Southeast, U.S. and International Clean Energy Trends

Building Your Clean Tech Company in the South
Georgia Tech Clean Energy Speakers Series
March 28, 2012

North Carolina Sustainable Energy Association
www.energync.org
Paul Quinlan
Agenda

• Comparing Southeast & U.S. Markets
• Understanding International Trends
• Business Development Implications
• Questions
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• Understanding International Trends

• Business Development Implications

• Questions
### Southeast Primarily Served by Regulated Utilities

<table>
<thead>
<tr>
<th></th>
<th>VA</th>
<th>NC</th>
<th>SC</th>
<th>GA</th>
<th>FL</th>
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</thead>
<tbody>
<tr>
<td><strong>2010 Retail Sales</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Investor Owned</td>
<td>85%</td>
<td>74%</td>
<td>62%</td>
<td>62%</td>
<td>76%</td>
</tr>
<tr>
<td>Cooperative, Municipal &amp; State</td>
<td>15%</td>
<td>26%</td>
<td>38%</td>
<td>38%</td>
<td>24%</td>
</tr>
<tr>
<td><strong>2010 Retail Customers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investor Owned</td>
<td>81%</td>
<td>67%</td>
<td>56%</td>
<td>51%</td>
<td>75%</td>
</tr>
<tr>
<td>Cooperative, Municipal &amp; State</td>
<td>19%</td>
<td>33%</td>
<td>44%</td>
<td>49%</td>
<td>25%</td>
</tr>
</tbody>
</table>

*Source: Energy Information Administration*
Southeast Lacks Single RTO or ISO

Source: FERC
Electric Prices in South Pose Challenge

Limited RPS Action; Climate Change NOT a Policy Driver

Note – Indiana & Oklahoma have renewable goals not shown on map.

Source: World Resource Institute
Energy Efficiency Lags in Relation to Other Regions

Source: American Council for an Energy-Efficient Economy
Southeast State Budgets Remain Strained

<table>
<thead>
<tr>
<th>State</th>
<th>FY2012 Shortfalls</th>
<th>Shortfall as Percent of FY2012 General Fund Budget</th>
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<tbody>
<tr>
<td>VA</td>
<td>$2.0 Billion</td>
<td>12.3%</td>
</tr>
<tr>
<td>NC</td>
<td>$2.4 Billion</td>
<td>12.1%</td>
</tr>
<tr>
<td>SC</td>
<td>$630 Million</td>
<td>11.5%</td>
</tr>
<tr>
<td>GA</td>
<td>$1.3 Billion</td>
<td>7.6%</td>
</tr>
<tr>
<td>FL</td>
<td>$3.7 Billion</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

- FY2013 shortfalls already projected in VA ($145M), NC ($2B), and FL ($2B).

Source: Center of Budget and Policy Priorities, February 27, 2012
Southeast Energy is Harmonizing, Regionalizing

2007 Energy Policy Activity

2012/13 Energy Policy Activity

Source: Ivan Urlaub, NC Sustainable Energy Association
79% of NC voters think the REPS law, requiring renewables and efficiency, *is a good idea.*

75% support doubling amount of renewable power *from* alternative sources.

45% support using coal power to meet growing needs for energy & electricity.

46% support using nuclear power to meet growing needs for energy & electricity.

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<thead>
<tr>
<th></th>
<th>Rep</th>
<th>Dem</th>
<th>Ind</th>
<th>&lt; 29</th>
<th>&gt; 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>79%</td>
<td>73</td>
<td>84</td>
<td>78</td>
<td>94</td>
<td>74</td>
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</tbody>
</table>

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<tr>
<th></th>
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<th>Dem</th>
<th>Ind</th>
<th>Men</th>
<th>Wom</th>
</tr>
</thead>
<tbody>
<tr>
<td>46%</td>
<td>57</td>
<td>37</td>
<td>41</td>
<td>51</td>
<td>40</td>
</tr>
<tr>
<td>45%</td>
<td>56</td>
<td>38</td>
<td>49</td>
<td>59</td>
<td>36</td>
</tr>
</tbody>
</table>

*Digging Deeper into Coal – generational transition:*
26% of 18 to 29 year olds support using coal to meet growing needs, compared to 52% of people 60 years and over.
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Global Total New Investment in Clean Energy

Note: Includes corporate and government R&D, and small distributed capacity. Adjusted for re-invested equity. Does not include proceeds from acquisition transactions.

New Investment in Clean Energy by Region

Global Clean Energy Policy Trends

Value of Installed Renewable Energy Capacity ($bn), 2005-30

Value of Installed Renewable Energy Capacity ($bn), 2005-30

Figure 6: How countries rank by ‘need’ for a smart grid and ‘progress so far’ towards a smart grid.

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(1) KNOW YOUR CUSTOMER

• End-Use Customers
  – Differences among residential, commercial and industrial customer classes.
  – Challenges include capital costs or privacy concerns.

• Electric Utilities
  – Long investment cycles with strong focus on reliability, affordability and safety.
  – Investor-owned utilities must consider shareholder interests and are highly regulated by state commissions.
  – Cooperative and municipal utilities have members as customers and are less regulated by state commissions.
(2) KNOW THE POLICY LANDSCAPE

• Regulated v. Unregulated Markets
  – Differences in opportunities and market niches.

• Clean Energy Incentives
  – Federal and state policies can be found in the Database for State Incentives for Renewables and Efficiency (DSIRE) at www.dsireusa.org.

• Grants and Funds
  – Limited funding during weak economic recovery and post-ARRA environment.
(3) BUILD DYNAMIC BUSINESS PLAN

- Maximize current clean energy policies and incentives
  - Consider reduction or expiration of incentives over the long-term.

- Anticipate strong competition from new technologies
  - Consider the rapid evolution of products and services associated with the growth of the internet.

- Develop a strong network
  - Beyond suppliers and customers, develop partnerships with government support services (e.g. workforce development); key elected officials; advocate organizations; etc.
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THANK YOU