Raser Technologies, Inc.

Overview Presentation

Utah Geothermal Working Group Meeting

Michael Hayter
Director – Geothermal Development

April 23, 2008
Raser Technologies is a publicly-traded, environmentally-focused technology licensing and development company, seeking to develop clean, renewable geothermal electric power plants in a fraction of the conventional time, incorporating licensed heat transfer technology.
Who is Raser Technologies?

- Formed in 2002
- Stock trades on New York Stock Exchange Arca (RZ)
- Market Capitalization, $500 million
- Geothermal development and technology licensing
- Management team with deep experience in power generation, power purchasing and plant construction
- Geothermal technologies:
  - PureCycle® advanced binary cycle (United Technologies)
  - K-Cycle advanced binary cycle (hold global license)
- Geothermal rights and options on more than 210,000 acres in six states
Raser Technologies
Green Power Strategy

Power Systems
(Geothermal Operations)

Transportation & Industrial
(Motor & Drive Technology)

Well to Wheels
Why Geothermal Power?

Energy Independence – National Priority

- Renewable energy source
- Baseload energy source

Environmentally Friendly

- Clean, zero emissions

Government Mandates and Incentives

- Significant government mandates for green power
- Attractive tax incentives
Why is Geothermal So Attractive?

- Technology advancements permit broader application
  - Binary cycle technology can generate power from water temperatures as low as 165°F
  - Smaller plants now feasible with modular technology
  - Equipment reliability backed by manufacturer
- Renewable energy source with long life expectancy
- Once power plant is built, very low operating costs
  Base load power. Operates 24/7
- Environmentally friendly with zero emissions
Geothermal Power is Proliferating

- 8,217 megawatts installed capacity worldwide in 22 countries
- U.S. is largest producer with 2,800MW
- Rate of U.S. expansion is increasing dramatically
  - Advanced technology permits use of previously unusable geothermal resources
  - Tax incentives offered by federal government
  - Energy independence initiatives taking hold
  - Environmental initiatives increasing
  - States implementing renewable energy requirements
Sources of U.S. Electricity Usage

While Geothermal Currently Represents a Small Part of the U.S. Energy Supply..........................
US Geothermal Potential is Substantial

...... An MIT study concludes that geothermal energy could become a major part of the domestic U.S. energy supply

<table>
<thead>
<tr>
<th>2006 Actual Geothermal Power Production&lt;sup&gt;2&lt;/sup&gt; (MWe)</th>
<th>Potential Geothermal Power Production&lt;sup&gt;1,3&lt;/sup&gt; (MWe)</th>
<th>% of Estimated Total Power Production&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
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<tbody>
<tr>
<td>2,800</td>
<td>100,000</td>
<td>10%</td>
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<sup>1</sup> Assumes a “modest, multi-year federal investment for R&D”


Renewable Portfolio Standards Drive Demand

29 States + District of Columbia

- **PA**: 18% by 2020
- **NJ**: 22.5% by 2021
- **CT**: 27% by 2020
- **MA**: 4% by 2009 + 1% annual increase
- **WI**: requirement varies by utility; 10% by 2015 goal
- **TX**: 5,880 MW by 2015
- **MN**: 25% by 2025; (Xcel: 30% by 2020)
- **HI**: 20% by 2020
- **MD**: 11% by 2022
- **VA**: 12% by 2022
- **NC**: 12.5% by 2021
- **ME**: 40% by 2017
- **NH**: 24% by 2025
- **MA**: 4% by 2009 + 1% annual increase
- **RI**: 16% by 2019
- **NY**: 25% by 2020
- **NJ**: 22.5% by 2021
- **PA**: 18%¹ by 2021
- **CO**: 20% by 2020 (IOUs) 10% by 2020 (co-ops & large munis)
- **NM**: 20% by 2020 (IOUs) 10% by 2020 (co-ops & large munis)
- **AZ**: 15% by 2025
- **CA**: 20% by 2010
- **MT**: 15% by 2015
- **UT**: 25% by 2025
- **IA**: 105 MW
- **IL**: 25% by 2025
- **MO**: 11% by 2020
- **VT**: Equal load growth 2005 - 2012
- **DC**: 11% by 2022
- **DE**: 20% by 2019

¹PA: 8% Tier I / 10% Tier II (includes non-renewables)

Source: Interstate Renewable Energy Council
Renewable Energy Demand from RPS Mandates

Cumulative RPS mandates will require more energy to be produced from green power plants

*Projected development assuming states achieve annual renewable energy targets.
**Includes Delaware, Hawaii, Illinois, Montana, Ohio, Oregon, and Washington D.C.

Source: Union of Concerned Scientists
## Avoided Emissions Per 1 MW

<table>
<thead>
<tr>
<th></th>
<th>Annual Avoided CO₂ Emissions</th>
<th>Annual Avoided NOₓ Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons</td>
<td>Tons</td>
</tr>
<tr>
<td><strong>Geothermal - Binary (95% availability)</strong></td>
<td>6,045</td>
<td>10.80</td>
</tr>
<tr>
<td><strong>Wind (25% availability)</strong></td>
<td>1,585</td>
<td>2.86</td>
</tr>
<tr>
<td><strong>Solar (14% availability)</strong></td>
<td>885</td>
<td>1.60</td>
</tr>
</tbody>
</table>

* Each acre of forest assumed to absorb 1.3 tons Carbon/acre/year (Ref: International Panel on Climate Change)
** Each car assumed to generate 38 lbm/NOₓ/year (Ref: US EPA)
Assumes full heat utilization
Raser’s Geothermal Strategy

Raser’s approach is designed to reduce risk and better ensure success “by winning the game with singles and doubles rather than trying for home runs every time”

♦ Exploit more prevalent, lower temperature geothermal resources, using binary cycle technology
♦ Employ modular, rapid deployment approach to place power plants in service and generate revenues in a fraction of the conventional time
♦ Monetize the tax benefits to provide the capital required to develop and construct the power plants
Raser has secured substantial geothermal resources in six states to date.

- **UT**: 101,000 acres
- **CA**: 640 acres + add’l rights
- **NV**: 32,000 acres + add’l rights
- **WA**: Options on 5,000 acres\(^1\)
- **OR**: 980 acres + Options on 73,000 acres\(^1\)
- **NM**: 2,500 acres
- **UT**: 101,000 acres

\(^1\)Exclusive option awarded to Raser by International Paper
### Three Geothermal Technologies

**Dry Steam**
- Requires high heat
- Corrosive to turbine blades
- Some emission control required
- Some resource depletion over time

**Flash Steam**
- Requires very hot water
- Corrosive to turbine blades
- Some emission control required

**Binary Cycle**
- Newer, proven technology
- Lower heat can be used
- Closed loop, zero emissions
- Non-corrosive to turbine blades

Drawing Source: U.S. Department of Energy
UTC Power and Raser formed a strategic alliance facilitating Raser’s rapid deployment strategy.

UTC Power PureCycle®
280kW Binary Cycle System

- Annual Revenue, $54 billion
- Established, 1934
- United Technologies companies:
  - UTC Power (geothermal tech)
  - Carrier (HVAC equipment)
  - Pratt & Whitney (aircraft engines)
  - Sikorsky (helicopters)
  - Otis (elevators)
- UTC Power guarantees performance of PureCycle binary cycle power generating units.
Raser’s UTC PureCycle Advantage

- Mature “Off the Shelf” technology – New application
  - Based on the Carrier 19XR Centrifugal Chiller, in reverse (ORC)
- World-class manufacturing capacity
- Existing supply chain and economies of scale (lower costs)
  - 90% of components based on Carrier and Carrier supply chain
- Pre-manufactured and tested then shipped skid-mounted to site
- On-site connection to wiring and plumbing
Raser’s modular design allows flexibility and provides for the rapid deployment approach
Raser’s Rapid Deployment Strategy

Conventional Technology, Sequential Approach
♦ Permit site
♦ Develop well field
♦ Design power plant
♦ Order equipment
♦ Build power plant
♦ Begin selling power
♦ Elapsed time, 3-5 years

Modular Technology, Simultaneous Approach
♦ Permit site
♦ Develop well field, build modular power generating units offsite simultaneously
♦ Begin selling power
♦ Elapsed time, 12-18 months
# Key Raser Agreements in Place

## Strong Strategic Alliance and Other Partnerships To Execute Our Strategy

<table>
<thead>
<tr>
<th>Company</th>
<th>Role</th>
<th>Details</th>
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<tbody>
<tr>
<td>United Technologies</td>
<td>Equipment Provider, Technology Sharing Partner</td>
<td>Revenue: $54 Billion, Est.: 1934, HQ: Connecticut, NYSE: UTX</td>
</tr>
<tr>
<td>HDR/Cummins &amp; Barnard, Inc.</td>
<td>Program/Construction Manager, Engineering Oversight</td>
<td>Revenue: N/A, Est.: 1932, HQ: Michigan</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>Project Financing</td>
<td>Revenue: $11 Billion, Est.: 1914, HQ: New York, NYSE: MER</td>
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<tr>
<td>Anaheim</td>
<td>Geothermal Resource Identification Partner</td>
<td>Est.: 1995, HQ: Utah</td>
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Raser Geothermal Leadership

Raser’s Leadership has Deep, Relevant Experience

♦ Brent M. Cook, CEO
  • Headwaters, 6 yrs, CEO, Architect of Synfuel Plant Monetizations
  • PacifiCorp, 12 yrs, Director of Strategic Accounts

♦ Patrick Schwartz, President
  • Huntsman Chemical, 25 years, Global business segments

♦ Martin F. Petersen, CFO
  • Merrill Lynch, 7 yrs, VP of Investment Banking
  • Huntsman, 4 yrs VP of Finance and Treasurer

♦ Steven R. Brown, EVP Construction
  • Headwaters, 6 yrs, VP Construction and Operations
  • 21 yrs experience in engineering and construction mgmt

♦ Richard D. Clayton, General Counsel & EVP
  • Holland and Hart, 6 yrs, Partner
  • Geneva, 10 yrs, EVP and Director
# Seasoned Board of Directors

<table>
<thead>
<tr>
<th>Name / Position</th>
<th>Prior Experience</th>
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<tbody>
<tr>
<td>Kraig T. Higginson</td>
<td>Founder of Raser, American Telemadia (CEO/President), Lighthouse Associates (CEO/Consultant)</td>
</tr>
<tr>
<td>Brent M. Cook</td>
<td>Headwaters (CEO/President), PacifiCorp (Director of Strategic Accounts and others)</td>
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<tr>
<td>Barry Markowitz</td>
<td>DTE Energy Services (President), Bechtel Power Systems (V.P.)</td>
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<tr>
<td>Lee Daniels</td>
<td>AT&amp;T Japan (CEO), Newbridge Capital, Japan (President)</td>
</tr>
<tr>
<td>James Herichoff</td>
<td>American Talc Co. (CEO), ARCO (Mining executive), Headwaters (Board member)</td>
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<tr>
<td>Alan Perriton</td>
<td>General Motors (Senior executive roles, including President, GM Korea)</td>
</tr>
<tr>
<td>Reynold Roeder</td>
<td>Deloitte &amp; Touche (tax focus), PacificCorp Financial Services (V.P. and Controller)</td>
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Raser Geothermal Projects

- Years 1 – 3, initiate development on 100 MW per year
- Thereafter, initiate development on 150 MW per year
- Status: 8 Projects announced for total of 80 – 85 MW
  - Utah: 3 Projects
  - Nevada: 3 Projects
  - New Mexico: 1 Project
  - Oregon: 1 Project
• 10 MW Plant net
• First well completed - water temperatures well in excess of 260°F
• Additional drilling started this week: expect 3 production, 4 injection
• Construction to begin in May
Lightning Dock Geothermal, NM

- 10 MW (net) Phase 1, additional 10 MW for 20 MW total
- First commercial geothermal power plant in NM
- Blind resource
- Over 40 wells drilled with over 25 years of data
- Split Estate: BLM Geothermal Lease / Private Surface
- Existing production-capable well with temperatures of 285°F – 300+°F
- Air-lift test completed last week, temperatures in expected range