



W O I M A

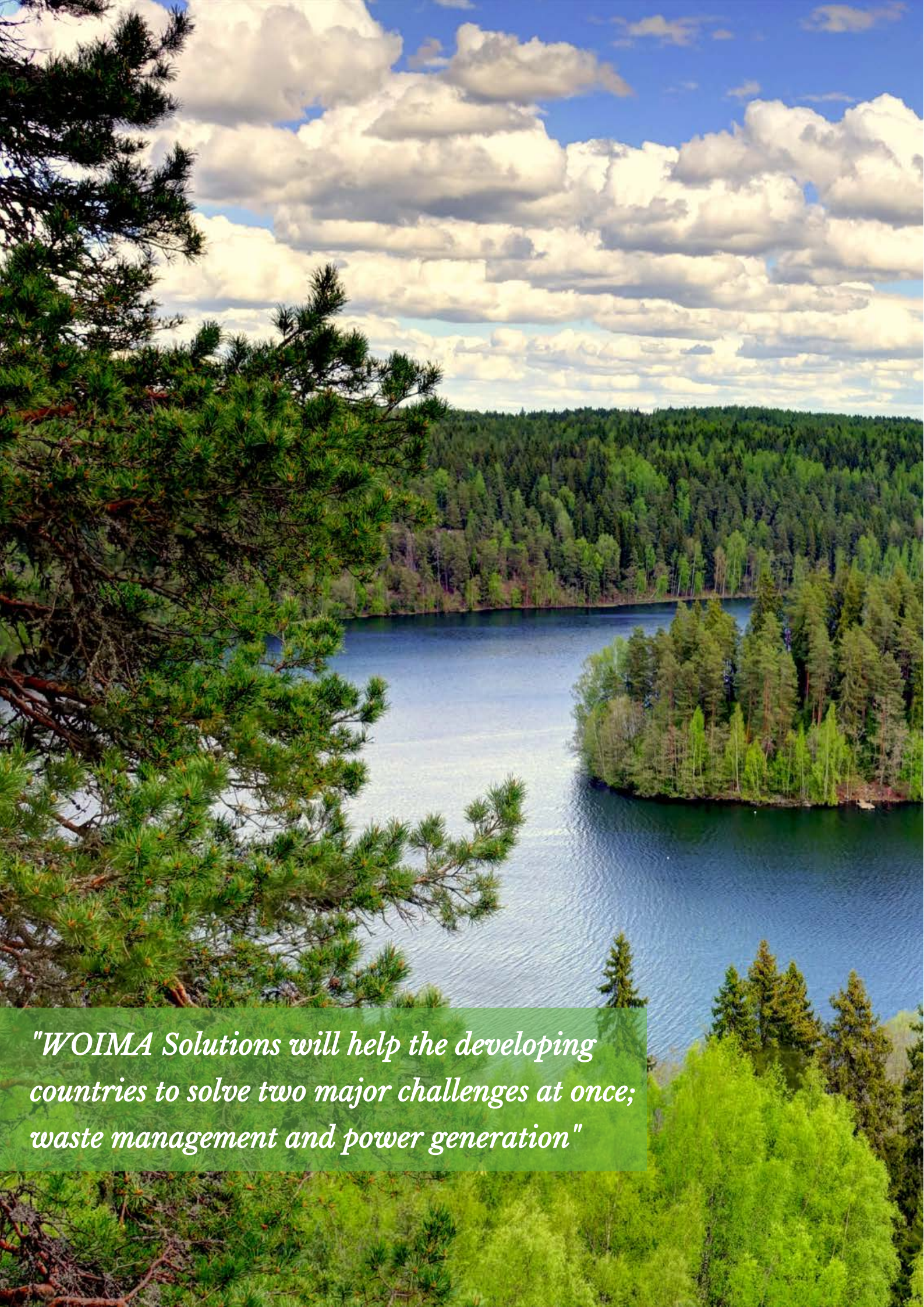
CORPORATION

COMPANY BROCHURE



WASTE-TO-ENERGY  
SOLUTIONS





*"WOIMA Solutions will help the developing countries to solve two major challenges at once; waste management and power generation"*





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## WOIMA Vision

WOIMA will challenge the current waste management and power generation practices by designing and delivering innovative state-of-the-art circular economy solutions that will transform that business segment forever.

WOIMA will fulfill the developing countries' quest for renewable energy and revolutionize both the waste-to-energy solutions and the methods of delivering them.

## WOIMA Mission

We will increase economic, environmental and social well-being in developing countries by delivering best-in-class waste-to-energy solutions and services.

Our solutions mitigate waste-related challenges and offer sustainable growth to energy sector, waste management companies, investors and local population alike.



## WOIMA 3D Approach

### Decentralization

Replacing centralized solutions with smaller-scale power plants with proven technology and modular plant concept to generate local energy to local people and businesses using locally available fuel (waste).

### Decarbonization

Reducing waste-based GHG emissions through power generation carbon capture, improved waste logistics and efficient use of landfilled waste to meet the current UN and EU CO<sub>2</sub> emission reduction targets.

### Digitalization

Using flexible, integrated and scalable solutions to provide actionable data to significantly improve power plant operation and maintenance activities, as well as allow efficient power plant portfolio management.



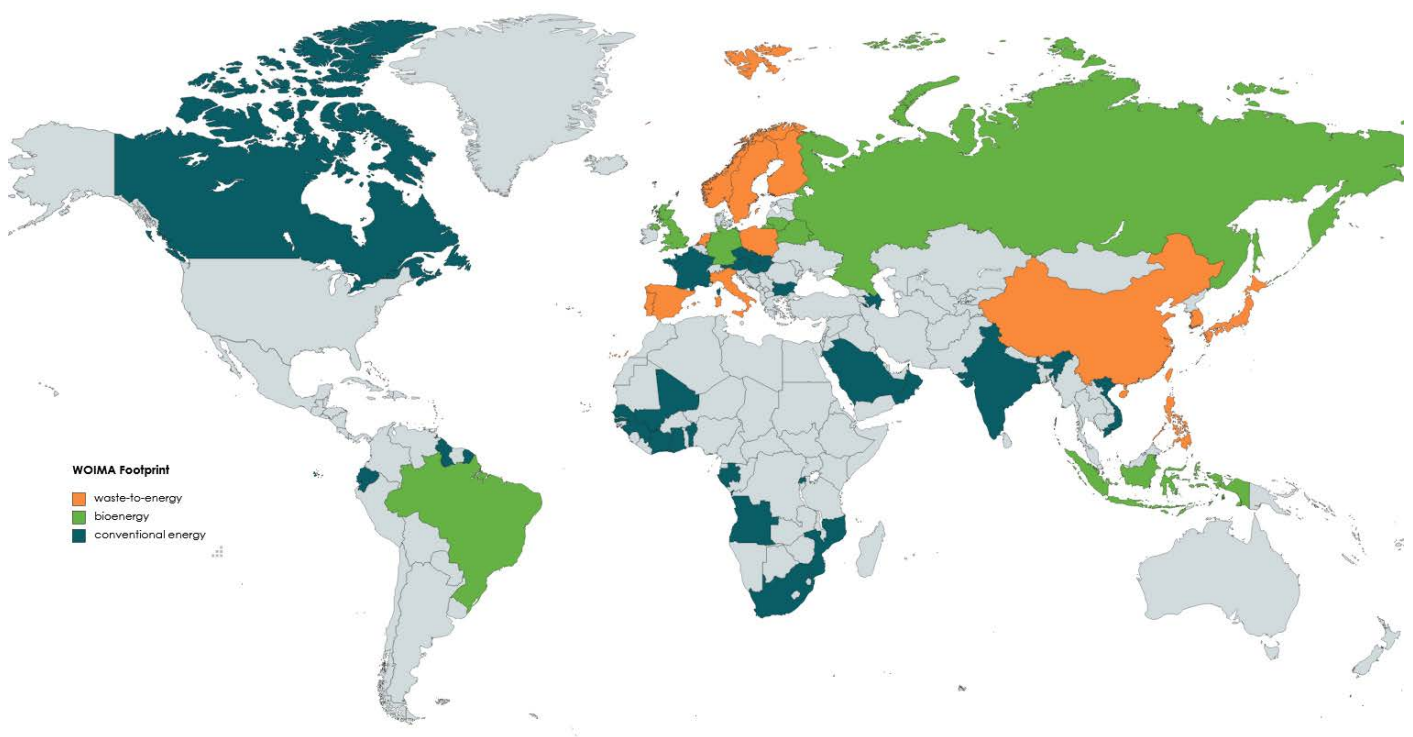
## Background and References

WOIMA draws on over 20 years of international project and site management experience. Our experts have worked with the leading Finnish project export companies in more than 1,000 projects in over 100 countries across the globe.

Thus far we have operated in energy, mining, petroleum, oil & gas, process and marine industry projects. Our fields of expertise cover civil, mechanical, electrical & automation and HSSEQ disciplines, as well as documentation services.

Our strategic industrial partner network draws on dozens of years of experience in international project deliveries, boiler manufacturing and waste-to-energy facility management. They form a global manufacturing and sourcing network that ensures the best combination of cost and schedule regardless of the location, or the complexity of your project.

With hundreds of global references, our partners are the first-rate providers of waste- and biomass-related solutions, acid gas scrubbers and long-term energy storage projects. Together we can now deliver the modular *wasteWOIMA*® power plants worldwide.





## What We Do

Today, WOIMA focuses on waste-based power generation solutions that utilize e.g. municipal solid waste (MSW), wastewater sludge, industrial, commercial & institutional waste (ICI) and agricultural waste (AW), as well as engineered waste fuels like REF, RDF or SRF.

We help investors, waste management companies and independent power producers (IPPs) to realize the hidden potential in waste, while protecting the environment and creating local jobs.

WOIMA supports customers in the project development phase by providing a comprehensive information package covering all aspects of environmental impact assessment (EIA), social impact assessment (SIA), feasibility studies, project profitability and naturally the technical solution. WOIMA solutions are delivered on an EPC or EPCM bases and always adhere to the strictest technical and environmental standards and provide decades of uninterrupted power to local communities and businesses.



*"WOIMA projects based on EPC or EPCM ensure on-time, in-budget and high-quality delivery for superb customer experience"*

WOIMA's approach to solving the waste challenge is two-fold; based on either waste availability or renewable energy demand. The waste-based way offers an economically sustainable alternative to depositing the waste in a landfill by transforming them into revenue-generating energy. The energy demand -based approach aims at generating the exact type of energy fractions the customer requires.

The generated energy commodities comprise of compressed biogas (CBG), liquid biogas (LBG), steam, electricity, thermal energy (both heating and cooling) and fuel oils. The internal synergies between the technical solutions mean that the customer has more energy available, in exactly the right mix and quantity. The flexibility of the power generation enables efficient switching between the energy commodities over time.



WOIMA projects will always finish on time, in budget and fulfill the strictest quality targets.

- ISO 9001:2015
- ISO 14001:2015
- ISO 26000
- ISO 45001:2018 (OHSAS 18001)

A young boy in a blue shirt and a girl in a yellow shirt are playing under a waterfall, splashing water with their hands. The background is a lush green forest.





## wasteWOIMA®

### Waste-to-Energy Power Plant

WOIMA has developed a pre-fabricated and modular waste-to-energy power plant to offer developing countries an alternative method for combined waste management and power generation. Utilizing waste otherwise destined for landfills taps into an endless renewable fuel source in local power generation and reduces greenhouse gas emission significantly. It also supports the core principles of circular and sustainable economy.

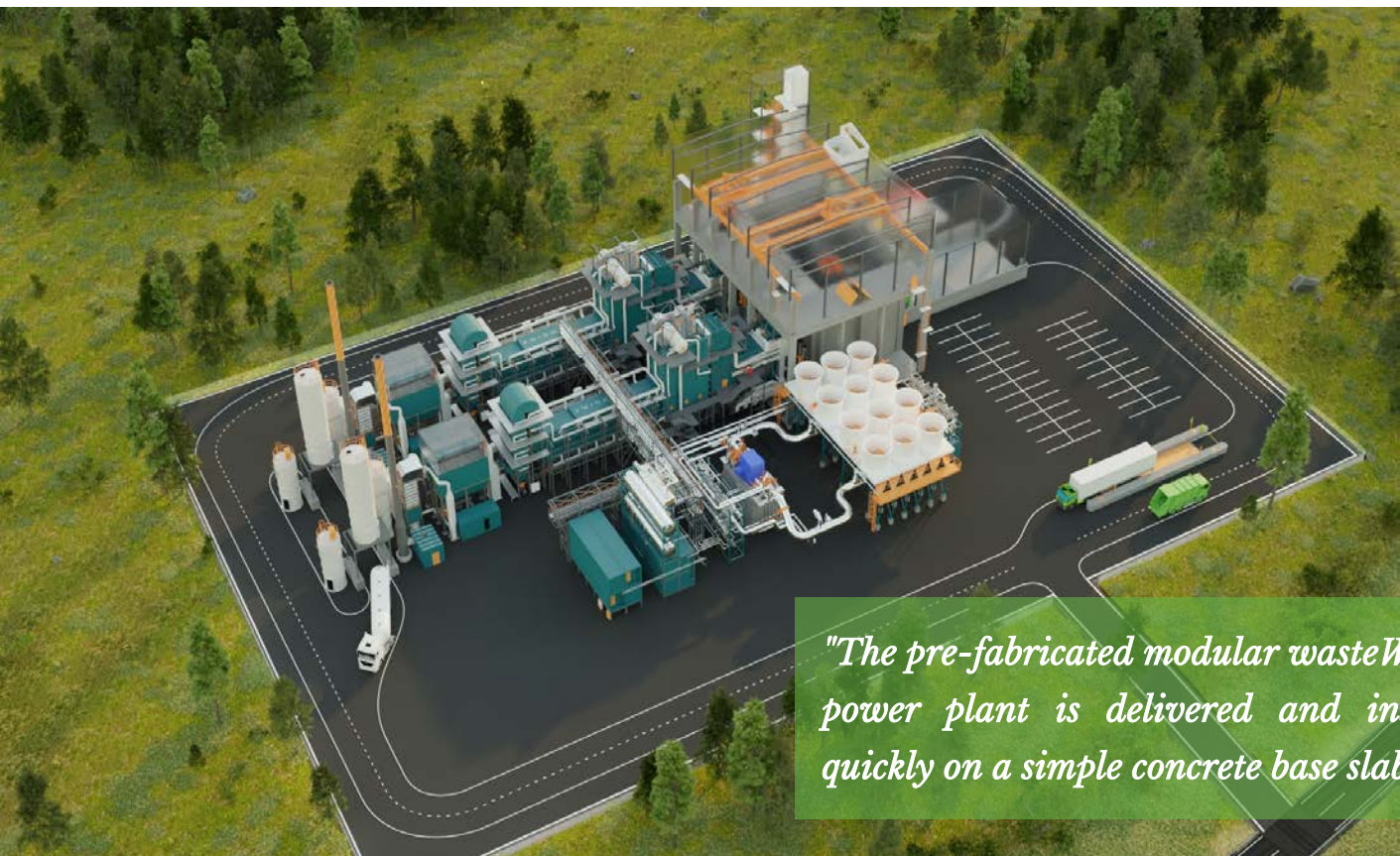
This *wasteWOIMA®* power plant is suitable for any waste quantity. A single unit can incinerate the MSW of about 200,000 people, while a decentralized solution can serve cities with millions of inhabitants. Locating the smaller size units close to the origin of the waste creates huge savings potential in the waste management and logistics. Localized power generation also creates local jobs, supports local SMEs and saves power distribution infrastructure investments.

The modular *wasteWOIMA®* power plant design is based on standardized modules, which simultaneously act as

- easily transportable units
- secure enclosures
- installation platform for technical solutions
- protective housing on-site

The proven technology and modular structure ensure that the plant has

- simple and robust structure
- high pre-fabrication rate
- quick roll-out
- long lifespan
- high efficiency rate
- good tolerance for heterogeneous fuels
- flexible production scheme
- low operating and maintenance cost
- strict emission controls
- relocation option



*"The pre-fabricated modular wasteWOIMA® power plant is delivered and installed quickly on a simple concrete base slab"*





The *ccWOIMA* is applicable to all CO<sub>2</sub>-generating processes, not only to wasteWOIMA®. The stand-alone unit with small footprint is easy to retrofit to existing plants without disrupting their processes. The *ccWOIMA* offers capture rates of over 90% and produces high purity CO<sub>2</sub> suitable for e.g. chemical industry, construction industry and greenhouses. It offers the lowest levelized carbon capture cost in the market.

## ccWOIMA Carbon Capture

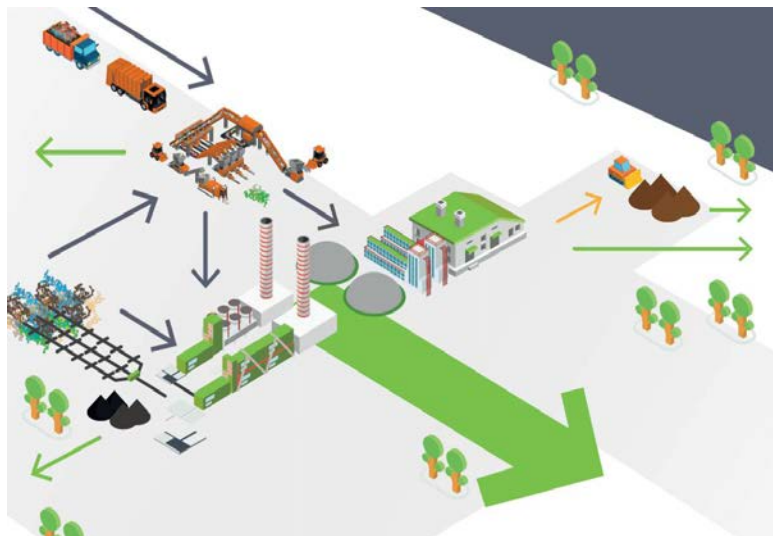
Recent UN and EU resolutions on climate change mitigation pose a huge challenge for the carbon capture solutions. The current targets require capturing 760 million tons p.a. by 2030 and 6,800 million tons p.a. by 2060. Compared to today, these mean a 25-fold and 226-fold growth on capture rates respectively. The emphasis will be on both the new and retrofit markets.

The *ccWOIMA* carbon capture solution is based on patented energy-efficient technology utilizing environmentally-friendly chemicals widely available in the market. Similar to all other WOIMA solutions, it is a modular pre-engineered and pre-fabricated solution ensuring high quality, short delivery time and cost-efficient project execution. It is scalable through interconnecting multiple units or scaling up the dimensions of a single unit. The *ccWOIMA* can be powered with electricity or steam, depending on customer preference.

## WOIMA Ecosystem Solutions

WOIMA Ecosystem Solution combines the best available technologies (BAT) in the fields of recycling, material recovery, waste-to-energy, waste-to-fuel and carbon capture. These solutions increase local resource efficiency by utilizing each waste fraction to its full potential and thus saving locally scarce virgin raw materials and fossil fuels. Even existing landfills can act as fuel sources; either as waste material or as landfill gas to increase the efficiency of the Ecosystem. All of the WOIMA Ecosystem solutions are fully scalable to cater to the needs of both small communities and large metropolises.

All the WOIMA Ecosystem solutions are modular and pre-fabricated. This offers two significant advantages. First, the different Ecosystem Modules have flexible interfaces allowing for the best combination for each customer case. Second, the individual technology containers are easy and cost-effective to maintain, or replace to prolong the lifespan of the whole Ecosystem.



WOIMA Ecosystem is the most sustainable solution environmentally, economically and ecologically for all types of waste fractions. It deducts the maximum amount of energy out of the feedstock, while reducing the remaining material into usable ashes and fertilizers. Over 97% of the original waste quantity is utilized one way or another. It has huge revenue-generation potential through energy and material sales, as well as job-creation potential on-site, upstream and downstream.



## Localization and Skills Development

The WOIMA business model relies on localization of material manufacturing, project execution, as well as plant operations and maintenance. We transfer product and manufacturing know-how, operating & maintenance processes and train the local people to take full ownership of the solutions.

People, teamwork and strong leadership throughout all our business processes are major assets. We invest heavily in selecting, retaining and empowering employees and partners.

## Corporate Social Responsibility

WOIMA acts as a responsible corporate citizen and integrates community outreach to all its operations to contribute meaningfully to the local socio-economic development. We contribute to skills development in a variety of areas relevant to our core business.

WOIMA supports actions aiming at delivering sustainable economic, social and environmental benefits for all stakeholders. The benefits will outlast our presence in the country.

## United Nations' Sustainable Development Goals

The UN Sustainable Development Goals (SDGs), are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. These 17 Goals build on the success of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among others.

WOIMA has aligned its solutions, operations and projects to support the SDGs. Our waste-to-energy ecosystem solutions are an integral part in building a sustainable, inclusive and fair society, where all members enjoy equal opportunities and face equal responsibilities. These SDGs guide our product development, sales activities and project execution throughout the processes.





## HSSEQ

Health, Safety, Security, Environment and Quality



*"WOIMA will design, manufacture and deliver high-quality solutions that ensure a safe, secure and healthy work environment"*

HSSEQ is one of the top priorities of WOIMA; deeply embedded in our culture, and part of who we are. HSSEQ is fully embraced by all the managers in the WOIMA organization. They will lead by example and promote the idea of HSSEQ as the personal responsibility of all employees within their own scope of work and across the organization for coworkers and visitors. WOIMA is committed to the health, safety, and security of our customers and employees, as well as the safety, security, and environmental well-being of the facilities in the communities in which we operate and conduct business.

At WOIMA, we are dedicated to providing our customers with an extensive line of best available technology (BAT) waste-to-energy solutions that increase productivity, make work safer and easier to perform and protect the environment. We firmly believe our experience and expertise is second to none; our breadth and depth of solutions is unrivaled; and our commitment to HSSEQ ensures continuous improvement.

WOIMA is committed to achieve the Goal of Zero harm to employees, customers and end-users of our solutions. We strive to meet or exceed the highest health, safety, security, environmental, and quality standards for our solutions.

We reach our vision through

- Continuing to integrate HSSEQ into all activities, processes, solutions and projects
- Promoting a culture that emphasizes safety by sharing and embedding best practices within the organization
- Providing detailed instructions, technical applications and documentation for the safe use and maintenance of our solutions
- Minimizing the risk of injuries and illnesses through safety audits, training, instruction manuals, requirement compliance, and premium customer service
- Continuously monitoring, reviewing and improving our processes to achieve excellent quality and safety performance in all aspects of our business





WOIMA

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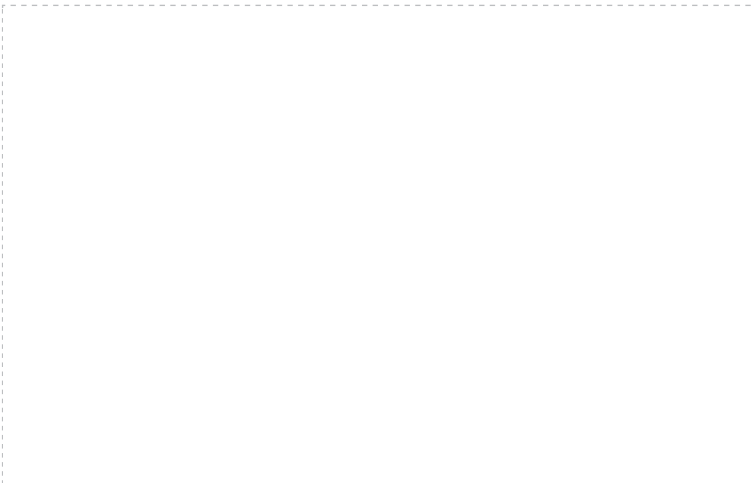
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#### YOUR LOCAL CONNECTION



IN COOPERATION WITH