



WHO ARE WE?



We are the people behind clean streets
and spotless walkways.

We are the difference between
waste piles and scenic landmarks.

We collect waste.
We recover and dispose.
We keep cities clean.

We are averda.



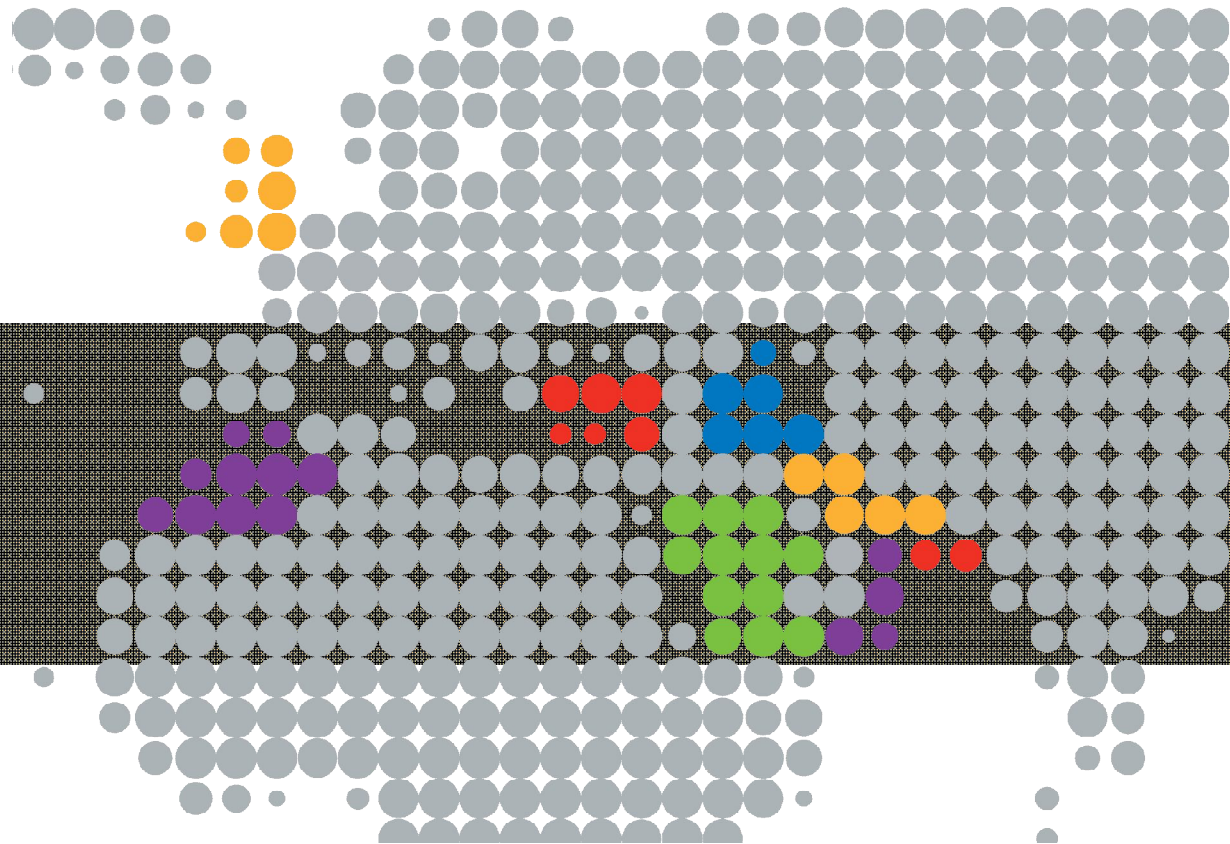
OUR VISION & MISSION

Our Vision
To give our children the Earth they deserve.

Our Mission
To become the best waste management
company in the developing world.



WHERE ARE WE?



Across 3 continents and 16 cities.

DUBAI • ABU DHABI • BEIRUT • BERKANE
• DOHA • DUBLIN • GALWAY • JEDDAH •
JUBAYL • LONDON • MUSCAT • NADOR •
RABAT • RIYADH • SUR • ANGOLA



WE CLEAN, COLLECT, RECOVER AND DISPOSE WASTE.

We serve over 2,000 clients and 7.5 million people every day.

Our fleet comprises over 1,200 trucks and vehicles, and collects an average of 7,000+ tonnes of waste per day.

We have more than 72,000 containers on-site. We are backed by task force of 8,000 employees.



HOW WE KEEP CITIES CLEAN.



City Cleaning • Waste Collection • Recycling •
Composting • Water and Wastewater • Facilities
Management • Disposal and Landfilling •
Fabrication • Waste Sorting • Thermal Treatment
• Pest Control and Landscaping

averda has been instrumental in providing waste
management solutions to a number of
cities across the world.

OUR CLIENTS



SERVICES OFFERED



**CLEAN &
COLLECT**



**RECOVER &
RECYCLE**

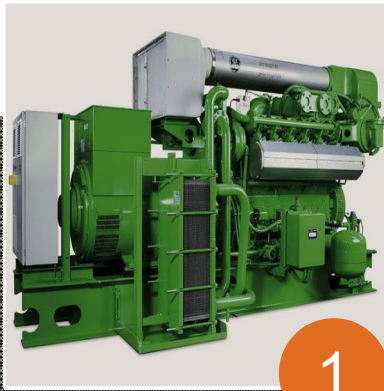


**TREAT &
DISPOSE**

TREAT AND DISPOSE

- **RECYCLING**
- **SOIL IMPROVER**
- **ENERGY**
- **RECLAIMED LAND**

WASTE TO ENERGY



1

LANDFILL GAS
TO ENERGY



2

SRF / RDF
PRODUCTION



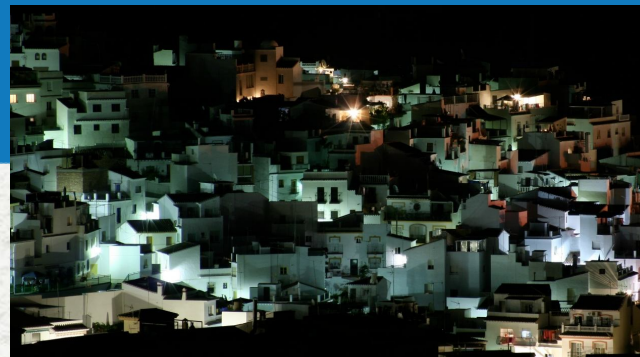
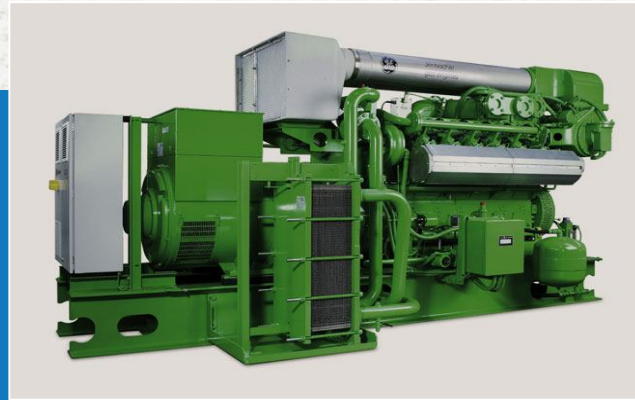
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INCINERATION

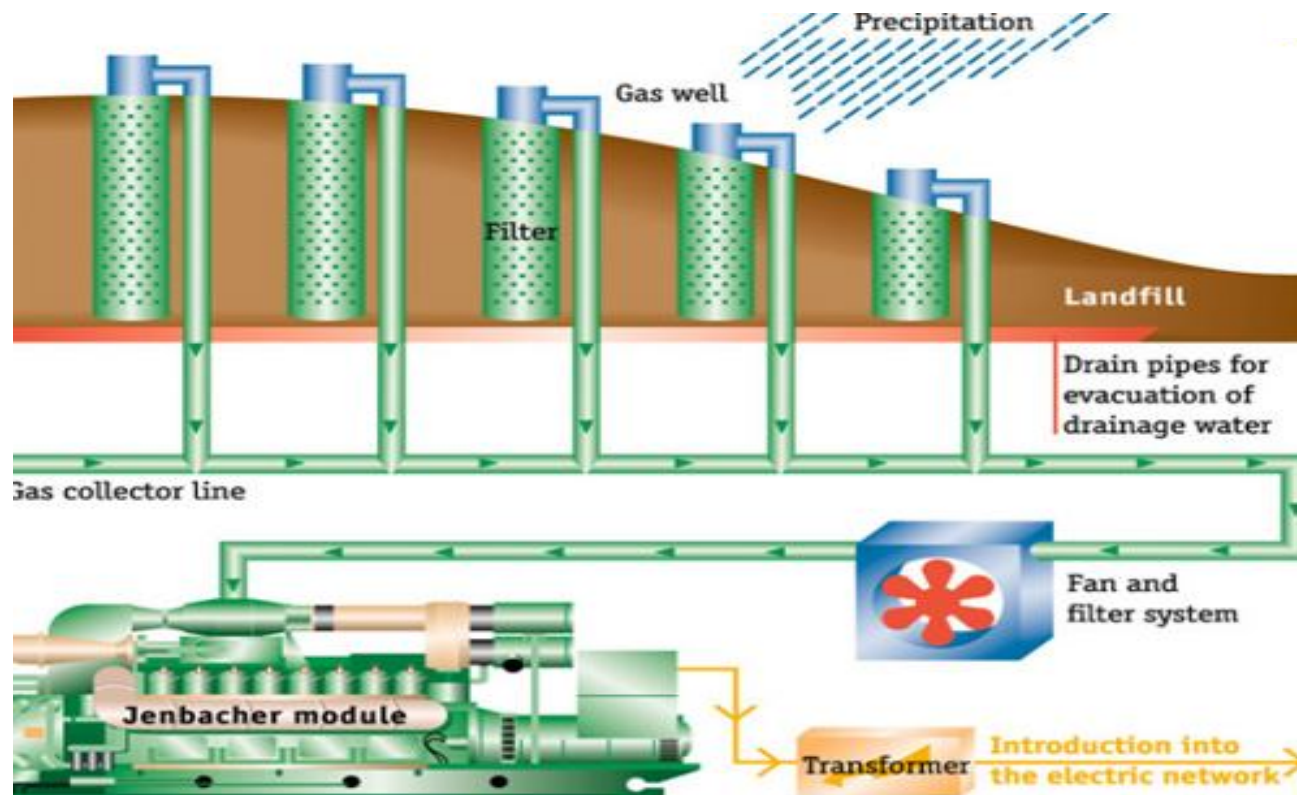
LANDFILL GAS TO ENERGY

Naameh Landfill Gas Project:

A Municipal Solid Waste (MSW) Sanitary Engineered Landfill equipped with a Landfill Gas Generator that can produce 637 KW of renewable energy.



POWER GENER. MODEL



MSW SANITARY ENGINEERED LANDFILL ELEMENTS



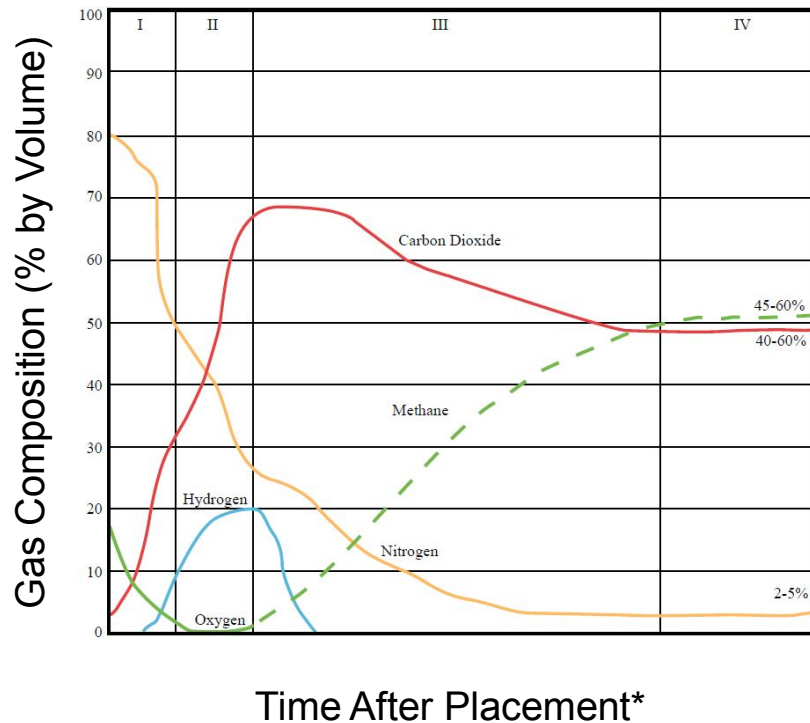
- Environmental Impact Assessment (EIA)
- Geosynthetic Containment System
- Leachate Collection & Treatment System
- **Landfill Gas Management System**
- Environmental monitoring Program
- Construction Quality Control & Assurance
- Controlled Operation

LANDFILL GAS MANAGEMENT STAGES



- Anaerobic Decomposition
- Methane (50 – 60 %) & Carbon Dioxide (40 – 50%) Collection
- Renewable Energy Generation

ANAEROBIC DECOMPOSITION



* Time scale (total time and phase duration) of gas generation varies with landfill conditions (e.g., waste composition and anaerobic state), but phase IV was generally reached in less than one year within Naameh Landfill.

Landfill Gas phases:

- I. Aerobic
- II. Anaerobic Non-methanogenic
- III. Anaerobic methanogenic unsteady
- IV. Anaerobic methanogenic steady

GAS COLLECTION SYSTEM



Active gas extraction system

- Vertical Gas wells (> 150)
- Extraction networks (HDPE 160 to 200 mm pipes)
- Closed flares (6 units of more than 11,000 m³ /hr capacity)
- Gas flow (currently 8,000 m³ /hr)
- Gas composition (methane > 45% and Oxygen < 3%)

GAS SYSTEM ELEMENTS



1

GAS WELL
UNDER
CONSTRUCTION



2

GAS WELL
HEAD
CONNECTED
TO NETWORK



3

EXTRACTION
MANIFOLD



4

2000 M³/HR
CLOSED
FLARE

RENEWABLE ENERGY GENERATION



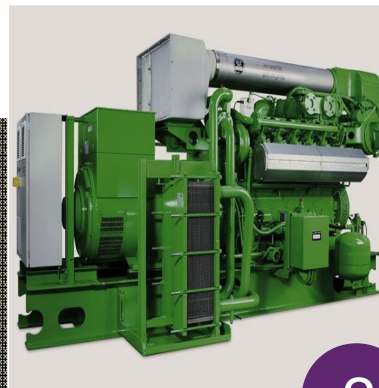
- GE's Jenbacher J312
- Pretreatment Gas chiller
- Electrical output of 637 kw
- Onsite electrical consumption of 350 -400 kw
- Onsite medium voltage electrical distribution network

GAS GENSET



1

GAS GENSET
FACILITY



2

JENBACHER
GENERATOR
UNIT



3

LFG FEED TO
THE
GENERATOR

FROM GAS TO ELECTRICITY



1

LANDFILL GAS



2

GAS GENSET



3

DISTRIBUTION NETWORK



4

SITE FACILITIES

PROJECT IMPACT

- harnessing landfill gas as a renewable energy source
- Mitigating methane adverse impacts
- Emphasizing the need of a robust technology in LFG
- Meeting Clean Development Mechanism requirements
- Showing the value of environmental regulations and administrative legislations

THANK YOU

