Challenges to Implementing a Sustainable Organics Diversion Facility 2009


Everett Facility 2004
26 acres 228,000 tons/year

Challenges of Moving a Concept Into Reality

- Financing – Industrial Revenue Bonds
- Long Term Contracts
- Guarantee Tonnage
- Green Energy Focus
- Industrial Property Search
- Concessions for Set Backs
- Permitting Time Frames

Technology Selection Criteria

- Technology has to be operating somewhere else in the world for 3 to 5 years.
- Technology has to have dealt with our exact waste streams. Similar is not good enough.
- Technology has to be financially backed by a large enough company that can provide a guarantee of success.
- No experimental processes are considered.

Everett Facility Native Plant Buffer

Preprocessing in negative air tipping building

Feedstock Recovery

Yard Wastes

Grass,trees,brush

Pre consumer food waste

Lettuce leaves

Post consumer food waste

Food scraps, napkins, boxes

Residential

Yardwaste and Foodscraps are collected together

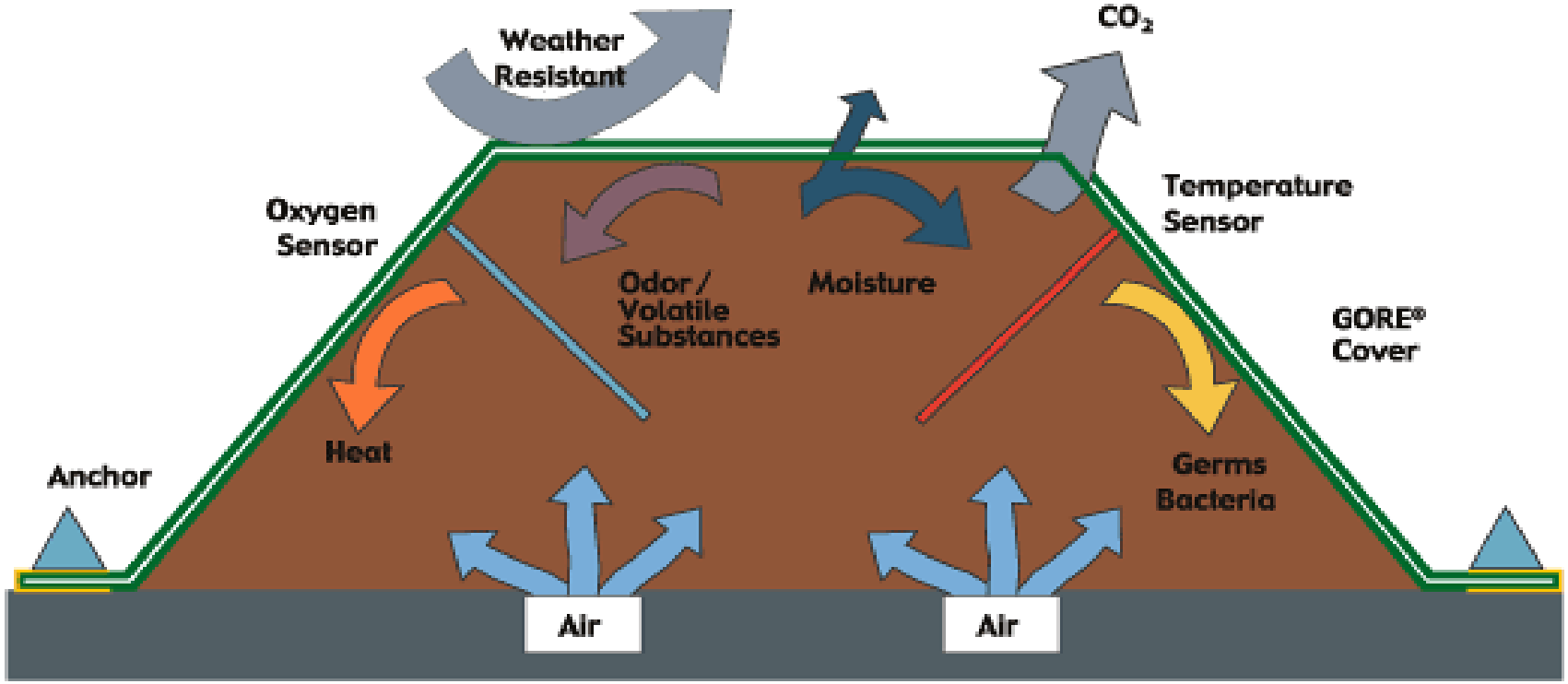
Commercial Foodwaste

Biofilter with Fan

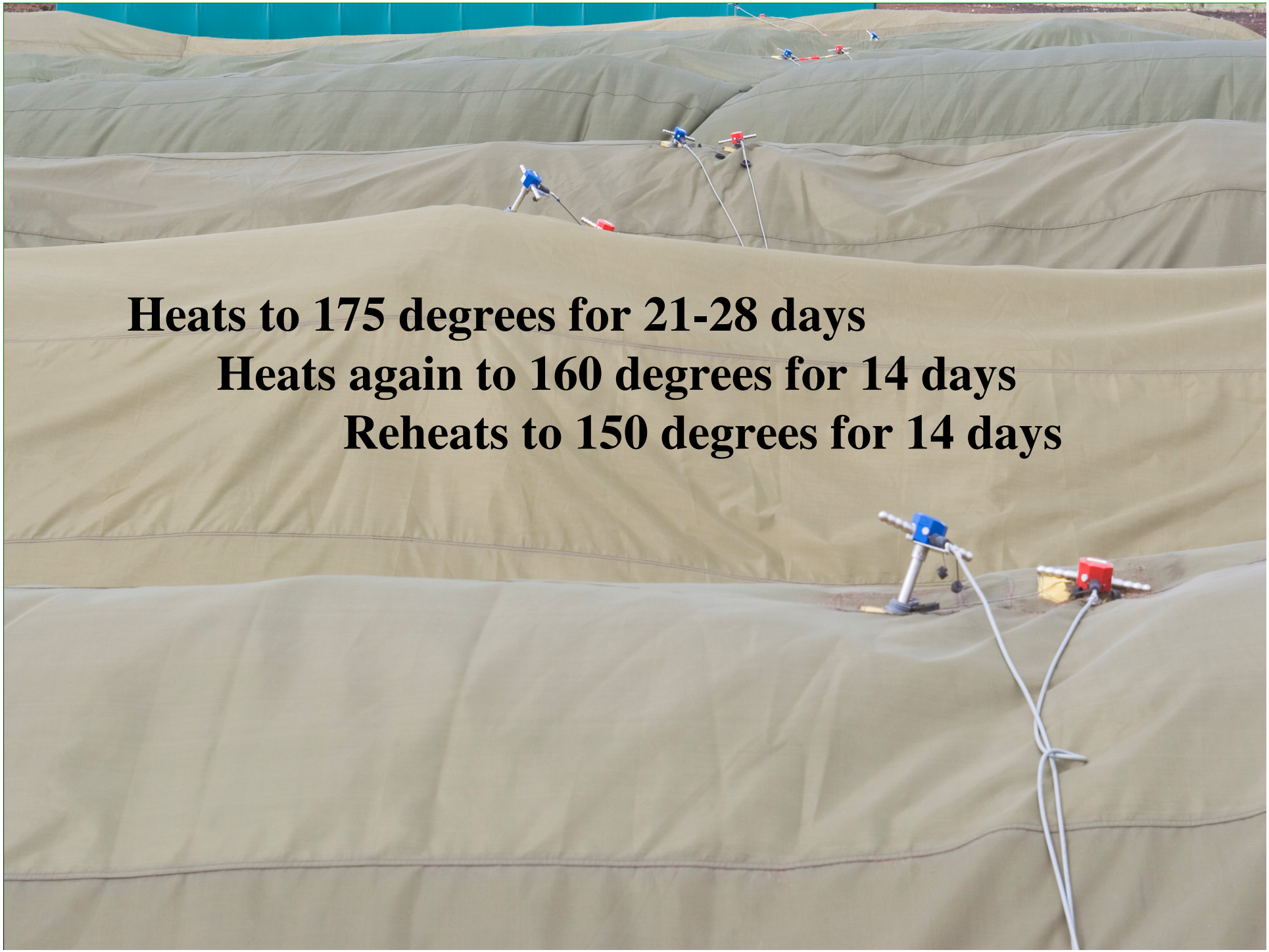
Grinding and Mixing

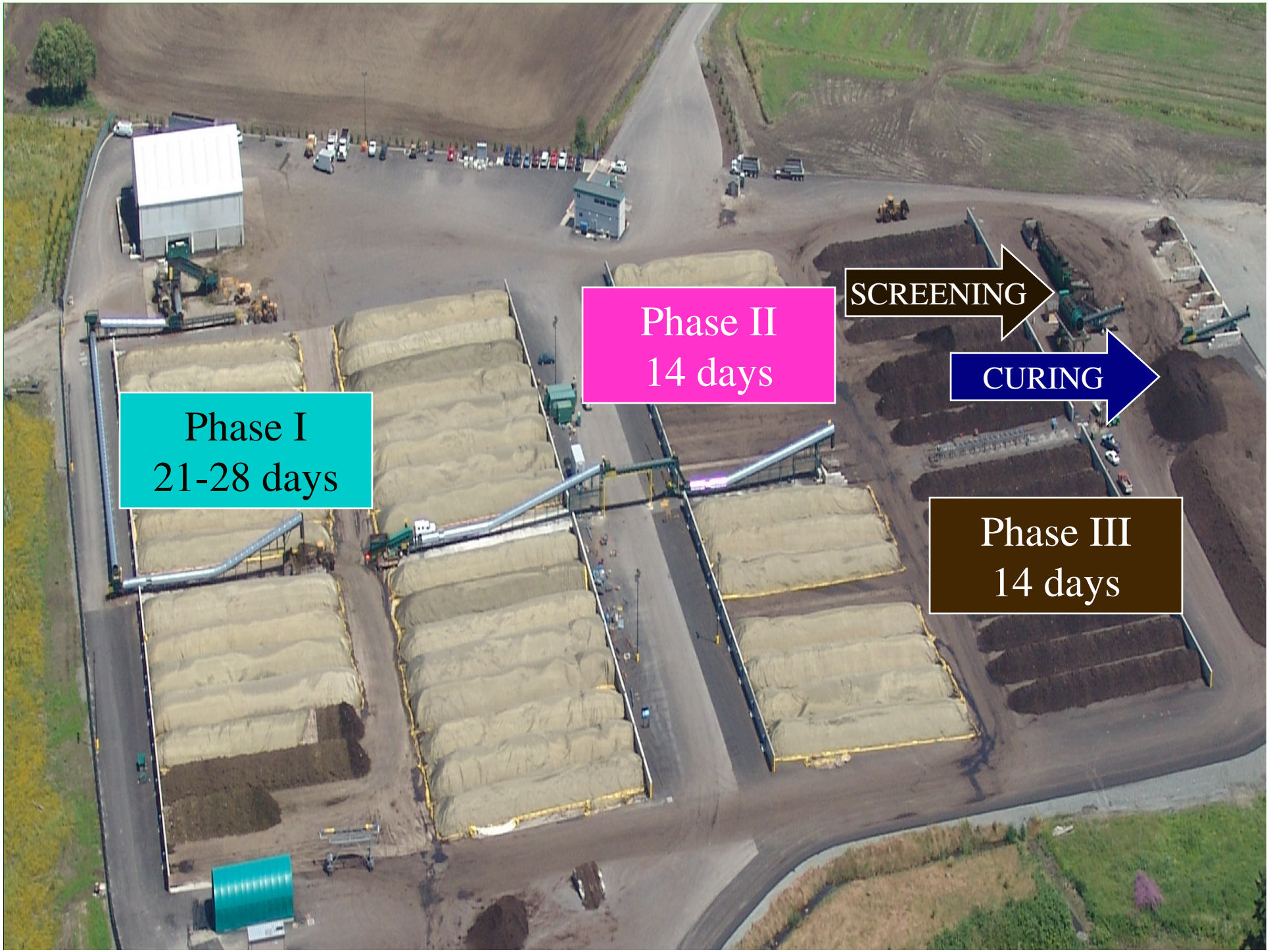
Gore Cover Membrane Technology

GORE® COVER SYSTEM CROSS SECTION VIEW




Vector attraction minimized with covers.
Material prevented from blowing.


Heats to 175 degrees for 21-28 days
Heats again to 160 degrees for 14 days
Reheats to 150 degrees for 14 days


Phase I
21-28 days
Phase II
14 days
SCREENING
CURING
Phase III
14 days

Separates Stormwater from Leachate

Leachate Tank- Aerated

Stormwater Ponds with Solid Separators

Surface Aerators

Wet Pond with Wetland Plants

Planted Bioswale

and

Wetland

Sweeper Truck

Compost Screening


Bulk Finished Compost

COMPOST BENEFITS

- Provides essential nutrients (N-P-K), organic matter and minerals
- Increases water-holding capacity
- Reduces runoff in wetter months
- Increases porosity in clay soils
- Increases nutrient storage in sand soils


Plant material provided by:
WESTCOAST
Retail and Wholesale Nursery
7/16" Bulk Compost
Compost
Garden Mix
Topsoil

Cedar Grove Products

Bagged and Bulk

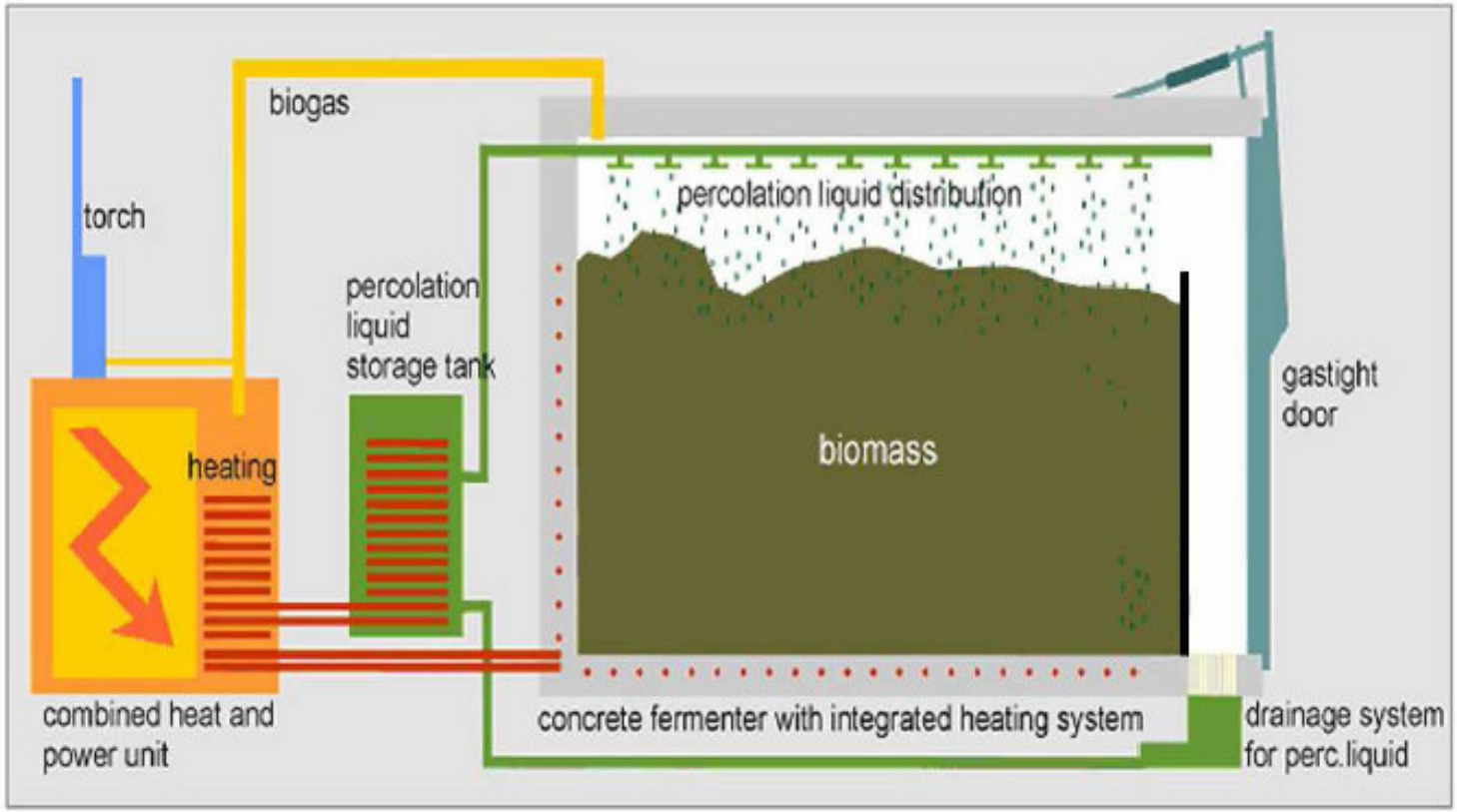
Compost
Topsoil
Potting Soil
Booster Blend
Vegetable Garden Mix
Rooftop Garden Blend
Special Turf Blends

New Frontiers
Anaerobic Digestion ?

Addressing Odor Mitigation Along With Green Energy Production- A Perfect Match

Indoor Mixing Area to Load the Tunnel Type Digesters

The Process


biogas
torch
percolation liquid distribution
percolation
liquid
storage tank
gastight
door
heating
biomass
combined heat and
power unit
concrete fermenter with integrated heating system
drainage system
for perc.liquid

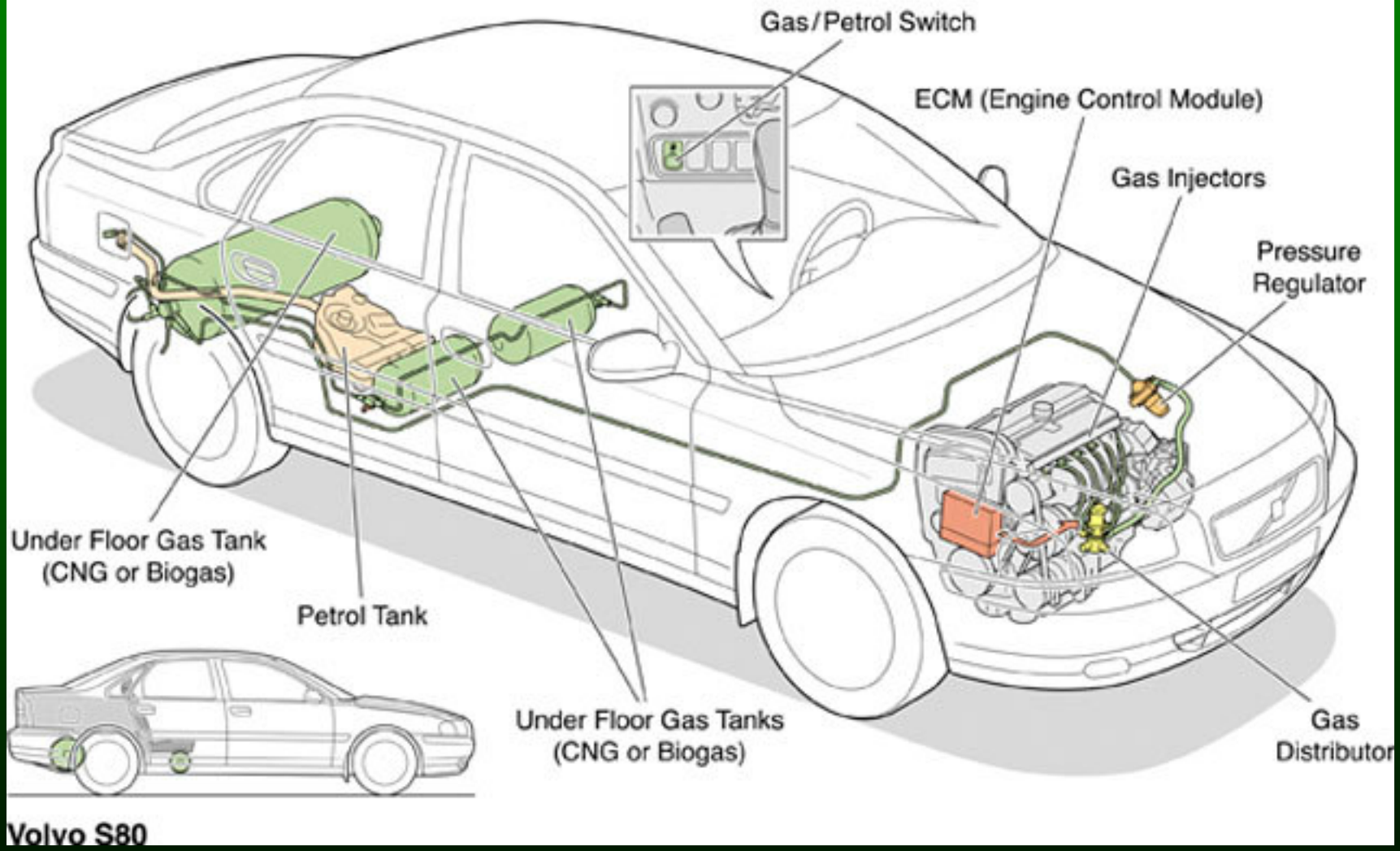
An illustrative layout of a 40,000-ton facility…

typically occupying 4 acres of land.

Receiving- Biogas Production- Power Generation

660 Kw 1 Megawatt

Bi-Fuel System (CNG, Biogas)



Volvo S80


2010

Complex Relationship Between Cost and Revenue

- 1) Revenue for Electricity or Gas
- 2) Revenue from thermal energy (hot water)
- 3) Revenue for finished product (negative value without additional processing)
- 4) Revenue for tipping fee (feedstock)
- 5) Revenue for greenhouse gas credits

Most of these are either unknown or highly variable.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