electric Power***

✓ ***Zero Waste Fuel Process***

✓ ***Alleviates Landfill Pressures***

✓ ***Strong Project Economics***

Lessee's bottom line on its financial statement improves dramatically due to a low cost of funds, as Lessee expenses out interest paid to US Exim Bank

- and depreciation, which is significantly less than expensing out the entire lease payment under an Operating Lease.

✓ ***Renewable Energy Certificates (REC's)***

- Qualifies for compliance RECs in Kenya (Carbon Credits?)

✓ ***Leading Technology and Manufacturer Support***

- All in one package managed by seasoned engineering professionals minimizes development inefficiencies and enhances product quality
- Plant designed for performance, positioning the plant for optimum operations
- Efficiencies optimized in the balance of plant increases performance potential and lowers operating costs

✓ ***Favorable Asset Treatment***

In addition, the improvement of Lessee's bottom line (as described above), if held as "Retained Earnings" or "Increase of Net Assets", improves the Balance Sheet even further.

Teaming Letter



Portsmouth Sustainable Energy & Climate Change Centre

PSECC Ltd
39 Woodhay Walk,
Havant,
Hampshire,
PO9 5RD
UK

To

The County Secretary and Head of County Public Service
Nairobi City County Government,
P.O Box 30075-00100,
Nairobi,
Kenya.

Date: 19th January 2023

Reference: EXPRESSION OF INTEREST (EOI) TO DESIGN, BUILD, FINANCE, MAINTAIN & OPERATE AND TRANSFER A WASTE TO ENERGY PROCESSING PLANT IN DANDORA

Dear County Secretary

The companies below have given their consent and support to the Waste-to-Energy plant for Dandora in Nairobi, Kenya.

Headway USA & PSECC Ltd are the developers and Sarralle are the EPC company. Headway USA also provide the \$385 million to build the 2,500 tpd MSW Waste-to-Energy plant. The technology is Gasification & Recycling and also available to the project is the Alset Power INEZ Gasification technology and further EPC from Siemens.

Kind & Sincere regards

Alan Brewer MSc
Director PSECC Ltd



Certified

t: Alan Brewer MSc – 07510 977203 e: alan@psecc.co.uk w: www.psecc.co.uk
Registered Company Number: 10652586

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Contract Team

CONTRACTOR TEAM

Headway USA, PSECC Ltd (UK) & Sarralle (Spain)

Parties

This CONTRACTOR TEAM dated 23rd January, 2023, is made by and between Danny Cruz, MD of Headway USA and Alan Brewer MSc PSECC Ltd (“Developer lead company”) and the Contractor delivery team and Rubén González, Business Development at Sarralle – EPC company.

In consideration of the mutual promises and covenants in this Agreement, all parties have agreed to work together of which the receipt and sufficiency are hereby acknowledged, the Parties further agree to the terms as follows: To provide all development, construction, technology provision of Gasification and funding for a 2,500 tpd MSW Waste-to-Energy plant (s) at Dandora, Nairobi, Kenya.

Services Provided

The Contractor Sarralle agrees to EPC (“Services”) and provision of all steel materials for the plant, Furthermore, PSECC Ltd will act along with Headway USA to Project Management Services, Headway USA will also arrange all funding for the project with no requirement for Government monies. Sarralle will make provision of the Gasification technology, possibly from Alset Power INEZ plant and will act in other development services such as working with the technology owners to see a successful installation of the Gasification plant.

The following will be the roles PSECC Ltd Limited will undertake in consultation with all the Partners:

1. Prime bidder backed by all Consortium Partners
2. Local liaison and implementation Partner
3. Local strategic advisor and project coordinator
4. Provide technical resources in Information Technology related matters
5. Provide all local support services including local subcontracting whenever required

Terms and Conditions (Continued)

- **TERM**

This Agreement will be effective starting January 23, 2023, and will continue in full force until the Waste-to-Energy plant (s) are operational (“Term”). The Agreement may be terminated earlier if the services are completed before the termination date.

- **PAYMENT**

The Parties agree that payment should be made in staged equal instalments. Full details of payments will be made on start of the project.

- **RELATIONSHIP BETWEEN PARTIES**

All parties agree to work together to achieve a successful project. A further in-depth Teaming Agreement will be compiled once we have been designated as the preferred Bidder.


- **CONFIDENTIALITY**

The information discussed in this project and Agreement and in person will remain confidential and proprietary among the Client and Contractors.

- **ENTIRE Contract team**

This entire Agreement is governed by the state laws of Kenya and shall bind the Parties until its termination.

Signature

<i>PSECC Ltd</i> <i>Mr Alan Brewer MSc Director</i>
<i>Date: 23rd January 2023</i>
<i>Signature:</i> 



Certified

Notarization & Certified
To

The County Secretary and
Head of County Public Service Nairobi City County Government
P.O Box 30075-00100
Nairobi,
Kenya

Date: 30th January 2023

Reference: EXPRESSION OF INTEREST (EOI) TO DESIGN, BUILD, FINANCE, MAINTAIN & OPERATE AND TRANSFER A WASTE TO ENERGY PROCESSING PLANT IN DANDORA NAIROBI


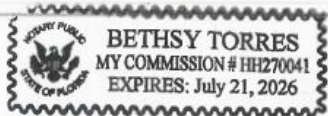
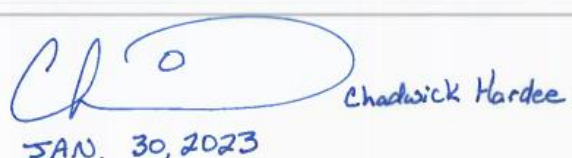
Dear Sir

Headway USA have forty-years' experience in Developing Nations and in particular Waste-to-Energy and Waste Management together with funding provision.

Headway provides project management to infrastructure and service projects, through its own internal capabilities and by leveraging strategic partnerships with reputable organizations and subject matter experts - in the US and around the globe.

We certify all items I to IX as true, complete and exact under "Qualification of bidders".

- I. Copies of certificate of incorporation/ business registration.
 - II. Copies of PIN and Tax compliance certificates OR equivalent
 - III. Relevant factory operating licenses;
 - IV. A copy of the company profile,
 - V. Further demonstration of the capability to deliver the services, including:
 - VI. Resource capability (human, financial etc),
 - VII. Experience in developing and operating similar plants (all list of such plants and locations)
 - VIII. References attesting to its activities in the energy and waste sectors.
 - IX. Proposed technology.
- and in particular Notarise item V & VI.

Other Notary in this document

