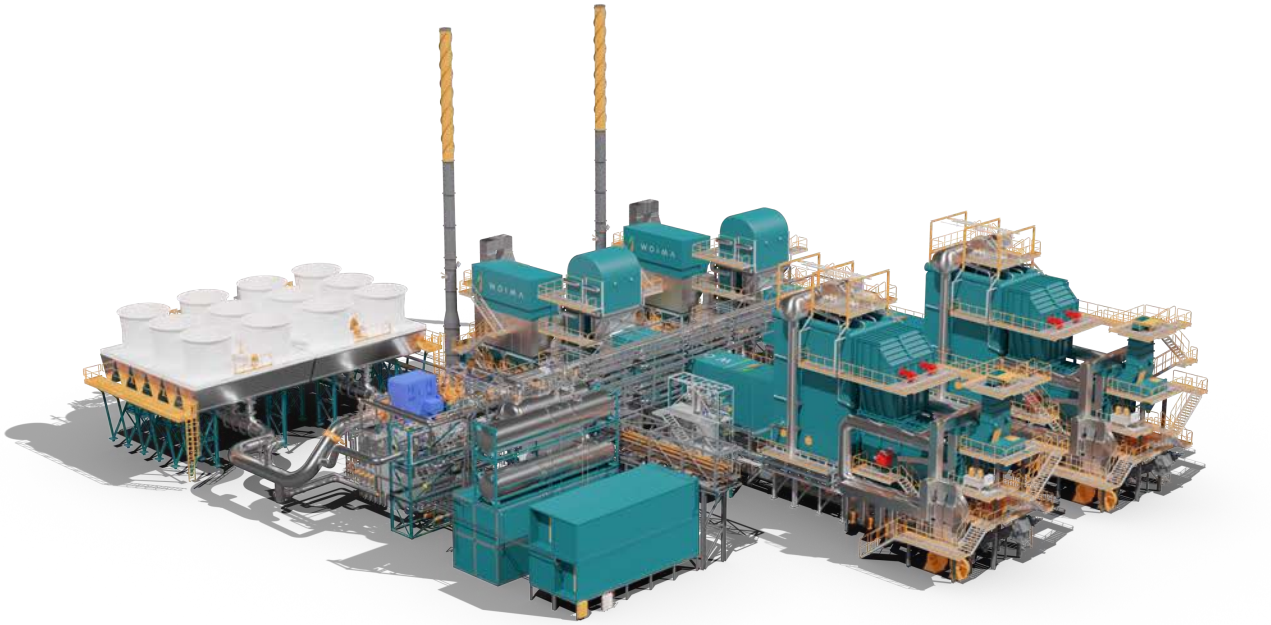
WOIMA

CORPORATION

USE CASE

LANDFILL MINING



LANDFILL MINING AS BASE LOAD POWER FUEL SOURCE

The landfills and dumpsites across the globe are filling up. Several billion tons of solid waste fractions are deposited in them each year and the amount is growing steadily at around 10% p.a. Most of them are poorly managed and pose a serious threat to people's health and the environment; leachate seeping into the soil and groundwater, as well as methane emissions to the air. However, landfills can offer an important fuel source in base load power generation. Landfill mining produces good-quality waste fuel for the waste-to-energy power plant, while eventually emptying the plot for other purposes, i.e. housing or recreational purposes.

Landfill mining is a drastically under-utilized method of producing fuel for power generation. The landfilled waste typically contains 20 to 30% of combustible waste fractions; plastics, wood-based materials, textiles and similar. Their utilization can significantly reduce country's dependence on imported fossil fuels, save often scarce foreign currency and generate dependable base load power. Mixing of landfilled and new waste is also easily arranged at the landfill site.

A single WOIMA*line* *waste*WOIMA® plant with an adjoining waste pre-treatment facility can consume up to 150,000 m³ of landfill-deposited waste p.a., i.e. one hectare of landfill space and the pace can be multiplied with the delivery of more standardized WOIMA*line* boiler islands. The pre-treatment solution supports the recycling of e.g. metals, glass and plastics. The composted organic waste, as well as ashes, gravel and sand typically found in the waste stream, are sorted out prior to incineration and used to landscape the landfill area.

The *waste*WOIMA® power plant design is based on standard 20' and 40' container-sized modules, which simultaneously act as

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

There is no power plant building causing additional costs or slowing down the erection process. The modules are simply bolted together to form the operational power plant. All the modules have been designed with efficient and fast transportation, erection, dismantling and relocation in mind.

The *waste*WOIMA® power plant project can be planned as a temporary solution. Once the landfill/ dumpsite has been cleared out, the facility can be dismantled and relocated, or assigned for new waste streams. Relocating the plant protects some 90% of the original investment. Only the concrete foundations are left behind.

One WOIMA*line* uses some 30,000 to 50,000 tons of waste fuel per annum. Different waste streams, including MSW, RDF, agrowaste, industrial waste, landfill-mined waste and similar can be mixed. This translates to

- 3.7 MW_e of electrical power or
- 2.4 MW_e / 10 MW_{th} in heating mode or
- 2.4 MW_e / 6 MW_{th} in cooling mode

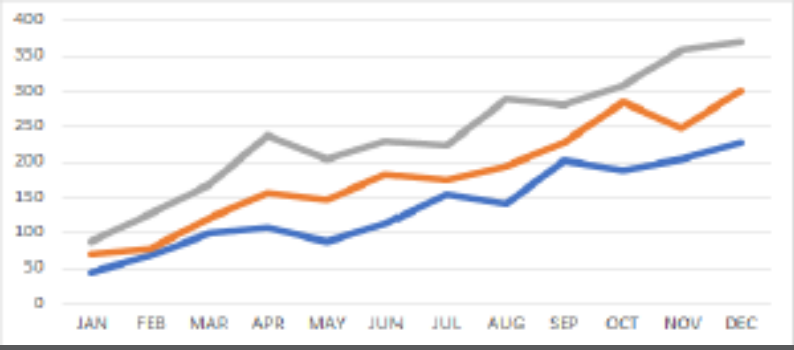
Up to four WOIMA*lines* can be interconnected to form a larger *waste*WOIMA® power plant. The plant is easily delivered, quick to install, cost-efficient to run and simple to maintain offering all stakeholders significant benefits. Relocation to a close-by site can be done within four-to-six months.

BENEFITS:

WASTE MANAGEMENT
- Creating new business potential
- Simplifying waste logistics
- Reducing environmental impacts
- Matching future regulations
- Postponing landfill investments
- Green image benefits

POWER & UTILITY
- Decentralizing power generation
- Enabling off-grid solutions
- Offering fuel & production flexibility
- Harnessing endless fuel source
- Utilizing carbon credit schemes
- Fast plant delivery

INVESTORS
- Excellent return on investment (ROI)
- Scalable business model
- Diversified investment portfolio
- Vendor arranged funding
- Fast project roll-out
- Plant relocation option



OTHER STAKEHOLDERS
- Turning waste into local welfare
- Health & environmental benefits
- Local reliable energy supply
- Educational & job opportunities
- Improving living conditions
- Implementing development funding

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