Westinghouse Plasma Gasification is the Next Generation of Energy from Waste Technology

USEA Annual Meeting
May 30, 2013
Washington, DC
WHO WE ARE
Alter NRG is a publicly traded (TSX: NRG; OTCQX: ANRGF) Alternative Energy company providing clean energy solutions. Westinghouse Plasma is a wholly-owned subsidiary.

Our Vision
To provide the leading technology platform for converting the world’s waste into clean energy for a healthier planet.

Our Mission
As the industry leader, we will forge and dominate an industry segment that transforms current waste management practices. We build shareholder value by enabling our customers to convert waste into clean energy by providing plasma gasification products, services and solutions that are innovative and environmentally friendly.

OUR FOCUS (100% Owned)

Westinghouse Plasma Gasification:
1. Commercially proven
2. Industry leader worldwide
3. Westinghouse brand
4. Fortune 500 customers
5. Large sales pipeline of existing projects

The industry leading plasma gasification technology that provides clean and renewable energy solutions by converting all types of waste and biomass into high value energy – like electricity, ethanol or syngas for industrial use. With plasma systems in operation for 20 years and converting waste into energy since 2002, this technology is commercially proven and has lower emissions than conventional energy technologies.
TODAY’S CHALLENGES

- Growing population, increasing waste volumes and environmental concern
- Current MSW generation is 228 million tonnes per year, will increase to 256 million tonnes per year by 2025
- Waste: 54% landfilled, 12% incinerated, 34% recycled/composted
- Majority of incinerators were built in the 70’s and 80’s

TOMORROW’S OPPORTUNITIES

- Replace aging incinerators with cleaner more efficient WTE solutions
- Divert additional waste streams from landfills to high efficiency WTE plants
MONETIZATION OF WASTE
(68% MSW – LANDFILLED AND INCINERATED)

“Waste generation levels are expected to grow by 69% by 2025”.

(Total waste generated at 2010: 624,700 tpd, by 2025: 701,709 tpd)
# COMPARISON OF WESTINGHOUSE PLASMA vs. INCINERATION

<table>
<thead>
<tr>
<th></th>
<th>Westinghouse Plasma Gasification</th>
<th>Incineration</th>
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<tbody>
<tr>
<td><strong>Feedstock Flexibility</strong></td>
<td>Ability to mix feedstocks such as MSW, Industrial Waste, Commercial &amp; Industrial Waste, Hazardous Waste, Tires, Biomass Fuels (such as wood waste)</td>
<td>MSW and other common waste streams; difficult to mix multiple feedstocks</td>
</tr>
<tr>
<td><strong>Fuel Created</strong></td>
<td>Syngas (Carbon Monoxide and Hydrogen)</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
| **End Product Opportunities**  | • Replacement Fuel for Natural Gas and Fuel Oil  
• Power via Steam cycle  
• Power via Combined cycle or Reciprocating Engines  
• Power via Fuel Cells (future)  
• Process Steam  
• Liquid Fuels (ethanol, bio-diesel)  
• Hydrogen  
• Fertilizer Compounds | Power via Steam cycle Process Steam                                                             |
| **Overall Plant Efficiency**   | Combined Cycle Process: 1 ton of municipal solid waste is capable of creating 1000 kWh of power via combined cycle configuration | Steam Cycle Process: 1 ton of municipal solid waste generates between 500-650 kWh of power |
| **Dioxins and Furans**         | Better overall emissions and the high operating temperature (>1000°C) and oxygen starved environment destroys any dioxins/furans that may be present in the feedstock. | The presence of oxygen, chlorine, and particulate creates the right conditions for the formation of dioxins and furans. |
| **By-product**                 | Inert, non-hazardous and non-leaching glassy slag salable as an aggregate building product or rock wool. Most particulate recovered during cleaning of the syngas is recyclable | Hazardous fly ash and scrubber residues plus incinerator bottom ash           |
### PLASMA GASIFICATION VS. INCINERATION

<table>
<thead>
<tr>
<th>Comparative Metric</th>
<th>Tees Valley 1 Advanced Plasma Gasification Waste to Energy Facility, UK</th>
<th>Incinerator PA, USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Throughput (tonnes per day)</td>
<td>1,000</td>
<td>1,344</td>
</tr>
<tr>
<td>Availability</td>
<td>90.4%</td>
<td>90%</td>
</tr>
<tr>
<td>Gross Power Output (MW)</td>
<td>50 MW</td>
<td>38.1 MW</td>
</tr>
<tr>
<td>MWh/tonne</td>
<td>1.2 MWh/tonne</td>
<td>0.9 MWh/tonne</td>
</tr>
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### SIGNIFICANTLY CLEANER THAN REGULATED STANDARDS

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>Westinghouse Plasma Combined Cycle</th>
<th>Permitted Incineration Facilities, USA</th>
<th>US EPA Section 111(d) Emissions Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen Oxide (NOx)</td>
<td>(ppmvd)</td>
<td>36</td>
<td>110-205</td>
<td>205</td>
</tr>
<tr>
<td>Particulate Matter (PM)</td>
<td>(mg/dscm)</td>
<td>4</td>
<td>16-27</td>
<td>25-27</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>(ppmvd)</td>
<td>1</td>
<td>26-29</td>
<td>29-31</td>
</tr>
<tr>
<td>Hydrogen Chloride (HCl)</td>
<td>(ppmvd)</td>
<td>6</td>
<td>25-29</td>
<td>29-31</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>(ppmvd)</td>
<td>19</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>(μg/dscm)</td>
<td>1</td>
<td>28-80</td>
<td>80</td>
</tr>
<tr>
<td>Dioxins and Furans (PCDD/PCDF)</td>
<td>(ng/dscm)</td>
<td>0</td>
<td>13-30</td>
<td>30-60</td>
</tr>
</tbody>
</table>

ppmv: parts per million, volumetric dry; mg/dscm: milligrams per dry standard cubic meter, μg/dscm: micrograms per dry standard cubic meter, ng/dscm: nanograms per dry standard cubic meter

### VITRIFIED SLAG VS. FLY ASH

Westinghouse Plasma Gasifier produces non-leaching vitrified slag (used as a construction aggregate, landscaping blocks, rock wool insulation, floor tiles etc.) vs. leachable incinerator fly ash.
WESTINGHOUSE PLASMA GASIFICATION – PAST AND FUTURE
WESTINGHOUSE PLASMA TIPPING POINT

- Converts multiple feedstocks to clean Syngas
- Creates electricity, ethanol, gasoline, diesel fuel and fuel replacement
- Delivers superior economic and environmental performance
- Delivered the world’s first largest gasifier - Q1, 2013
Specifications:
- G65 model
- 1000 tpd MSW (350,000 tpa)
- 50 MW of electricity using combined cycle
- 65,000 NM$^3$ per hour of syngas
- Commissioning 2014

Status:
- Gasifier delivered to project site on May 12, 2013

Dimensions:
- Weight: 204 tonnes
- Height: 25 m
- Width: 9 m

“Our investment in advanced gasification EfW technology is a natural extension of our onsite business model. Offering an innovative growth opportunity, it allows us to further extend our leading position in the global energy market and continue to deliver on Air Products’ commitment to sustainability.”

- John McGlade, Chairman, President and Chief Executive Officer of Air Products

“Advanced gasification has a key role to play in delivering renewable energy and I warmly welcome the decision by Air Products to proceed with its Tees Valley Renewable Energy Facility. Air Products’ announcement reflects the UK’s commitment and support for clean energy, combined with our stable and transparent environment for investors.”

- Nick Clegg, The UK Deputy Prime Minister
PLASMA GASIFIER DELIVERED TO TEES VALLEY SITE, UK ON MAY 10, 2013
PLASMA GASIFIER STRUCTURE UNDER CONSTRUCTION
AT THE TEES VALLEY SITE, UK
DEMONSTRATION FACILITY, WUHAN, CHINA

- Biomass feedstock to FT liquids facility
- Significant reference plant for WPC
- Commissioned in Q4, 2012

Kaidi is a publicly traded company in China with ~ $2 billion USD annual revenues and an aggressive track record
DEMONSTRATION FACILITY, SHANGHAI, CHINA

• A demonstration plant currently being built in Shanghai, China
• Westinghouse Plasma delivered the gasifier IP and plasma torches
• Integration with an existing incinerator to take the incinerator ash as well as other difficult feedstocks
ENERGY FROM WASTE IN PUNE, INDIA

- SMSIL owns 72 tpd hazardous waste treatment facility
- 40-60 different waste streams processed simultaneously during the year
- Syngas is used to create electricity which is exported to grid
- SMSIL actively developing new projects – 2 in EIA stage
- SMSIL and Alter NRG cooperating to replicate the Pune configuration around the world
CONCLUSION
WESTINGHOUSE PLASMA:

• The commercial leader in large scale advanced thermal treatment

• Is being chosen as the platform for the next generation of WTE solutions

• Can maximize project economics through ability of technology to process high value waste streams

• Is highly efficient vs. other current technologies

• Is an environmentally sustainable solution with better overall performance
THANK YOU