



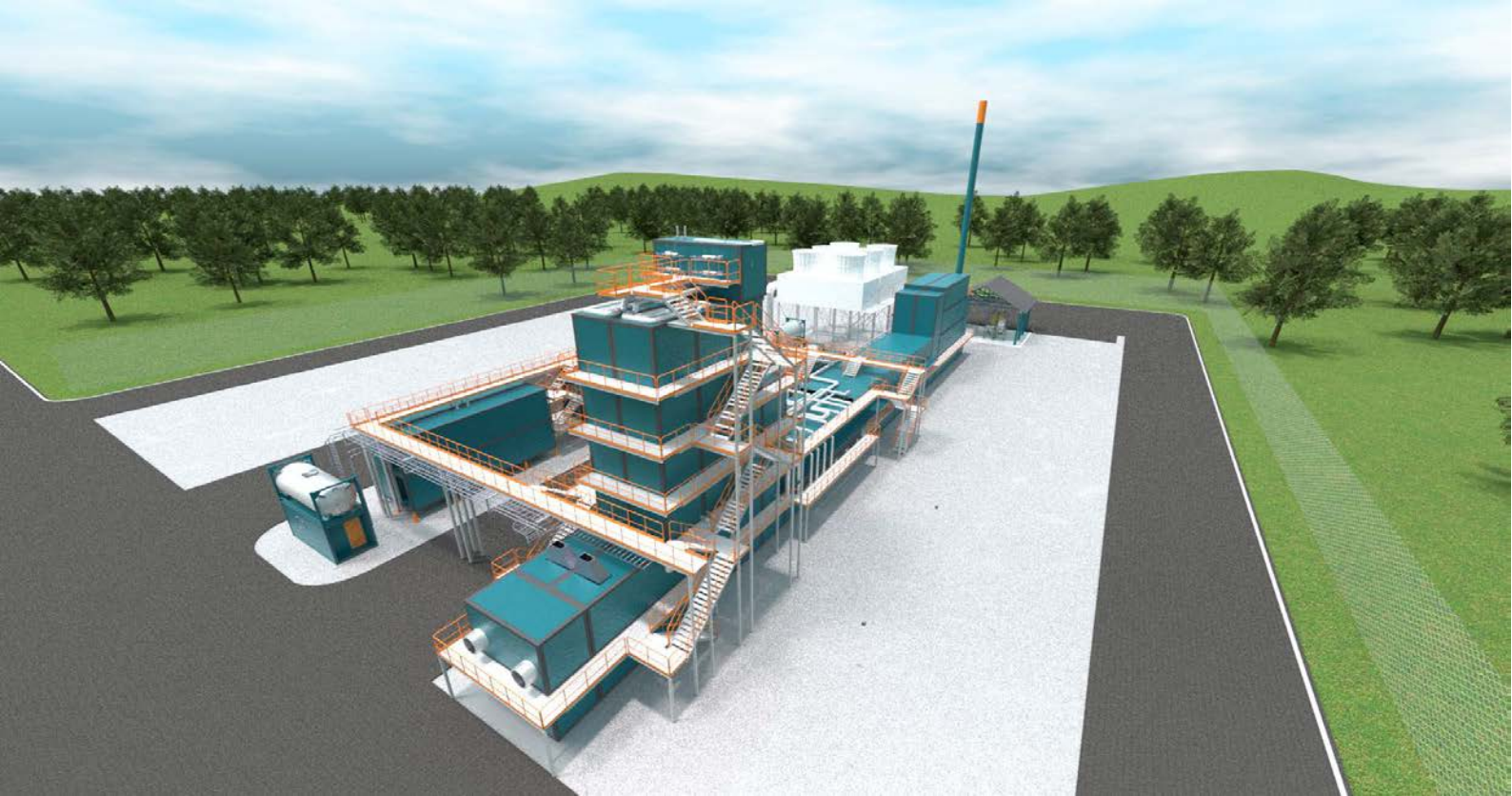
W O I M A

CORPORATION

USE CASE



LANDFILL LEACHATE  
WATER MANAGEMENT



## LANDFILL LEACHATE WATER MANAGEMENT

---

Over-utilized and inadequately established landfills and dumpsites pose a serious hazard on the environment, as well as on the health and well-being of people. These are often found in developing countries on the outskirts of growing cities, where they affect potentially millions of people. A combination of groundwater and air pollution, methane discharges and pest problems require professional attention. Incinerating both newly collected waste and landfills into energy solves the issue swiftly and decisively.

Landfill leachate is the run-off water that occurs from operational or closed landfills. It is the combination of rainfall (in all its forms), condensed humidity, moisture in the waste itself and the soluble matter in the waste. Municipal landfill leachate water is often characterized by four main groups of contaminants:

- Dissolved organic matter
- Inorganic macro components
- Heavy metals
- Xenobiotic organic compounds

Soil pollution caused by leachate waters is local, but can prevent planned future use of the land. Groundwater pollution, on the other hand, can spread hundreds of miles and deprive millions of people their right to clean water.

Hazardous waste landfills are characterized by all of the above and furthermore some extremely maleficent and corrosive materials like hexavalent chromium, cyanide compounds, fluoride compounds, solvents and phenols.

The only feasible option to prevent pollution is to treat the leachate water on-site and release the purified water back to nature. There are two main methods of treating the leachate; reverse osmosis and evaporation, which require electricity and steam, respectively. When treating hazardous landfill leachate water, both methods are typically applied.

The modular *wasteWOIMA*<sup>®</sup> waste-to-energy power plant produces 17 tons of super-heated steam per hour, enough to evaporate dozens of cubic meters of leachate water each hour. When both reverse osmosis and evaporation methods are required, part of the steam is directed into a steam turbine to generate electricity. Excess electricity can be used for landfill site operations or sold to energy companies. The power can be generated from waste excavated from the landfill, thus reducing the leachate quantity over time and eventually winding it down altogether.

The modular *wasteWOIMA*® power plant uses non-toxic municipal, institutional, commercial and/or industrial waste to produce super-heated steam, electricity, thermal energy and/or potable water. The required waste quantity is roughly 170 tons per day, which translates to 3.4 MW<sub>e</sub> of electrical power or 2.0 MW<sub>e</sub>/ 10 MW<sub>th</sub> in co-generation. The plant is easily delivered, quick to install, cost-efficient to run and simple to maintain offering all stakeholders significant benefits.

## BENEFITS:

### WASTE MANAGEMENT

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

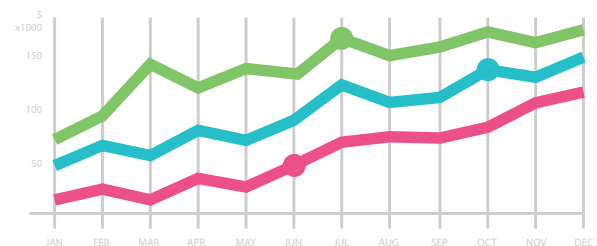


### INVESTORS

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

### POWER & UTILITY

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



### OTHER STAKEHOLDERS

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





W O I M A

CORPORATION

#### CONTACT INFORMATION

**Henri Kinnunen**

Chief Executive Officer

[henri.kinnunen@woimacorporation.com](mailto:henri.kinnunen@woimacorporation.com)

+358 40 835 8974

**Tapio Gylling**

Chief Operations Officer

[tapio.gylling@woimacorporation.com](mailto:tapio.gylling@woimacorporation.com)

+358 50 347 2799

**Tapani Korhonen**

Chief Technology Officer

[tapani.korhonen@woimacorporation.com](mailto:tapani.korhonen@woimacorporation.com)

+358 44 989 1513

**Joona Piirto**

Chief Project Officer

[joona.piiro@woimacorporation.com](mailto:joona.piiro@woimacorporation.com)

+358 50 387 9883

#### POSTAL / VISITING ADDRESS

Virtaviiva 8F

65320 Vaasa, FINLAND

[www.woimacorporation.com](http://www.woimacorporation.com)

[info@woimacorporation.com](mailto:info@woimacorporation.com)

#### YOUR LOCAL CONNECTION

