Controlling the Cost of Energy for Schools, Businesses and Facilities

Entegrity Wind Systems, Inc.
Boulder, Colorado

www.entegritywind.com
Controlling the Cost of Energy for Business, Schools and Facilities

- Entegrity Wind Systems, Inc.
- Controlling Energy Costs - Why/How?
- Distributed Wind
- Building the Business Case

Key Points
- Means for controlling energy costs
- Low risk, high returns
  - Can yield more than $12,000 annual savings per turbine
- High, positive visibility

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Entegrity Wind Systems, Inc. (EWSI)

- US Headquarters in Boulder, CO
- Engineering & Manufacturing in Canada
- 20 Employees
- Wind Energy Experts

- Single Product: EW15 Wind Turbine
- Vertically Integrated Company
  - Design & Manufacture
  - Develop high value projects with compelling economics
  - Providing comprehensive maintenance and operations support
- Market Focus: Distributed Wind Applications to Control Energy Costs

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March 06’ Lehman Brothers
“Infrastructure investments and high fuel costs spell rate shock, demand destruction and regulatory risk for traditional utilities. The projected 10 percent annual increases through the next four years could pain consumers, pressure politicians and harden regulators…”
Energy costs will rise over the long term...

Figure 9-1
U.S. Electricity Prices by Class of Customer ($ Nominal)

Fuel Price Pressures - also occurring now
Efficiency Gains
Low fuel costs and little infrastructure investment


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...and in the short term.

Weather-induced volatility

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Real data confirms industry position
Paying utility bills is not a choice

Clovis Municipal Schools
High School - Expenditures by Month

- Expenditures over $0.06
- Expenditures @ $0.06
- COE

Fiscal Year 2006
Uncoordinated Expenditures

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How can you control the cost of energy?

- Efficiency measures reduce consumption and should always be considered first, but...
- Efficiency does not control the cost of energy.
- On-site renewable generation controls the cost of energy.
  - Wind, Solar and Geothermal Energy are all no-cost fuel resources.

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EW15 Wind Turbine
An effective tool for controlling energy costs

- 13-year production/operating history
- US and World Wide Installations
  - TX, VT, NY, IA, MT, ND, ID, CO, AK
  - Canada, UK, Spain, Denmark, Russia
- Key Specifications
  - 50kW, 100’ Tower, 50’ rotor
  - 3 Phase Induction motor
  - 9 mph cut-in, 50 mph cut-out (avg.)
  - Lattice or Monopole Configuration
- “Behind the Meter” applications:
  - Commercial/Industrial sites: Stores, Truck Stops, Manufacturing
  - Schools: K-12 and Post-Secondary
  - Facilities: Water Treatment, Recreation, Correctional, Military

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EW15 Turbine
System, Cost and Support

- EW15 Wind Turbine
  - 100’ tower
  - Complete System
  - Remote Monitoring/Control
- Cost
  - $130K (Lattice)
  - $145K (Monopole)
  - Plus Installation
- All new installations include
  - 5-year Warranty
  - 5-year Maintenance
  - 5-year Production Guarantee*

*Based on Wind Resource
Utility Wind versus Distributed Wind
Value depends on your perspective

3 - 5 ¢/kWh (fixed value) 7 - 16 ¢/kWh (increasing value)

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When to Consider Distributed Wind

- Rising energy costs narrow margins
  - Distributed Wind ensures price predictability
- Volatility makes planning/budgeting difficult
  - Distributed wind provides price stability
- Utility Scale projects are too complex
  - Distributed Wind matches well with local loads and integrates easily into an operation and within the community
- Savings are needed now
  - Distributed wind systems from EWSI are readily available (predictable supply chain)

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What makes a successful project?

- Compelling Economics
  - Wind Resource
  - Cost of Energy
  - Sufficient Load (size and seasonality)
  - Available Financing/Finances
  - Green Energy Markets*
  - Policy*
- Appropriate Site
- Corporate, Institutional, Community Values
- Cooperative Utilities

*Helpful, but not critical
Available & Appropriate Siting

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Load Matches Production
Magnitude and Seasonality

One (1) turbine provides about 42% of the annual energy needs
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Load Matches Production
Pratt Community College - 3 Turbines

3 Turbines Provide ~20% of the Facility’s Annual Needs

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Utility Wind versus Distributed Wind
Value depends on your perspective

3 - 5 ¢/kWh  (fixed value)  7 - 16 ¢/kWh  (increasing value)

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Compelling Economics - 1 Turbine
Paying your utility bill is not an option

<table>
<thead>
<tr>
<th>WIND PROJECT ANALYSIS</th>
<th>Fixed Cell</th>
<th>Free Cell</th>
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<tbody>
<tr>
<td><strong>ASSUMPTIONS</strong></td>
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<tr>
<td>Unit Cost</td>
<td>$130,000</td>
<td>$90,000</td>
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<tr>
<td>Shipping</td>
<td>$4,000</td>
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<tr>
<td>Installation</td>
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<tr>
<td>Commissioning</td>
<td>$0</td>
<td>1</td>
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<tr>
<td>Turbine/Unit</td>
<td>$165,000</td>
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<tr>
<td><strong>Project Price</strong></td>
<td>$165,000</td>
<td>$165,000</td>
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<tr>
<td>Other</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Cost</td>
<td>$165,000</td>
<td>$165,000</td>
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<tr>
<td><strong>Cost of Energy (COE)</strong></td>
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<tr>
<td>Retail</td>
<td>$0.145/kWh</td>
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<tr>
<td>Wholesale</td>
<td>$0.070/kWh</td>
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<tr>
<td>Marginal Tax Rate</td>
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<tr>
<td>Discount Rate</td>
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<tr>
<td>Inflation</td>
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<tr>
<td><strong>COE Escalation per Year</strong></td>
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<tr>
<td>Year 1:6</td>
<td>5.0%</td>
<td>5.0%</td>
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<tr>
<td>Year 6-20</td>
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<tr>
<td><strong>Renewable Cred</strong></td>
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<tr>
<td>O&amp;M</td>
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<tr>
<td>O&amp;M Starts</td>
<td>$6</td>
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<tr>
<td>Salvage</td>
<td>$30</td>
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<tr>
<td>Deep Rent (yr)</td>
<td>30</td>
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<tr>
<td>Production</td>
<td>90,600 kWh/year</td>
<td>90,600 kWh/year</td>
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<tr>
<th>SUMMARY</th>
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<tr>
<td>Debt Service per year</td>
<td>$0</td>
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<td>(Y1)</td>
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<tr>
<td>O&amp;M per year</td>
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<td>Debt Service Coverage Rate</td>
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<td>Wind</td>
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<td>Average COE over lifecycle</td>
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<td>Payback (yrs)</td>
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<td>Net Present Value</td>
<td>$200,333</td>
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<tr>
<th>Energy</th>
<th>RECS</th>
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<tr>
<td>Year 1</td>
<td>$12,741</td>
<td>-</td>
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<tr>
<td>Year 5</td>
<td>$17,234</td>
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<td>Year 10</td>
<td>$23,035</td>
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<td>Year 15</td>
<td>$31,029</td>
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<td>Year 20</td>
<td>$42,377</td>
<td>11%</td>
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<td>Year 25</td>
<td>$56,643</td>
<td>12%</td>
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- **Project Cost** - $165,000
- **Production** - 90,000 kWh/yr
- **Current COE** - $0.142/kWh
- **Green Tags** - $0.0 /kWh
- **Payback** - 10 years
- **ROR** - 8% @ 15 years
- **Wind COE** - $0.05/kWh
- **Savings and Revenue**
  - **Year 1**: $12,700
  - **Total**: $950,000

*Assumes lattice tower option*
How does a wind turbine compare to “business as usual”?
A few pictures....
Distributed Wind
A Smart Choice for Controlling Energy Costs

• Distributed Wind has High Value
  – Stable, Predictable Energy Costs
  – Readily Available
  – Proven, Reliable Technology
  – Attractive Rate of Return
  – Leverages Capital Monies for Operations Savings

• Indirect Benefits
  – Environmental Leadership
  – Favorable Visibility
  – Innovative Image
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