United Technologies: a $54 billion company (2007)
Benefits of Geothermal Power

- Energy independence – national priority
  - Improves our energy security and reduces dependence on foreign oil
- Environmentally friendly - provides clean and safe energy
  - Is renewable and sustainable
  - Zero emissions
- Generates continuous, reliable “baseload” power
- Cost competitive
- Conserves fossil fuels and contributes to diversity in energy sources
- Modular technology allows incremental development at remote sites
- Small powerplant footprint and little environmental impact
- Government mandates and incentives
  - Significant government mandates for green power
  - Attractive tax incentives
## Equivalent Emissions Reduction

**Avoided emissions for a 1.0 MW system**

<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>Equivalent acres of forest*</td>
</tr>
<tr>
<td><strong>PureCycle® system</strong></td>
<td>6,045</td>
<td>1,270</td>
</tr>
<tr>
<td>(95% availability)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td>1,585</td>
<td>335</td>
</tr>
<tr>
<td>(25% availability)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td>885</td>
<td>185</td>
</tr>
<tr>
<td>(14% availability)</td>
<td></td>
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</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
Organic Rankine Cycle

Geothermal Water
90°C – 150°C

Key:
- Red = hot water
- Green = working fluid
- Blue = cold water

1. Evaporator
2. Condenser
3. Pump
4. Turbine
5. Cooling Tower

UTC Power
A United Technologies Company

Geothermal Hot Water In – Power Out
Chena Hot Springs

1st unit commissioned July 2006
2nd unit December 2006
74°C hot water resource
4 – 7°C cooling water available
Drivers: Off-Grid, base load sustainable geothermal power
UTC Passport process is foundation for product development activity

- Disciplined and structured process used across each UTC division
- Focus on risk management and gated control
- Standard work, process tools, lessons learned, and checklists
- Exit criteria: proven product that meets or exceeds customer requirements for quality, reliability, and life cycle costs
Raser Technologies’ Rapid Deployment Strategy
Off-the-shelf production; rapid deployment
Low to moderate temps
Low cost modular skid
Full remote control
  - No equipment operators required
Full service contracts
High power plant availability
Production ramp up for Model 280 system
Larger unit product development
Advanced low temperature development
Oil & Gas, industrial applications
International markets