



EmPowering our Future

An environmental solution to waste management

THE EFW SOLUTION

...IMAGINE...

...a world with no landfills...

affordable, predictable and sustainable

'green' energy for generations...



CORPORATE MISSION

To provide commercially viable clean energy solutions to successfully meet the challenges of sustainable development.

An environmental solution to waste management

A Time for Change...

Key Drivers

- Lower greenhouse gas and hazardous air emissions
- Develop sustainable alternatives for waste management
- Generate clean, efficient, affordable power for growth and economic development
- Eliminate land fill sites that can plague generations to come
- Create substantial social and economic benefit through the utilization of environmentally benign technology

“Change is the law of life and those who look only to the past or present are certain to miss the future”.

John F. Kennedy

Fernlea Green Energy

Our Solution

Fernlea Green Energy (FGE) has focused on a simple and proven design and operating strategy for processing municipal solid waste (MSW), including plastics, medical waste and sewage, using patented and propriety technology. The resultant output creates environmental, social and economic advantages such as:

- A non-incineration chemical conversion process with the absence of oxygen avoiding the formation of dioxins and furans
- Provides a unique opportunity to utilize waste material eliminating the need for landfill
- Typically 90 (+) % of the mass and 98% of the volume from input materials are converted to a useable synthetic gas; the remainder is recoverable metals, or inert aggregate material, that are marketable products

Fernlea Green Energy

Our Solution

- Create multiple revenue streams including 'green' electrical power, industrial commodities and process heat
- Supports governmental initiatives for reducing greenhouse gas creating an opportunity to capitalize on carbon credits
- Process is scalable and environmentally benign thereby providing substantial savings to municipalities as facilities may be located in close proximity to urban areas
- Capital and operating costs are competitive to EFW processes

Fernlea Green Energy

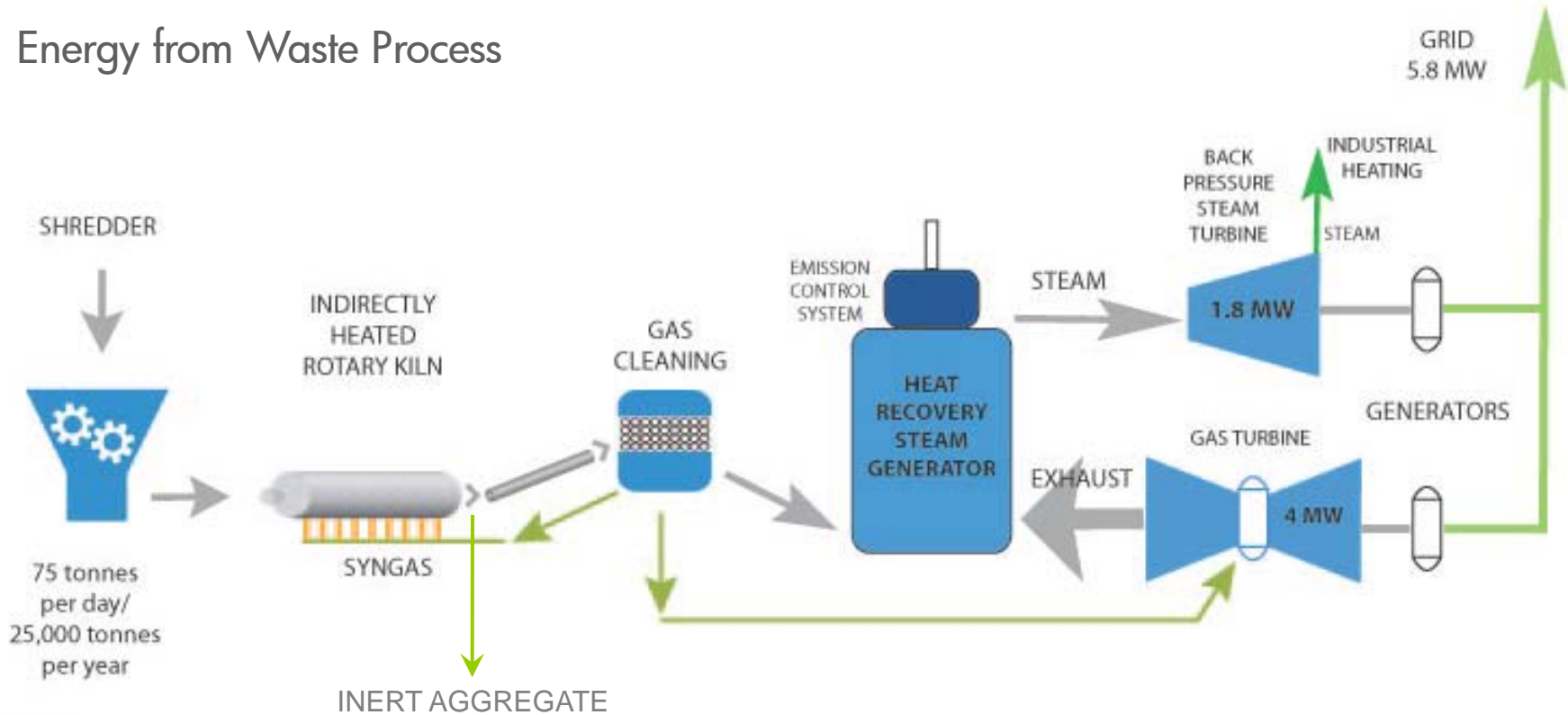
Our Technology

- A unique chemical process known as steam reformation (SR), amplifies the release of H₂ which is converted to a clean valuable fuel source
- Our process is extremely energy efficient relative to competitive systems, using a small portion of the syngas produced to complete a self sustaining system
- The core component is an indirectly heated rotary kiln for syngas generation
- The process uses proven components and off the shelf equipment
- Validations have been conducted at a Canadian research facility and commercial and demonstration projects have been performed

Fernlea Green Energy

Elementa Steam Reforming Technology

Energy from Waste Process



INPUT:
Municipal Solid Waste
Bio-Solids
Wood & Paper Waste
Shredded Tires
Other

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Technology Comparisons – 100K Tonne MSW System

- **Pyrolysis:** 70% conversion, gas can be burned (limited uses) and produce ~ 12MW
- **Plasma:** Gas can be cleaned for direct electricity generation ~15 MW electricity
- **Incineration:** ~ 9-10 MW steam turbines are the only generation applications
- **Steam Reformation System:** Clean syngas ~ 22 MW of electrical power, using gas turbines

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Elementa Steam Reforming Technology

Comparison with Applicable Emission Limits

Parameter	Unit	Measured	Limit	% of Limit
Total hydrocarbons (as CH ₄)	ppmvd	1.7	50	3.4%
Carbon Monoxide	ppmvd	2	35	5.7%
Oxygen	>6% by volume	8.3	>6%	OK
Suspended Particulate Matter	mg/R.m ³ @ 11% O ₂	0.34	17	2.0%
Dioxins/Furans (as TEQ)	pg/R.m ³ @ 11% O ₂	1.9	80	2.4%
Hydrochloric Acid	ppmvd @ 11% O ₂	0.41	18	2.3%
Nitrogen Oxides (as NO ₂)	ppmvd @ 11% O ₂	86.2	110	78% *
Sulphur Dioxide	ppmvd @ 11% O ₂	3	21	14%
Cadmium	µg/R.m ³ @ 11% O ₂	0.040	14	0.29%
Lead	µg/R.m ³ @ 11% O ₂	0.63	142	0.44%
Total Mercury	µg/R.m ³ @ 11% O ₂	0.14	20	0.70%

* Test equipment created high level, not the syngas. Will be managed below 25%.

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Elementa Steam Reforming Technology

Air Emission Performance

Elementa benchmarks its emissions against world class standards

Parameter	Units	Ontario A-7	EU	California	Elementa
Particulate Matter	mg/Nm ³	17	9	16	0.34
Cadmium	μg/Nm ³	14	46	10	0.04
Lead	μg/Nm ³	142	n/a	140	0.63
Mercury	μg/Nm ³	20	46	60	0.14
Dioxins and Furans	ng/Nm ³	0.08	0.092	9	0.002
Hydrochloric acid	mg/Nm ³	27	9	27	0.59
Sulphur Dioxide	mg/Nm ³	56	46	56	8
Nitrogen Oxides	mg/Nm ³	207	183	202	177 *
Organic Matter	mg/Nm ³	66	9	n/a	1.214

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Elementa Steam Reforming Technology

Summary

- Syngas Conversion to Electricity 45%
- Waste Volume Reduction 98%
- Dioxins and Furans (as measured) 0.35 pg/Rm³

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Summary

- FGE proposes to establish a modern and highly sustainable approach to EFW, offering social and environmental excellence
- FGE uses proven equipment and systems, superior performing chemistry and robust design - creating a clean, widely useable renewable energy source
- FGE facilities are designed to surpass environmental compliance and minimize emissions (reduce greenhouse gases) and waste by-products
- Eliminate landfills

Fernlea Green Energy

Summary

- FGE offers a diverse model tailored to meet customer needs
- FGE will consider all business opportunities including joint venture projects as well as public and private partnering
- FGE is focused on developing clean energy solutions and we are committed to sustainable development, social responsibility and environmental betterment



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Projections and analysis contained herein, to the extent they are based on assumptions and circumstances over which Fernlea Green Energy has no control, are by their nature uncertain and are to be treated accordingly.



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