BioMasr Ltd.

Your Way to Independence

WASTE TO ENERGY CATALOGUE

2023-2024

www.BIOMASR.com/

BIOMASR AROUND YOU

Yemen

Jordan

Egypt

Lebanon

UAE

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ABOUT US

BIOMASR Ltd.

FOR RENEWABLE ENERGIES

For more than 10 years, BioMasr Ltd. For New Renewable Energies has attempted to promote a new self-sufficient model of development when it comes to resources in general and energy in particular. Our slogan “Your way to independence” highlights our main driving force and ambition.

Our main mission is to provide solutions and products that help provide a better life for our targeted communities and to design solutions that help businesses reach a sustainable, inclusive, and circular system which provides them with long-term profitability and success in an ecological manner.

BioMasr Ltd. prides itself on its vast portfolio of high-quality services that are based on scientific research and innovative technologies, all of which help achieve circular economy and sustainable development. This service catalogue specifically focuses on our expertise in gasification.

VISION & MISSION

Vision

Pioneering in the field of waste management to achieve a circular and sustainable economy in the MENA region.

Mission

Providing service solutions and products that help provide a better life for the targeted communities by using scientific solutions appropriate to local cultures.

BioMasr Keywords:

Self-efficiency

Circular economy

Local Development

BioMasr aims to spread the concept of circular economy: where business and sustainability are not mutually exclusive, but on the contrary, all resources are not wasted but fed again into the economic system.
BioMasr strongly believes that on the long term the success of an economic system has to be based on inclusivity. Therefore, our mission is to design solutions in which business profitability and local development go hand in hand.

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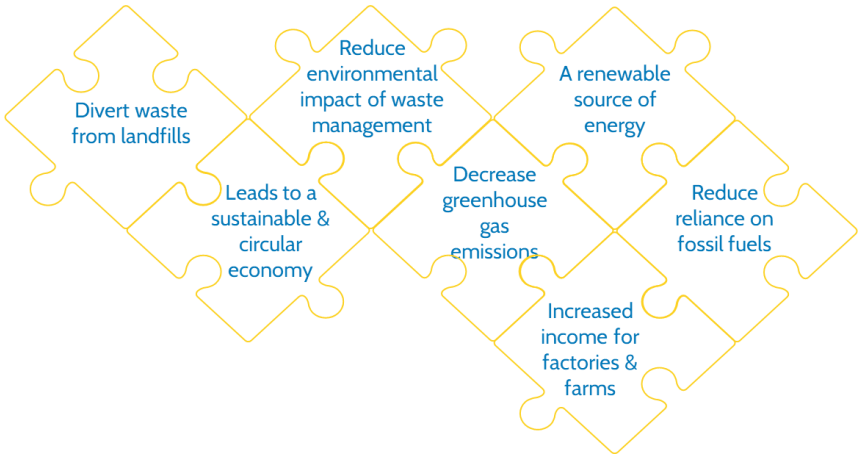
GASIFICATION

Among our many services, we are specially proud of our Gasification services. Gasification is a process that converts biomass, municipal solid waste, and other carbon-based materials into a gas mixture called syngas. The process involves heating the feedstock in a low-oxygen environment to produce a gas that can be used as a fuel for electricity generation or other industrial processes. Gasification is a form of thermal conversion that offers several benefits over traditional waste management and energy production methods.

BENEFITS OF GASIFICATION



Gasification is considered among the innovative and successful energy solutions and it has the potential to address many of the pressing environmental and economic challenges facing countries across the world and especially in the MENA region. By converting waste into energy, gasification can provide a reliable source of electricity and reduce the need for imported fuels.

There are already success stories of gasification projects in the MENA region. The following are some examples of successful case studies that illustrate the benefits of gasification.

BioMasr

GASIFICATION

MENA REGION SUCCESS STORIES

EGYPT

A Cairo project that converts municipal solid waste into energy using gasification. The project is expected to produce 230,000 tonnes of refuse-derived fuel per year, that will be used to generate electricity.

MOROCCO

A gasification plant in Meknes was built to convert olive waste into energy. It can process up to 25,000 tonnes of olive waste per year and produce up to 1.4 MW of electricity.

LEBANON

A gasification project implemented by the LCEC aims to convert agricultural waste into energy using gasification. It's expected to reduce greenhouse gas emissions by 30,000 tonnes per year and provide a renewable source of energy.

UAE

A Sharjah gasification plant processes up to 37.5 tonnes of waste per hour & produces up to 5 MW of electricity. It's expected to reduce waste to landfills by 300,000 tonnes per year & greenhouse gas emissions by 33,000 tonnes per year.

TUNISIA

A gasification plant in Menzel Bourguiba processes up to 15,000 tonnes of olive waste per year and produce up to 1.5 MW of electricity. This helps reduce the environmental impact of olive oil production & provides a renewable energy source.

KUWAIT

A gasification plant in Al Salmi area processes up to 2,500 tonnes of waste per day & produces up to 70 MW of electricity. It has helped reduce waste to landfills and provide a renewable energy source.

JORDAN

A gasification project implemented by Kawar Energy can process up to 300 tonnes of waste per day & produce up to 5 MW of electricity. It helped reduce the environmental impact of waste management & provide a renewable energy source.

OMAN

A gasification plant in Salalah processes up to 1,000 tonnes of waste per day & produces up to 20 MW of electricity. It has helped reduce the waste to landfills & provide a renewable energy source.

GASIFICATION AT BIOMASR

Biomasr is the first company in the MENA region to own certified technology in waste to energy from the design to operation and maintenance

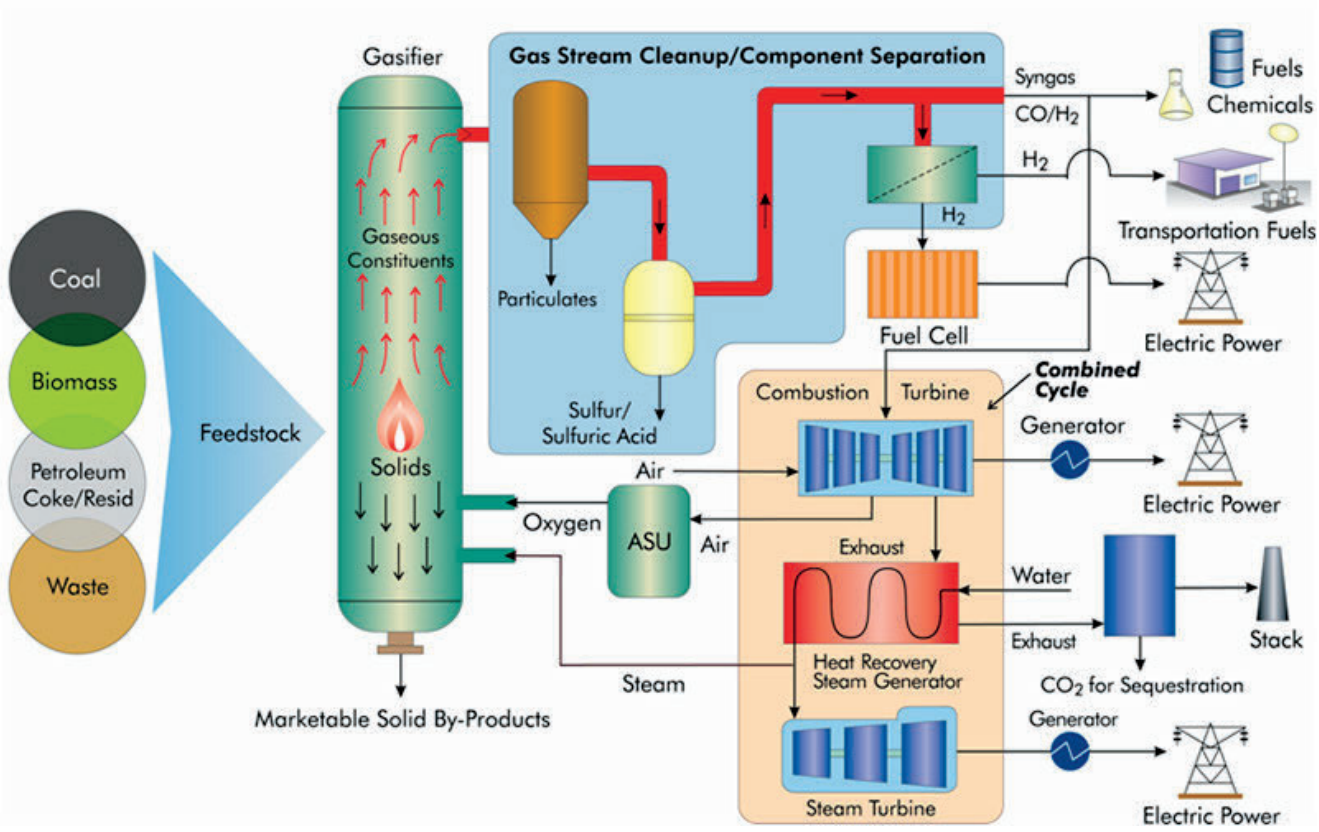
BioMasr is considered a leading company in the field of gasification in Egypt and the MENA region. This is due to its unique set of capabilities and strengths. These include BioMasr's ability to build, operate, and maintain gasification units from start to finish. This end-to-end approach gives us greater control over the entire process and allows us to deliver high-quality results that meet the needs of our clients.

At BioMasr, we make a point to utilize local personnel and locally-sourced materials as much as possible, which helps to reduce costs and minimize the need for importing materials from abroad. This also allows us to support the local economy and create jobs in the communities where we operates. Our commitment to safety and quality also extends to our continuous investment in training and development to ensure that our staff are equipped with the knowledge and skills needed to operate and maintain these units to the highest standards.

Another strength that sets us apart is our expertise in the safe transport of waste materials in accordance with the highest safety standards and regulations, locally & internationally. We also adhere to strict standards and regulations to ensure that our gasification units are safe and effective.

GASIFICATION AT BIOMASR

BIOMASR GASIFICATION PROCESS



1. Pretreatment: The waste is first pre-treated to remove any contaminants that could interfere with the gasification process. This may involve shredding, screening, or washing the waste.
2. Drying: The waste is then dried to a moisture content of less than 20%. This is important because the moisture content of the waste can affect the efficiency of the gasification process.
3. Gasification: The dried waste is then gasified in a reactor. The reactor is heated to a high temperature (typically between 700 and 1,000 degrees Celsius) in the presence of a controlled amount of oxygen. This causes the waste to break down into syngas.
4. Cleaning: The syngas is then cleaned to remove any impurities. This may involve scrubbing the syngas with water or activated carbon.
5. Utilization: The syngas can then be used to generate electricity, heat, or fuel vehicles.

GASIFICATION AT BIOMASR

WASTE TO BE USED

GASIFICATION AT BIOMASR

GENERAL CAPACITIES

Model of Gasifier	BM10200	BM10400	BM10800	BM101000
Biomass Consumption kg/hr	200	400	800	1000
Gas Consumption m3/hr	>300	>600	>1200	>1500
Gas Component	H2: 3-7%, N2: 10-25%,: CH4: 25-40%, CO: 15-20%, CO2: 10-15%, SOx: 0.5-1%, NOx: 0.7-0.9%			
Gas Heat Value	14-20 Mj/ m3			
Ash Reduction Rate %	<30%			
Moisture Content	18%	20%	20%	25%

BIOGAS

Biogas production is a process that involves the breakdown of organic matter in the absence of oxygen to produce a gas consisting mainly of methane and carbon dioxide. This gas can be used as a renewable energy source for heating, electricity generation, and transportation. Other byproducts of biogas, , such as digestate, can be used as a fertilizer for agriculture, closing the loop on nutrient cycling.

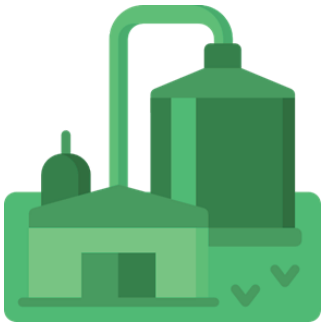
In addition to its environmental benefits, biogas production also has economic benefits. It can be produced on a small or large scale. On a small scale, it can be used to meet the energy needs of rural communities, while on a large scale, it can be integrated into the energy system to provide renewable energy for cities and industries. Biogas production is a flexible & versatile technology that can be adapted to different types of feedstock and production systems; which is why it can be customized to a wide variety of conditions & needs. can also create new job opportunities in the agricultural and energy sectors.

BIOGAS AT BIOMASR

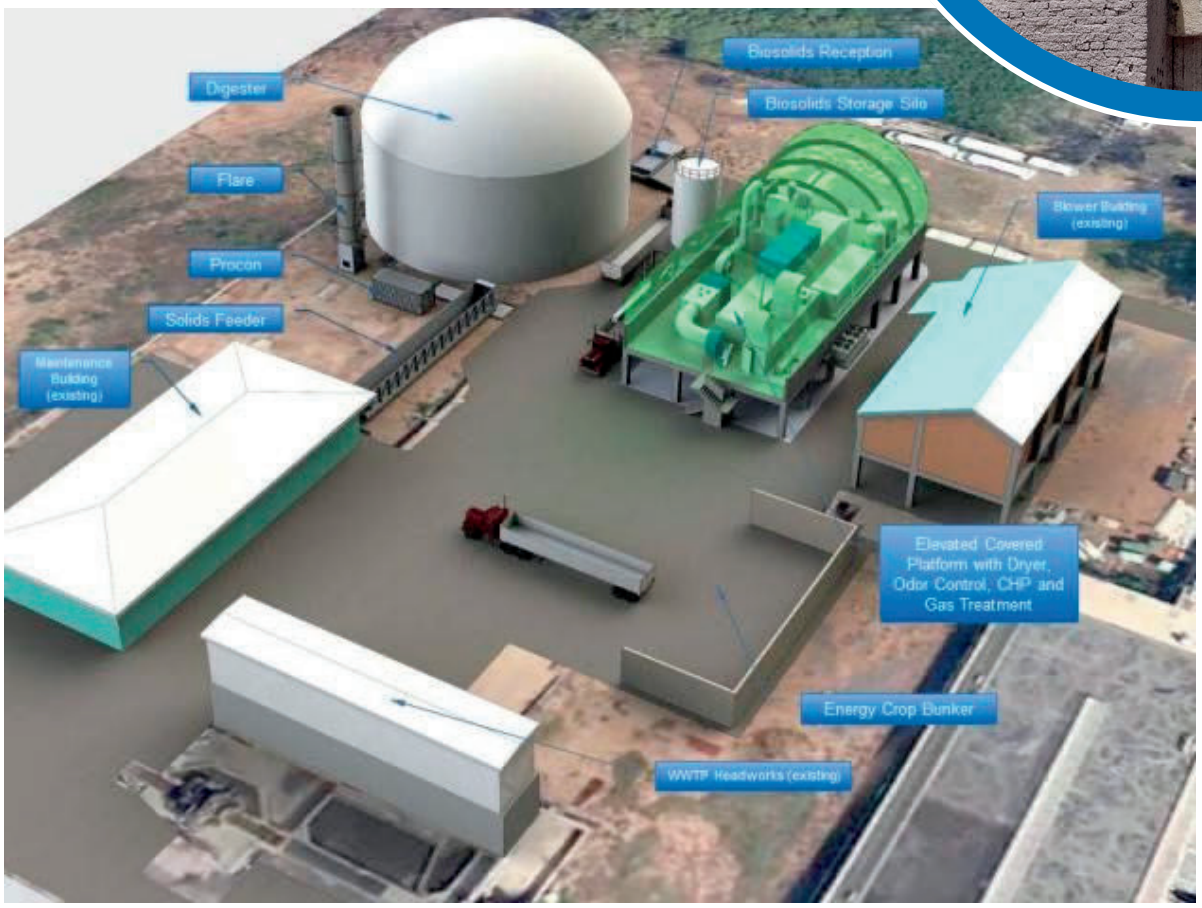
Similar to gasification; biogas provides a renewable energy source and reduces waste & greenhouse gas emissions. Its economic, environmental & social benefits makes it an attractive solution towards a circular & sustainable economy. Both are technologies that we, at BioMasr, are proud to have included in our comprehensive portfolio of services.

However, biogas holds a unique place in the history of BioMasr as our very first product and the one in which we have the longest and most extensive experience. We have been building, operating & maintaining biogas units and plants in various sizes and capacities since 2013.

850 UNITS	34 UNITS
25 to 300 kg capacity	1000 to 2500 kg capacity
EGYPT	**COUNTRIES**
23 Governorates	5 MENA region countries



BIOGAS AT BIOMASR



- Reduces reliance on fossil fuels: When biogas is burned.
- Reduces waste disposal costs: Biogas production can reduce the cost of waste disposal by up to 50%.
- Improves air quality: When biogas is burned, it produces no methane emissions. This makes biogas a clean and sustainable way to generate energy.
- Every component in the plant designed to be easy to operate and easy to maintain.

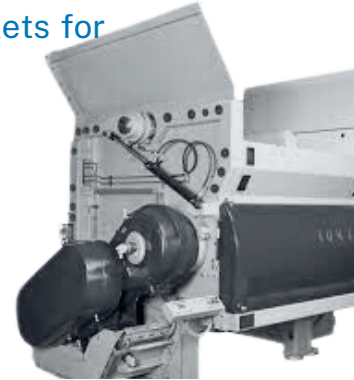
LANDFILL OPERATION & ALTERNATIVE FUEL PRODUCTION

Landfills are a major source of methane, a greenhouse gas that is 25 times more potent than carbon dioxide. Methane emissions from landfills contribute to climate change and air pollution.

Solution:

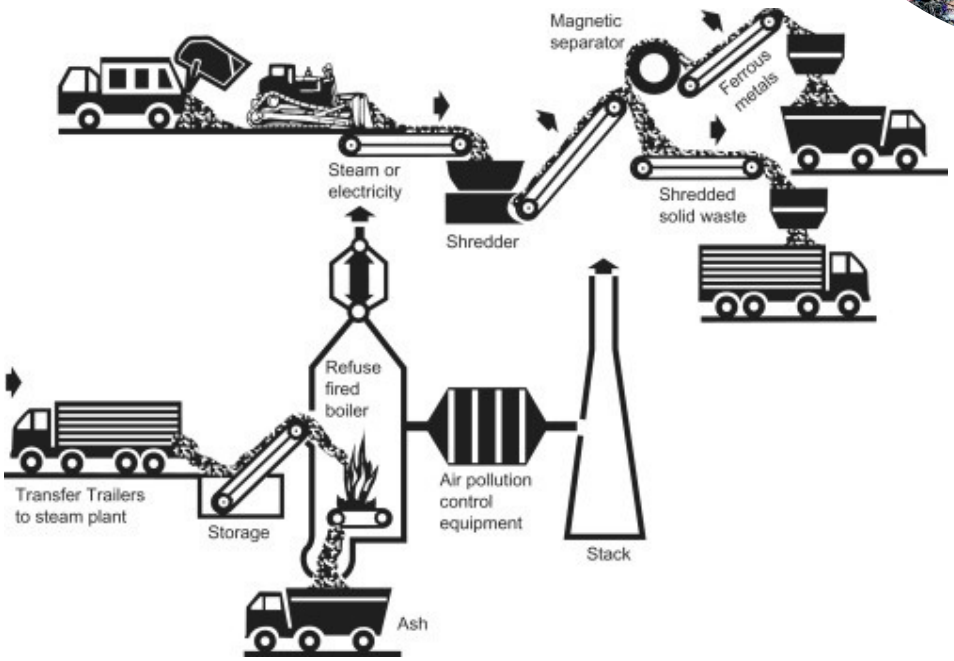
Biomasr company can help to reduce methane emissions from landfills by providing services such as:

- Landfill gas collection and utilization: Biomasr can collect methane gas from landfills and use it to generate electricity, heat, or fuel vehicles. This helps to reduce methane emissions and create a valuable resource from waste.
- Alternative waste production: Biomasr can help to produce alternative products from waste, such as compost, biogas, and renewable fuels for cement companies. This helps to reduce the amount of waste that goes to landfills and create new markets for waste.



ALTERNATIVE FUEL PRODUCTION

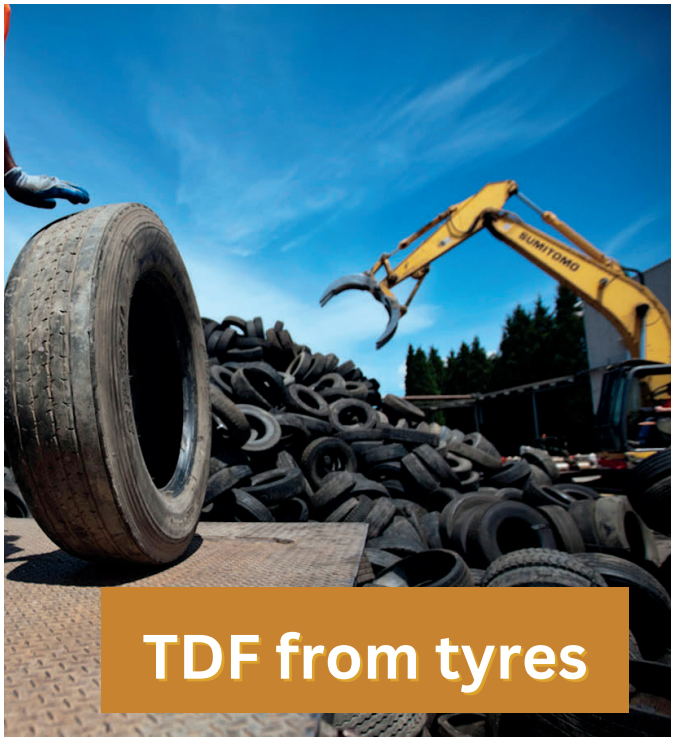
BIOMASR AF PROCESS



1. Refuse-derived fuel (RDF) is a type of fuel made from municipal solid waste (MSW). The RDF production process involves the following steps:
2. Collection: The first step is to collect the MSW. This can be done by using a variety of methods, such as garbage trucks, dumpsters, and recycling bins.
3. Preprocessing: The MSW is then preprocessed to remove any contaminants that could interfere with the RDF production process. This may involve shredding, screening, or washing the MSW.
4. Drying: The MSW is then dried to a moisture content of less than 20%. This is important because the moisture content of the MSW can affect the efficiency of the RDF production process.
5. Size reduction: The dried MSW is then size-reduced to a particle size of less than 2 inches. This is done to improve the flowability of the RDF and to make it easier to handle and transport.
6. Storage: The RDF is then stored in a secure facility until it is ready to be used.
7. Utilization: The RDF can be utilized in a variety of ways, including:
8. Co-firing: RDF can be co-fired with coal or other fossil fuels in power plants.
9. Direct combustion: RDF can be burned directly in boilers to generate heat.
10. Gasification: RDF can be gasified to produce syngas, which can be used to generate electricity or fuel vehicles.
11. Landfilling: In some cases, RDF may be landfilled. However, this is not the preferred option, as it can release harmful pollutants into the environment.
12. The RDF production process can be a complex and expensive undertaking. However, it can be a valuable tool for reducing waste and generating energy.

ALTERNATIVE FUEL PRODUCTION

Types of AF



BioMasr

OUR SERVICES

- Waste Management Consultations
- Energy Plants Operation & Maintenance
- Facility Management
- Non-Hazardous Waste Transportation
- Hazardous Waste Transportation

OUR PRODUCTS

BioMasr

- RDF
- Biogas
- Bio Boilers
- Gasification
- Biodiesel
- Pyrolsis

BioMasr

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