THERMOLYSIS GASIFICATION TECHNOLOGY

WASTE TO GREEN ENERGY

by

THERMOLYSIS Gasification technology

by

Alternative to Incineration
Convert cheap and renewable resources, such as waste, into a clean combustible gas for green energy generation.
Innovative and effective low cost solution for domestic, agriculture and water waste (sewage) by Thermolysis Gasification process.

The TGE technology proposal
TGE Thermolysis Gasification, a novel alternative to waste incineration, was implemented using its own unique and patented invention.
Reactor design combines the effect of partial burning and gasification in one and same reaction zone.

The reaction is automatically optimized by controlling data through specifically developed algorithms included in the computer software.

Patented specifications
ENERGY GENERATION POTENTIAL

• TGE Gasification process convert 1 ton of waste into 2000 m³ of clean green syngas.

• 2000 m³ of Syngas = 0.4 MW of Electricity

• 200 tons/day treated by TGE technology produce 80 MW of Electricity.
ENERGY GENERATION POTENTIAL

1Ton MSW / hr

0.42-0.84 MW
US $ 21-42 ENERGY

US $ 30-80
TIPPING FEE

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**US $ 86.5 Estimated revenues per ton**

<table>
<thead>
<tr>
<th>REVENUES ($)</th>
<th>Pessimistic</th>
<th>Optimistic</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>Tipping Fee /ton</td>
<td>* 30</td>
<td>80</td>
<td>55.0</td>
</tr>
<tr>
<td>Energy /ton</td>
<td>** 21</td>
<td>42</td>
<td>31.5</td>
</tr>
<tr>
<td>Total per ton</td>
<td>51</td>
<td>122</td>
<td>86.5</td>
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</tbody>
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* In ISRAEL the minimum tipping fee per ton stands in 2002 on $ 15 p/t. The target of max. 50% landfill treatment won’t be achieved without adequate adjustments to that fee.

** 1kw tariff = $ 0.05 - $0.07 (1Kg MSW generates 0.42-0.84 kw)
# TGE status and previews

<table>
<thead>
<tr>
<th>years</th>
<th>Status</th>
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<tbody>
<tr>
<td>2001</td>
<td>First incubator period, laboratory prototype construction</td>
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<tr>
<td>2002-2003</td>
<td>Second incubator period, 10 t/day pilot engineering and construction.</td>
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<tr>
<td>2003-2004</td>
<td>Environmental certification, PCT patent, first commercial agreement for a 200 tons day plant by steps (10-100-200) in Tel Aviv landfill site, and starting of tests.</td>
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<td>2005-2006</td>
<td>10 tons day pilot testing, 100 tons day industrial plant engineering and construction. Second sale of a 100 tons day plant in the north of Israel. Plasma-Gasification R&amp;D.</td>
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<tr>
<td>2007-2008</td>
<td>Engineering and construction of a 200 tons day plant in Tel Aviv site with a 700 tons day plant potential sale in this site. International penetration market. 10 t/day Plasma Gasification plant application.</td>
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</table>
• A world leader in the design and manufacture of Concrete Plants, Quarry Equipments, conveying systems and Steel constructions.

• Committed to researching recycling methods for many different types of waste products. Elkayam now offer solutions for solid waste, aluminum waste, organic waste and water.
BIOPHAST: Wastewater Sludge Treatment

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