To develop and operate facilities that achieve complete recycling of waste and produce energy and material byproducts that are commercially viable in the marketplace.
One ton of MSW produces a net of up to 850 kWh of electricity using the FWD Power Process.

The average household in the United States uses about 11,200 kilowatt-hours of electricity each year.

With the FWD Power Process, one ton of MSW can power a home for up to four weeks.

Nationally, up to 18% of electrical demand could be generated from MSW.
FWD Power’s Proprietary technology converts waste to clean energy:

- Clean renewable energy – the total recycling solution
- Gasification - not incineration – no fly ash, no bottom ash, nothing to landfill
- Not traditional gasification – no combustion; no ash, no char, nothing to landfill
- Next generation plasma gasification – no plasma torches
- Graphite arc plasma – no co-reactants, no dilutive working gas
- Rich, clean syngas – no combustion gases, no dioxins and no furans
- No pre-sorting or preprocessing of waste stream
- Lower capital cost compared to other WTE processes
- Not experimental – technology proven in other industrial applications
What is PLASMA?

- “Fourth State” of matter
- Ionized gas at high temperature capable of conducting electrical current
- Lightning is an example from nature
Process Flow – Convert Syngas to Liquid Fuels or Feedstock

Range of Products from Synthesis Gas
- Fischer Tropsch
- Liquid Fuels
- Oils, Lubricants
- Chemicals
- Methanol
- Dimethyl Ether
- Gasoline
- Alcohol
- Butanol
- Ethanol

Options for Syngas Output

1. Boiler
2. Electrolysis
3. Power Generation
Waste Inputs

- Municipal Solid Waste
- Biomass
- Medical waste
- Hazardous waste
- Biosolids
- Electronic waste
- Industrial waste
- Incinerator ash
- C & D
- Other wastes
Recycling Outputs

- **Synthesis Gas**
  - Steam
  - Electricity
  - Chemical feedstock
  - Liquid fuels

- **Metals**

- **Slag**
  - Rock wool
  - Building products
  - Building aggregate
**CH2M HILL**

- Global leader in full-service engineering, consulting, construction, and operations
- Headquartered in Denver, Colorado with more than 25,000 employees and USD$6.4 billion 2008 revenue
- Global operations span six continents
- Markets we serve
  - Energy and Power
  - Infrastructure
  - Facilities
  - Environmental
- Ranked #1 in Program Management for 6 consecutive years by *Engineering News-Record*
- Experienced in gasification processes and advanced power generation technologies – Steve Jenkins & Jim Riley
Company Partners

- **Tenova Pyromet**
  - One of the world’s foremost designers and builders of submerged arc smelting furnaces
  - Headquartered in South Africa. Plants in Europe, China, and the U.S.
  - PWR & Pyromet have executed an exclusive global supply agreement
I. **Feasibility study and business case analysis**
   Site due diligence and feasibility analysis with conclusions about feedstock inputs, supply logistics/transportation, end products market analysis, plant layout and process configuration analysis, site selection study, project cost analysis, projected financial models. 4 – 6 months

II. **Preliminary engineering and project financing**

III. **Detailed engineering and permit applications**

IV. **Construction**

V. **Startup, training, operations and maintenance**

Total 24 – 36 months (permits dependant)